## Departmental Assessment Reports
(Past practice, currently in transition to Program Assessment Reports)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>AA</td>
<td>Architecture</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AA</td>
<td>Art</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AA</td>
<td>Media and Theater Arts</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AA</td>
<td>Music</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AG</td>
<td>Agricultural Economics and Economics</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AG</td>
<td>Agricultural Education</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>AG</td>
<td>Animal and Range Sciences</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>AG</td>
<td>Immunology and Infectious Diseases</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>AG</td>
<td>Land Resources and Environmental Sciences</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>AG</td>
<td>Plant Science and Plant Pathology</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>AG</td>
<td>Veterinary Molecular Biology</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>BUS</td>
<td>College of Business</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EHHD</td>
<td>Health and Human Development</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EN</td>
<td>Chemical and Biological Engineering</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EN</td>
<td>Civil Engineering</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EN</td>
<td>Computer Science</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>EN</td>
<td>Electrical and Computer Engineering</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>EN</td>
<td>Mechanical and industrial Engineering</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>LS</td>
<td>Cell Biology and Neuroscience</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LS</td>
<td>Chemistry</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LS</td>
<td>Earth Sciences</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LS</td>
<td>Ecology</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LS</td>
<td>English</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>LS</td>
<td>History and Philosophy</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>LS</td>
<td>Mathematical Sciences</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>LS</td>
<td>Microbiology</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LS</td>
<td>Modern Languages and Literatures</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LS</td>
<td>Native American Studies</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>LS</td>
<td>Physics</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LS</td>
<td>Political Science</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>LS</td>
<td>Psychology</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LS</td>
<td>Sociology and Anthropology</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>NUR</td>
<td>Nursing</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>NUR</td>
<td>Nursing</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>NUR</td>
<td>Nursing</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>
MSU Departmental Assessment Update
Spring 2007

Department: Agricultural Economics & Economics

Department Head: Wendy Stock & Myles Watts

Assessment Coordinator: Wendy Stock

Date: June 11, 2007

Degrees/Majors/Options Offered by Department

- Bachelor of Science in Economics
- Bachelor of Science in Agricultural Business
- Masters of Science in Applied Economics
Agricultural Business

These assessment results are a summary of the assessment activities and findings reported for this undergraduate degree program. For further information, please contact the department.

Assessment Activities

Discipline-Specific Knowledge

Assessment activities are an ongoing, integral part of the Agricultural Business major. A senior level course, Ag Econ 451, has been designated as the capstone course for this major. An important part of the course involves the use of economic reasoning and analytical skills to critically assess the impacts of changes in policies affecting agriculture. Students in Ag Econ 451 are required to develop papers on specific research topics. Professors then provide meaningful assessments of the students' knowledge and skills in using economic theory and analytical methods.

For several years, the department has conducted a competitive scholarship examination program. In preparation for the exam, students are encouraged to participate in a seminar course that provides them the opportunity to use their discipline-specific knowledge in analyzing real world problems and issues. The students present their findings and analysis both orally and in writing. The seminar course and the scholarship exam provide assessments of students' ability to apply economic reasoning to real world problems and issues.

Senior exit interviews are conducted to help in the assessment of student knowledge and the overall quality of the departmental instructional program. The interviews provide an opportunity for one-on-one interaction with students. The feedback from these interviews assists in identifying weaknesses and strengths within the department. Furthermore, students evaluate each class, and those evaluations are a component of faculty reviews.

Assessment feedback is also obtained from employers through informal visitations and interactions. This provides an assessment about the overall education experience of undergraduates in the Agricultural Business major.

We have looked at a nationally normed exam, and asked a test set of students (approximately 20) to take the exam. We found that the exam was too specific for our department. Nevertheless, our students did very well on the exam; the questions just did not seem appropriate.
Communication Skills

Many lower division courses incorporate the use of micro themes as a way to assess the written communication skills of students. Most upper division courses have made extensive use of term papers and case studies to assess both written and oral communication skills of students.

The expanded use of seminars provides the opportunity for students to assess their ability to interact in smaller group discussions and formal presentations.

In our capstone course, students write up case studies and present these in class. Students are assessed on both presentation skills and content. Three students make the presentation, which is critiqued by a group of three different students, and the first group then responds. The faculty member teaching the course also participates in the evaluation. Students must have strong communication skills upon graduation.

Problem-Solving Skills

Undergraduate students have had opportunities to participate in faculty-directed research programs. Several students have been involved with the Northern Plains and Rockies Center for the Study of Western Hemisphere Trade through the Undergraduate Scholars Program. The students wrote papers reporting their research results and made oral presentations about the results.

Risk management is an important part of agricultural business. Students have had opportunities to work with an ongoing research project in the department on crop insurance. Students have been active members of the research team and have been involved in data collection and analysis. They have also been participants in meetings discussing the social, political, and economic issues relating to the role and implications of government subsidized crop insurance offerings.

The expanded use of seminars has afforded the opportunity for students to assess their ability to interact in smaller group discussions and formal presentations. The Department has begun to make more extensive use of Special Topics and Undergraduate Thesis. The focus is on management and finance.

Assessment Results

Discipline-Specific Knowledge

Majors are generally well prepared in economic theory and analytical methods. Assessment feedback indicates that the ability to effectively communicate that knowledge in practical settings needs improvement. Most graduates stay in management and executive positions.
Communication Skills

Many students enter MSU with insufficient writing skills. Two writing classes are required and most departmental classes have writing requirements. However, feedback from employers indicates that communication is the weakest area of our graduates.

Problem-Solving Skills

The general assessment from employers is that majors have relatively good analytical skills. Assessment feedback in upper division courses indicates that there is a broad range of student abilities to effectively analyze problems and correctly interpret results. It appears that a major source of the divergence between students is related to the number of transfer students and their level of preparation in the lower division classes.

Program Improvements

University-Level Suggestions

The University may wish to offer more writing opportunities through more formal writing classes or the integration of writing into other course work.

Currently, the math background of students entering upper level courses is insufficient. We have overcome that deficiency by teaching a limited amount of math. However, more coordination with the math department may be appropriate.

Department-Level Suggestions

Course evaluation is an ongoing process. Ag Econ 445 has been redesigned to provide case studies more representative of those faced by graduates. Feedback from students and employers encouraged this process.

One-Year Departmental Commitment

The use of seminars is being expanded. These offer students the opportunity to interact with faculty and fellow students in smaller group settings.

Five-Year Departmental Commitment

The department will continue to emphasize the importance of education in the basic disciplinary areas. The role of critical thinking will be enhanced. The use of small group discussions in a seminar setting will continue to expand. The department will strive to reduce the dispersion between transfer students and non transfer students. Given the transferability requirements in Montana, this issue is broader than just a departmental problem.
These assessment results are a summary of the assessment activities and findings reported for this undergraduate degree program. For further information, please contact the department.

Assessment Activities

Discipline-Specific Knowledge

Assessment activities are an ongoing, integral part of the Economics major. A senior level course, Econ 432, has been designated as the capstone course for this major. An important part of the course involves the use of economic reasoning and analytical skills. Students in Econ 432 are required to write papers on specific research topics. The evaluation of these papers provides meaningful assessment of their knowledge and skills in using economic theory and analytical methods.

For several years, the Department has conducted a competitive scholarship examination program. In preparation for the exam, students are encouraged to participate in a seminar course that allows them the opportunity to use their discipline-specific knowledge in analyzing real world problems and issues. The students have opportunities to present their findings and analysis both orally and in writing. The seminar course and the scholarship exam provide an assessment of students' ability to apply economic reasoning to real world problems and issues.

Senior exit interviews are conducted to help in the assessment of student knowledge and the overall quality of the departmental instruction program. The feedback from these individually conducted interviews assists in identifying weaknesses and strengths within the Department. Furthermore, students evaluate each class and those evaluations are a component of faculty reviews.

Assessment feedback is obtained from employers through informal visitations and interactions. This provides an assessment about the overall educational experience of undergraduates in the Economics major.

Communication Skills

Many lower division courses have incorporated the use of micro themes as a way to assess the written communication skills of students. Most upper division courses have made extensive use of term papers and case studies to assess both written and oral communication skills of students.
The expanded use of seminars has afforded the opportunity for students to assess their ability to interact in smaller group discussions and formal presentations.

An important part of Econ 432, a senior level course, requires the student to present his or her paper to the class. Similar requirements are present in all other Econ 400 level courses.

**Problem-Solving Skills**

In addition to Econ 432, undergraduates have had opportunities to participate in faculty-directed research programs. Several students have been involved in such activities. Examples include work with the Northern Plains and Rockies Center for the Study of Western Hemisphere Trade with assessing the impact of maternal labor force participation on infant health, and with assessing the usefulness of sophisticated technology adoption models in describing economic outcomes, all conducted through the Undergraduate Scholars Program. The students wrote papers reporting their research results and made oral presentations about the results.

The expanded use of seminars has afforded the opportunity for students to assess their ability to interact in smaller group discussions and formal presentations. The Department has also begun to make more extensive use of small group projects to engage students in small groups.

**Assessment Results**

**Discipline-Specific Knowledge**

Majors are generally well prepared in economic theory and analytical methods. Assessment feedback indicates that the ability to effectively communicate that knowledge in practical settings needs improvement.

Many of our majors have at one time or another been employed by the department as assistants in teaching or research. This gives students the opportunity to learn, and gives them experience in doing or explaining economics. In terms of working with other students in intro courses, these students get a lot of experience explaining what economics is about. On the research side, these students learn how to dig out data and do the analysis. Those students employed by the department are quicker starters when they begin jobs.

**Communication Skills**

Many students entering MSU, either directly after high school or as transfers from other institutions, have insufficient writing skills. English 121 and 221 (College Writing I and II) are both required for Economics majors. Furthermore, most classes have a writing component. Even so, feedback from employers and past students suggests that this is our graduates' weakest area.
Problem-Solving Skills

The general assessment from employers is that majors have strong analytical skills. Assessment feedback in upper division courses indicates that there is a broad range of student ability to effectively analyze problems and correctly interpret results. Students who have taken economic principles and other basic course work at other institutions are not as well prepared for our upper division course work. However, pressure to allow credits to transfer from other Montana institutions makes the problem nearly intractable.

Our graduates are much better prepared going into our own graduate program than students from other universities.

Program Improvements

University-Level Suggestions

The University may wish to offer more writing opportunities through more formal writing classes or integration into other course work.

Currently, the math background of the students entering upper level courses is insufficient. We have overcome that deficiency by teaching a limited amount of math. However, more coordination with the math department may be appropriate.

Department-Level Suggestions

The department will continue its ongoing review of the curriculum and other educational opportunities. The department has expanded its course offerings to include Introduction to Econometrics, a junior-level course designed to incorporate more hands-on research and oral and written communication skills into the curriculum.

One-Year Departmental Commitment

The use of seminars is being expanded. This will offer students the opportunity to interact with faculty and fellow students in smaller group settings. These smaller group settings will not only improve specific problem-solving skills, but will also improve the students' ability to orally present and defend their analyses.

Faculty will be encouraged to continue to incorporate the use of mechanisms to assess the economic reasoning and analytical thinking skills of students and their ability to effectively communicate.

Five-Year Departmental Commitment

Departmental faculty have reviewed both the curriculum and course orientation on a regular basis. Substantial Departmental resources are expended on the three introductory economics courses. The Department chose the three course sequence over the commonly
offered two course sequence to provide a strong basic training and to compensate for insufficiently prepared incoming students. (MSU has a liberal admittance policy for all Montana high school graduates.) The Department will continue to try to find ways to reduce course size and/or include smaller discussion groups for large introductory classes.
Division: Agricultural Education

Division Head: Bob Gough

Date: September 2009

Degrees/Majors/Options Offered by the Division

B.S. in Agricultural Education
  
  Broadfield Teaching Option
  
  Agricultural Relations Option

M.S. in Agricultural Education
Assessments

Our Ag Education faculty and staff continuously assess the effectiveness of our programs by asking the following questions of students and stakeholders:

1) What sort of student complaints/praise have you heard about the dept. in general? How might we address the complaints?

Faculty and staff gather information about how well the department functions from formal and informal sources. Freshman and transfer orientation participants and parents commented on how welcoming and personal division staff and faculty were, while existing students thanked us for our advising and our email reminders to them regarding university deadlines and requirements. Our GTA appreciate our efforts to include them in regular lunches and research conferences. Ag teachers and county extension staff comment positively on our students’ involvement in pre-professional activities (FFA & 4-H activities, internships, student teaching, etc.)

We are addressing complaints from some undergraduates regarding a lack of teaching space and other facilities and we have fielded other complaints from undergraduates regarding degree requirement changes and course changes imposed upon us by EHHD, as well as the 128 credits (leaving no room for electives) needed for graduation. Needless to say, these changes are beyond our control. However, we work closely with EHHD and especially the Dept. of Education to communicate to students the reasons behind our inability to make their recommended changes.

The need for a new course was based on evaluations of past study-abroad programs organized by our Ag Education faculty, an expressed need from MSU Extension Administrators for such a course, and focus group interviews conducted with students in the Fall of 2008. International Extension Systems is a new course intended to be a multi-disciplinary experience for seniors and graduate students who are majoring in related fields, including agricultural education, animal science, plant science, biology, land resources and environmental sciences, agricultural business, and economics. It is also designed to serve graduate students in those departments who seek a career in serving clientele associated with their disciplines (from bench science to end users). Students and faculty in the College of Agriculture will be made aware of the course offering prior to advising during the Fall 2009 semester. This course will also be our lead offering in the distance-delivered AG IDEAS program

2) Is our departmental student advising up to par? If not, how can it be improved?

Students were frustrated about NOT having someone available to help them with DA-1s, graduation paperwork, student teaching paperwork, internship paperwork, etc., during the time we were without an administrative assistant but are very happy with the entire advising component now that we have a part time assistant to provide exemplary customer service, including a bi-monthly email newsletter with upcoming events and important dates mailed to all our majors.
To better serve our students and improve efficiency we have re-arranged advising responsibilities. Dr. Arnold now advises the Relations option students; Dr. Frick advises students in the Relations option who are more interested in business/industry and advises all graduate students; Dr. Igo advises all Teaching option students.

3) What realistic changes in the curriculum might we make to improve our offerings and better prepare our students to become teachers or extension personnel?

Adding at least two graduate courses would significantly increase the quality of our graduate program. Unfortunately, our present faculty are already overloaded with undergraduate teaching assignments and the present fiscal climate will not allow for the hire of additional FTEs. Students ask for greater flexibility in designing their curriculum but this is not possible due to CORE and other requirements imposed by the university. Overall, students in our Teaching option have been very successful in securing employment. We are investigating why students in our Relations option have been somewhat less successful.

Our initial efforts with AG IDEAS hopefully will address these course shortfalls. The lead-off course for this new program is AGED 507, described below.

AGED 507- Program Development and Evaluation is a new online course taught every Spring designed for students who are interested in the development and evaluation of agricultural and extension education programs. The course is designed to meet students’ needs in the following areas:

a) Acquire an understanding of program development from theory to practice

b) Strengthen their skills in planning, designing, implementing, evaluating, and accounting for educational programs of targeted audiences.

c) Provide application of program planning and evaluation concepts through experiential learning and class projects.

This is a required AGED course for graduate students. Needs are assessed during the first weeks of class and the assessment is continued during discussions throughout the semester. A summative assessment of how the class met student needs is accomplished from the Knapp evaluations.

4) Assess the effectiveness of the internship program? What recommendations would you make in how to improve the internship program?

The internship program is becoming more organized and structured. In summer 2009, we had 6 students interning in extension offices. These were all paid internships which was not previously common. Dr. Arnold worked with MSU Extension to compile guidelines, announcements, and a manual for the interns specifically for extension. Dr. Arnold continues to work with MSU Extension to provide more structure to the program and to continue the paid positions which motivate students. Students are assessed through a variety of means: completion of an Intern manual that I created that contains various activities that must be completed over the summer; development, implementation, and evaluation of an educational program in the county; bi-weekly journal of activities reports submitted to
me; final evaluations from the supervising agent and myself as the advisor; and a final internship seminar completed in the Fall where students present their internship experiences to the public. If budgets allow, Dr. Arnold visits the students when they conduct their programs and complete a teaching assessment on the students. Since Dr. Arnold arrived all students have completed their internship in the summer. It is scheduled this way in their program of study as AGED 476 credit. They can take from 4-12 credits depending on need. For every 40 hours of work that is completed, students receive one credit. They report hours bi-weekly. Recommendations to improve the program are to offer separate funding to support the internship program- these would include summer salary for the advisor and funding for travel to visit all the interns.

In addition to continual assessments on both ad hoc and formal bases, outcomes are discussed annually at regularly scheduled faculty meetings.

Ag Ed Faculty Meeting
21 November 2008

Present: Gough, Arnold, Igo, Frick

Agenda

1) Bayard Taylor Graduate funds
2) Annual Productivity Report
3) Administrative Assistant position
4) Schedule of Spring Classes
5) Outcomes and Assessment progress
6) Ag Days
7) Medical Leave
MSU Departmental Assessment Update
Spring 2007

Department: Animal and Range Sciences

Department Head: Bret E. Olson

Assessment Coordinator: Patrick Hatfield

Date: 2/29/08

Degrees/Majors/Options Offered by Department

List here

B.S. Animal Science
  Options
    Livestock Industry and Management
    Equine Science
    Science

B.S. Natural Resources and Rangeland Ecology
  Options
    Rangeland Ecology and Management
    Wildlife Habitat Ecology and Management

M.S. Animal and Range Sciences

Ph.D. Animal and Range Sciences
Degree Objectives
The Department of Animal and Range Sciences offers two B.S. degrees: Animal Science, and Natural Resources and Rangeland Ecology. Both degrees emphasize the science, ecology and management of animals and rangelands.

Assessment Methods
- Student Entrance Information
  - The department will summarize data on incoming freshmen and transfers each year. NOT COMPLETED IN 2007.
- Mid-Program
  - The department head will meet annually with sophomores in ARNR 230 to communicate the mission and objectives of the Animal and Range Sciences degree program. NOT COMPLETED IN 2007. I WAS NOT AWARE THAT THIS WAS IN OUR ASSESSMENT PLAN UNTIL AFTER THE SEMESTER HAD ENDED. IT WILL BE COMPLETED IN 2008.
  - Standardized course evaluations (Aleamoni) are required for all courses. THE DEPARTMENT IS STAYING WITH THE ALEAMONI FORM INSTEAD OF SWITCHING TO THE KNAPP FORM, MAINLY TO HELP ASSISTANT PROFESSORS HAVE A CONSTANT FRAME OF REFERENCE ON WHICH TO BE EVALUATED.
  - Small Group Instructional Diagnoses (SGID) will be required for all courses taught by non-tenured tenure-track professors and by any inexperienced instructor, and are recommended for all courses. SGID provide valuable data to instructors to improve teaching. THESE HAVE BEEN CONDUCTED FOR ASSISTANT PROFESSORS, AND INFREQUENTLY FOR OTHERS.
  - Animal and Range Sciences has used a standardized advising evaluation survey for several years. All department majors are asked to fill out this form once per year. Data are summarized for and returned to each advisor. Results are considered in annual faculty evaluations. This practice will continue. THE INTENT IS TO HAVE THESE FILLED OUT EACH FALL SEMESTER DURING THE ADVISING PERIOD. RETURN RATE FALL 2007 WAS ALMOST 40%, WHICH IS HIGHER THAN IT HAS BEEN IN PREVIOUS YEARS. IN A MEETING THIS FALL AMONG TEACHING FACULTY, WE DISCUSSED ONE WAY TO INCREASE THE RETURN RATE
EVEN MORE WOULD BE TO REQUIRE THE STUDENT TO FILL OUT THE ADVISING EVALUATION INSTRUMENT BEFORE THEY CAN RECEIVE THEIR "PDF" WHICH THEY NEED TO REGISTER. WE DID NOT INSTITUTE THIS APPROACH FALL 2007, BUT WE WILL CONSIDER IT IN THE FUTURE.

- **End of Program**
  - Each curriculum in the department includes a required senior-level capstone experience course. Each capstone course includes case studies involving off-campus industry cooperators. **SINCE THE EARLY 1990S THROUGH SPRING 2008, WE ESSENTIALLY WILL HAVE HAD ONLY ONE CAPSTONE CLASS FOR ALL ANIMAL AND RANGE SCIENCE MAJORS, WITH ENROLLMENT EXCEEDING 40 AND ONLY ONE INSTRUCTOR THE LAST TEN OR SO YEARS. WITH THE ADDITION OF THE EQUINE OPTION IN 2002, MANY EQUINE STUDENTS FEEL THAT OUR CURRENT CAPSTONE CLASS IS NOT MEETING THEIR NEEDS. FACULTY HAVE HAD SEVERAL DISCUSSIONS ON HAVING SEPARATE CAPSTONE COURSES, E.G., BEEF, SHEEP, HORSE, MEATS, RANGE.**
  - The department has administered a voluntary exit questionnaire to graduating seniors for several years. About a third of the graduating seniors returned the survey in May 2006. **THAT INFORMATION HAS BEEN COLLATED, AND WILL BE SHARED AMONG TEACHING FACULTY BEFORE OUR NEXT RETREAT IN JANUARY 2008.**
  - The department head will conduct Small Group Instructional Diagnoses with seniors in the capstone courses. **WILL BE CONDUCTED IN 2008.**
  - The department head has conducted exit interviews with graduating seniors for several years. **WILL BE CONDUCTED IN 2008.**

- **Alumni Input**
  - The department will develop an alumni questionnaire. **THIS HAS NOT BEEN DEVELOPED YET.**

- **Employer and External Client Input**
FASHION, INCLUDING ENROLLMENT TRENDS, TEACHING FTE, AND POTENTIAL NEW HIRES.

Utilization of Assessment Information

- Information collected related to specific courses will be communicated to instructors of those courses. The individual course instructor shall be responsible for evaluating the specific course relative to information from assessment activities.

- Information and data collected from the beginning (student entrance information), mid- (sophomore), end (Senior), and career (alumni, employer, and external client) assessment activities that are related to curricula will be summarized and communicated to the Undergraduate Curricula Committee, and to all faculty as appropriate, in a manner that maintains student confidentiality. SENIOR EXIT SURVEY DATA HAVE BEEN COLLATED AND MADE AVAILABLE TO THE UNDERGRADUATE CURRICULUM COMMITTEE FOR WIDER CIRCULATION.
MSU Departmental Assessment Plan
2009-2010

Department: Animal and Range Sciences

Department Head: Glenn C. Duff

Assessment Coordinator: Bret E. Olson

Date: 08/31/10

Degrees/Majors/Options Offered by Department
List here

B.S. Animal Science
  Options
    Livestock Industry and Management
    Equine Science
    Science

B.S. Natural Resources and Rangeland Ecology
  Options
    Rangeland Ecology and Management
    Wildlife Habitat Ecology and Management

M.S. Animal and Range Sciences

Ph.D. Animal and Range Sciences
Degree Objectives
The Department of Animal and Range Sciences offers two B.S. degrees: Animal Science, and Natural Resources and Rangeland Ecology. Both degrees emphasize the science, ecology and management of animals and rangelands.

Assessment Methods

- Student Entrance Information
  - The department will summarize data on incoming freshmen and transfers each year. NOT COMPLETED IN 2010.

- Mid-Program
  - The department head will meet annually with sophomores in ARNR 230 to communicate the mission and objectives of the Animal and Range Sciences degree program. NOT COMPLETED IN 2010.
  - Standardized course evaluations (Knapp) are required for all courses. THE DEPARTMENT COMPILES KNAPP SCORES OF ALL COURSES IN A TABLE. IF A FACULTY MEMBER CONSISTENTLY HAS LOW SCORES, THAT FACULTY MEMBER IS ENCOURAGED TO ATTEND TEACHING WORKSHOPS AND HAVE AN EVALUATION OF THEIR TEACHING METHODS VIA SGID, AS DESCRIBED BELOW.
  - Small Group Instructional Diagnoses (SGID) will be required for all courses taught by non-tenured tenure-track professors and by any inexperienced instructor, and are recommended for all courses. THESE HAVE BEEN CONDUCTED FOR ASSISTANT PROFESSORS, AND INFREQUENTLY FOR OTHERS.
  - Animal and Range Sciences has used a standardized advising evaluation survey for several years. All department majors are asked to fill out this form once per year. Data are summarized for and returned to each advisor. Results are considered in annual faculty evaluations. This practice will continue. THE INTENT IS TO HAVE THESE FILLED OUT EACH FALL SEMESTER DURING THE ADVISING PERIOD. RETURN RATE FALL 2009 WAS ALMOST 40%, WHICH IS HIGHER THAN IT HAS BEEN IN PREVIOUS YEARS. BESIDES THE METRICS OF THE SURVEY ITSELF, ALL WRITTEN COMMENTS ARE POSITIVE.

- End of Program
  - Each curriculum in the department includes a required senior-level capstone experience course. Each capstone course includes case studies involving off-campus industry cooperators. UNTIL 2-3 YEARS AGO, MOST MAJORS IN OUR PROGRAM TOOK ARNR 403, A COURSE THAT COMBINED RANGE, ANIMAL SCIENCE, AND EQUINE SCIENCE MAJORS. DEPENDING ON THE CASE SCENARIO THAT YEAR, A CERTAIN GROUP WOULD FEEL THAT THE SCENARIO WAS NOT RELEVANT TO THEIR OPTION. WE ARE TRANSITIONING TO FOCUSED CAPSTONE CLASSES WHICH WILL BETTER MEET THE NEEDS OF ALL STUDENTS.
The department has administered a voluntary exit questionnaire to graduating seniors for several years. THAT INFORMATION HAS BEEN COLLATED, AND WILL BE SHARED WITH THE UNDERGRADUATE CURRICULUM COMMITTEE.

The department head will conduct Small Group Instructional Diagnoses with seniors in the capstone courses. GIVEN THAT OUR MAJORS ARE NOW SPREAD AMONG SEVERAL CAPSTONE CLASSES, WHICH INCLUDE NON-MAJORS, SGID WAS NOT CONDUCTED IN 2009-2010.

The department head has conducted exit interviews with graduating seniors for several years. FOURTEEN GRADUATING SENIORS VISITED THE DEPARTMENT HEAD FOR AN EXIT INTERVIEW IN 2010 (ABOUT 25%). OVERALL, COMMENTS WERE POSITIVE. STUDENTS APPRECIATE “HANDS ON”, AND CANNOT GET ENOUGH OF IT. SOME SENIORS HAD EXCELLENT SUGGESTIONS ON HOW TO IMPROVE THE PROGRAM WHICH WILL BE CAREFULLY CONSIDERED.

Alumni Input

The department will develop an alumni questionnaire. THIS HAS NOT BEEN DEVELOPED YET. HOWEVER, AT COMMODITY GROUP AND PROFESSIONAL SOCIETY MEETINGS, ALUMNI ARE QUESTIONED ON HOW WE CAN IMPROVE OUR PROGRAMS. OFTEN THEIR INPUT IS INVALUABLE BECAUSE THEY HAVE THE PERSPECTIVE OF HAVING BEEN IN THE “REAL WORLD” FOR SEVERAL YEARS, AND CAN PIN POINT STRENGTHS AND WEAKNESSES IN OUR PROGRAMS

Employer and External Client Input


Utilization of Assessment Information

Information collected related to specific courses will be communicated to instructors of those courses. The individual course instructor shall be responsible for evaluating the specific course relative to information from assessment activities.

Information and data collected from the beginning (student entrance information), mid- (sophomore), end (Senior), and career (alumni, employer, and external client) assessment activities that are related to curricula will be summarized and communicated to the Undergraduate Curricula Committee, and to all faculty as appropriate, in a manner that maintains student confidentiality. SENIOR EXIT SURVEY DATA HAVE BEEN COLLATED AND WILL BE MADE AVAILABLE TO THE UNDERGRADUATE CURRICULUM COMMITTEE.
MSU Departmental Assessment Update - School of Architecture
Spring 2007

Assessment Contact
Name: Steven P. Juroszek, Director Name: Steven P. Juroszek, Interim Director Y07-08
John C. Brittingham Interim Associate Director Y07-08
Phone: 406-994-4256
E-mail: stevej@montana.edu  jbritt@montana.edu

Degrees/Majors/Options Offered by Department
B.A. in Environmental Design, B.A.Ed
Master of Architecture, M.Arch

Assessment Activities
Following are the results of school wide on-line assessment survey as part of the School’s on-going efforts
to develop a Studio Culture Policy

The questions in the survey were reviewed by AIAS officers from schools throughout the United States as
well as by faculty and AIAS students within MSU. This effort was undertaken in order to obtain the most
effective and useful information from the survey. The survey was organized along four major categories.
The first was to establish the background of the student—i.e. what year in the program, involvement in
other activities, etc. The subsequent three categories were designed to evaluate the Pedagogy (what is
being taught), the Methodology (how courses are taught) and Environment (the environment in which their
education takes place. The Survey took place in Spring 2007. Twenty-nine percent of all first year
students took the survey while 79% of our second year students responded to the survey, 80% of all third
year students took the survey, only 26% of all fourth year students took the survey as most of our fourth
year students were on foreign study or internship programs and 85% of all graduate students took the
survey. Except for the fourth year students the participation was considered of a high level.

Following is a summary of some of the pertinent findings of the Studio Culture Survey and
recommendations to address the issues raised within this survey.

1. “To what extent are the following design skills taught in the studios that you have taken.”
In response to this question on Content students could respond Not at all, Not Very Often, Generally,
Consistently or Always

Between 75% to 95% of all students responded Generally, Consistently or Always to the following statements:
   Design as a process (95%)
   Oral Communication to supplement visual and graphic communication (80%)
   Design decisions based on community and society values (80%)
   Design decisions based on client and user values (80%)
   Analyzing and understanding the ethical implications of design (75%)

Between 60% to 70% of all students responded Generally, Consistently or Always to the following statements:
   Analyzing and understanding the social and political implications of design (68%)
   Analyzing and understanding the economic implications of design. (65%)

Between 35% to 55% of all students responded Generally, Consistently or Always to the following statements:
   Written communication to supplement visual and graphic communication (50%)
2. “Which conditions best describes the teaching methodologies used in studios you have taken?”

In response to this question on Pedagogy students could respond Not at all, Not Very Often, Generally, Consistently or Always

Between 75% to 95% of all students responded Generally, Consistently or Always to the following statements:
- Creative and innovative design processes are taught (95%)
- Creative and innovative building designs are promoted (95%)
- Learning from the examples of other architect (95%)
- Clear expectations and objectives are given for assignments (90%)
- Diversity is recognized and encouraged in building design (90%)
- Creative and innovative teaching approaches are used (90%)
- Learning from the examples of other students (90%)
- Performance assessment is understandable (90%)
- Performance assessment is fair (85%)
- Diversity is recognized and encouraged in the design process (85%)
- Diversity is recognized and encouraged in architectural opinions (85%)

Between 60% to 70% of all students responded Generally, Consistently or Always to the following statements:
- Learning from the examples of other construction related professionals (70%)
- The opportunity for collaborative research/investigation with other architecture students is promoted (70%)

Between 35% to 55% of all students responded Generally, Consistently or Always to the following statements:
- The opportunity for collaborative research/investigation with other professors is encouraged (55%)
- The opportunity for collaborative research/investigation with architectural and other professionals is encouraged (40%)

Less than 35% of all students responded Generally, Consistently or Always to the following statements:
- The opportunity for collaborative research/investigation with students in other majors is promoted (15%)

3. “What best describes the effectiveness of the project critique process?”

In response to this question on Environment students could respond Very Destructive, Destructive, Indifferent, Constructive or Very Constructive:

Between 75% to 95% of all students responded Constructive or Very Constructive to the following review processes:
- Conducted at individual desks (95%)
- Conducted within a group (75%)

Between 60% to 70% of all students responded Constructive or Very Constructive to the following review processes:
- Juried critiques (mid-semester) (65%)
- Final critiques (65%)

4. “What best describes your feelings during the project during the critique process?”

In response to this question on Environment students could respond Unnecessarily Stressful, Stressful, Indifferent, Engaging, Productively Intense:

Between 75% to 95% of all students responded Engaging or Productively Intense to the following review processes:
- Conducted at individual desks (90%)
Between 35% to 55% of all students responded *Engaging* or *Productively Intense* to the following review processes:
- Conducted within a group (55%)
- Juried critiques (40%)
- Final critiques (40%)

5. In response to the next question **“The quantity of studio assignments on average is…”** students responded

- Not Enough (0%)
- Not challenging (2%)
- Appropriate (27%)
- Very challenging (60%)
- Too Demanding (11%)

6. **“Rate the degree to which you believe the following are valued in studio”**
In response to the next question on Environment students could respond *Disregarded, Not Important* *Indifferent, Important* or *Very Important*:

- Between 75% to 95% of all students responded *Important* or *Very Important* to the following statements:
  - Time spent on studio assignments (90%)
  - Time management (85%)
  - Your personal capabilities (75%)
- Between 60% to 70% of all students responded *Important* or *Very Important* to the following statements:
  - Leadership and accountability of architects within the building industry (70%)
  - Leadership and accountability for architects with the architectural profession (65%)
- Between 35% to 55% of all students responded *Important* or *Very Important* to the following statements:
  - Leadership and accountability of students with the student body (50%)
  - Non-studio courses (40%)
  - Community project and student service participation (35%)
  - Time spent on non-studio assignments (35%)
  - Personal non-studio activities friends, family, own time (35%)

7. **Please check the choice with most accurately reflects your opinion with regard to the following statements”**
In response to this question on Environment students could respond *I don’t know, Strongly Disagree, Disagree, Agree or Strongly Agree*:

- Between 75% to 95% of all students responded *Agree or Strongly Agree* to the following statements:
  - I feel I am getting a quality education in the School of Architecture at MSU (90%)
- Between 60% to 70% of all students responded *Agree or Strongly Agree* to the following statements:
  - Students have the latitude to develop personal approaches in higher level studios (65%)
  - The occurrence and schedule of school-oriented activities and events are readily available to students (65%)
- Between 35% to 55% of all students responded *Agree or Strongly Agree* to the following statements:
  - I feel my opinion matters within the School of Architecture (50%)
Development of a basic structure to address assessment results
Based upon the discussions that occurred at the Fall 2006 Studio Forum and the early results of the Studio Culture Survey, the students of Tau Sigma Delta began to develop an initial draft of the Studio Culture Policy. The initial drafts were developed after meetings with faculty, students, and staff. The Tau Sigma Delta students developed a series of drafts—initially using the basic organization of the survey—Pedagogy, Methodology and Environment—as the basic organizational structure for the studio culture policy. Next the students developed an overall vision statement for each of these three sections. The intent behind having a vision statement such as this was to provide future students and faculty with a guide for the aspirations of the studio culture policy for each section. The students felt that while specific action items within the studio culture policy may change, there needs to be an overriding philosophy that did not change from year to year and this philosophy was to be reflected in the initial paragraph of each section on Content, Pedagogy, and Environment as listed below.

“Vision Statement
As a School of Architecture, we strive for excellence in design and in other areas which are beneficial to a well-rounded education and personal development. This is predicated on the belief that truly great architects and professionals possess multiple skills which enhance their real-world abilities and contributions to society. These skills include commitment to quality of work, diligence, and competence, as well as efficiency, time management, interpersonal skills, and the development of other abilities through extracurricular pursuits.

Content – What is taught
The nature of the curriculum should be progressive and proactive with regards to the direction of the profession of architecture. Traditional skills and the development of artistic abilities must be balanced with cutting edge technologies and an education that is adaptive to current global issues and trends. Collaboration, coursework balance, and diversity of resources are all beneficial to a multi-disciplinary education.

Pedagogy – How it is taught
The faculty and staff are an integral part of a diverse academic and professional community. As such, their unique attitudes and professional interests should be seen as an asset to a well-rounded education. Professionalism, exemplified in conduct and ethics, serves as a window to the architectural profession. Faculty have a great potential for impacting students and the future of the profession; therefore, they have a direct responsibility, through their interactions with students, communication style, and work patterns, to foster behavior and values supportive of a holistic and balanced education and lifestyle.

Environment – The environment in which it is taught
A healthy environment for the School of Architecture relies on the integrity of both the physical workspace and the academic community which it houses. The unique nature of the studio should encourage peer evaluation and discourse, self-discipline, collaboration, and critical thought. Maintaining a positive physical work environment is recognized as a vital component that supports creativity, academic rigor, and productivity. The behavior of the community should reflect the stature of an academic institution, promoting open and timely communication, respect, safety, and character.”

In recognizing that issues may change over time, the Tau Sigma Delta students believed that it was important for future students to remain involved with its development and refinement—that the policy should continue to be a fluid document built upon the basic philosophy developed for each component. As such the students recommended that a Council of students be selected by their fellow students each year to review, refine and change the studio culture policy as needed to respond to both on-going and new issues related to studio culture. This council of students will be instituted for the first time in the coming academic year 2007-08. The members of the council will be elected each year.

Next the students analyzed the issues that were raised at the Studio Forum in the context of the vision statement they had developed. This resulted in the following list of issues that the Studio Culture Policy was being designed to address. The Tau Sigma Delta students recognized that some issues may be of major importance one year but may be less critical in three to five years. This middle section of the Studio
Culture Policy was intended to identify the most common issues that the policy would address, but would allow for issues to be added or deleted if future Studio Forum discussions warranted such a change.

**Content Issues**
*Issues include, but are not limited to, the following:*
- Coordination between classes
- Vertical and horizontal integration
- Provision for development of a diversity of skills and areas of expertise
- Cumulative nature of studio experiences and testability
- Curriculum balance and adaptation
- Focus on critical thought
- Emphasis on high standards of quality

**Pedagogy Issues**
*Including, but not limited to, the following issues:*
- Student Mentorship
- Quality versus Quantity, tradeoffs with regards to workload
- Clarity of expectations and syllabus
- Grading methodology
- Distribution of time spent with students
- Experience of upper-level faculty
- Critique and evaluation of work by faculty and students
- Group work, collaboration, and real-world experiences
- Coordination between faculty members
- Communication of credit hour expectations

**Environment Issues**
*Including, but not limited to, the following issues:*
- Student voice and ability to communicate with faculty
- Campus perceptions and relations
- Support of a balanced life
- Brotherhood and camaraderie
- Respect for personal time and endeavors
- Respect of personal and communal property and workspace
- Timely and considerate communication of administrative, curriculum, and course-specific issues

**Preliminary Recommendations**
The third part of the Studio Culture Policy that the Tau Sigma Delta students developed was to look at the issues raised in the Studio Forum and to develop a set of recommendations for changes and policies that the School should implement. These recommendations are listed as “Recommendations for implementation based on 2006-2007 Studio Culture Forum” These recommendations were developed during the final two weeks of Spring Semester 2007. In order to gain feedback and eventual approval from the students and faculty on these recommendations we are continuing the review process throughout the Summer and Fall Semesters 2007. The Studio Culture Policy Draft containing these recommendations was e-mailed to all students with a request for their comments and feedback. In addition, separate meetings were held with all second year summer semester students (approximately 50 students) and fourth year summer semester students (approximately 25 students) in which they were asked to comment on the proposed studio culture policy. Thus far some of the recommendations that have been proposed would start to address some of the areas with the Studio Culture Survey that received less than 50% support from the general student body. These items are listed below with the proposed recommendations from the Studio Culture Policy draft developed by Tau Sigma Delta students

Between 35% to 55% of all students responded *Generally, Consistently or Always* to the following statements:

The opportunity for collaborative research/investigation with architectural and other professionals is encouraged (40%)
Less than 35% of all students responded *Generally, Consistently or Always* to the following statements:

- The opportunity for collaborative research/investigation with students in other majors is promoted (15%)

**Recommendation:** Project scope and scale should be reduced to allow for further development. The school should require one group project for every student by the time they graduate, potentially in a designated semester. Evaluation and grading of group projects should be reflected in a hybrid of a peer review and design review.

Between 35% to 55% of all students responded *Engaging or Productively Intense* to the following review processes:

- Juried critiques (40%)
- Final critiques (40%)

**Recommendation:** Encourage critique by guest jurors in every studio. Create guidelines addressing expectations and acceptable conduct.

**Recommendation:** At the end of each year, students will be evaluated in a comprehensive manner. Develop a checklist that outlines specific requirements for material and understanding for each year. Students and professors should both have this checklist so that accountability can be bilaterally maintained. A student has two chances to successfully pass a design course.

Between 35% to 55% of all students responded *Important or Very Important* to the following statements:

- Leadership and accountability of students with the student body (50%)
- Non-studio courses (40%)
- Community project and student service participation (35%)
- Time spent on non-studio assignments (35%)
- Personal non-studio activities (friends, family, own time) (35%)

**Recommendation:** Actively and visibly increase coordination and communication between studio and support classes.

**Recommendation:** Streamline ARCH 457 with respect to the studio sequence and ARCH 356/ARCH 551/552/553. Establish better preparation in ARCH 356 and integration with other fourth year coursework. Utilize already completed projects from prior years or better integrate ARCH 457 projects so that it is developed as part of support classes. Studio work should be a generator for support classes, providing the design project material which is explored in the particular course.

**Recommendation:** If it is really important to the school for their students to volunteer, consider making this part of studio (i.e. students can learn practical construction experience through Habitat for Humanity and the school could gain some positive publicity).

**Final Recommendations**

The above recommendations are being reviewed by students, faculty and staff during AY 07-08 to develop final policy recommendations for implementation by the School of Architecture. These final policies will be reviewed and adopted in Spring 2008 as part of our National Architectural Accrediting Board site visit.
Department: School of Architecture

Department Head: Steven P. Juroszek, Interim Director
John C. Brittingham Interim Associate Director

Assessment Contact: Steven P. Juroszek,
406-994-3921
stevej@montana.edu

Date: June 30, 2008

Degrees/Majors/Options Offered by Department

B.A. in Environmental Design, B.A.Ed
Master of Architecture, M.Arch
Architecture

Assessment Activities

Formal External Review Process
The School of Architecture underwent a formal review by the National Architectural Accrediting Board (NAAB) from March 15-19, 2008. In September 2007, the School submitted its Architecture Program Report (APR) which was a 400+ page document which addressed the thirteen conditions of accreditation that each Architecture program in the United States must satisfy. These thirteen criteria are:

1. Program Response to the NAAB Perspectives
2. Program Self-Assessment Procedures
3. Public Information
4. Social Equity
5. Studio Culture
6. Human Resources
7. Human Resource Development
8. Physical Resources
9. Information Resources
10. Financial Resources
11. Administrative Structure
12. Professional Degrees and Curriculum
13. Student Performance Criteria (includes 34 specific student performance criteria that must be addressed within our curriculum)

This report was reviewed by NAAB and additional information was requested for Item 5 Studio Culture. This information was provided and the amended APR was accepted by NAAB in January 2008. This amended APR was then sent to the NAAB Visiting Team for use during their site visit to the School of Architecture.

The NAAB Visiting Team consisted of the following individuals:

Team Chair, Representing the ACSA
David Mohney, Professor and Dean Emeritus
University of Kentucky

Representing the AIA
Heather H Young, AIA
Palo Alto, CA

Representing the AIAS
Amy Perenchio
Washington State University

Representing the NCARB
Gregory L. Emny, AIA, NCARB
Reno, Nevada
The visiting team spent three and one half days in the School evaluating each course in the curriculum against a predetermined set of 34 student performance criteria. The team also met with each constituency in the school to discuss issues related to the thirteen conditions of accreditation. These constituencies included the President, Provost, Senior Vice Provost for Academic Affairs, Vice Provost for Graduate Education, Dean, Interim Director and Interim Associate Director, Faculty, Staff, Students, AIAS officers as well as professionals within the Bozeman community.

To prepare for this site visit, the School spent all of February and the first three weeks of March preparing the exhibit rooms for the visiting team. The Exhibit room contained examples of work from every course in the curriculum and it was required that both high pass and low pass work be included in the exhibit for each class. In addition, an accreditation notebook was prepared for each class. This notebook contained the syllabi, course schedule, project statements, readings and handouts for each course. Both the exhibit rooms and the accreditation notebooks included work completed since Fall 2002—the date of the last accreditation report.

The visiting team provided an oral summary of their findings at the conclusion of their visit. The team commented that the four curricular deficiencies, that had been identified in the 2002 Visiting Team Report, are now met—some even well met. One new curricular deficiency was identified in the team’s oral summary. Steps have been identified to address this curricular deficiency in the coming academic year.

The official Visiting Team Report (VTR) will not be released until July 2008 at which time the report can be made public. The release of the VTR will conclude an 18 month process of formal review and assessment that began in January 2007 with the initial preparation for the Architecture Program Report (APR).

**Internal Curricular Review**

The Curriculum Committee has continued its work to address the change to a year-round graduate program. Over the past year there has been a significant change in the curriculum at both the undergraduate and graduate level. Faculty and students have participated in this process. A review of the revised curriculum was undertaken by the Undergraduate Studies Committee and the changes were accepted. The new curriculum is included in the 2008-2010 catalog. The School has developed an implementation plan to make the transition from the 06-08 curriculum to the 08-10 curriculum for our current students.

The curriculum committee will continue to be involved in the on-going implementation of the new curriculum and will be reviewing the transition in the graduate program from a two-semester curriculum to the three-semester curriculum.
**Studio Culture Survey**
Following up on our assessment efforts in Spring 2007, the School once again conducted a Studio Culture Survey within the School. Over 65% of our students participated in the survey. The questions asked were the same as those used in 2007 so that the school can follow any trends or shifts in students’ assessment of the program. The student answers are being analyzed and compared and will be presented to the faculty at our fall retreat and to the students at the annual All School Meeting in the fall. A formal Studio Culture committee has been established to address any issues that arise from this and future surveys.

**Internal Course and Student Assessment**
The School continues to maintain a structured format for review of the work completed in the ten-semester design studio sequence. Each student makes a formal presentation of their course work to four faculty members — the course instructor and three additional faculty members. This presentation includes a verbal presentation of their design objective and the resulting project as well as graphic drawings and models. Some written work is also included as part of this review. The faculty provide comments on the strengths and weaknesses of each student’s design studio project and the faculty also participate in the overall assessment of the student’s progress and advancement to the next level of design studio.

**Program Assessment**

**Discipline-Specific Knowledge**
Although the official NAAB Visiting Team Report has not been officially released, based upon the team’s verbal report, the four student performance criteria that were identified as deficient in 2002 have now been met. One student performance criteria has been identified as not met in 2008. Plans are underway to address this deficiency in our coursework.

**Communication Skills**
Students’ verbal and written skills were assessed by the NAAB visiting team and were seen to meet the criteria established. Improved writing across the curriculum was identified as a positive outcome of the school’s efforts over the last few years.

**Problem Solving Skills**
These skills are assessed through the Student Performance Criteria identified in the Architecture Program Report. Once again, based upon the preliminary verbal report from the NAAB Visiting Team, 33 of 34 student performance criteria have been met in a review of student coursework over the past six years. The one criteria not met focuses primarily on the need for additional content within one course and will be addressed during the coming year.

**Program Improvements**
Once the NAAB Visiting Team Report (VTR) is sent to us in July it will be shared with the University Administration and with the School of Architecture faculty, staff and students. It will be a major focus of discussion at our annual Fall retreat for faculty and staff. It will identify both strengths and weaknesses within our program based upon their intensive review of the program. We will utilize the VTR as the foundation for re-establishing and refining the long-range and short-term planning within the School.
MSU Departmental Assessment Update
2009

Department: School of Architecture

Department Head: Steven P. Juroszek, Interim Director (2007-2009)
John C. Brittingham Interim Associate Director
(2007-2009)

Assessment Contact Dr. Fatih Rifki, Director (effective July 1, 2009)
406-994-4256

Degrees/Majors/Options Offered by Department
B.A. in Environmental Design, B.A.Ed
Master of Architecture, M.Arch
Architecture Assessment and Outcomes Update Spring 2007

Assessment Activities
Since the Spring 2007 Assessment update the School of Architecture has undertaken a number of major assessment activities which are described below along with the analysis of the outcomes and the impact on future curriculum and program changes and development.

- Faculty-Course Evaluations
- Review Week
- School Exhibits
- Portfolio Review
- SDRE and LDRE Reviews
- Exit Questionnaire
- Studio Culture Survey
- Curriculum Committee
- Architecture Program Report

Faculty-Course Evaluations
Two types of faculty-course evaluations are completed in each class. The results of these course evaluations are made available to the instructor and to the Director of the school. Comments and scores from these evaluations are discussed with each faculty member during the course of their annual review.

Review Week
Review week continues to be an on-going and successful assessment activity within the school. Faculty are assigned to sit on reviews of design studio courses (faculty are rotated from semester to semester so that over time each faculty member will be on a review of every other faculty member’s class). The review week scheduled was expanded so that first year students have their own week of review which provides them with more final review time. In addition, this allows more faculty to be involved with first year reviews and also reduces the burn-out that happens with faculty having to sit on a very large number of reviews during one week. The graduate reviews occur during finals week which has benefited graduate students and faculty in a similar manner. The reviews provide faculty with a means to evaluate the quality of student work across the program. These reviews also provide assessment that is discussed at faculty meetings and studio coordination meetings for the subsequent semester.

School Exhibits
The School initiated a new series of exhibits that focused upon the curriculum within each year. A special exhibit of first year first semester work was displayed in the lower gallery and one of the School’s faculty meetings was held in the gallery and was devoted to a presentation, discussion and evaluation of the first year work and curriculum. A similar exhibit for first year second semester took place in the spring semester along with a separate exhibit of the coursework in second year. These exhibits provided the faculty with a chance to hear and see the work that is taking place in parts of the program outside of their own area. It also provided for a chance to have other faculty provide feedback on the quality of the work. In general, the comments on the first year work were very positive as there is a stronger emphasis on the idea of space—with the architectural form resulting from the use and development of that space. The introduction of graphics was becoming much stronger in the first year curriculum and the results were very promising. This has allowed us to build a stronger graphics foundation in the first year which should help us to explore new topics or greater depth of current topics in the second year graphics curriculum.

During the second year exhibit there was much discussion on the shift that was made in the design studio and the need to provide more design opportunities in the fall semester. There was a sense that students were coming into the second semester with stronger graphic skills and a better understanding of the concepts of structural systems—although some faculty felt that upper division students did not understanding the detailed aspects of structural systems. There were some new developments in the second
year history sequence as a focus on text, graphics, hands on projects and digital resources were being introduced into the teaching methodology. In the area of graphics, the faculty believed that strong hand graphics are still vital to the student’s education and that at times the digital applications can dominate. There was also some concern that digital applications can result in cookie-cutter solutions. But there was some good assessment of utilizing the digital applications to explore three-dimensional surfaces and space. The use of customizable software programs was also encouraging. In general, the faculty continues to support the emphasis on hand graphics in both the graphics curriculum and the design studios.

In general, faculty feedback to these types of ‘curricular exhibits’ was positive. It is the intent of the school to undertake a similar exhibit in 2009-2010 for the third year and fourth year of the program. A review of the graduate program would take place in 2010-2011 once the three-semester graduate program was in place.

**Portfolio Review**

The portfolio review continues to take place for admission into the second year of the program and into the graduate program. Five faculty are involved with each review process allowing for a large percentage of the faculty to review the overall quality of student work at each level. These reviews provide a mechanism for assuring that a consistent quality level is obtained before a student can move on to the next phase of the program. If students are found to have an unacceptable quality of work in their portfolio they are given the opportunity to meet with a faculty member, Director, or Graduate Coordinator to review the portfolio and work toward improving the quality of the portfolio prior to reapplying. At the undergraduate level, monthly meetings are made available to the students who fall into this category.

**Studio Dominant Review Evaluation (SDRE) and Lecture Dominant Review Evaluation (LDRE)**

The SDRE and LDRE were conducted for faculty who are approaching their tenure, promotion or retention reviews and will be included as part of their internal peer teaching assessment of their Promotion and Tenure dossier.

**Exit Questionnaire**

The Exit Questionnaire is also utilized for faculty who are who are approaching their tenure, promotion or retention reviews and is included as part of their internal peer teaching assessment of their Promotion and Tenure dossier. It was not undertaken in 2008 but will be undertaken in 2009.

**Studio Culture Survey Assessment**

Following are the results of school wide on-line assessment survey as part of the School’s on-going efforts to develop a Studio Culture Policy. The questions in the survey were reviewed by AIAS officers from schools throughout the United States as well as by faculty and AIAS students within MSU. This effort was undertaken in order to obtain the most effective and useful information from the survey. The survey was organized along five major categories. The first was to establish the background of the student—i.e. what year in the program, involvement in other activities, etc. The subsequent four categories were designed to evaluate the area of Design Skills, the Pedagogy (what is being taught), the Methodology (how courses are taught) and Environment (the environment in which their education takes place. The Survey took place in Spring 2008. The assessment which follows below looks for positive or negative trends between the two surveys.

**Design Skills**

11. To what extent are the following basic design skills taught in the studio that you have taken?

Areas showing an **improvement** of at least 5% since 2007
- Written communication to supplement graphic communication (overall mean rating increased)
- Design as a process

Areas showing a **decline** of at least 5% since 2007
- Design decisions based on client and users values
Areas that have remained the same (an increase or decrease of less than 5%) since 2007

- Oral Communication (overall mean rating increased)
- Design decisions based on community and social values
- Analyzing and understanding the ethical implications of design (overall mean rating decreased)
- Analyzing and understanding the economic implications of design

Pedagogy

13. Which condition best describes the teaching methodologies used in studios you have taken?

Areas showing an improvement of at least 5% since 2007

- Opportunity for collaborative research/investigation with other architecture students (overall mean rating increased)
- Opportunity for collaborative research/investigation with other professors
- Opportunity for collaborative research/investigation with other architectural and other professions
- Diversity is recognized and encouraged in the design process (overall mean rating increased)
- Performance assessment is understandable

Areas showing a decline of at least 5% since 2007

- Clear expectations and objectives are given for assignments (overall mean rating declined)
- Creative and innovative design processes are taught
- Learning from the examples of other architects* (overall mean rating decreased)
- Learning from the examples of other construction related professionals (overall mean rating decreased)

Areas that have remained the same (an increase or decrease of less than 5%) since 2007

- Opportunity for collaborative research/investigation with students in other majors
- Diversity is recognized and encouraged in the design process
- Diversity is recognized and encouraged in architectural opinions
- Performance assessment is fair
- Creative and innovative teaching approaches are used
- Creative and innovative building designs are promoted
- Learning from the examples of other students
- Learning from the examples of other construction related professionals

14. What best describes the effectiveness of the project critique process?

Areas showing an improvement of at least 5% since 2007

- None were identified

Areas showing a decline of at least 5% since 2007

- Conducted at individual desks
- Conducted within a group*
- Juried critiques* (overall mean rating increased by two levels)

Areas that have remained the same (an increase or decrease of less than 5%) since 2007

- Final critiques

15. What best describes your feelings during the project critique process?

Areas showing an improvement of at least 5% since 2007

- Conducted within a group
- Juried critiques
- Final critiques

Areas showing a decline of at least 5% since 2007

- Conducted at individual desks*
Areas that have remained the same (an increase or decrease of less than 5%) since 2007
- None were identified

Academic Environment
16. Rate the degree to which you believe the following are valued in studio
Areas showing an improvement of at least 5% since 2007
- Leadership and accountability of students within the student body
- Personal non-studio activities (friends, family, own time) (overall mean rating increased)

Areas showing a decline of at least 5% since 2007
- Leadership and accountability for architects within the architectural profession*
- Your personal capabilities*
- Time spent on studio assignments
- Time spent on non-studio assignments

Areas that have remained the same (an increase or decrease of less than 5%) since 2007
- Leadership and accountability of architects within the building industry
- Leadership and accountability for architects within the architectural profession
- Community project and student service participation
- Non-studio courses (overall mean rating decreased)
- Time management

Perspectives
17. Please check the choice which most accurately reflects your opinion with regard to the statement on the left.
Areas showing an improvement of at least 5% since 2007
- I feel my opinion matters within the School of Architecture
- I feel I am getting a quality education in the School of Architecture at MSU

Areas showing a decline of at least 5% since 2007
- None were identified

Areas that have remained the same (an increase or decrease of less than 5%) since 2007
- Students have the latitude to develop personal approaches in higher level studios.
- The occurrence and schedule of school-oriented activities and events are readily available to students

The above assessment does track closely to some of the conclusions from the NAAB Visiting Team Report which also saw an improvement in writing and collaborative outcomes within the school. Some of the items showing a decrease were a result of a shift from a high rating of Always to the next rating of Consistently. As such while this is a decrease the general perception within the school remains positive. This occurred in those topics that are identified with an asterisk (*). Those items that have shown an overall drop in the mean rating will be discussed at the fall faculty meetings and the curriculum committee will utilize these discussions to develop strategies for addressing these areas. A follow-up survey will be conducted in Fall 2009 in order to access the success of these efforts and to gain a larger sample of fourth year student participants since most fourth year students are gone during the Spring semester.

Responses to Spring 2008 Assessment
In the Spring 2008 assessment update there were 5 recommendations that resulted from the 2007 Studio Culture Survey. They are shown below along with the Spring 2009 assessment response taken from the 2008 Studio Culture Survey:
Recommendation: Project scope and scale should be reduced to allow for further development. The school should require one group project for every student by the time they graduate, potentially in a designated semester. Evaluation and grading of group projects should be reflected in a hybrid of a peer review and design review.

- **2009 Assessment Response:** The Curriculum committee and studio coordinators have worked to develop a standardized series of criteria for each design studio—which includes number of projects. The projects in the first year studio have been reduced in number so that a longer period of time can be spent for more in-depth exploration of ideas. Similarly, all other design studios typically have only one to two studio projects each semester which has appeared to help with this issue.

Recommendation: Encourage critique by guest jurors in every studio. Create guidelines addressing expectations and acceptable conduct.

- **2009 Assessment Response:** The 2008 Studio Culture Survey has shown a marked improvement in the quality of the juried critique process with the mean rating improving from ‘Stressful’ to “Engaging”.

Recommendation: At the end of each year, students will be evaluated in a comprehensive manner. Develop a checklist that outlines specific requirements for material and understanding for each year. Students and professors should both have this checklist so that accountability can be bilaterally maintained. A student has two chances to successfully pass a design course

- **2009 Assessment Response:** Some faculty have utilized this checklist for final reviews but the usage is still inconsistent across the curriculum. In addition, the 2008 Studio Culture Survey confirms that ‘clear expectation and objectives for assignments” has gone from a mean rating of “Consistently” to “Generally”. This issue will need to be addressed during the coming year.

Recommendation: Actively and visibly increase coordination and communication between studio and support classes.

- **2009 Assessment Response:** The curriculum exhibits have helped a great deal in this area as faculty are now being exposed to what is occurring in other years and courses. In addition, studio coordinators are now actively engaging the instructors of non-studio courses to increase this communication. In addition, now that all non-studio courses are taught by faculty who also teach design studio, there is a greater cross-pollination between all courses.

Recommendation: Streamline ARCH 457 with respect to the studio sequence and ARCH 356/ARCH 551/552/553. Establish better preparation in ARCH 356 and integration with other fourth year coursework. Utilize already completed projects from prior years or better integrate ARCH 457 projects so that it is developed as part of support classes. Studio work should be a generator for support classes, providing the design project material which is explored in the particular course.

- **2009 Assessment Response:** ARCH 456 will now replace ARCH 457 as the capstone course. All non-studio required courses will be completed prior to students taking ARCH 456 so that students will be able to utilize this course as a true synthesis course—eliminating the problem of taking ARCH 457 with two other rigorous non-studio courses.

Recommendation: If it is really important to the school for their students to volunteer, consider making this part of studio (i.e. students can learn practical construction experience through Habitat for Humanity and the school could gain some positive publicity).

- **2009 Assessment Response:** The School has tried to incorporate more studios and electives that allow students to work on projects for non-profit groups or social issues (i.e. Kumbu Climbing School, Kenya Housing Studio, Hawaii Sustainable Agricultural Community, etc.) so that students can participate in activities such as this as part of their education. Time constraints are still an issue within the program but the School is still
attempting to address this through scheduling of project deadlines. But there is still work that needs to be done in this area.

**Curriculum Committee**

The curriculum committee has continued to meet on a regular basis to review and plan for the implementation of the three-semester graduate program which will start in Spring 2010. The current graduate program is a two-semester program. The committee has reviewed the faculty assessments of the design studio sequence and has developed the following proposal, which is predicated on the previous shift of ARCH 457 Architectural Design V from the undergraduate to the graduate program as ARCH 557 Architectural Design Studio.

- In this proposal, ARCH 456 Architectural Design IV will replace ARCH 457 as the undergraduate capstone studio and will now meet the NAAB Student Performance Criteria associated with the undergraduate capstone studio.
- ARCH 557 will become a second graduate level option studio allowing students more diverse choices of design studio in their graduate program.
- The committee is also proposing that all students undertake a Plan B thesis option as part of their final semester of design studio. This would replace the current scenario where students can choose from a Plan A or a Plan B Thesis option.
- The curriculum committee also reviewed the history/theory component in the upper division and graduate courses and proposed a revision to the course schedule in the graduate level design studios that would provide a dedicated 2-hour session for seminar discussions on a series of readings that would be coordinated across the various design studio sections.
  - This came in response to one of the Causes of Concern from the NAAB Accreditation Visiting Team Report.

This proposal was developed over the Fall 2008 and Spring 2009 semesters. It was presented to the entire faculty at a series of faculty meetings in March and April 2009. Discussions are still on-going and will be resumed at the Fall Semester 2009 Start-up Retreat. It is anticipated that future revisions and final action on this proposal will take place during Fall Semester 2009 with implementation occurring during Spring, Summer and Fall of 2010.

**Architecture Program Report (APR)**

In February 2008, the School of Architecture submitted its revised Architecture Program Report (APR) which was a 368 page report and self-assessment of the Architecture program and included the following categories—referred to as the Thirteen Conditions of Accreditation:

1. Program Response to NAAB Perspectives
2. Program Self-Assessment Procedures
3. Public Information
4. Social Equity
5. Studio Culture
6. Human Resources
7. Human Resource Development
8. Physical Resources
9. Information Resources
10. Financial Resources
11. Administrative Structure
12. Professional Degrees and Curriculum
13. Student Performance Criteria
   
   Student Performance Criteria includes 34 different student performance categories in which students must demonstrate competency in the student outcomes.

The items in bold are the items most directly related to curricular aspects of the program.
In March 2008, the NAAB site visit team visited the School to undertake an accreditation site visit review which lasted four days. The NAAB site team issues a Visiting Team Report (VTR) which identifies conditions that are Not Met, Met and Well Met as well as Causes for Concern.

The VTR found only two areas of deficiencies during their visit—Conditions Not Met.
- One condition involved the ADA accessibility of one of our classrooms (Physical Resources) and the other
- One condition was one of the 34 student performance criteria—Building Service Systems.

The VTR identified eight Conditions that were Well Met and included
- Architectural Education and Registration (one of five Program Response to NAAB Perspectives)
- Architectural Education and the Profession (one of five Program Response to NAAB Perspectives)
- Speaking and Writing Skills (one of 34 Student Performance Criteria)
- Graphic Skills (one of 34 Student Performance Criteria)
- Fundamental Design Skills (one of 34 Student Performance Criteria)
- Collaborative Skills (one of 34 Student Performance Criteria)
- Building Structures (one of 34 Student Performance Criteria)
- Building Envelope Systems (one of 34 Student Performance Criteria)

The remaining Conditions were considered Met and include the remaining 25 Student Performance Criteria

Critical Thinking Skills  Life-Safety
Research Skills  Building Systems Integration
Formal Ordering Skills  Building Materials and Assemblies
Fundamental Design Skills  Construction Cost Control
Western Traditions  Technical Documentation
Non-Western Traditions  Client Role in Architecture
National and Regional Traditions  Comprehensive Design
Use of Precedents  Architect’s Administrative Roles
Human Behavior  Architectural Practice
Human Diversity  Professional Development
Accessibility  Leadership
Sustainable Design  Legal Responsibilities
Program Preparation  Ethics and professional Judgment
Site Conditions

In addition, the VTR identified 5 areas of concern:
- Enhance and clarify mission and vision statement as a public process. It is advised to seek to engage components of the university and public to a larger degree.
- Delineate lines of structured communication within the program
- Re-examine history/theory sequence both in placement within the program and instruction. Investigate ways to provide history/theory in upper division as a requirement rather than an elective.
- Review year-round program impacts on student financial aid/summer work and faculty time for research and for building maintenance.
- Undertake a thorough, facilitated discussion about the facilities with the participation of the Provost.

As a result of the VTR findings:
Responses to Conditions Not Met
- As a result of this assessment additional curriculum content on Building Service Systems was added in ARCH 331 Environmental Controls I and ARCH 332 Environmental Controls II in order to address this deficiency.
The issue of accessibility, while not a curricular item, still need to be addressed. Discussion with facilities and the upper administration will take place once the Director’s Search is completed in Summer 2009.

Responses to Causes of Concern

- A new tenure-track faculty member has been hired to teach in the history theory sequence. This faculty member’s expertise is in design and history/theory.
- The history sequence has been shifted to an earlier location in the curriculum so that it gains a more prominent location within the educational structure and provides students with this foundation of knowledge sooner in the sequence of courses.
- The year-round program has been shifted from the undergraduate studio sequence to the graduate level sequence which allows for greater flexibility in student schedules to accommodate work schedules and provides students with greater access to financial aid as a graduate student.
- The strategic use of fiscal year adjunct faculty and visiting faculty in the summer semester is intended to allow tenure-track faculty to maintain a balanced teaching/research schedule.
- The curriculum committee is continuing its efforts at reviewing the overall mission statement and pedagogy of the year-round graduate program to provide a clear, focused direction to the curriculum. The graduate studios are being structured to build upon this focus and to engage larger university/public issues and projects. Some examples of recent graduate studios include: sustainable agricultural community design for the Big Island of Hawaii, masterplan for Old Faithful district in Yellowstone National Park, Kumbu Climbing School in Portse, Nepal, Blackmore Day Use Pavilion in Gallatin National Forest.
- Administrative structure and lines of communication will be redefined once the Director’s Search is completed in Summer 2009.

The School will be submitting an annual report on each of these items in November of each year. The report in 2008 included only statistical information. Subsequent annual reports will include statistical information and narrative descriptions of the progress made on each Condition Not Met and Causes of Concern.

The School received a full six-term accreditation (the longest term given) with no conditions attached. The next NAAB site visit will take place in 2014.
MSU Departmental Assessment Report
FY 2009-2010

Department: School of Architecture

Department Head: Dr. Fatih Rifki

Assessment Coordinator: Dr. Fatih Rifki

Date: 12/2010

Degrees/Majors/Options Offered by Department
B.A. in Environmental Design, B.A. Ed
Master of Architecture, M.Arch
07 December 2010

To: Jeff Adams, Assistant Vice Provost for Undergraduate Education

From: Fatih A. Rifki, Ph.D., Professor and Director

Subject: School of Architecture Annual Report of Assessment Activities

Copy to: Jean Koelzer, Assistant-to-Director

I am pleased to present this as the School of Architecture Annual Report of Assessment Activities.

As you would recall our assessment plan covering the period of 2009-2011 was submitted Fall semester. In the past academic year School of Architecture has continues the activities which were delineated in the plan. These include:

Faculty-Course Evaluations:
SoA use two types of faculty-course evaluations filled out by students enrolled in each course taught. These forms and analysis of the data are made available to the instructor and to the Director of the school. Comments and scores from these evaluations are discussed with each faculty member during the course of their annual review.

Peer-review of teaching in studios and non-studio courses
We have revived faculty peer-review of teaching in non-studio courses as of Spring 2010. Each tenured or on tenure track faculty is assigned to one or more courses at the beginning of the semester and arrangements for class visits to conduct the review is left to the instructor and the reviewer. Reviewers’ assessment is submitted to the School at the end of the semester.

We have continued to conduct design studio reviews in the last weeks of every semester and summer session (Review Weeks). Faculty are assigned to sit as reviewers in these on a rotating bases, so that over time each faculty member will be on a review of every other faculty member’s studio and enriches faculty’s knowledge of the entire curricula (first through fourth in the undergraduate program and the professionally based graduate program) and diverse methods of teaching employed in the school. Additionally, a tenured or on tenure track faculty is assigned to record an assessment of studio teaching and submit it to the School.
Both reviews provide assessment that is discussed at faculty meetings and studio coordination meetings for the subsequent semester. We have continued to use the same instruments in these reviews to record peer-assessment. They are Lecture Dominant Review Evaluation (LDRE) and Studio Dominant Review Evaluation (SDRE). This year we will decide if and how these instruments shared amongst faculty. Nevertheless, SDRE and LDRE are included in the Promotion and Tenure dossiers as part of their internal peer teaching assessment.

External review of studio teaching
In Spring 2010, we invited three prominent practitioners to review our graduate studios and provide us a written assessment of the student outcomes they critiqued in during the end-of-semester studio reviews. Their overall assessments were positive. We will continue this practice in the semesters ahead.

School Exhibits
The School has continued presenting exhibits that focused upon the curriculum within each year. These exhibits provided the faculty with a chance to see the work that is taking place in parts of the program outside of their own teaching area and provide feedback to instructors on the quality of the work. In general, the comments on the undergraduate work were positive. However the fourth year design studio was found to be needing an articulation of its theme: capstone design. Work towards this end was carried out by the studio sections coordinator and several faculty who taught at this level for a number of years.

Portfolio Review
We have continued to conduct portfolio reviews of all students’ first year design work and use it as one of the instruments of assessment in admissions to the second year of the AA in Environmental Design. A similar review of applicants’ portfolio is conducted for admissions to Master of Architecture program. Five faculty members constitute the review panel for each program allowing for a large percentage of the faculty to review the overall quality of student work at the freshmen and senior level. (Our own graduates of the undergraduate program are a large part of this pool of applicants.)

These reviews provide a mechanism for assuring that a consistent quality level is obtained before a student can move on to the next phase of the program. If students are found to have an unacceptable quality of work in their portfolio they are given the opportunity to meet with a faculty member, Director, or Graduate Coordinator to review the portfolio and work toward improving the quality of the portfolio prior to reapplying. At the undergraduate level, monthly meetings are made available to the students who fall into this category.

Studio Culture Committee
The 2009-2010 studio culture committee continued the established procedure from previous years, which involved the anonymous assessment of the general well being of the studio environment. The carefully designed questioner was delivered in the spring semester of 2010. The ability to compare results from year to year has been beneficial and insightful as a result of using the same parameters from year to year. The survey is organized along five major categories. The first is to establish the background of the student—i.e. what year in the program, involvement in other activities, etc. The subsequent four categories are designed to evaluate the area of Design Skills, the Pedagogy (what is being taught), the Methodology (how courses are taught) and Environment (the environment in which their education takes place. The 2009-2010 survey was taken by fewer students (65) than in the past and with no input from 1st year students. The committee hopes this is an anomaly and will strive for better student response this academic year. Attached please see the data obtained in this survey.

Curriculum Committee
The curriculum committee has continued to meet on a regular basis to review the curricula and plan for its implementation. New graduate electives were solicited from faculty and these were reviewed for possible
inclusion in the schedule of courses to be offered in the semesters ahead. Attached is the year-end report received from the Curriculum Committee.

Lastly, I want to share with you the annual report we submit to our accreditation body, National Architectural Accrediting Board. This year’s edition was filed on 30 November 2010.

Thanking you for your consideration of this report, I welcome any response you may want to share with us.

attachments
Year-end Report
Curriculum Committee
School of Architecture
Montana State University

July 11, 2010

Following is a list of the items discussed by the Curriculum Committee and the recommendation or proposed action to be taken during AY 10-11

Curriculum Overview
The Curriculum Committee conducted a review of all courses within the new 2006 Expansion Curriculum by meeting with all faculty teaching studio and non-studio courses within each year. Faculty discussed the learning objectives, learning outcomes, delivery methods, position within the curriculum and credit/course structure.

- This series of discussions—focused on pedagogy—proved to be very beneficial and the committee will continue these types of discussions next year.
- The use of the studio matrix, developed in 2006, was seen as beneficial to developing and guiding the curriculum development.
- The matrix will need to be updated to reflect the pedagogy discussions within each year.

Recommendations

- The matrix should continue to be used as a guide for the development of studio content and projects because it conveys, in an understandable way, the complexity of credits, course sequencing, correlates NAAB requirements to specific courses, defines course objectives, identifies project criteria and, as per the committee discussion, is an ideal and evolving document to correlate the school’s mission of craft, visualization and stewardship to specific course work.
- It was also recommended that a new topic, theory, be added to the matrix list so that this area is included in the minimum requirements for each design studio.
- It was also recommended that some form of metrics and criteria should be developed so that we can evaluate the effectiveness of our curriculum and how it is being delivered. The metric should be created to evolve with the curriculum

First Year Curriculum
In the course of reviewing the first year curriculum, the Committee met with instructors from Math 151Q, English 121W, Arch 121IA and Arch 151RA and ARCH 152. There were two issues that arose from the discussion. The first focused on coordination between Arch 121IA and Arch 151RA. The instructors agreed that the coordination which took place in Fall 2009 was successful and that it should be developed further in future semesters.

The second issue concerned the involvement of GTAs in teaching Arch 151RA and Arch 152. The instructors agreed that it would benefit these and other courses if GTAs were
assigned only one course each semester—allowing the instructors and the GTAs to focus their instructional efforts and not have their time and attention divided amongst multiple GTA course assignments.

**Recommendation:**
- The coordination/cooperation between Arch 121 and Arch 151 should be developed further. This should be left to the discretion of the instructors.
- As a result of this discussion, it was recommended that GTAs be assigned to only one class each semester in the upcoming academic year so that they could focus their efforts on that class. This recommendation on GTA staffing is being implemented beginning Fall 2010.

**Second Year Curriculum**
During the course of these discussions, the Curriculum Committee reviewed the current gap semester in Fall of Second Year in which no design studio exists. Although some faculty initially expressed concern at not having a studio during the semester, the second year faculty commented that students entering ARCH 253 Spring Semester are fully prepared to take on the challenges of the studio and in general, the quality of the second year studio work in Spring Semester is quite high. From further discussions it appears that the issue is not the lack of a studio in Fall Semester but the fact that students have no ‘home base’ during that semester to work on structures, graphics and history projects.

**Recommendation:**
- The Curriculum Committee recommends that hot desks and lockers be established within Cheever Hall during Fall Semester for the second year students.
- The number of hot seats may range from 30 (a 1:3 ratio of desks to students) to 45 (1:2) depending upon space but this area would provide students with a working space within Cheever Hall.
- Since the 2006 expansion, the Fall Semester has typically had a large number of empty desks and additional crit spaces on the second floor. While the crit spaces are quite useful, the Committee believes that one of these crit spaces and the upstairs studio layout could be reconfigured to accommodate this new hot desk area.
- Additional lockers would need to be purchased so that students could store their supplies.
- The committee would recommend making this change as soon as possible in the hopes that this could be in place by Fall 2010.

**Third Year and Fourth Year Curriculum**
In reviewing the curriculum, it became evident that the third year coursework—particularly in Spring Semester—had become a major overload for the students and may be limiting the time they are able to spend on each course. In part, this has evolved over time in response to the faculty’s interest in front-loading courses in the curriculum so that students have a knowledge base earlier in the program. This has resulted in all of the required courses taking place within the first 3 years of the program with the remaining 5
semesters being left open for studio and electives. Compounding this is the fact that fourth year students are split among multiple ARCH 456 and Option Studio offerings. As a result, any non-studio course offering in fourth year would have to be offered multiple times throughout the year, which would require additional faculty staffing.

**Recommendation:**

- The Curriculum Committee is recommending that this committee look at ways in which the fourth year curriculum can be altered so that there is a common semester in which all students are taking the same set of courses, including a common studio.
  - This could allow for one of the current third year courses to be moved to fourth year and minimize some of the course overload that currently exists in the third year curriculum.
  - In addition, per the committees discussions, bringing the fourth year class back together prior to their graduate year was deemed important to task this group of students with having an inclusive design studio.
  - This will be a primary focus of the committee for the coming year.

- There are discussions with CET concerning ARCH 241 and its content and placement within both curriculums. The Curriculum Committee would recommend that this committee be involved in these discussions since the issues of ARCH 241 are connected to so many other issues within the curriculum.

- The Curriculum Committee also recommends that efforts to integrate non-studio courses into subsequent studios (i.e. Structures and Graphics in ARCH 253; ECS I into ARCH 355, ECS II and Arch 313 Pro Practice into ARCH 456, etc.) should continue to be encouraged and utilized.
  - Studio coordinators are key to making this ‘subsequent integration’ take place.
  - Consistency of coordinators from year-to-year can assist with this.

**Name of Degree**

The Curriculum Committee was asked to review the name of the undergraduate degree—Bachelor of Arts in Environmental Design—and to consider changing it to Bachelor of Arts in Architectural Studies.

While the committee discussed this issue, the committee believed that it would be more effective to resolve the expansion curricular issues first and once those changes are done consider the question of the degree name. No action on this issue is being recommended at this time.

**Credit Allocation for Courses**

The Curriculum Committee was asked to consider the number of credits assigned to each studio and non-studio courses. One scenario proposed was to make all studio courses 6 credits and all non-studio courses 3 credits.
During the course of the pedagogy discussion, faculty were asked if the credit allocation and course delivery method (lecture, lecture/lab, lecture/recitation or lab) was seen as effective for each class.
  o ARCH 241 commented that a lecture/lab format would be beneficial for the class.
  o Other non-studio courses believed that their current course delivery method was effective.

Third and fourth year studio instructors believed that the current two-day a week studio set-up was not effective and recommended returning to the three-day a week schedule. This has been implemented.

**Recommendations**

- In general the non-studio courses believed that the current number of credits assigned to their classes is the minimum needed to cover the course content required by NAAB and by our school’s expectations. Rather than reducing the number of credits in these courses, some courses may benefit from increasing the number of credits.
  o As a result the committee does not recommend adopting a 3 credit non-studio course coupled with a 6 credit studio course strategy.
- The Curriculum Committee will continue to review each course and its structure over the coming year as additional credits will need to be added to the program by 2015 to meet the NAAB requirements.

**Option Studios**

The Curriculum Committee was asked to look at the option studios offered in fourth year and to consider developing a common thread amongst these studios. The committee has had a series of discussion on this and will continue to look at this issue in the coming year.

**Graduate Elective and Studio Review**

The Curriculum Committee was asked to review graduate elective proposals in order to determine what category (Visualization, Stewardship and Craft) they address as well as whether or not the course proposal should be offered as a graduate elective.

- The committee undertook the above reviews and identified a category (or categories) for each elective. The committee found that some electives did not exactly fit into any of the three categories—falling instead under the “Other” category. There were provisions in the three-semester graduate proposal to allow for electives and studios that do not fall under either of these categories so the committee did not see this as a problem. However, the term “Other” did not seem to suggest parity with Visualization, Stewardship and Craft.
- In addition, the number of contact hours for all graduate elective courses have been changed to conform to University standards.

There were a number of concerns that came out of the review process for graduate electives and graduate studios which include:
• Submittals and review requests for elective proposals sometimes happened very late in the process—often taking place only days before registration would start.
• It was unclear if the committee was reviewing the elective proposals for approval or just to place it in one of the four categories (Visualization, Stewardship, Craft or Other). Many of the elective proposals were submitted to the committee after they were already listed online and thus already approved.
• Related to this, not all electives were submitted to the committee for approval, yet the course was still offered.
• Similarly, the committee was asked to review some option studio course offerings but not others. In particular, the committee was asked to review a graduate level design-build studio and determine if it should remain at the graduate level while another design-build course previously offered as a graduate level option design studio was changed to an undergraduate option studio without any input or formal recommendation from the curriculum committee.

These inconsistencies and lack of a clear direction for the purpose of the review have raised the question as to what is the role of the Curriculum Committee?

AY 2010-11
Over the coming 2010-2011 academic year, the Curriculum Committee will be utilizing this past year’s pedagogy discussion to develop with the faculty a revised curriculum structure that will take into account the above issues and the need to increase our curriculum from 162 to 168 credits (minimum) and to begin the university review of these changes so that the revised curriculum can be submitted in November 2011 for inclusion in the 2012-2014 catalog.
MSU Departmental Assessment Update
Spring 2007

Department: School of Art

Department Head: Richard Helzer

Assessment Coordinator: Richard Helzer

Date: April 26, 2007

Degrees/Majors/Options Offered by Department

Bachelor of Art in Studio Art
Bachelor of Art in Art History
Bachelor of Art in Art Education K-12
Bachelor of Fine Art in Graphic Design
Bachelor of Fine Art in Studio Art
Master of Fine Art in Studio Art
Art

This is a summary of the assessment activities and results reported for this undergraduate degree program. For further information, please contact the department offering the program.

Assessment Activities

Discipline-Specific Knowledge

Knowledge, skills, and abilities are assessed in the School of art by evaluations done in Art 490-Senior Thesis. These evaluations are in the form of critiques of the student artist’s final works of art and design; the assessment of the Senior Thesis Exhibition; assessment of the Senior Thesis paper (Art History majors); and assessment of the student artist’s knowledge of a wide variety of basic studio skills and educational theories related to artistic experiences (Art Education).

Communication Skills

Communication skills are assessed by evaluating the student’s ability to verbally express understanding of the art and design produced as well as the art and design produced by peers. This assessment takes place with one or more faculty in both individual and group formal critiques.

In the area of written communication, students are assessed with art history papers, journals in studio courses, and undergraduate thesis statements in the Art 490-Senior Thesis course. Written communication skills develop an understanding of common art elements and vocabulary, place works of art in historical and stylistic context, and form and defend value judgments about art and design and art-related issues.

Problem-Solving Skills

Problem-solving skills are assessed by evaluating the student’s competence in demonstrating the ability to communicate the origin and generation of ideas, and by evaluating the creative and technical skills appropriate to the particular studio such as color theory, painting, bronze casting, etc. Students must be able to break down the different levels of achievement in a composition, and discuss the thought process used to arrive at the final product. Evaluation is conducted by the studio instructor as well as student peers and outside reviewers.

Creative problem-solving is a basic skill for all art majors and is assessed at every level from freshman through senior year studio courses.
Assessment Results

Discipline-Specific Knowledge

Students in the School of Art develop a high level of competencies in creating finished works of art and design. The quality of work in the BFA Graduation Exhibition demonstrates success and knowledge of art-making skills and abilities. Students win awards in exhibitions, are successful in seeking employment with their design portfolios, and have a high rate of acceptance into graduate programs across the country.

Finished works of art demonstrate competence in technical skills, and understanding of processes and materials. Some of the areas of strength in this category are drawing, three-dimensional skills and abilities, and graphic design concepts.

Communication Skills

The level of communication skills in the form of written research papers in generally good. Art History majors have an especially high level of success in Undergraduate Scholars Conference, and success in graduate school acceptance. Art students need improvements in their ability to communicate and defend their statements during group and individual critiques. The School of Art needs to better prepare students to understand the theory of criticism both for individual understanding of one’s own artwork, and to discuss the work of their peers.

Generally, written material in journals and in written examinations demonstrates a solid basic understanding of a student’s own work and works of art in a historical and stylistic context.

Problem-Solving Skills

Student competencies in the area of problem-solving skills are high in the area of technical skills for studio majors, and average in the ability to analyze works of art and evaluate them critically. Art and design students are generally confident in their decision making skills as they relate to design concepts. Some levels of improvement are needed in criticism and analytical synthesis of creative problem solving in the first year of foundation studies (Art 110 and 111).

Program Improvements

University-Level Suggestions

The University needs to set higher priorities to preserve the academic budget. It is not possible to operate a solid academic program with shrinking resources. Within existing resources the University must honor its commitment to the students and maintain the academic budget as its highest priority.
Department-Level Suggestions

The School of Art can not continue to survive with existing resources and faculty with more than 500 majors. We can only reduce the number of students in our program by instituting an enrollment management plan. The School of Art is introducing a freshman portfolio review in the 2004-06 catalog.

Plan for Utilizing Data

The School of Art will have at least one dedicated meeting to discuss the assessment data and to respond appropriately with curricular or other changes.
MSU Departmental Assessment Update

Spring 2013

Department: School of Art
Director: Vaughan Judge
Assessment Coordinator: Vaughan Judge
Date March 2013

Degrees/Majors/Options Offered by Department
Bachelor of Art in Studio Art
Bachelor of Art in Art History
Bachelor of Art in Art Education K-12
Bachelor of Art in Graphic Design
Bachelor of Art in Studio Art
Master of Fine of Art in Studio Art
Master of Fine Art History

Art

This is a summary of the assessment activities and results reported for this undergraduate degree program. For further information, please contact the department offering the program.

Assessment Activities

Discipline-Specific Knowledge

Knowledge, skills, and abilities are assessed in the School of art by evaluations done in Art 490-Senior Thesis. These evaluations are in the form of critiques of the student artist’s final works of art and design; the assessment of the Senior Thesis Exhibition; assessment of the Senior Thesis paper (Art History majors); and assessment of the student artist’s knowledge of a wide variety of basic studio skills and educational theories related to artistic experiences (Art Education).

Communication Skills

Communication skills are assessed by evaluating the student’s ability to verbally express understanding of the art and design produced as well as the art and design produced by peers. This assessment takes place with one or more faculty in both individual and group formal critiques.
In the area of written communication, students are assessed with art history papers, journals in studio courses, and undergraduate thesis statements in the Art 490-Senior Thesis course. Written communication skills develop an understanding of common art elements and vocabulary, place works of art in historical and stylistic context, and form and defend value judgments about art and design and art-related issues.

**Problem-Solving Skills**

Problem-solving skills are assessed by evaluating the student’s competence in demonstrating the ability to communicate the origin and generation of ideas, and by evaluating the creative and technical skills appropriate to the particular studio such as color theory, painting, bronze casting, etc. Students must be able to break down the different levels of achievement in a composition, and discuss the thought process used to arrive at the final product. Evaluation is conducted by the studio instructor as well as student peers and outside reviewers.

Creative problem-solving is a basic skill for all art majors and is assessed at every level from freshman through senior year studio courses. The student centered skills required for success in higher education and 21st Century careers and jobs require a more effective approach to learning and teaching. To this end both studio, graphic design and history classes, employ Visual Thinking Strategies (VTS), which is a research-based teaching method that improves critical thinking and language skills through discussions of visual images. VTS encourages participation and self-confidence, especially among students who struggle. VTS is easy and natural to learn in the studio and classroom and offers a proven strategy for educators to meet current learning objectives. Learning and assessment strategies in the School of Art:

- Uses art to develop critical thinking, communication and visual literacy skills
- Asks educators to facilitate learner-centered discussions of visual art and the histories of representation that underpin cultural meaning.
- Engages learners in a rigorous process of examination and meaning-making through visual art
- Measurably increases observation skills, evidential reasoning, and speculative abilities
- Engenders the willingness and ability to find multiple solutions to complex problems
- Uses facilitated discussion to enable students to practice respectful, democratic, collaborative problem solving skills that over time transfer to other classroom interactions, and beyond
- Uses eager, thoughtful participation to nurture verbal language skills, and writing assignments to assist transfer from oral to written ability
- Produces growth in all students, from challenged and non-English language learners to high achievers
- Underscore connections to art and strengthens the role of museums as a valuable resource in students' lives

The ability to find meaning in imagery involves a set of skills ranging from simple identification (naming what one sees) to complex interpretation on contextual, metaphoric and philosophical levels. Many aspects of cognition are called upon, such as personal association, questioning, speculating, analyzing, fact-finding, and categorizing. Objective understanding is the premise of much of this literacy, but subjective and affective aspects of knowing are equally important.
Assessment Results

Discipline-Specific Knowledge

Students in the School of Art develop a high level of competencies in creating finished works of art and design. The quality of work in the BFA Graduation Exhibition demonstrates success and knowledge of art-making skills and abilities. Students win awards in exhibitions, are successful in seeking employment with their design portfolios, and have a high rate of acceptance into graduate programs across the country.

Finished works of art demonstrate competence in technical skills, and understanding of processes and materials. Some of the areas of strength in this category are drawing, three-dimensional skills and abilities, and graphic design concepts.

Communication Skills

The level of communication skills in the form of written research papers is generally good. Art History majors have an especially high level of success in Undergraduate Scholars Conference, and success in graduate school acceptance. Art students need improvements in their ability to communicate and defend their statements during group and individual critiques. The School of Art needs to better prepare students to understand the theory of criticism both for individual understanding of one’s own artwork, and to discuss the work of their peers.

Generally, written material in journals and in written examinations demonstrates a solid basic understanding of a student’s own work and works of art in a historical and stylistic context.

Problem-Solving Skills

Student competencies in the area of problem-solving skills are high in the area of technical skills for studio majors, and average in the ability to analyze works of art and evaluate them critically. Art and design students are generally confident in their decision making skills as they relate to design concepts. Some levels of improvement are needed in criticism and analytical synthesis of creative problem solving in the first year of foundation studies (Art 110 and 111).

Program Improvements

University-Level Suggestions

The University needs to set higher priorities to preserve the academic budget. It is not possible to neither operate nor meet the demands of 21st Century society and culture with shrinking resources. Within existing resources the University must honor its commitment to the students and maintain the academic budget as its highest priority.

Department-Level Suggestions

The School of Art has been operating an enrollment management plan which manages its quality and student numbers. The School of Art has introduced a freshman portfolio review since the 2004-06 catalogs; this is now a standard operating procedure.
Plan for Utilizing Data

The School of Art will have at least one dedicated meeting to discuss the assessment data and to respond appropriately with curricular or other changes. In addition a working party will be formed to review curriculum development assessment.
MSU Departmental Assessment Update
Spring 2007

Department: Cell Biology and Neuroscience

Department Head: Dr. Thomas Hughes

Assessment Coordinator: Cali Morrison

Date: May 14, 2007.

Degrees/Majors/Options Offered by Department

Major: Cell Biology and Neuroscience

Students choose one of two options:
Biomedical Sciences Option
Cell Biology and Neuroscience Option
Assessment Update:
Department of Cell Biology and Neuroscience
Spring Semester, 2007

I. Introduction to the department:
The Department of Cell Biology and Neuroscience offers two undergraduate degree options: the Biomedical Sciences option and the Cell Biology and Neuroscience option. The former is widely recognized on campus as the “pre-med” curriculum. The department’s academic programs and its faculty’s research interests include cell biology, neurobiology, developmental biology, physiology, anatomy, neuroinformatics and biology science education. Together, faculty and students study biological processes that span the continuum from single cells to whole organisms and the human body.

II. Assessment activities update: Assessment activities since the initial assessment plan (Spring, 2004) have been formative, soliciting student feedback to determine what curricular aspects have been successful, or less so. Assessment has been particularly heavy in the introductory biology sequence (BIOL 213, 214, 215), both in the lecture and laboratory component, but have been utilized in all department courses. Besides standard KNAPP or ALIEMONY forms, departmental forms have been used both at mid-term, course end, and after each new laboratory exercise, as appropriate, to solicit written, anonymous feedback from students about course components. All departmental instrument results were collected, typed and stripped of students’ personally identifiable information by an assessment specialist and returned to the faculty member or faculty team, as appropriate. For the introductory biology sequence, the faculty team responsible for course development met on a monthly (minimum) basis throughout AY 2003-4 and AY 2004-5 to review assessment data and improve aspects of the curriculum. While feedback surveys will continue to be utilized, the department is currently moving to a more summative assessment strategy, and began implementing methods to quantitatively measure learning outcomes in Spring 2006, using pre- and post-tests and embedded assessment questions. Earlier attempts at embedded assessments using essay questions (AY 2004-5) proved difficult to interpret and did not yield useful data. Analysis of statistics learning assessment (biol 213) and pre-and post-test knowledge surveys (biol 214) is currently ongoing.

III. Changing how students move through the curriculum. In the freshman and sophomore years, students majoring in both options within the department build a broad scientific background, taking courses in biology, chemistry, physics and mathematics. These courses are designed to provide them with the background they need to succeed in upper division coursework. As juniors and seniors, students take genetics and advanced cell biology, and supplement those required courses with a variety of specialized courses, mostly in cell biology, microbiology, and biochemistry. Students are encouraged to satisfy their “R” core requirements by participating in research in faculty labs or taking a departmental “R” course. We are currently identifying weaknesses in the preparatory coursework and investigating how to implement a stronger, vertically and horizontally integrated, curriculum. We are developing more “R” courses to give students more options to fulfill their core requirements. We have just developed a new sophomore level
R course (to be implemented in Spring, 2008) that will help students satisfy their Research “R” core requirement, and simultaneously better prepare them for upper division coursework and research opportunities in faculty labs.

IV. Some recent results: The senior survey has been administered since 2002. Information from the survey, as well as other surveys done at the sophomore level, has promoted significant curriculum revision and discussion by department faculty. Of 93 graduates in the 2004/5 and 2005/6 school years, 43 senior surveys were completed. We are working on measures to increase the response rate on senior surveys, which currently is at less than 50%. Of the 43 students surveyed these past 2 years, 34 were in the Biomedical Sciences option, while 9 were in the Cell Biology and Neuroscience option. 36 of respondents indicated plans to go on to either professional school (medical, dental, DO, etc.) or graduate school. In earlier surveys (2003/4 school year and earlier), students gave high marks for organization of curriculum, interesting courses, and helpful departmental staff. They had also indicated dissatisfaction with outdated lab facilities, lack of research opportunities, and inadequate student/faculty interaction. Moreover, these same surveys indicated that students felt the required math courses were largely irrelevant. The new biology curriculum (a four semester lower sequence of STAT 216 plus introductory biology courses(BIOL 213, 214, 215) was inaugurated in the 2003/2004 school year, and the new biology teaching laboratory was completed in January of 2005. Senior surveys from AY 2004/5 still showed students were not satisfied with the math requirements and indicated dissatisfaction with lab course facilities. However, the AY 2005/6 survey indicated slight improvement, with about 50 percent of students still indicating that lab course facilities were inadequate, and that math offerings were irrelevant. We expect the satisfaction rate for course lab facilities, and math requirements to rise in the next few years as students who have been able to take advantage of the new facilities, and who have seen a more integrated approach of statistics and biology, graduate and take the survey. The 2005/6 survey indicated students overall felt the department offered an interesting challenging curriculum, but there were problems with course overlap and quality of the lab courses. A number of these students took the first iteration of the 213/4/5 sequence, which has since been improved (and continues to be reviewed and updated).

Many of the students in Cell Biology & Neuroscience are in the biomedical sciences option, more commonly known as the pre-health professions major. Below are statistics showing the rates of acceptance to allopathic medical schools (M.D.), osteopathic medical schools, and dental schools. As you can see, the success rate of our students (57%) is well above the national average (44.4%) for all students applying to allopathic medical schools. And CBN majors have a very high acceptance rate, 100%, to both osteopathic medical schools and dental schools. The current national acceptance rate for osteopathic medical schools is 45% and for dental schools is 44%. Currently, we do not have data to report on number of applications and acceptances into physicians’ assistant programs, physical therapy programs or other professional schools in the health sciences.
Allopathic Medical School (M.D.)

<table>
<thead>
<tr>
<th>Applicants</th>
<th>Accepted/Matriculated</th>
<th>% Accepted</th>
</tr>
</thead>
<tbody>
<tr>
<td>MSU-all states</td>
<td>21 (14CBN)</td>
<td>13 (8CBN)</td>
</tr>
<tr>
<td>MSU-MT only</td>
<td>17</td>
<td>11</td>
</tr>
<tr>
<td>All MT residents</td>
<td>101</td>
<td>50</td>
</tr>
<tr>
<td>National</td>
<td>39, 108</td>
<td>17, 370</td>
</tr>
</tbody>
</table>

*This MT State acceptance rate is once again higher than any other states’ in the 13-state Western region. Montana is #8 in the nation for acceptances, tied with Kansas. (Source: [http://www.aamc.org/data/facts/](http://www.aamc.org/data/facts/), table #3) Those six states and Puerto Rico ahead of MT all have their own medical schools that heavily favor in-state applicants. Montanans’ accomplishment is thus very good.

**The national acceptance rate declined again (as applications rose) from 47% in 2004 to 45.5% in 2005 to 2006’s 44.4%.

Medical Schools Attending: U. of Washington (6: 5-MT and one-WY); one each to U. of Colorado; North Dakota; New Mexico, Johns Hopkins (MD/PhD); Emory; Northwestern; Ben-Gurion University of the Negev in Collaboration with Columbia University Medical Center

Applicants/Acceptances by Gender

<table>
<thead>
<tr>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>MSU Applicants</td>
<td>67% (n=14)</td>
</tr>
<tr>
<td>Nat’l Applicants</td>
<td>52.1%</td>
</tr>
<tr>
<td>MSU Accepted</td>
<td>64% (n = 7)</td>
</tr>
<tr>
<td>Nat’l Accepted</td>
<td>51.4%</td>
</tr>
</tbody>
</table>

Osteopathic Medical School

<table>
<thead>
<tr>
<th>Applicants</th>
<th>Accepted</th>
<th>% Accepted</th>
</tr>
</thead>
<tbody>
<tr>
<td>MSU</td>
<td>6 (2 CBN)</td>
<td>6 (2 CBN)</td>
</tr>
<tr>
<td>Nat’l*</td>
<td>8596</td>
<td>3880</td>
</tr>
</tbody>
</table>

*2006 numbers informally relayed by e-mail from AACOM

These MSU-DO numbers are identical to 2005’s. When the acceptance rate for M.D. candidates and D.O. candidates is combined, MSU’s medical school acceptance rate is 70%. The DO applicants were three females and three males.
Osteopathic Medical Schools Attending

Philadelphia (2); one each to Arizona; Kansas City, Touro-Nevada; Edward Via Virginia Dental School

<table>
<thead>
<tr>
<th>Dental School</th>
<th>Applicants</th>
<th>Accepted</th>
<th>% Accepted</th>
</tr>
</thead>
<tbody>
<tr>
<td>MSU</td>
<td>11 (9CBN)</td>
<td>10 (9CBN)</td>
<td>91% (100%)</td>
</tr>
<tr>
<td>Nat’l *</td>
<td>10,750</td>
<td>4688</td>
<td>44%</td>
</tr>
</tbody>
</table>
(*preliminary 2005 data: ADEA)

All five women from MSU who applied were accepted, and all but one of the six men. He was wait-listed.

Dental Schools Attending

U. of Minnesota (2); U. of Oregon (2); one each to U. of Missouri-Kansas City; U. of Colorado; U. of Nevada -Las Vegas; U. of Pennsylvania; U. of Washington, U. of Iowa

The national dental pool increased by 15.5% from 2003 to 2004 and another 14% from 2004 to 2005. As can be noted, MSU’s acceptance rate of 91% is outstanding when compared to the national acceptance rate of 44%. Our pool of accepted students was 50% female and 50% male, more equitable than the national matriculation figures for 2005 of 55.7% male and 44.3% female.

V. Appendices.

Senior survey
Draft mid-curriculum survey
213 incoming statistics skills survey
214 knowledge survey
Senior Survey - Department of Cell Biology and Neuroscience

This survey is designed to gather information that can help the faculty to improve the department's curriculum. An external evaluator will gather, summarize and present the data to the faculty. Your candid responses are greatly appreciated.

Part I: Background Information
The following information will help us interpret the survey findings.

1. What is your curricular option? (a) Cell Biology (b) Biomedical Science (c) Biology (pre-2002 cat.)
2. What is your sex? (a) Female (b) Male
3. What is your current Grade Point Average? (a) Below 2.0 (b) 2.0 to 2.49 (c) 2.5 to 2.99 (d) 3.0 to 3.49 (e) 3.5 or above
4. Have you taken a professional exam? (a) Yes (b) No
   a. If yes, which one? __________________________
   b. Please report your score (for dept. averaging purposes only)__________________
5. What are your plans for after graduation?
   (a) Professional school (e.g. medical, dental, etc.) field: __________________________
   (b) Graduate school field: __________________________
   (c) Start career field: __________________________
   (d) Other: ________________________________
   (e) Unsure

Part II: Attitudes About The Program
Please indicate the degree to which you agree or disagree with the following statements by circling the appropriate response.

5. I am happy with my choice of major. (a) strongly agree (b) agree (c) disagree (d) strongly disagree
6. My academic program has challenged me. (a) (b) (c) (d)
7. My major’s curriculum is well organized. (a) (b) (c) (d)
8. The department promotes interaction between students and faculty. (a) (b) (c) (d)
9. The department’s lab equipment and facilities are state-of-the-art. (a) (b) (c) (d)
10. Course lectures and labs were well linked. (a) (b) (c) (d)
11. The department offered me exciting research opportunities. (a) (b) (c) (d)
12. The course content in my major incorporated the latest research results and theories. (a) (b) (c) (d)
13. My department values quality teaching. (a) (b) (c) (d)
14. My academic advisor was available when I needed help. (a) (b) (c) (d)
15. The departmental office staff offered timely assistance and easy access to important information and forms.  
(a) (b) (c) (d)

16. The laboratory experiences in my major courses have enhanced my learning.  
(a) (b) (c) (d)

17. The material I learned in my mathematics courses was used in my major courses.  
(a) (b) (c) (d)

18. The department’s elective course offerings allowed me to satisfy my personal interests.  
(a) (b) (c) (d)

19. My grades in my major are a fair reflection of my performance and understanding.  
(a) (b) (c) (d)

20. The introductory courses in my major provided me with the academic knowledge to succeed in my upper division courses.  
(a) (b) (c) (d)

**Part III: Open-ended Questions**

21. What are the main strengths of your academic program?

22. What are the main weaknesses of your academic program?

23. What, if any, courses in your major do you feel were not worthwhile? Please explain.

24. What subject matter relating to your major would you have liked to have learned but did not have the opportunity?
25. Did you complete a research project and/or work in a faculty/professional lab during your undergraduate career?  (a) Yes  (b) No
If so, please describe your experience, the project you worked on and any other pertinent information.

26. Is there anything else that you would like to share with the department?
Department of Cell Biology & Neuroscience
Mid-curriculum Survey

Please answer the following openly and honestly. Your answers will be compiled and any personally identifying information will be removed. Your feedback is important to the department’s mission to continually review and improve undergraduate education.

1. Please enter your expected graduation date:________________________________

2. Please mark your major: ☐ Cell Biology & Neuroscience  ☐ Biomedical science  ☐ Other:________________

3. Please circle your cumulative GPA:
Below 2.0  2.1-2.5  2.6-2.9  3.0-3.25  3.26-3.75  3.75-3.8  3.9-4.0

4. Please enter your gender:  ☐ Female  ☐ Male  ☐ Prefer not answer

5. What is your racial or ethnic identification? (Mark all that apply)
☐ American Indian or other Native American
☐ Asian American or Pacific Islander
☐ Black or African American
☐ White/ Caucasian
☐ Hispanic, Latino or Spanish American
☐ Other: (Please specify) _________________________________________________
☐ Prefer not answer

6. Please check the box for the age range you fit into:
☐ 18-22  ☐ 23-29  ☐ 29-35  ☐ 35-50  ☐ Over 50

7. My current career goal(s) include:
☐ Graduate School (subject:____________________________________________)
☐ Medical School
☐ Dental School
☐ Other professional School (subject:_____________________________________
☐ Working in the Biotechnical Industry
☐ Teaching Science
☐ Other (Please describe:_______________________________________________)

8. Have you performed research independently or in a faculty laboratory?
☐ Yes (Please describe:___________________________________________________)
☐ No
☐ Have not but would like to/plan to
9. Please circle which introductory biology series you took:
   213, 214, 215 series   101, 102 series   Taken at another university

Please indicate the degree to which you agree or disagree with the following questions by placing an “X” in the appropriate box.

**Introductory Series**

<table>
<thead>
<tr>
<th>Question</th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Neither Agree Nor Disagree</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>10. My introductory series prepared me for the upper division courses I have taken/am currently taking.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. I gained valuable factual knowledge in my introductory series.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. I learned basic biological principles that provide a foundation for further coursework in my introductory series.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13. I learned how to apply biological principles to real world situations in my introductory series.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14. I gained laboratory skills that will be beneficial to my academic career in my introductory series.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15. I developed skills in expressing biological principles in written format in my introductory series.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16. I developed problem solving skills in my introductory series.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17. I learned to analyze &amp; critically evaluate ideas, arguments, or points-of-view in my introductory series.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18. I gained a broader perspective of the importance of science in the 21st Century in my introductory series.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19. I acquired skills in working with others as a team in my introductory series.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
20. Do you have any suggestions for improving the introductory series?

21. Regarding the upper division sequence of BIOL 301 and 302, do you feel these are beneficial to your academic career? Why or Why not?

22. Regarding your core curriculum courses…
   22a. Do you still have core requirements to fulfill: ☐ Yes ☐ No
   22b. If you answered yes, what are those core requirements:

   22c. If you have fulfilled your ‘R’ core requirement, where did you take it?

   22d. What courses would you like to see offered in CBN to fit in the ‘R’ core requirement?

   22e. Were their any core requirements you felt were not helpful to your academic career or future career plans?

23. Regarding your electives…
   23a. What elective courses have you taken or do you plan to take:
23b. Are there elective courses or ideas for elective courses you’d like to take or see offered by CBN?

24. Do you have any constructive criticism or praise for the current CBN curriculum?

25. Any other comments?

THANK YOU FOR YOUR INPUT INTO IMPROVING THE UNDERGRADUATE CURRICULUM IN CELL BIOLOGY & NEUROSCIENCE.
BIOLOGY 213 – Application of Statistics Survey

Which situation best describes you:

___ I have completed STAT 216 at MSU ___ with John Borkowski (F05)
___ I am taking STAT 216 this semester
___ I have not yet taken stats, and am NOT taking STAT 216 this semester
___ I took statistics at a different college

What is your class level?
Fr.  Soph.  Jr.  Sr.  TRANSFER?  Y  N

Please answer these questions to the best of your ability. Your honest effort will help us make this course better for you. You will receive 5 points for completing this survey. This survey is not graded and your answers will in no way affect your grade in the course.

1. This graph is an example of:
   A. A stem-and-leaf plot
   B. An interval plot
   C. A scatterplot
   D. A box plot
   E. A histogram
   F. A bar graph

2. You need to graphically show the distributions of quartiles in a data set. The best graph to use for this is:
   A. scatterplot
   B. box plot
   C. interval plot
   D. pie chart
   E. bar graph

3. You are reading a scientific paper. In one of the data analyses, the paper’s authors report that p=0.1. What does a p-value indicate?

4. This graph is an example of:
   A. a stem and leaf plot
   B. an interval plot
   C. a scatterplot
   D. a box plot
   E. a histogram
   F. a bar graph
Question 5, below, refers to the following experiment:
Michelle is interested in doing research on amphibians. She’s read that in many places, frogs are seen with a lot of birth defects (missing arms, legs, dying very young etc.). This is causing a large decline in frog populations around the globe. Pollution is suspected of causing these mutations. Michelle is not so sure, and thinks it might be due to the increase in human population instead, since that could be ruining frog habitats. Working with a biology professor at the local college, she learns that the number of mutations observed in frogs in her home county has increased each of the last five years. Next, she goes to the county survey office to determine how many new roads have been built each year in the county for the last five years. This is the graph of her data:

After graphing her results, she concludes that human populations do indeed have an effect of frog mutations.

5. What is the best analysis of this argument?
A. Michelle has proven an important connection between human population growth and frog death.
B. Michelle’s work proves nothing. It’s only one graph. She should repeat her analysis in another county just to be sure.
C. Michelle’s research is interesting, but she may be confusing causation with correlation.
D. Michelle’s data looks good, but she can’t prove the connection without doing more statistical analysis of her graph.

6. What is the best way to provide strong evidence that there is a correlation between two variables?
A. Graph it on a scatterplot and find the R-squared value. If the R-squared value is close to 1.0, it proves the correlation.
B. Graph it on a histogram and look for the mean of the data.
C. If initial regression analysis suggests a correlation, set up a number of experiments to ensure that the explanatory variable is truly the cause of the response variable.
D. Use a bar graph to compare the means of the two variables.

7. You need to graphically compare the means of two variables. The best graph to use for this is:
   A. histogram
   B. scatterplot
   C. interval plot
   D. bar graph
   E. stem and leaf plot

8. This graph is an example of:
   A. a stem and leaf plot
   B. an interval plot
   C. a scatterplot
   D. a box plot
   E. a histogram
   F. a bar graph

Questions 9 & 10 refer to the following experiment:
A biologist is studying two populations of *Geospiza fortis* (finch) in the Galápagos islands. One population on the north side of one of the islands eats large seeds. A second population that is isolated on the south side eats smaller seeds. Her hypothesis is that the mean beak sizes of the two populations are significantly different, and the south-side population constitutes a new finch species. Here is her data set:

Table 1: Analysis of beak size of two populations of *Geospiza fortis*

<table>
<thead>
<tr>
<th>Finch population</th>
<th>Beak size, cm (# samples)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>North side</td>
<td>1.12 ± 0.06 (34)</td>
</tr>
<tr>
<td>South side</td>
<td>1.05 ± 0.02 (41)</td>
</tr>
</tbody>
</table>

*p-value for mean difference: p=0.06*

9. If you were a scientist reviewing her data, would you say her data provides convincing evidence that the two populations have significantly different beak sizes?
   YES     NO

10. Explain how you decided on your answer above (question 9).
11. You have two quantitative variables and want to see if there is a negative association between the two. The best thing to do is to graph the data on:
   A. a scatterplot
   B. a stemplot
   C. a histogram
   D. a pie chart
   E. an interval plot

12. This graph is an example of:
   A. a stem and leaf plot
   B. an interval plot
   C. a scatterplot
   D. a box plot
   E. a histogram
   F. a bar chart

A researcher interested in the lobster fishery analyzed a population of lobsters living in shallow waters off a cove in Maine. He measured the length of all the lobsters in the population. The data is shown below.

| Table 1: Lengths of Maine Lobsters (cm); \(N = 2,581\) |
|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| Min            | Quartile 1      | Q2 (Med)        | Quartile 3      | Max             |
| 11.4           | 23.4            | 41.1            | 56.8            | 71.5            |

13. What is true of a lobster that is 56.9 cm in length?
   A. It is bigger than about 25% of the lobsters in that area.
   B. About half the lobsters in the area are bigger, and about half are smaller that that lobster.
   C. About 75% of the lobsters are smaller than that lobster.
   D. It’s bigger than all but one of the lobsters in that area.

14. You’re a marine biologist studying starfish on the Great Barrier Reef. You’d like to see the distribution of sizes for the starfish on the reef. You should plot your data on:
   A. a histogram
   B. a pie chart
   C. a box plot
   D. an interval plot
E. a scatterplot

Biology 214 Pre-Test (administered on WebCT)

I: Properties of water Cluster

1. In this diagram of a water molecule, electrons are shown being attracted to the oxygen atom. As a result,
   A. The water molecule has a net negative charge.
   B. The covalent bonds in the water molecule are broken
   C. The water molecule is polar.
   D. The hydrogen atoms have a partial negative charge.
   E. The ionic bonds between H and O are strengthened.

2. In this figure of a substance dissolving in water, the larger sphere (Y) on the right represents a
   A. polar molecule
   B. negative ion
   C. neutral molecule
   D. positive ion
   E. hydrophobic substance

3. When water is heated, which of the following happens?
   A. water molecules are oxidized
   B. covalent bonds between hydrogen and oxygen atoms are formed
   C. the pH of the water is decreased
   D. hydrogen bonds between water molecules are broken
   E. the pH of the water is increased
4. Recent evidence shows that ocean temperatures have increased by about one-tenth of a degree over the past fifty years. This doesn’t sound like much. Why is this fact considered to be strong evidence for global warming?

   A. Water evaporates easily.
   B. Water has a high specific heat.
   C. Water is a polar molecule.
   D. Colder water is more dense and sinks.
   E. Ocean water isn’t neutral, but slightly acidic.

II: Biological Molecules cluster

1) If you mechanically shook a mixture of amphipathic lipids and water, what would you expect to see happen?
   A. The lipids and water will have separated into two distinct layers because the lipids are partially nonpolar.
   B. The lipids will have formed tiny vesicles.
   C. The lipids will have formed planar bilayer membranes.
   D. The lipids will have completely dissolved in solution because they are partially polar

2. Two DNA molecules that form a double helix are said to be “complementary” because
   A. each of their nucleotides pairs with a nucleotide on the other through hydrogen bonding.
   B. they are identical.
   C. one is composed only of pyrimidines while the other consists only of purines.
   D. one is made using ribose and the other deoxyribose.
   E. they are the same length

3. Polysaccharides, fats, proteins, and nucleic acids are similar in that they
   A. are all monomers
   B. are synthesized from monomers by the process of condensation synthesis
   C. are all polymers linked together by phosphodiester bonds between monomers
   D. are broken down (catabolized) into their constituent monomers by dehydration reactions
   E. are synthesized from monomers by the process of hydrolysis
4. What crucial property of carbon makes it the most versatile element for constructing the great variety of molecules found in living organisms?
   A. Carbon dissolves more easily in water than does silicon.
   B. Carbon is capable of forming 4 ionic bonds.
   C. Carbon is the most abundant element in the earth's crust.
   D. Carbon has 4 valence electrons that can participate in covalent bonds.
   E. The carbon nucleus can contain 6 to 8 neutrons

5. Match the molecule with its description
   ___Polysaccharide
   ___Nucleic acid
   ___Fatty Acid
   ___Amino acid
   ___Protein
   ___Lipid Bilayer

III: Respiration/energy Cluster

1. If a reaction is exergonic, then which of the following statements must be true?
   A. The products have lower potential energy than the reactants.
   B. The energy of activation is low.
   C. The products have higher potential energy than the reactants.
   D. It occurs extremely quickly.

2. When an enzyme catalyzes a reaction, which of the following occurs?
   A. the free energy of the reactants is increased
   B. the activation energy of the reaction is decreased
   C. the net change in free energy ($\Delta G$) of the reaction is increased
   D. the free energy of the products becomes greater than that of the reactants
E. none of the above are correct

3. The energy that is produced by cellular respiration comes from
   A. hydrolysis of inorganic phosphate.
   B. reduction of CO₂.
   C. oxidation of C-H and C-C bonds.
   D. anaerobic catabolism in the mitochondrial matrix.
   E. hydrolysis of ATP.

4. What is the purpose in having several steps in glycolysis or the Krebs cycle rather than a single step from glucose and oxygen to carbon dioxide and water?
   A. The multistep approach is the only way to convert glucose to carbon dioxide.
   B. The multistep approach increases the amount of potential energy in the reaction.
   C. The multistep approach makes better use of the potential energy in the reaction.
   D. The multistep approach increases the amount of heat produced in the reaction.

IV: Cell Structure Cluster

1. One cell is 2 microns across. A second cell is 4 microns across. What is true about these two cells (for simplicity, assume the cells are shaped like cubes)
   A. The second cell has a surface to volume ratio that is half that of the first cell’s. Thus, the first cell has an easier time exchanging nutrients with its environment.
   B. The second cell has a surface to volume ratio that is twice that of the first cell’s. Thus, the first cell has an easier time exchanging nutrients with its environment.
   C. The second cell has a surface to volume ratio that is half of the first cell’s. Thus, the first cell has a harder time exchanging nutrients with its environment.
   D. The second cell has a surface to volume ratio that is twice of the first cell’s. Thus, the first cell has a harder time exchanging nutrients with its environment.
   E. None of the above is correct.

2. The lumen of the nuclear envelope is continuous with
   A. the lumen of the Golgi apparatus.
   B. the nucleoplasm.
   C. the cytoplasm.
   D. the lumen of the rough endoplasmic reticulum.
E. the intermembrane space of mitochondria.

3. Which of the following would be found in an animal cell (eukaryote), but not in a bacterial cell (prokaryote)?
   A. DNA
   B. a cell wall
   C. a plasma membrane
   D. ribosomes
   E. a nucleus

4. The number and size of organelles in a cell correlates with that cell’s function. Propose a function for cells that contain extensive rough ER.
   A. rapid cell division in growing bones or muscle tissues
   B. production and processing of fatty acids and other lipids
   C. rapid movement via cell crawling
   D. production of proteins that are secreted from the cell

V. Genetic inheritance cluster

1. A man and woman are both of normal pigmentation, but both have one parent who is albino (without melanin pigmentation). Albinism is an autosomal (not sex-linked) recessive trait. What is the probability that their first child will be an albino?
   A. 0%
   B. 1/8
   C. 1/2
   D. 1/4
   E. 100%

2. A person that is heterozygous for the albinism (A) gene, has the genotype:
   a. Aa
   b. AA
   c. aa
   d. a
   e. A

3. In rabbits, the homozygous CC is normal, Cc results in deformed legs, and cc results in very short legs. The genotype BB produces black fur, Bb brown fur, and bb white fur. If a cross is made between brown rabbits with deformed legs and white rabbits with deformed legs, what percentage of the offspring would be expected to have deformed legs and white fur?
   A. 25%
   B. 33%
   C. 0%
   D. 100%
   E. 50%
4. This cross of heterozygous pea plants shows:
A. All the offspring are identical
B. 75% of the offspring have the parent’s phenotype
C. 75% of the offspring have the parent’s genotype
D. The round phenotype is recessive
E. The allele for wrinkled seeds is dominant

VI. Diffusion/osmosis cluster

1. A drop of blue food coloring is added to a gallon of water that is left undisturbed. The next morning, the gallon of water is uniformly blue. What is the best explanation for this phenomenon:
A. Someone must have swirled the jug.
B. osmosis of the food coloring through the water
C. diffusion of the food coloring through the water
D. osmosis of water

2. When a cell in the human body is depleted of glucose, glucose will move into the cell from the blood stream. This is possible because:
A. molecules move down their concentration gradient
B. molecules move up their concentration gradient
C. osmosis governs water movement in solutions
D. the burning of glucose in the cell creates a vacuum-like effect that pulls more glucose into the cell.
3. A container of water is split into two compartments, separated by a semipermeable membrane. If some sugar is mixed into the water in one of the compartments, what would happen:
A. Nothing. Sugar can’t pass through the semi-permeable membrane.
B. The water level rises on the side where the sugar was added.
C. The water level rises on the side where the sugar was not added.
D. Eventually the water on both sides of the membrane tastes sweet because of the sugar.

4) If a mammalian cell were placed in distilled water, the cell would most likely:
   A. shrivel
   B. divide
   C. remain the same size
   D. lyse

VII. Control of gene expression cluster

1. What statement is NOT true about our genes?
   A. All of our genes are always “on” – they are all important.
   B. Genes are turned off or on depending on if they are needed.
   C. In our bodies, different genes are “on” in different cell types.
   D. Genes that are on can be turned off, and vice-versa.

2. Gene expression is controlled by:
   A. “repressors” that bind the DNA
   B. control of the mRNA lifespan
   C. protein modification
   D. A and B can both be at work
   E. A, B and C may all be used

3. In positive control of gene expression, a regulatory protein must bind the gene promoter to increase the rate at which the gene is utilized. On the other hand, in negative control, an element must come off the gene before it can be used. A scientist in interested in studying the regulation of the “Saturnase” gene. She sets up an experiment where the regulatory protein for the expression of Saturnase is removed from the bacterium (by removing the regulatory protein gene). As a result of this mutation, Saturnase is constitutively (continuously) expressed. What conclusion can be made from this experiment?
   A. Because Saturnase is always expressed in the mutant, it is normally regulated by positive control.
   B. Because Saturnase is always expressed in the mutant, it is normally regulated by negative control.
   C. A different experiment needs to be done. The experiment would give the same result whether the regulatory protein used positive or negative control.
D. A different experiment needs to be done. The Saturnase gene itself must be knocked out.

4. Bacterial cells have a gene, lac Z, whose gene product, beta galactosidase, can cleave the disaccharide lactose into the sugar monomers glucose and galactose. Beta galactosidase can also cleave the chemical ONPG. When ONPG is cleaved by beta-galactosidase, it turns bright yellow.

If a bacterial colony is soaked in ONPG but does not turn yellow, what conclusion can be made about the bacteria:
A. The bacteria must be defective in the lac Z gene
B. The bacteria must be able to degrade ONPG
C. The bacteria may have a defect in the gene that makes beta galactosidase
D. The bacteria must be able to cut lactose into monomers

VIII. Genomics cluster

1. What is a gene?
A. It is the hereditary determinant for a trait.
B. It is all the hereditary information passed on from parents to offspring during reproduction.
C. It is the proteins passed from mother to child during reproduction.
D. It is a single protein that performs an enzymatic function.

2. Gene therapy involves:
A. Replacing a diseased individual’s chromosomes
B. Removing defective genes from a sick person’s genome
C. Addition of a good copy of a gene that is defective in a diseased individual
D. Injection of medications that will fix the diseased gene
1. The mitochondrion differs from organelles such as lysosomes and the Golgi apparatus in that it:
   A. contains enzymes specific to its function.
   B. does not contain proteins imported from the cytosol.
   C. is not membrane-bounded.
   D. is found in prokaryotes and eukaryotes.
   E. contains its own genome.

2. The rivets that hold animal cells together in tissues are the
   A. desmosomes
   B. tight junctions
   C. gap junctions
   D. fibronectins
   E. dyneins

3. An example of an intermediate filament is:
   A. mRNA
   B. actin
   C. microtubule
   D. keratin
   E. cytochrome c

4. The nuclear lamina binds to
   A. both the nuclear envelope and the chromatin.
   B. the nuclear envelope only.
   C. cellular chromatin only.
   D. cellular chromatin and mRNA.
   E. nuclear pore complexes and the cell cytoskeleton.

5. Small proteins (less than 20 kDa) enter nuclei by way of
   A. passive diffusion across the nuclear envelope.
   B. selective transport through nuclear pore complexes.
   C. passive diffusion through nuclear pore complexes.
   D. active transport across the nuclear envelope.
   E. facilitated diffusion across the nuclear envelope.

6. Which of the following does not take place in the nucleus?
   A. DNA replication
   B. Transcription
   C. RNA processing
   D. Translation

7. Actin filaments are approximately _______ in diameter.
   A. 5 Angstroms
   B. 7 nanometers
   C. 11 millimeters
D. 100 millimeter
E. 0.5 Angstroms

8. The GLUT-1 glucose-facilitated diffusion transporter can transport glucose:
   A. out of liver and intestinal cells only.
   B. against its concentration gradient.
   C. by helping glucose through the hydrophobic cell membrane.
   D. by creating an open pore in the lipid bilayer.
   E. only in the presence of an energy source such as ATP.

9. Molecules that diffuse passively across the plasma membrane most rapidly are:
   A. small
   B. hydrophylic
   C. small and hydrophilic
   D. small and hydrophobic

10. The light-dependent generation of ATP in photosynthesis occurs in the:
    A. Golgi stack
    B. Matrix
    C. Stroma
    D. Inner membrane
    E. Thylakoid membrane

11. The basic structural polysaccharide of fungal cell walls, crab shells, and insect exoskeletons is:
    A. chitin
    B. cellulose
    C. actin
    D. collagen
    E. amylopectin

12. Mitochondrial and chloroplast proteins are synthesized on:
    A. ER ribosomes
    B. Free cytosolic ribosomes
    C. Organellar ribosomes
    D. Both b and c
    E. All of the above

13. The eukaryotic cell cycle is composed of four phases in the following order:
    A. G1; M; G2; S.
    B. G1; G2; S; M
    C. G1; S; G2; M.
    D. S; G1; G2; M.

14. A signal transduction cascade most often:
    A. takes an intracellular signal and transmits it to the environment outside the cell.
B. begins by the stimulation of a tight junction protein on a cell membrane.
C. might consist of a series of proteins that are phosphorylated one after the other.
D. uses a G-protein to stimulate a receptor tyrosine kinase.

15. The principal distinction made between eukaryotic and prokaryotic cells is that:
   A. eukaryotic cells have larger ribosomes than prokaryotic cells.
   B. a nucleus, while prokaryotic cells do not.
   C. cell walls, while prokaryotic cells do not.
   D. DNA replication and transcription in the same compartment, while prokaryotic cells do not.
   E. cilia, while prokaryotic cells do not.

16. The nuclear envelope is continuous with the
   A. mitochondrial outer membrane.
   B. nuclear inner membrane.
   C. Golgi apparatus.
   D. plasma membrane.
   E. rough endoplasmic reticulum.

17. Kinesin and dynein are
   A. intermediate filament proteins.
   B. microtubule motor proteins.
   C. part of the electron transport chain.
   D. used in photosynthesis.
   E. important for proper mitosis.

18. Which of the following proteins do not pass through the Golgi apparatus?
   A. Ribosomal proteins
   B. Lysosomal enzymes
   C. Cell surface proteins
   D. Secreted proteins
   E. Cis-Golgi proteins

19. In terms of its role in the generation of metabolic energy, the inner membrane in mitochondria is equivalent to which of the following in chloroplasts?
   A. The inner membrane
   B. The thylakoid membrane
   C. The outer membrane
   D. The stroma
   E. The nuclear envelope

20. The most abundant protein on Earth is
   A. cytochrome C
   B. cholesterol
   C. tubulin
   D. ATP synthase
E. rubisco
Progress Report: Assessments of Undergraduate Curriculum

As provisioned for in the 2007-2009 CBN Assessment Plan, the department’s assessment efforts have included both formative and summative components and have been conducted at the program and individual course levels. The assessment plan includes both program evaluation and learning assessment measures, however the majority of the recent assessment efforts have focused on program and curriculum evaluation.

• **Course Evaluations**
  Course-level surveys have been used to collect data on student perceptions of CBN classes. In addition to the university-wide Knapp evaluation forms, an additional end-of-semester course evaluation survey has been administered in CBN courses. In many cases, this survey was also administered as a formative tool at the mid-semester point. Items on the course survey include Likert-scale questions evaluation course and pedagogical elements like the quality of the lectures, pace and workload, and whether learning objectives have been met. The evaluation also has several open-ended questions. These questions ask students to share data on what components of the course helped them learn and what elements made learning more challenging, as well as solicited for concrete suggestions for improving the course. Faculty were active participants in the design of the evaluation process at the course-level. Each faculty member was given the opportunity to add any question to the course surveys that would provide data to inform their teaching of the course and improve student performance.

• **Program-Level Evaluations**
  Both a mid-curriculum survey and senior survey were administered to collect student perceptions of the academic program. In each survey, students are asked to share suggestions for improving the curriculum. Additionally, the senior survey is used to collect student tracking data. Students enrolled in the senior capstone course are asked to provide information on their post-graduation plans as well share current and permanent contact information. This information has been collected and stored in a centralized location. Follow-up surveys and points of contact have been planned but have not yet been carried out.

• **Course-Level Assessments**
  Several courses implemented multi-level course-level assessments. These assessments included pre-course assessments to gauge students’ prior knowledge and preparedness for course materials, mid-course assessments used to gauge student learning and allow for mid-course content and pedagogical adjustments, and end-of-course embedded summative assessment to quantitatively gauge learning outcomes.

• **Faculty Peer Reviews**
  The department has been engaged in a peer review process. This process pairs senior faculty members with junior faculty members, and includes class observations and
follow-up meetings. Following the observation, the review process suggests that faculty/reviewer teams meet to discuss the results and collaboratively work toward course improvement. Although at times there has been little follow through with faculty completing their peer review commitments, the process is in place. With some improvement, including revisiting the observation process and follow-up discussion protocol, the peer review could provide data very useful for program improvement.

- **Student Tracking**
The 2007-2009 CBN assessment plan stated that tracking of retention and completion rates would occur. Data on student enrollment, and retention and graduation rates would be compiled and analyzed. The retention in 2007 provides a snapshot of our retention. Starting with a freshman class of 115 majors, we lost 44 majors between freshman and sophomore year. 11 left the university, 6 went on probation, and 3 moved to University studies while the remainder moved to other majors at MSU. We gained 23 majors sophomore year, 8 of these were from University studies, 5 were transfers from other departments, and the rest came from other majors at MSU. At the macroscopic level, our retention rate was 81%, but nearly a third of our program moved into, or out of, the major. The 2007-2009 plan also called for collection of data on graduating senior’s GPAs, reported post-graduation plans, research activities, and acceptance into graduate or professional schools be tracked in a database. Attempts to ask students to send official GRE, MCAT and other professional school entrance exam scores were unsuccessful. Although continued efforts to collect this data have been equally challenging, continued collaboration with the MSU Office of Planning and Analysis have produced several promising data harvesting tools. More work is needed in this area, but preliminary efforts have shown that successful student tracking is possible.

- **Dissemination**
The current assessment data dissemination model has been limited. Course evaluations and assessments are shared only with the individual faculty member teaching that course. In some cases where courses have multiple laboratory sections, course evaluation and assessment data is shared with TAs too.

**Assessment Plan Shortcomings**

- **Need for Competencies**
Although broad learning objectives were defined in the 2007-2009 CBN Assessment Plan, there currently exists no agreed upon set of competencies within the department. Such a set of competencies could be use to better articulate the knowledge, skills, and attitudes students should master prior to graduation. Competencies could inform the development of a set of benchmarks used to assess student progress through the curriculum. Such a set of competencies could also be used as the framework for curriculum revision, and for the development of a mission statement that could drive departmental learning goals and objectives.

- **Course Assessments**
Although embedded assessments were administered in several CBN courses, more widespread use of learning gains assessments should be conducted. Data should be analyzed comparatively from section to section and year to year. The adoption of core competencies could be useful in the development of the CBN assessments. Additionally, a mid-curriculum formative assessment administered to juniors, and a senior assessment should also provide data useful for course and curriculum improvement.

- **Student Tracking**  
  Although some student tracking data has been collected, more data collection is needed to better understand departmental retention. Possible improvements to the CBN tracking system include further collaboration with the MSU Office of Planning and Analysis and the development of better database.

- **Wider Dissemination Model**  
  The current assessment data dissemination model is fairly limited. Course evaluations are shared with only the instructor of the course and mid-curriculum and senior survey data is shared only with the department head. Assessment should become a recurring agenda item at faculty meetings, with a meeting devoted solely to assessment held once a year. In the interest of promoting transparency and improving the CBN curriculum, course evaluations and assessments should be shared within the department and discussed regularly.

**Plan for changes to our assessment of Undergraduate learning.**

- **Revising how we use assessment data: striving for transparency**  
  Currently the assessment specialist and department head work closely to use the assessment data to identify problems in the classroom, instructor performance, and student feedback for changes to the curriculum. While we have been responsive, and changed, our process has lacked shared governance and insights. Beginning this year, we will work to develop a culture of transparency by:
  1) sharing and discussing, in a department faculty meeting, assessment results each semester as soon as they are available.  
  2) using the data as a guide post for discussions concerning how we can deliver better courses and improve student learning.  
  3) using the data from 100 and 200 level courses to evaluate the student experience and dynamically adjust the 300 and 400 level courses as needed.

- **Yearly curriculum review**  
  Our assessment to date has largely focused on course and instructor evaluation. While this serves to help us identify problems and perfect our craft as educators, it does not address the more fundamental issues regarding content and goals in our courses. What

---

1 Typically assessment data is available in the first month of the following semester.
should we be teaching? Quite recently a joint venture between the HHMI and AAMC produced a new view of what the scientific foundations should be for students entering medical school. This is coupled with a commitment to change the MCAT exams by 2013 to better test for competencies rather than memorized content.

Our faculty have discussed the report in general terms, and as a part of our ongoing curriculum reform we plan to:
1) First develop modules that address the core competencies identified in the report.
2) Work to integrate these modules into existing courses or new ones.
3) Align the competencies with course level assessments to better gauge learning.
4) Use the learning objectives detailed in the report to generate new outcome-based assessment tools for evaluating the new modules.

- **Tracking student retention & success beyond graduation**

  Our attempts to track student retention and success have been limited. Our plan is to:
  1) build a student tracking database with assistance from the office of planning and analysis.
  2) determine how we can use the database to identify students struggling with the curriculum and likely to leave the university environment.
  3) determine how we can use the database to track students after graduation to identify correlates between academic performance and post-graduate success in different biomedical fields.

---

2 See [http://www.hhmi.org/grants/sffp.html](http://www.hhmi.org/grants/sffp.html) for a detailed analysis of premedical education and new suggestions for the kind of competencies we should be considering while modifying our curriculum.

3 Gwen Jacobs, in our department, is the PI of an HHMI grant to revise how we teach biology at MSU.
MSU Departmental Assessment Update  
Spring 2007

Department: Civil Engineering
Department Head: Brett Gunnink
Assessment Coordinator: Joel Cahoon
Date: June 2007

Degrees/Majors/Options Offered by Department

B.S. Civil Engineering
B.S. Civil Engineering with the Bio-Resources Engineering Option
B.S. Construction Engineering Technology
In March of 2005, the Civil Engineering Advisory Board (CEAB) met to help the department develop and use a process for directly assessing student performance relative to the Civil Engineering (CE) learning outcomes. Fourteen advisory board members, three CE faculty and two CE graduate students participated. Most of the attendees were present for the entire process, with a few folks having to step in and out depending on their availability throughout the 2-day session.

Prior to the meeting, all participants received a packet of materials that included a sample portfolio of student work and an assessment sheet (a blank assessment sheet is shown in Appendix A) that had been developed to address the CE learning outcomes. Participants completed this trial assessment prior to the meeting, and the first session of the meeting was dedicated to discussing those assessments in order to calibrate scoring of the remaining portfolios.

Twelve student portfolios were then evaluated during the meeting. Each portfolio included three randomly chosen papers: one from CE 320 (Geotechnical Engineering); one from CE 401 (Professional Practice and Ethics); and one from either CE 457 or CE 458 (Senior Project I and II). The assessments were conducted in groups of three (two for one group); thus, each portfolio was scored by at least two and generally three people.

Following the portfolio assessment, the participants were asked to complete the same assessment form, but this time with the answers based on all of the papers they had read. In addition, we asked the participants to complete the same form again, but based on all of their collective experience with the CE students and knowledge of the program, including observations as students, alumni, employers, and employees.

So, the outcomes assessment form was used many times during the exercise:

a) to assess the packet mailed out before the meeting to calibrate scoring,
b) to assess each portfolio individually during the meeting,
c) to collectively assess all the items in a) and b) combined, and
d) to assess the program as a whole using all knowledge and observations of the program.
The last step in the direct assessment exercise was to convene a focus group of faculty to make recommendations for final refinements to the direct assessment process, including portfolio contents, sampling and distribution, alterations to the assessment form, and overall methods for collecting assessment data.

Based on other indirect assessments (senior exit interviews, feedback from employers and alumni, etc.), the CEAB was also directed to help the department develop a specific set of outcomes for writing competency and to prepare and test a separate assessment form that could be used in many venues to help enhance the students writing ability. The results of this exercise are included here also.

Finally, a curriculum change has resulted from a combination of the direct assessment of learning outcomes, the direct assessment of writing outcomes, and indirect methods used in the past. Beginning in the Fall 2006 semester, CE 101 will become an optional course (not required) intended only for those students identified during freshman orientation as being unsure that they are in the correct major. The then-available credit-hour will be added to CE 202 (a required course for all CE majors) to add a writing component to the course where writing topics and expectations specific to the major will be included.

**Learning Outcomes Direct Assessment: Results and Discussion**

The results of assessments made during the March 2005 Advisory Board meeting are shown in Table 1. The three columns correspond with the lettering of assessment activities above, and are:

*Column b*) These scores are based on assessments of the portfolios of student work, and are the average response to all of the evaluations of all 12 portfolios for each outcome. The evaluations of each portfolio, in addition to the comments made by the evaluators, are shown in the more detailed Appendix B.

*Column c*) These mean scores are based on all the student work read by the participants, including papers received prior to the meeting. Details are in Appendix C.

*Column d*) These mean scores are based on all experience with the MSU CE program, including hiring students from the program or completing a degree in the program (some advisory board members are alumni). Details are in Appendix D.

Overall, these are positive results for most of the outcomes. One particular high point is the high scores for “an understanding of teamwork and the value of multiple disciplines.” Nationally, one of the most frequent complaints from employers is that newly graduated engineers do not work well in teams. Also, students’ technical skills received some of the highest scores on the evaluations based on all experience.

The outcomes that show fairly large differences in scores based on the portfolios and scores based on all experience are likely an artifact of portfolios that did not include substantial evidence relating to those outcomes, for example “competence in mechanics, mathematics, and engineering sciences”.

The results show two areas that rank below average (3.0):
• Awareness of ethical practice and the importance of licensure. The lower scores on this outcome could be a result of confusion about the wording of the outcome itself. Several participants commented that the “importance of licensure” couldn’t be evaluated from the paper samples. In addition, the samples from CE 401, Professional Practice and Ethics, were very short assignments that did not require much in-depth analysis. However, the evaluation of this outcome based on all experience is also lower than the others.
• Ability to communicate to a broad array of technical and non-technical audiences. Comments during the meeting, comments on the evaluation forms, and the scores themselves provide consistent feedback that communication skills could be improved.

Table 1. Results of the March 2005 outcomes assessment (1 = poor; 2 = fair; 3 = average; 4 = good; 5 = excellent).

<table>
<thead>
<tr>
<th>Program Outcome</th>
<th>Column b) Portfolios</th>
<th>Column c) All Papers</th>
<th>Column d) All Experience</th>
</tr>
</thead>
<tbody>
<tr>
<td>Demonstrates skills in math, science, and engineering with an emphasis on solving engineering problems utilizing fundamental engineering principals including engineering logic, traditional analytical methods, modern software, and experimental apparatus.</td>
<td>3.57</td>
<td>3.67</td>
<td>3.93</td>
</tr>
<tr>
<td>Shows competence in mechanics, mathematics, and engineering sciences.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3.46</td>
<td>3.74</td>
<td>4.00</td>
</tr>
<tr>
<td>Shows capability in using modern software as a standard tool in the design or analysis process.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3.50</td>
<td>3.32</td>
<td>3.50</td>
</tr>
<tr>
<td>Demonstrates an understanding and philosophy that promotes engineering practice founded in technical integrity, ethics, social and environmental responsibility, global awareness, and a recognition of preparing themselves for continued education and independent thought.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3.59</td>
<td>3.15</td>
<td>3.54</td>
</tr>
<tr>
<td>Shows an awareness of ethical practice and the importance of licensure.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3.33</td>
<td>2.72</td>
<td>3.30</td>
</tr>
<tr>
<td>Considers social views and the environment in the design work proposed and performed.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3.77</td>
<td>3.53</td>
<td>3.57</td>
</tr>
<tr>
<td>Demonstrates the ability to assimilate course material from multiple courses, design a system or process, communicate that design effectively through verbal and written means, and work effectively on a design team.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3.71</td>
<td>3.35</td>
<td>3.73</td>
</tr>
<tr>
<td>Shows a broad understanding over the whole of Civil Engineering.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3.67</td>
<td>3.47</td>
<td>4.03</td>
</tr>
<tr>
<td>Shows an understanding of teamwork and the value of multiple disciplines.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3.87</td>
<td>3.47</td>
<td>3.67</td>
</tr>
</tbody>
</table>
The overall evaluation of CE students that was based on all experiences was generally average to good, with very few evaluations in the “fair” category. The highest score was for “competence in mechanics, mathematics, and engineering sciences”; the lowest scores were for “awareness of ethical practice and the importance of licensure” and “ability to communicate to a broad array of technical and non-technical audiences.

The assessments based on the student portfolios followed a slightly different pattern from the overall assessments, with the highest scores for “understanding of teamwork and the value of multiple disciplines” and “considers social views and the environment in the design work proposed and performed.” The lowest scores were for “awareness of ethical practice and the importance of licensure” and “competence in mechanics, mathematics, and engineering sciences.

### Recommendations for Improving the Process based on the March 2005 CEAB

The process highlighted some flaws in the choice of student work for portfolios and in the wording of the outcomes. For example, the fact that “competence in mechanics, mathematics, and engineering sciences” was the highest-rated competency based on experience but the lowest from the student work indicates that the samples did not show the full competency of students in this area. In addition, the fact that the portfolios included work from three different students may have made it difficult to evaluate some outcomes (writing in particular). Also, some outcomes include more than one competency, which complicates the assessment process.

The CE department could take several steps to improve the assessment process so that future evaluators find it easier to complete the assessment and the results are more valid. Possible improvements include:

- Restating the outcomes so that each outcome includes only one competency, or clearly states sub-categories within an outcome.

- Developing other ways to assess some outcomes that are not easily assessed through student work, for example, “Shows a basic understanding of the procurement of engineering services” and “Shows an understanding of teamwork and the value of multiple disciplines.”

- Include in the portfolios samples that more clearly show some of the outcomes. For example, many participants commented that there was very little “engineering” in the sample documents. The need for more samples of student work should be balanced, though, with the overall goal of keeping the portfolios as small as possible.

- Include in the portfolios more information about the assignment for the student work, including how groups were structured if the assignment is a group assignment.

- Ideally, work toward a process that samples student portfolios by student rather than the present process, which includes the work of several students in one portfolio.
Another activity that should be undertaken is to determine appropriate targets for direct assessment results. A reasonable approach would be for the department to determine what the goal for each directly assessed outcome should be. For example, the department could determine that mean scores of 4.0 (good) for all outcomes over a period of years should be a target. This is a topic of discussion for the 2005 CE summer retreat.

Refinements and Recommendations from the Faculty Focus Group

After the results of the CEAB assessment exercise were examined, a focus group of CE faculty was convened to arrive at refinements to the process. The following recommendations resulted:

- A five point scale is appropriate on the assessment form, but the words corresponding to each rank should be more descriptive. The words will be changed from:

  poor    fair    average    good    excellent

  to:

  far below average    below average    average    above average    far above average

- The portfolios that will be sent to each CEAB member each spring will continue to contain samples of work from CE 320, CE 401, CE 457 and CE 548.

- Each semester, the instructors of the portfolio sample courses will randomly choose the names of three students. Throughout the semester, the instructor will photocopy all of the work submitted by these three students prior to marking or grading, and noting the extent to which the work represents group or individual effort. This sampling method will provide six unique portfolios each year that will be sent to evaluators in the spring. Any student that does not receive the minimum passing grade in the class (D in CE 320 and CE 401, C- in CE 457/458) will be removed from the sample.

- The assessment form is housed at a web site for general use. It can be accessed at

  http://www.surveymonkey.com/s.asp?u=27271140389

  A printed version (which will always be available for use in settings where the internet based version is inappropriate) is shown in Appendix E.

  Note: We no longer use the web-based survey as of Fall 2006. From experience we know the printed version will suffice.

- The direct assessment survey will be used in a variety of settings, including but not limited to:

  senior exit interviews,
  alumni (2 and 5 year) surveys,
  employer surveys, and
  ad-hoc surveys during events such as the Engineering Festival.
Development and Assessment of Writing Outcomes

At the March 2005 CE Advisory Board meeting, board members, CE faculty, and CE graduate students developed a draft of writing outcomes assessment tool for CE students. The process involved three steps:

a) Describe the writing-based outcomes that are expected from CE students via group discussion.

b) Develop a form for use in assessing writing outcomes for Civil Engineering students.

c) As a test, use the results of b) to evaluate two randomly selected sample papers from CE 458 (the final senior capstone design course).

Discussion of Outcomes

The group discussion identified outcomes that CE students are expected to demonstrate. These are summarized as:

CE Writing Outcomes

*Students who graduate with a B.S. degree in Civil Engineering should know the following about writing.*

General writing outcomes - students should know:

- the importance of writing in the profession of civil engineering
- that writing is a process that involves planning (e.g., understanding the problem and responding to the questions), outlining, drafting, and revision
- that understanding the audience is key to effective communication
- that understanding the purpose is key to effective communication
- common technical report, correspondence, job search, and proposal, specification, and drawing formats
- that effective communication involves both style and substance
- the professional responsibilities connected to communication

More specifically, students should have the following writing skills. In regard to the content of a written communication, students should be able to:

- include the appropriate information and the appropriate level of detail for the audience
- address the question/problem and provide indicate why the information provided is important
- construct a logical and persuasive argument
• develop an introduction that provides appropriate background, a purpose statement, and the scope of the document
• clearly describe assumptions, methods/approach, design criteria, and software use
• clearly and succinctly state and support conclusions
• summarize, particularly for decision makers (e.g., executive summaries)
• understand when to cite references and how to paraphrase
• describe the schedule for a project

In regard to the structure of the content in a written communication, students should be able to:

• structure information in a logical order
• develop coherent paragraphs
• connect ideas with transitions
• create a usable table of contents
• use headings effectively to give the reader better access to the information
• use lists when appropriate

In regard to page design and the use of graphic aids in a written communication, students should be able to:

• understand not only when to present information in a graphic aid (for example, to summarize, emphasize, give the big picture) but also what type of graphic aid is most appropriate for the purpose and audience
• create graphic aids that not only are appropriate for the audience, but also are readable and consistent
• integrate graphic aids with text, both physically and verbally
• understand effective use of design elements (e.g., font, color, and layout)

In regard to writing style, grammar, and mechanics, the final product should show the students ability to:

• produce standard formal English (correct grammar, punctuation, spelling, and mechanics)
• write concise sentences and paragraphs
• use both active and passive voice, whichever is appropriate
• achieve the appropriate tone for the context, including the ability to achieve (1) a professional, formal tone and (2) a tone that indicates strength without arrogance
• use acronyms correctly
• avoid jargon (unless appropriate for the reader)
• correctly use numbers and units in text
• cite references in text when appropriate and list references cited in an accepted format
Developing the Draft Writing Assessment Form

A survey-type draft assessment form is shown below, and was arrived at by grouping and combining similar themes from the writing outcomes listed above. The scale was set at 5 points (poor = 1, fair = 2, average = 3, above average = 4, excellent = 5). The draft is presented below.

### CE Writing Assessment Tool

<table>
<thead>
<tr>
<th>Content</th>
<th>poor</th>
<th>fair</th>
<th>average</th>
<th>above ave.</th>
<th>excellent</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. includes the appropriate information and the appropriate level of detail for the audience</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. addresses the question/problem and provide an answer to why the information provided is important</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. constructs a logical and persuasive argument</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. develops an introduction that provides appropriate background, a purpose statement, and the scope of the document</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. clearly describes assumptions, methods/approach, design criteria, and software use</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. clearly and succinctly states and supports conclusions</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. summarizes, particularly for decision makers</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. understands when to cite references and how to paraphrase</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. describes the schedule for a project</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>10. Content Overall</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Organization</th>
<th>poor</th>
<th>fair</th>
<th>average</th>
<th>above ave.</th>
<th>excellent</th>
</tr>
</thead>
<tbody>
<tr>
<td>11. structures information in a logical order</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. creates a usable table of contents</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13. develops coherent paragraphs</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14. connects ideas with transitions</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15. uses headings effectively to give the reader better access to the information</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16. uses lists when appropriate</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>17. Organization Overall</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Page design and use of graphic aids</td>
<td>poor</td>
<td>fair</td>
<td>average</td>
<td>above ave</td>
<td>excellent</td>
</tr>
<tr>
<td>-------------------------------------</td>
<td>------</td>
<td>------</td>
<td>---------</td>
<td>-----------</td>
<td>-----------</td>
</tr>
<tr>
<td>18. shows understanding not only of when to present information in a graphic aid (for example, to summarize, emphasize, give the big picture) but also of what type of graphic aid is most appropriate for the purpose and audience</td>
<td>poor</td>
<td>fair</td>
<td>average</td>
<td>above ave</td>
<td>excellent</td>
</tr>
<tr>
<td>19. shows graphic aids that not only are appropriate for the audience, but also are readable and consistent</td>
<td>poor</td>
<td>fair</td>
<td>average</td>
<td>above ave</td>
<td>excellent</td>
</tr>
<tr>
<td>20. integrates graphic aids with text, both physically and verbally</td>
<td>poor</td>
<td>fair</td>
<td>average</td>
<td>above ave</td>
<td>excellent</td>
</tr>
<tr>
<td>21. shows understanding of effective use of design elements (e.g., font, color, and layout)</td>
<td>poor</td>
<td>fair</td>
<td>average</td>
<td>above ave</td>
<td>excellent</td>
</tr>
<tr>
<td>22. Page design &amp; graphic aids overall</td>
<td>poor</td>
<td>fair</td>
<td>average</td>
<td>above ave</td>
<td>excellent</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Writing style, grammar, &amp; mechanics</th>
<th>poor</th>
<th>fair</th>
<th>average</th>
<th>above ave</th>
<th>excellent</th>
</tr>
</thead>
<tbody>
<tr>
<td>23. shows standard formal English (correct grammar, punctuation, spelling, and mechanics)</td>
<td>poor</td>
<td>fair</td>
<td>average</td>
<td>above ave</td>
<td>excellent</td>
</tr>
<tr>
<td>24. concise sentences and paragraphs</td>
<td>poor</td>
<td>fair</td>
<td>average</td>
<td>above ave</td>
<td>excellent</td>
</tr>
<tr>
<td>25. uses both active and passive voice, whichever is appropriate</td>
<td>poor</td>
<td>fair</td>
<td>average</td>
<td>above ave</td>
<td>excellent</td>
</tr>
<tr>
<td>26. achieves the appropriate tone for the context, including the ability to achieve (1) a professional, formal tone and (2) a tone that indicates strength without arrogance</td>
<td>poor</td>
<td>fair</td>
<td>average</td>
<td>above ave</td>
<td>excellent</td>
</tr>
<tr>
<td>27. uses acronyms correctly</td>
<td>poor</td>
<td>fair</td>
<td>average</td>
<td>above ave</td>
<td>excellent</td>
</tr>
<tr>
<td>28. avoids jargon (unless appropriate)</td>
<td>poor</td>
<td>fair</td>
<td>average</td>
<td>above ave</td>
<td>excellent</td>
</tr>
<tr>
<td>29. correctly uses numbers and units in text</td>
<td>poor</td>
<td>fair</td>
<td>average</td>
<td>above ave</td>
<td>excellent</td>
</tr>
<tr>
<td>30. cites references in text when appropriate and lists references cited in an accepted format</td>
<td>poor</td>
<td>fair</td>
<td>average</td>
<td>above ave</td>
<td>excellent</td>
</tr>
<tr>
<td>31. Writing style/grammar/mechanics overall</td>
<td>poor</td>
<td>fair</td>
<td>average</td>
<td>above ave</td>
<td>excellent</td>
</tr>
</tbody>
</table>

Test of the Draft Writing Assessment Tool

Seventeen people evaluated Paper #1, and eighteen people evaluated Paper #2 (papers from CE 458). The scores for the papers are shown in the table below. Following the table is a brief summary of the results and recommendations for the outcomes and for the assessment process.
<table>
<thead>
<tr>
<th>Content</th>
<th>Mean Score Paper #1</th>
<th>Mean Score Paper #2</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. includes the appropriate information and the appropriate level of</td>
<td>3.94</td>
<td>2.56</td>
</tr>
<tr>
<td>detail for the audience</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. addresses the question/problem and provides an answer to why</td>
<td>3.68</td>
<td>2.89</td>
</tr>
<tr>
<td>the information provided is important</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. constructs a logical and persuasive argument</td>
<td>3.24</td>
<td>2.19</td>
</tr>
<tr>
<td>4. develops an introduction that provides appropriate background,</td>
<td>3.76</td>
<td>3.00</td>
</tr>
<tr>
<td>a purpose statement, and the scope of the document</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. clearly describes assumptions, methods/approach, design criteria,</td>
<td>2.94</td>
<td>2.39</td>
</tr>
<tr>
<td>and software use</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. clearly and succinctly states and supports conclusions</td>
<td>3.21</td>
<td>2.11</td>
</tr>
<tr>
<td>7. summarizes, particularly for decision makers</td>
<td>3.82</td>
<td>2.72</td>
</tr>
<tr>
<td>8. understands when to cite references and how to paraphrase</td>
<td>3.06</td>
<td>2.21</td>
</tr>
<tr>
<td>9. describes the schedule for a project</td>
<td>1.42</td>
<td>1.88</td>
</tr>
<tr>
<td>10. Content Overall</td>
<td>3.67</td>
<td>2.69</td>
</tr>
<tr>
<td>Organization</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. structures information in a logical order</td>
<td>3.91</td>
<td>2.81</td>
</tr>
<tr>
<td>12. creates a usable table of contents</td>
<td>4.00</td>
<td>2.76</td>
</tr>
<tr>
<td>13. develops coherent paragraphs</td>
<td>3.65</td>
<td>2.78</td>
</tr>
<tr>
<td>14. connects ideas with transitions</td>
<td>3.32</td>
<td>2.44</td>
</tr>
<tr>
<td>15. uses headings effectively to give the reader better access to the</td>
<td>3.85</td>
<td>2.92</td>
</tr>
<tr>
<td>information</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16. uses lists when appropriate</td>
<td>3.26</td>
<td>2.33</td>
</tr>
<tr>
<td>17. Organization Overall</td>
<td>3.77</td>
<td>2.72</td>
</tr>
<tr>
<td>Page Design and use of graphic aids</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18. shows understanding not only of when to present information in</td>
<td>3.32</td>
<td>2.50</td>
</tr>
<tr>
<td>a graphic aid (for example, to summarize, emphasize, give the big</td>
<td></td>
<td></td>
</tr>
<tr>
<td>picture) but also of what type of graphic aid is most appropriate for</td>
<td></td>
<td></td>
</tr>
<tr>
<td>the audience</td>
<td></td>
<td></td>
</tr>
<tr>
<td>19. shows graphic aids that not only are appropriate for the</td>
<td>3.88</td>
<td>2.47</td>
</tr>
<tr>
<td>audience, but also are readable and consistent</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20. integrates graphic aids with text, both physically and verbally</td>
<td>3.76</td>
<td>2.11</td>
</tr>
<tr>
<td>21. shows understanding of effective use of design elements (e.g.,</td>
<td>3.82</td>
<td>2.53</td>
</tr>
<tr>
<td>font, color, and layout)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>22. Page design &amp; graphic aids overall</td>
<td>3.76</td>
<td>2.36</td>
</tr>
<tr>
<td>Writing style, grammar, &amp; mechanics</td>
<td></td>
<td></td>
</tr>
<tr>
<td>23. shows standard formal English (correct grammar, punctuation,</td>
<td>3.09</td>
<td>3.22</td>
</tr>
<tr>
<td>spelling, and mechanics)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>24. concise sentences and paragraphs</td>
<td>3.35</td>
<td>2.94</td>
</tr>
<tr>
<td>25. uses both active and passive voice, whichever is appropriate</td>
<td>3.18</td>
<td>2.85</td>
</tr>
<tr>
<td>26. achieves the appropriate tone for the context, including the</td>
<td>3.26</td>
<td>2.97</td>
</tr>
<tr>
<td>ability to achieve (1) a professional, formal tone and (2) a tone</td>
<td></td>
<td></td>
</tr>
<tr>
<td>that indicates strength without arrogance</td>
<td></td>
<td></td>
</tr>
<tr>
<td>27. uses acronyms correctly</td>
<td>3.50</td>
<td>2.67</td>
</tr>
<tr>
<td>28. avoids jargon (unless appropriate)</td>
<td>3.53</td>
<td>2.86</td>
</tr>
<tr>
<td>29. correctly uses numbers and units in text</td>
<td>3.12</td>
<td>2.69</td>
</tr>
<tr>
<td>30. cites references in text when appropriate and lists references</td>
<td>3.26</td>
<td>2.41</td>
</tr>
<tr>
<td>cited in an accepted format</td>
<td></td>
<td></td>
</tr>
<tr>
<td>31. Writing style, grammar, mechanics Overall</td>
<td>3.35</td>
<td>2.88</td>
</tr>
</tbody>
</table>
Clearly, of the two writing samples used in the test, Paper 1 was a better paper than Paper 2. It is interesting, though, that the writer of Paper 2 may have actually had a better command of the language than the writer of Paper 1 (see the result for outcome 22). Paper 2 obviously lacked in other areas, particularly substance. It is not necessary to draw any conclusions from this small sample, because this was not a direct assessment of student work, but rather a test of the assessment tool. However, it can be said that if the tool were used to evaluate a larger sample of individually written papers, and more of them were like Paper 1 than like Paper 2, CE students would be fairly well prepared to write at work.

Recommendations for the Writing Outcomes and for the Writing Assessment Process

Developing this draft of expected writing outcomes and an assessment tool was a very important first step in assessing CE student writing on an ongoing basis. Below are some recommendations for proceeding from this important first step.

• These outcomes are realistic and comprehensive; however, they are dynamic, and could change as a result of future assessment cycles. One suggestion is to eliminate Outcome 9 (describes the schedule for a project) unless the assignments for CE 457 and 458 clearly require a schedule. The department should decide if scheduling a project is an important learning objective for students.

• The method by which writing samples should be collected for the ongoing assessment process should be considered further. For example, the portfolio might include one “high-stakes” writing sample at the senior level. The assignment should be individually written. A random sample of these assignments could be assessed, using the writing outcomes, at the same time that the more general program outcomes are assessed.

The outcomes should be communicated to students and used as frequently as possible for evaluating course assignments. Faculty do not need to use the entire list of outcomes if all do not apply for a particular assignment. However, the outcomes do provide a handy evaluation tool that is consistent from one course to another.
### Civil Engineering Outcomes Assessment

<table>
<thead>
<tr>
<th>Program Outcome</th>
<th>Evaluation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Demonstrates skills in math, science, and engineering with an emphasis on solving engineering problems utilizing fundamental engineering principals including engineering logic, traditional analytical methods, modern software, and experimental apparatus.</td>
<td>____ ____ ____ ____ ____</td>
</tr>
<tr>
<td>poor fair average good excellent can’t evaluate from this work</td>
<td>Comments:</td>
</tr>
<tr>
<td>Shows competence in mechanics, mathematics, and engineering sciences.</td>
<td>____ ____ ____ ____ ____</td>
</tr>
<tr>
<td>poor fair average good excellent can’t evaluate from this work</td>
<td>Comments:</td>
</tr>
<tr>
<td>Shows capability in using modern software as a standard tool in the design or analysis process.</td>
<td>____ ____ ____ ____ ____</td>
</tr>
<tr>
<td>poor fair average good excellent can’t evaluate from this work</td>
<td>Comments:</td>
</tr>
<tr>
<td>Demonstrates an understanding and philosophy that promotes engineering practice founded in technical integrity, ethics, social and environmental responsibility, global awareness, and a recognition of preparing themselves for continued education and independent thought.</td>
<td>____ ____ ____ ____ ____</td>
</tr>
<tr>
<td>poor fair average good excellent can’t evaluate from this work</td>
<td>Comments: Some decisions not ethically supported.</td>
</tr>
<tr>
<td>Shows an awareness of ethical practice and the importance of licensure.</td>
<td>____ ____ ____ ____ ____</td>
</tr>
<tr>
<td>poor fair average good excellent can’t evaluate from this work</td>
<td>Comments:</td>
</tr>
<tr>
<td></td>
<td>___</td>
</tr>
<tr>
<td></td>
<td>poor</td>
</tr>
<tr>
<td>Comments:</td>
<td></td>
</tr>
<tr>
<td>Considers social views and the environment in the design work</td>
<td>___</td>
</tr>
<tr>
<td>proposed and performed.</td>
<td>poor</td>
</tr>
<tr>
<td>Comments:</td>
<td></td>
</tr>
<tr>
<td>Demonstrates the ability to assimilate course material from</td>
<td>___</td>
</tr>
<tr>
<td>multiple courses, design a system or process, communicate that</td>
<td>poor</td>
</tr>
<tr>
<td>design effectively through verbal and written means, and work</td>
<td></td>
</tr>
<tr>
<td>effectively on a design team.</td>
<td></td>
</tr>
<tr>
<td>Comments:</td>
<td></td>
</tr>
<tr>
<td>Shows a broad understanding over the whole of Civil Engineering.</td>
<td>___</td>
</tr>
<tr>
<td>Comments:</td>
<td></td>
</tr>
<tr>
<td>Shows an understanding of teamwork and the value of multiple</td>
<td>___</td>
</tr>
<tr>
<td>disciplines.</td>
<td>poor</td>
</tr>
<tr>
<td>Comments:</td>
<td></td>
</tr>
<tr>
<td>Shows an ability to communicate to a broad array of technical</td>
<td>___</td>
</tr>
<tr>
<td>and non-technical audiences.</td>
<td>poor</td>
</tr>
<tr>
<td>Comments:</td>
<td></td>
</tr>
<tr>
<td>Shows a basic understanding of the procurement of engineering</td>
<td>___</td>
</tr>
<tr>
<td>services.</td>
<td>poor</td>
</tr>
<tr>
<td>Comments:</td>
<td></td>
</tr>
</tbody>
</table>
Appendix B

Civil Engineering Outcomes Assessment Results

Portfolios

Advisory Board 3/05
Note: 1 = poor; 2 = fair; 3 = average; 4 = good; 5 = excellent. Most portfolios were evaluated by three people; portfolio #4 was evaluated by only 2 people. The Scores shown below represent the mean of those 2 or 3 scores. The Mean shown is the average across all portfolios. The comments are matched to portfolios (e.g., P9). An evaluation of n/a generally indicated not enough information to evaluate.

<table>
<thead>
<tr>
<th>Program Outcome</th>
<th>Evaluation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Demonstrates skills in math, science, and engineering with an emphasis on solving engineering problems utilizing fundamental engineering principals including engineering logic, traditional analytical methods, modern software, and experimental apparatus.</td>
<td>Portfolio #</td>
</tr>
<tr>
<td>Score</td>
<td>4.0</td>
</tr>
<tr>
<td>Comments: P9-type of work makes it difficult to evaluate. P12-type of work makes it difficult to evaluate. Too many earthwork specs.</td>
<td></td>
</tr>
<tr>
<td>Shows competence in mechanics, mathematics, and engineering sciences.</td>
<td>Portfolio #</td>
</tr>
<tr>
<td>Score</td>
<td>4.0</td>
</tr>
<tr>
<td>Comments: P9-Type of paper makes it difficult to evaluate. P10—more analytical examples would make this easier to evaluate. P11-shows understanding of engineering process, but doesn’t include any math or engineering.</td>
<td></td>
</tr>
<tr>
<td>Shows capability in using modern software as a standard tool in the design or analysis process.</td>
<td>Portfolio #</td>
</tr>
<tr>
<td>Score</td>
<td>4.0</td>
</tr>
<tr>
<td>Comments: P9—type of work makes it difficult to evaluate. P10—difficult to tell. Don’t know. P11—not much to evaluate in use of software.</td>
<td></td>
</tr>
<tr>
<td>Demonstrates an understanding and philosophy that promotes engineering practice founded in technical integrity, ethics, social and environmental responsibility, global awareness, and a recognition of preparing themselves for continued education and independent thought.</td>
<td>Portfolio #</td>
</tr>
<tr>
<td>Score</td>
<td>4.0</td>
</tr>
<tr>
<td>Comments: P10—assessment based only on CE 401 paper.</td>
<td></td>
</tr>
<tr>
<td>Shows an awareness of ethical practice and the importance of licensure.</td>
<td>Portfolio #</td>
</tr>
<tr>
<td>Score</td>
<td>3.67</td>
</tr>
<tr>
<td>Comments: P11—CE401 very concerning on what is being taught. P12—Student was able to show ethical views—just, concise, and convincing.</td>
<td></td>
</tr>
<tr>
<td>Considers social views and the environment in the design work proposed and performed.</td>
<td>Portfolio #</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>Score</td>
<td>4.0</td>
</tr>
<tr>
<td>Comments: P10—assessment based on CE 401. P11—missing or weak components. RFP paper showed good discussion and thought. P12—Good aesthetics.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Demonstrates the ability to assimilate course material from multiple courses, design a system or process, communicate that design effectively through verbal and written means, and work effectively on a design team.</th>
<th>Portfolio #</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Score</td>
<td>3.67</td>
<td>4.17</td>
<td>4.0</td>
<td>3.5</td>
<td>4.5</td>
<td>3.33</td>
<td>4.0</td>
<td>3.0</td>
<td>4.0</td>
<td>2.67</td>
<td><strong>3.71</strong></td>
</tr>
<tr>
<td>Comments: P10—need to see more of the process. P12—design phase was good.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Shows a broad understanding over the whole of Civil Engineering.</th>
<th>Portfolio #</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Score</td>
<td>3.33</td>
<td>4.0</td>
<td>3.0</td>
<td>4.0</td>
<td>4.33</td>
<td>3.67</td>
<td>3.5</td>
<td>3.5</td>
<td>4.0</td>
<td>3.0</td>
<td><strong>3.67</strong></td>
</tr>
<tr>
<td>Comments: P10—need to see more of the process. P11—needs to show more.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Shows an understanding of teamwork and the value of multiple disciplines.</th>
<th>Portfolio #</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Score</td>
<td>3.67</td>
<td>4.17</td>
<td>4.0</td>
<td>4.0</td>
<td>4.0</td>
<td>3.5</td>
<td>4.0</td>
<td>n/a</td>
<td>4.0</td>
<td>3.33</td>
<td><strong>3.87</strong></td>
</tr>
<tr>
<td>Comments: P10—need to see more of the process. P11—great teamwork, but not good on multiple disciplines.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Shows an ability to communicate to a broad array of technical and non-technical audiences.</th>
<th>Portfolio #</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Score</td>
<td>4.0</td>
<td>4.17</td>
<td>3.0</td>
<td>3.0</td>
<td>4.0</td>
<td>3.0</td>
<td>4.33</td>
<td>3.0</td>
<td>3.33</td>
<td>3.0</td>
<td><strong>3.49</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Shows a basic understanding of the procurement of engineering services.</th>
<th>Portfolio #</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Score</td>
<td>3.67</td>
<td>4.17</td>
<td>4.0</td>
<td>3.5</td>
<td>4.0</td>
<td>2.83</td>
<td>4.0</td>
<td>3.0</td>
<td>4.0</td>
<td>3.67</td>
<td><strong>3.62</strong></td>
</tr>
<tr>
<td>Comments: P10—need to see more of the process. P12—not a lot of construction practicality.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Appendix C

Civil Engineering Outcomes Assessment Results

Based on All Papers

Advisory Board 3/05
These results are based on all papers the Advisory Board read, including those that were sent prior to the meeting. N=17. 1 = poor; 2 = fair; 3 = average; 4 = good; 5 = excellent. Some people marked in between the scale points (e.g., 3.5), and those are shown where appropriate below.

<table>
<thead>
<tr>
<th>Program Outcome</th>
<th>Evaluation</th>
<th>Mean</th>
</tr>
</thead>
</table>
| Demonstrates skills in math, science, and engineering with an emphasis on solving engineering problems utilizing fundamental engineering principals including engineering logic, traditional analytical methods, modern software, and experimental apparatus. | _____     _____    __4__     __13_      _____  
|                                                                              | poor      fair      average     good     excellent | Mean=3.76 |
| Comments: 1. Good overall. 2. Overall pretty good.                           |                                                  |          |
| Shows competence in mechanics, mathematics, and engineering sciences.       | _____     _1_     3_     1_    11_    1_       | Mean=3.74 |
| Comments:                                                                   |                                                  |          |
| Shows capability in using modern software as a standard tool in the design or analysis process. | _____     _1_     9_     1_    6_      _____  
|                                                                              | poor      fair      average     good     excellent | Mean=3.32 |
| Comments: 1. Not enough evidence of software programs used. 2. Basic stuff. 3. Not much evidence of design software. Typical application showed Word and Excel. 3. Still concerned about reliance on computers, not brains. |                                                  |          |
| Demonstrates an understanding and philosophy that promotes engineering practice founded in technical integrity, ethics, social and environmental responsibility, global awareness, and a recognition of preparing themselves for continued education and independent thought. | _____     _2_     1_     9_    5_      _____  
|                                                                              | poor      fair      average     good     excellent | Mean = 3.15 |
| Shows an awareness of ethical practice and the importance of licensure.      | _____     1_     5_     1_    6_     1_      2_      _____  
<p>|                                                                              | poor      fair      average     good     excellent | Mean= 2.72 |
| Comments: 1. Very hard to evaluate from samples. 2. Very concerned about 401 papers. 3. Can’t evaluate importance of licensure. |                                                  |          |</p>
<table>
<thead>
<tr>
<th>Statement</th>
<th>Rating</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Considers social views and the environment in the design work</td>
<td>1</td>
<td>Mean=3.53. Can’t evaluate from this work. Comments: 1. Some evidence of potential client concerns, but little evidence of the greater environment. 2. Think there are more important aspects on this.</td>
</tr>
<tr>
<td>Demonstrates the ability to assimilate course material from multiple</td>
<td>3</td>
<td>Mean=3.35. Can’t evaluate from this work. Comments: 1. Written communication skills lacking overall. 2. Emphasis on 457 and 458 classes—couldn’t evaluate from other papers. 3. Students in final design were weak on transfer, stormy on hydrology and geotech.</td>
</tr>
<tr>
<td>Shows a broad understanding over the whole of Civil Engineering.</td>
<td>1</td>
<td>Mean=3.47. Can’t evaluate from this work. Comments: 1. Work reviewed did not reflect analytical skills.</td>
</tr>
<tr>
<td>Shows an understanding of teamwork and the value of multiple disciplines.</td>
<td>7</td>
<td>Mean=3.47. Can’t evaluate from this work. Comments: 1. I believe the papers were evidence of the ability to coordinate disciplines. 2. Couldn’t tell for certain that work was from a team or if one person did all the work. 3. Could not assess accurately. 4. Hard to evaluate the teamwork aspect.</td>
</tr>
<tr>
<td>Shows an ability to communicate to a broad array of technical and</td>
<td>12</td>
<td>Mean=2.97. Can’t evaluate from this work. Comments: 1. To me, an “ability” does not infer a high level of competence, but an awareness only. 2. Need improvement in organization of the material.</td>
</tr>
<tr>
<td>non-technical audiences.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shows a basic understanding of the procurement of engineering services.</td>
<td>8</td>
<td>Mean=3.29. Can’t evaluate from this work. Comments: 1. Based only on the 457 and 458 class. 2. Not sure they have contracting in mind.</td>
</tr>
</tbody>
</table>
Appendix D

Civil Engineering Outcomes Assessment Results

General Evaluation

Advisory Board 3/05
These results are based on the overall experience the evaluators have had with MSU CE and CET students.  \( N=15 \).  1 = poor; 2 = fair; 3 = average; 4 = good; 5 = excellent. Some people marked in between the scale points (e.g., 3.5), and those are shown where appropriate below.

<table>
<thead>
<tr>
<th>Program Outcome</th>
<th>Evaluation</th>
</tr>
</thead>
</table>
| Demonstrates skills in math, science, and engineering with an emphasis on solving engineering problems utilizing fundamental engineering principals including engineering logic, traditional analytical methods, modern software, and experimental apparatus. | _____ _____ 2__ 12 _ 1__ poor fair average good excellent  \( \text{Mean}=3.93 \) can’t evaluate from this work  
Comments: What they lack, they make up with hard work. |
| Shows competence in mechanics, mathematics, and engineering sciences. | _____ _____ 1__ 11 _ 1 _1__ poor fair average good excellent  \( \text{Mean}=4.00 \) can’t evaluate from this work  
Comments: |
| Shows capability in using modern software as a standard tool in the design or analysis process. | _____ 1__ 6__ 7__ 1 ____ poor fair average good excellent  \( \text{Mean}=3.50 \) can’t evaluate from this work  
Comments: 1. Items from different classes might show more software competency. 2. Not enough info to evaluate. 3. Basic Word, CAD, Excel. |
| Demonstrates an understanding and philosophy that promotes engineering practice founded in technical integrity, ethics, social and environmental responsibility, global awareness, and a recognition of preparing themselves for continued education and independent thought. | _____ 1__ 5__ 7__ 1 ____ poor fair average good excellent  \( \text{Mean}=3.54 \) can’t evaluate from this work  
Comments: Some decisions not ethically supported. |
| Shows an awareness of ethical practice and the importance of licensure. | _____ 2__ 7__ 5__ 1 ____ poor fair average good excellent  \( \text{Mean}=3.30 \) can’t evaluate from this work  
Comments: Importance of licensure could not be evaluated from this work. |
<table>
<thead>
<tr>
<th>Evaluation</th>
<th>Rating</th>
<th>Comments</th>
</tr>
</thead>
</table>
| Considers social views and the environment in the design work proposed and performed. | 6 _ 8 _ | can’t evaluate from this work  
Mean=3.57  
Comments: |
| Demonstrates the ability to assimilate course material from multiple courses, design a system or process, communicate that design effectively through verbal and written means, and work effectively on a design team. | 1 _ 2 _ 12 _ | can’t evaluate from this work  
Mean=3.73  
Comments: 1. Written communication could be improved. 2. Again, still room for improvement in communication skills. 3. Need to work on the written/spoken part of the job. |
| Shows a broad understanding over the whole of Civil Engineering. | 2 _ 10 _ 1 _ 2 _ | can’t evaluate from this work  
Mean=4.03  
Comments: |
| Shows an understanding of teamwork and the value of multiple disciplines. | 7 _ 6 _ 2 _ | can’t evaluate from this work  
Mean=3.67  
Comments: 1. Most are good team players. 2. Work well with others. |
| Shows an ability to communicate to a broad array of technical and non-technical audiences. | 7 _ 1 _ 7 _ | can’t evaluate from this work  
Mean=3.50  
Comments: I questioned whether they knew if the product should be technical or not. |
| Shows a basic understanding of the procurement of engineering services. | 2 _ 1 _ 6 _ 4 _ 1 _ 1 _ | can’t evaluate from this work  
Mean=3.33  
Comments: |
Appendix E

Final Version of the Outcomes Assessment Form
MSU Civil Engineering Outcomes Assessment

Welcome! Your responses to this short questionnaire will be used to help continuously improve the quality of the undergraduate engineering programs offered by the Civil Engineering Department at Montana State University. This survey should take less than 10 minutes to complete.

1. First, let us know about your connections to the Civil Engineering Department at Montana State University.

Check all that apply:

- Current Student - B.S. Civil Engineering
- Current Student - B.S. Civil Engineering w/ BioResources Option
- Current Student - Construction Engineering Technology
- Current Student - Graduate
- Alumni
- Employer of our Graduates
- Employer of our Interns
- External Advisory Committee Member
- Faculty
- Other (please specify) ________________________

2. If you are a graduate of one or more of our degree programs, we'd like to know which program and when you graduated.

Check all the degrees that you have completed in our department.

- NOT an alumnus
- B.S. Civil Engineering
- B.S. Civil Engineering (BioResources Option)
- B.S. Construction Engineering Technology
- M.S. Civil Engineering
- M.S. Environmental Engineering
- M. Construction Engineering Management
- Ph.D.
- Other (please specify) __________________________

3. How long ago did you receive your most recent degree from our department?

- NOT an alumnus
- 0 to 1 years
- 1 to 3 years
- 3 to 5 years
- 5 to 10 years
- more than 10 years

4. Let us know the context in which you are completing this survey. Please select the most appropriate answer. Only select "other" if you have been instructed to do so as part of a focus group and have been given the focus group name.

- Senior Exit Interview
- External Advisory Committee
- Invited Alumni Survey
- Invited Employer Survey
- Other (indicate focus group name) __________________________
5. If you have been asked to fill in this survey as an employer of our engineering graduates, let us know what your primary business classification is (skip this question if you were not specifically asked to fill out the survey as an employer of our graduates). Is your business primarily:

__ consulting engineering
__ contractor or construction
__ government agency
__ Other (please specify) ____________________

6. If you have been asked to complete this survey as an alumni of one of our engineering programs, let us know which group to place you in (skip this question if you were not specifically asked to fill out the survey as an alumni). Did you graduate from our program (most recent degree):

__ less than three years ago
__ more than three years ago

Okay - now that we know the background for your answers, please help us assess 11 specific program outcomes.

Here are some guidelines:

• Your answers should be specific to our undergraduate engineering programs (NOT CET or graduate programs).

• Unless you are participating in a named focus group, your answers should reflect your collective knowledge of the capabilities of our students to meet the stated outcomes after they complete a B.S. degree in Civil Engineering (with or without the BioResources Option).

• In cases where you do not have adequate evidence to respond, feel free to indicate "can't evaluate."

• Please do not choose "can't evaluate" for the "overall" category unless you answered "can't evaluate" to ALL the subcategories of that particular outcome.

• In many cases we will ask you to use a rating scale that is centered on the response "average". In this context, you should think of average as having the capabilities to meet your expectations of an entry level engineer.
**Outcome 1:**

Our graduates will demonstrate skills in math, science and engineering, with an emphasis on solving engineering problems.

Graduates will use fundamental engineering principles including:

- engineering logic,
- traditional analytic methods,
- modern software, and
- experimental apparatus.

Indicate the level at which the outcome is met:

<table>
<thead>
<tr>
<th>outcome component</th>
<th>far below average</th>
<th>below average</th>
<th>average</th>
<th>above average</th>
<th>far above average</th>
<th>can’t evaluate</th>
</tr>
</thead>
<tbody>
<tr>
<td>engineering logic</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>traditional analytic methods</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>modern software</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>experimental apparatus</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>overall</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Outcome 2:**

Our graduates will show competence in mechanics, mathematics, and engineering sciences.

Indicate the level at which the outcome is met:

<table>
<thead>
<tr>
<th>outcome component</th>
<th>far below average</th>
<th>below average</th>
<th>average</th>
<th>above average</th>
<th>far above average</th>
<th>can’t evaluate</th>
</tr>
</thead>
<tbody>
<tr>
<td>mechanics</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>mathematics</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>engineering sciences</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>overall</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Outcome 3:**

Our graduates will show capability in using modern software as a standard tool in the design or analysis process.

Indicate the level at which the outcome is met:

<table>
<thead>
<tr>
<th>outcome component</th>
<th>far below average</th>
<th>below average</th>
<th>average</th>
<th>above average</th>
<th>far above average</th>
<th>can’t evaluate</th>
</tr>
</thead>
<tbody>
<tr>
<td>overall</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Outcome 4:
Our graduates will demonstrate an understanding of engineering practice, and a philosophy that promotes the practice founded in
- technical integrity,
- ethics,
- social and environmental responsibility,
- global awareness,
- recognition of preparation for continued education, and
- recognition of independent thought.

Indicate the level at which the outcome is met:

<table>
<thead>
<tr>
<th>outcome component</th>
<th>far below average</th>
<th>below average</th>
<th>average</th>
<th>above average</th>
<th>far above average</th>
<th>can’t evaluate</th>
</tr>
</thead>
<tbody>
<tr>
<td>technical integrity</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ethics</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>social responsibility</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>environmental responsibility</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>global awareness</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>recognition of preparation for continuing education</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>recognition of independent thought</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>overall</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Outcome 5:
Our graduates will show an awareness of ethical practice and the importance of licensure.

Indicate the level at which the outcome is met:

<table>
<thead>
<tr>
<th>outcome component</th>
<th>far below average</th>
<th>below average</th>
<th>average</th>
<th>above average</th>
<th>far above average</th>
<th>can’t evaluate</th>
</tr>
</thead>
<tbody>
<tr>
<td>ethical practice</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>licensure</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>overall</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Outcome 6:
Our graduates will consider social views and the environment in the design work proposed and performed.

Indicate the level at which the outcome is met:

<table>
<thead>
<tr>
<th>outcome component</th>
<th>far below average</th>
<th>below average</th>
<th>average</th>
<th>above average</th>
<th>far above average</th>
<th>can’t evaluate</th>
</tr>
</thead>
<tbody>
<tr>
<td>social views are considered</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>environment is considered</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>overall</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Outcome 7:

Our graduates will demonstrate the ability to

- assimilate course material from multiple courses,
- design a system or process,
- communicate their design effectively through verbal and written means, and
- work effectively on a design team.

Indicate the level at which the outcome is met:

<table>
<thead>
<tr>
<th>outcome component</th>
<th>far below average</th>
<th>below average</th>
<th>average</th>
<th>above average</th>
<th>far above average</th>
<th>can’t evaluate</th>
</tr>
</thead>
<tbody>
<tr>
<td>assimilate material from multiple courses</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>design a system or process</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>effectively communicate the design verbally</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>effectively communicate the design in written work</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>work effectively on a design team</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>overall</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Outcome 8:

Our graduates will show a broad understanding over the whole of Civil Engineering.

Indicate the level at which the outcome is met:

<table>
<thead>
<tr>
<th>outcome component</th>
<th>far below average</th>
<th>below average</th>
<th>average</th>
<th>above average</th>
<th>far above average</th>
<th>can’t evaluate</th>
</tr>
</thead>
<tbody>
<tr>
<td>overall</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Outcome 9:

Our graduates will show an understanding of teamwork and the value of multiple disciplines.

Indicate the level at which the outcome is met:

<table>
<thead>
<tr>
<th>outcome component</th>
<th>far below average</th>
<th>below average</th>
<th>average</th>
<th>above average</th>
<th>far above average</th>
<th>can’t evaluate</th>
</tr>
</thead>
<tbody>
<tr>
<td>teamwork</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>value of multiple disciplines</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>overall</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**Outcome 10:**

Our graduates will show an ability to communicate to a broad array of technical and non-technical audiences.

Indicate the level at which the outcome is met:

<table>
<thead>
<tr>
<th>outcome component</th>
<th>far below average</th>
<th>below average</th>
<th>average</th>
<th>above average</th>
<th>far above average</th>
<th>can’t evaluate</th>
</tr>
</thead>
<tbody>
<tr>
<td>technical audience</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>non-technical audience</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>overall</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Outcome 11:**

Our graduates will show a basic understanding of the procurement of engineering services.

Indicate the level at which the outcome is met:

<table>
<thead>
<tr>
<th>outcome component</th>
<th>far below average</th>
<th>below average</th>
<th>average</th>
<th>above average</th>
<th>far above average</th>
<th>can’t evaluate</th>
</tr>
</thead>
<tbody>
<tr>
<td>overall</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Our survey is a little too long to allow comments along with every response, but you can use the space provided below to comment on any aspect of our department, staff, faculty, university in general, or even this survey! Any comments?

_____________________________________________________________________________________
_____________________________________________________________________________________
_____________________________________________________________________________________
_____________________________________________________________________________________
_____________________________________________________________________________________
_____________________________________________________________________________________
_____________________________________________________________________________________
_____________________________________________________________________________________

We make every attempt to stay in touch with friends of our program. This section is totally optional...

Last Name ________________________________
First Name ________________________________
Company or Affiliation ________________________________
Phone Number ________________________________
E-Mail ________________________________

That’s it - thank you so much for your time and cooperation! If you would like to know more about the results of this survey, or what we do with the results after we compile them, please contact:

Dr. Joel Cahoon
Assistant Department Head
MSU Civil Engineering
joelc@ce.montana.edu
Civil Engineering Writing Evaluation
Using a Draft of Writing Outcomes

Advisory Board Meeting, March 2005

Prepared by Carolyn Plumb

At the March 2005 CE Advisory Board meeting, board members, CE faculty, and CE graduate students developed a draft of writing outcomes for CE students. As a test, these outcomes were used to evaluate two randomly selected sample papers from CE 458. Seventeen people evaluated Paper #1, and eighteen people evaluated Paper #2. The scores for the papers are shown in the table below and on the next page.

Following the table is a brief summary of the results and recommendations for the outcomes and for the assessment process.

<table>
<thead>
<tr>
<th>Content</th>
<th>Mean Score Paper #1</th>
<th>Mean Score Paper #2</th>
</tr>
</thead>
<tbody>
<tr>
<td>32. includes the appropriate information and the appropriate level of detail for the audience</td>
<td>3.94</td>
<td>2.56</td>
</tr>
<tr>
<td>33. addresses the question/problem and provides an answer to why the information provided is important</td>
<td>3.68</td>
<td>2.89</td>
</tr>
<tr>
<td>34. constructs a logical and persuasive argument</td>
<td>3.24</td>
<td>2.19</td>
</tr>
<tr>
<td>35. develops an introduction that provides appropriate background, a purpose statement, and the scope of the document</td>
<td>3.76</td>
<td>3.00</td>
</tr>
<tr>
<td>36. clearly describes assumptions, methods/approach, design criteria, and software use</td>
<td>2.94</td>
<td>2.39</td>
</tr>
<tr>
<td>37. clearly and succinctly states and supports conclusions</td>
<td>3.21</td>
<td>2.11</td>
</tr>
<tr>
<td>38. summarizes, particularly for decision makers</td>
<td>3.82</td>
<td>2.72</td>
</tr>
<tr>
<td>39. understands when to cite references and how to paraphrase</td>
<td>3.06</td>
<td>2.21</td>
</tr>
<tr>
<td>40. describes the schedule for a project</td>
<td>1.42</td>
<td>1.88</td>
</tr>
<tr>
<td>41. Content Overall</td>
<td>3.67</td>
<td>2.69</td>
</tr>
<tr>
<td>Organization</td>
<td>3.91</td>
<td>2.81</td>
</tr>
<tr>
<td>------------------------------------------------------------------------------</td>
<td>------</td>
<td>------</td>
</tr>
<tr>
<td>42. structures information in a logical order</td>
<td>3.91</td>
<td>2.81</td>
</tr>
<tr>
<td>43. creates a usable table of contents</td>
<td>4.00</td>
<td>2.76</td>
</tr>
<tr>
<td>44. develops coherent paragraphs</td>
<td>3.65</td>
<td>2.78</td>
</tr>
<tr>
<td>45. connects ideas with transitions</td>
<td>3.32</td>
<td>2.44</td>
</tr>
<tr>
<td>46. uses headings effectively to give the reader better access to the information</td>
<td>3.85</td>
<td>2.92</td>
</tr>
<tr>
<td>47. uses lists when appropriate</td>
<td>3.26</td>
<td>2.33</td>
</tr>
<tr>
<td>48. Organization Overall</td>
<td>3.77</td>
<td>2.72</td>
</tr>
<tr>
<td>Page Design and use of graphic aids</td>
<td></td>
<td></td>
</tr>
<tr>
<td>49. shows understanding not only of when to present information in a graphic aid (for example, to summarize, emphasize, give the big picture) but also of what type of graphic aid is most appropriate for the audience</td>
<td>3.32</td>
<td>2.50</td>
</tr>
<tr>
<td>50. shows graphic aids that not only are appropriate for the audience, but also are readable and consistent</td>
<td>3.88</td>
<td>2.47</td>
</tr>
<tr>
<td>51. integrates graphic aids with text, both physically and verbally</td>
<td>3.76</td>
<td>2.11</td>
</tr>
<tr>
<td>52. shows understanding of effective use of design elements (e.g., font, color, and layout)</td>
<td>3.82</td>
<td>2.53</td>
</tr>
<tr>
<td>53. Page design &amp; graphic aids overall</td>
<td>3.76</td>
<td>2.36</td>
</tr>
<tr>
<td>Writing style, grammar, &amp; mechanics</td>
<td></td>
<td></td>
</tr>
<tr>
<td>54. shows standard formal English (correct grammar, punctuation, spelling, and mechanics)</td>
<td>3.09</td>
<td>3.22</td>
</tr>
<tr>
<td>55. concise sentences and paragraphs</td>
<td>3.35</td>
<td>2.94</td>
</tr>
<tr>
<td>56. uses both active and passive voice, whichever is appropriate</td>
<td>3.18</td>
<td>2.85</td>
</tr>
<tr>
<td>57. achieves the appropriate tone for the context, including the ability to achieve (1) a professional, formal tone and (2) a tone that indicates strength without arrogance</td>
<td>3.26</td>
<td>2.97</td>
</tr>
<tr>
<td>58. uses acronyms correctly</td>
<td>3.50</td>
<td>2.67</td>
</tr>
<tr>
<td>59. avoids jargon (unless appropriate)</td>
<td>3.53</td>
<td>2.86</td>
</tr>
<tr>
<td>60. correctly uses numbers and units in text</td>
<td>3.12</td>
<td>2.69</td>
</tr>
<tr>
<td>61. cites references in text when appropriate and lists references cited in an accepted format</td>
<td>3.26</td>
<td>2.41</td>
</tr>
<tr>
<td>62. Writing style, grammar, mechanics Overall</td>
<td>3.35</td>
<td>2.88</td>
</tr>
</tbody>
</table>
Summary of Results
Clearly, Paper 1 was a better paper than Paper 2. It is interesting, though, that the writer of Paper 2 may have actually had a better command of the language than the writer of Paper 1 (see the result for outcome 22). Paper 2 obviously lacked in other areas, particularly substance.

It is difficult to draw any conclusions from this small sample. If a larger sample of individually written papers showed more papers like Paper 1 than Paper 2, CE students would be fairly well prepared to write at work. Combining these results with comments from the participants during this assessment as well as during the assessment of the more general program outcomes, Outcome 5 (clearly describes assumptions, methods/approach, design criteria, and software use) is one that the department may want to emphasize more in CE 457 and 458.

Recommendations for the Outcomes and for the Assessment Process
Developing this draft of writing outcomes was a very important first step in assessing CE student writing on an ongoing basis. Below are some recommendations for how to proceed from this important first step.

- These outcomes are realistic and comprehensive; however, they are dynamic, and could change as a result of future assessment cycles. One suggestion I have is to eliminate Outcome 9 (describes the schedule for a project) unless the assignments for CE 457 and 458 clearly require a schedule. The department should decide if scheduling a project is an important learning objective for students.
- The writing outcomes cannot be assessed by the current portfolio method because the paper samples in those portfolios are written by different students. In fact, I recommend removing the general communication outcome from the portfolio process and assessing communication/writing separately (unless, in the future, the portfolios include the writing of one individual).
- In regard to a process for assessing writing using these outcomes, I recommend that one “high-stakes” writing sample at the senior level be collected. The assignment should be individually written. A random sample of these assignments could be assessed, using the writing outcomes, at the same time that the more general program outcomes are assessed.
- The outcomes should be communicated to students and used as frequently as possible for evaluating course assignments. Faculty do not need to use the entire list of outcomes if all do not apply for a particular assignment. However, the outcomes do provide a handy evaluation tool that is consistent from one course to another.
Attachment A

Development of a Writing Outcomes Assessment Tool for Civil Engineering Students

Civil Engineering Advisory Board Meeting, March 2005

Prepared by Carolyn Plumb and Joel Cahoon

At the March 2005 CE Advisory Board meeting, board members, CE faculty, and CE graduate students developed a draft of writing outcomes assessment tool for CE students. The process involved three steps:

a) Describe the writing based outcomes that can be expected from CE students via group discussion.

b) Develop a tool for use in assessing writing outcomes for Civil Engineering students.

c) As a test, use the results of b) to evaluate two randomly selected sample papers from CE 458 (the final senior capstone design course).

Discussion of Outcomes

The group discussion identified outcomes that CE students are expected to demonstrate. These are summarized as:

CE Writing Outcomes

Students who graduate with a B.S. degree in Civil Engineering should know the following about writing.

General writing outcomes - students should know:

- the importance of writing in the profession of civil engineering
- that writing is a process that involves planning (e.g., understanding the problem and responding to the questions), outlining, drafting, and revision
- that understanding the audience is key to effective communication
- that understanding the purpose is key to effective communication
- common technical report, correspondence, job search, and proposal, specification, and drawing formats
- that effective communication involves both style and substance
- the professional responsibilities connected to communication

More specifically, students should have the following writing skills. In regard to the content of a written communication, students should be able to:

- include the appropriate information and the appropriate level of detail for the audience
- address the question/problem and provide indicate why the information provided is important
- construct a logical and persuasive argument
- develop an introduction that provides appropriate background, a purpose statement, and the scope of the document
- clearly describe assumptions, methods/approach, design criteria, and software use
- clearly and succinctly state and support conclusions
• summarize, particularly for decision makers (e.g., executive summaries)
• understand when to cite references and how to paraphrase
• describe the schedule for a project

In regard to the structure of the content in a written communication, students should be able to:

• structure information in a logical order
• develop coherent paragraphs
• connect ideas with transitions
• create a usable table of contents
• use headings effectively to give the reader better access to the information
• use lists when appropriate

In regard to page design and the use of graphic aids in a written communication, students should be able to:

• understand not only when to present information in a graphic aid (for example, to summarize, emphasize, give the big picture) but also what type of graphic aid is most appropriate for the purpose and audience
• create graphic aids that not only are appropriate for the audience, but also are readable and consistent
• integrate graphic aids with text, both physically and verbally
• understand effective use of design elements (e.g., font, color, and layout)

In regard to writing style, grammar, and mechanics, the final product should show the students ability to:

• produce standard formal English (correct grammar, punctuation, spelling, and mechanics)
• write concise sentences and paragraphs
• use both active and passive voice, whichever is appropriate
• achieve the appropriate tone for the context, including the ability to achieve (1) a professional, formal tone and (2) a tone that indicates strength without arrogance
• use acronyms correctly
• avoid jargon (unless appropriate for the reader)
• correctly use numbers and units in text
• cite references in text when appropriate and list references cited in an accepted format

**Developing the Draft Assessment Tool**

A survey-type draft assessment tool is shown below, and was arrived at by grouping and combining similar themes within the writing outcomes listed above. The scale was set at 5 points (poor = 1, fair = 2, average = 3, above average = 4, excellent = 5). The draft is presented below.

<table>
<thead>
<tr>
<th>Content</th>
<th>poor</th>
<th>fair</th>
<th>average</th>
<th>above ave.</th>
<th>excellent</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. includes the appropriate information and the appropriate level of detail for the audience</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>2.</td>
<td>addresses the question/problem and provide an answer to why the information provided is important</td>
<td>poor</td>
<td>fair</td>
<td>average</td>
<td>above ave.</td>
</tr>
<tr>
<td>3.</td>
<td>constructs a logical and persuasive argument</td>
<td>poor</td>
<td>fair</td>
<td>average</td>
<td>above ave.</td>
</tr>
<tr>
<td>4.</td>
<td>develops an introduction that provides appropriate background, a purpose statement, and the scope of the document</td>
<td>poor</td>
<td>fair</td>
<td>average</td>
<td>above ave.</td>
</tr>
<tr>
<td>5.</td>
<td>clearly describes assumptions, methods/approach, design criteria, and software use</td>
<td>poor</td>
<td>fair</td>
<td>average</td>
<td>above ave.</td>
</tr>
<tr>
<td>6.</td>
<td>clearly and succinctly states and supports conclusions</td>
<td>poor</td>
<td>fair</td>
<td>average</td>
<td>above ave.</td>
</tr>
<tr>
<td>7.</td>
<td>summarizes, particularly for decision makers</td>
<td>poor</td>
<td>fair</td>
<td>average</td>
<td>above ave.</td>
</tr>
<tr>
<td>8.</td>
<td>understands when to cite references and how to paraphrase</td>
<td>poor</td>
<td>fair</td>
<td>average</td>
<td>above ave.</td>
</tr>
<tr>
<td>9.</td>
<td>describes the schedule for a project</td>
<td>poor</td>
<td>fair</td>
<td>average</td>
<td>above ave.</td>
</tr>
<tr>
<td>10.</td>
<td><strong>Content Overall</strong></td>
<td>poor</td>
<td>fair</td>
<td>average</td>
<td>above ave.</td>
</tr>
</tbody>
</table>

**Organization**

<p>| | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>11.</td>
<td>structures information in a logical order</td>
<td>poor</td>
<td>fair</td>
<td>average</td>
<td>above ave.</td>
</tr>
<tr>
<td>12.</td>
<td>creates a usable table of contents</td>
<td>poor</td>
<td>fair</td>
<td>average</td>
<td>above ave.</td>
</tr>
<tr>
<td>13.</td>
<td>develops coherent paragraphs</td>
<td>poor</td>
<td>fair</td>
<td>average</td>
<td>above ave.</td>
</tr>
<tr>
<td>14.</td>
<td>connects ideas with transitions</td>
<td>poor</td>
<td>fair</td>
<td>average</td>
<td>above ave.</td>
</tr>
<tr>
<td>15.</td>
<td>uses headings effectively to give the reader better access to the information</td>
<td>poor</td>
<td>fair</td>
<td>average</td>
<td>above ave.</td>
</tr>
<tr>
<td>16.</td>
<td>uses lists when appropriate</td>
<td>poor</td>
<td>fair</td>
<td>average</td>
<td>above ave.</td>
</tr>
<tr>
<td>17.</td>
<td><strong>Organization Overall</strong></td>
<td>poor</td>
<td>fair</td>
<td>average</td>
<td>above ave.</td>
</tr>
<tr>
<td>Page design and use of graphic aids</td>
<td>poor</td>
<td>fair</td>
<td>average</td>
<td>above ave.</td>
<td>excellent</td>
</tr>
<tr>
<td>-------------------------------------------------</td>
<td>------------</td>
<td>-----------</td>
<td>---------</td>
<td>------------</td>
<td>-----------</td>
</tr>
<tr>
<td>18. shows understanding not only of when to</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>present information in a graphic aid (for</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>example, to summarize, emphasize, give the</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>big picture) but also of what type of graphic</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>aid is most appropriate for the purpose and</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>audience</td>
<td>poor</td>
<td>fair</td>
<td>average</td>
<td>above ave.</td>
<td>excellent</td>
</tr>
<tr>
<td>19. shows graphic aids that not only are</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>appropriate for the audience, but also are</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>readable and consistent</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20. integrates graphic aids with text, both</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>physically and verbally</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>21. shows understanding of effective use of</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>design elements (e.g., font, color, and layout)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>22. Page design &amp; graphic aids overall</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Writing style, grammar, &amp; mechanics</th>
<th>poor</th>
<th>fair</th>
<th>average</th>
<th>above ave.</th>
<th>excellent</th>
</tr>
</thead>
<tbody>
<tr>
<td>23. shows standard formal English (correct</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>grammar, punctuation, spelling, and mechanics)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>24. concise sentences and paragraphs</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25. uses both active and passive voice,</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>whichever is appropriate</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>26. achieves the appropriate tone for the</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>context, including the ability to achieve (1)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a professional, formal tone and (2) a tone that</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>indicates strength without arrogance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>27. uses acronyms correctly</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>28. avoids jargon (unless appropriate)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>29. correctly uses numbers and units in text</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>30. cites references in text when appropriate</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>and lists references cited in an accepted</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>format</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>31. Writing style/grammar/mechanics overall</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Test of the Draft Assessment Tool**

Seventeen people evaluated Paper #1, and eighteen people evaluated Paper #2. The scores for the papers are shown in the table below. Following the table is a brief summary of the results and recommendations for the outcomes and for the assessment process.
<table>
<thead>
<tr>
<th>Content</th>
<th>Mean Score Paper #1</th>
<th>Mean Score Paper #2</th>
</tr>
</thead>
<tbody>
<tr>
<td>63. includes the appropriate information and the appropriate level of detail for the audience</td>
<td>3.94</td>
<td>2.56</td>
</tr>
<tr>
<td>64. addresses the question/problem and provides an answer to why the information provided is important</td>
<td>3.68</td>
<td>2.89</td>
</tr>
<tr>
<td>65. constructs a logical and persuasive argument</td>
<td>3.24</td>
<td>2.19</td>
</tr>
<tr>
<td>66. develops an introduction that provides appropriate background, a purpose statement, and the scope of the document</td>
<td>3.76</td>
<td>3.00</td>
</tr>
<tr>
<td>67. clearly describes assumptions, methods/approach, design criteria, and software use</td>
<td>2.94</td>
<td>2.39</td>
</tr>
<tr>
<td>68. clearly and succinctly states and supports conclusions</td>
<td>3.21</td>
<td>2.11</td>
</tr>
<tr>
<td>69. summarizes, particularly for decision makers</td>
<td>3.82</td>
<td>2.72</td>
</tr>
<tr>
<td>70. understands when to cite references and how to paraphrase</td>
<td>3.06</td>
<td>2.21</td>
</tr>
<tr>
<td>71. describes the schedule for a project</td>
<td>1.42</td>
<td>1.88</td>
</tr>
<tr>
<td><strong>72. Content Overall</strong></td>
<td><strong>3.67</strong></td>
<td><strong>2.69</strong></td>
</tr>
<tr>
<td>Organization</td>
<td>Mean Score Paper #1</td>
<td>Mean Score Paper #2</td>
</tr>
<tr>
<td>73. structures information in a logical order</td>
<td>3.91</td>
<td>2.81</td>
</tr>
<tr>
<td>74. creates a usable table of contents</td>
<td>4.00</td>
<td>2.76</td>
</tr>
<tr>
<td>75. develops coherent paragraphs</td>
<td>3.65</td>
<td>2.78</td>
</tr>
<tr>
<td>76. connects ideas with transitions</td>
<td>3.32</td>
<td>2.44</td>
</tr>
<tr>
<td>77. uses headings effectively to give the reader better access to the information</td>
<td>3.85</td>
<td>2.92</td>
</tr>
<tr>
<td>78. uses lists when appropriate</td>
<td>3.26</td>
<td>2.33</td>
</tr>
<tr>
<td><strong>79. Organization Overall</strong></td>
<td><strong>3.77</strong></td>
<td><strong>2.72</strong></td>
</tr>
<tr>
<td>Page Design and use of graphic aids</td>
<td>Mean Score Paper #1</td>
<td>Mean Score Paper #2</td>
</tr>
<tr>
<td>80. shows understanding not only of when to present information in a graphic aid (for example, to summarize, emphasize, give the big picture) but also of what type of graphic aid is most appropriate for the audience</td>
<td>3.32</td>
<td>2.50</td>
</tr>
<tr>
<td>81. shows graphic aids that not only are appropriate for the audience, but also are readable and consistent</td>
<td>3.88</td>
<td>2.47</td>
</tr>
<tr>
<td>82. integrates graphic aids with text, both physically and verbally</td>
<td>3.76</td>
<td>2.11</td>
</tr>
<tr>
<td>83. shows understanding of effective use of design elements (e.g., font, color, and layout)</td>
<td>3.82</td>
<td>2.53</td>
</tr>
<tr>
<td><strong>84. Page design &amp; graphic aids overall</strong></td>
<td><strong>3.76</strong></td>
<td><strong>2.36</strong></td>
</tr>
<tr>
<td>Writing style, grammar, &amp; mechanics</td>
<td>Mean Score Paper #1</td>
<td>Mean Score Paper #2</td>
</tr>
<tr>
<td>85. shows standard formal English (correct grammar, punctuation, spelling, and mechanics)</td>
<td>3.09</td>
<td>3.22</td>
</tr>
<tr>
<td>86. concise sentences and paragraphs</td>
<td>3.35</td>
<td>2.94</td>
</tr>
<tr>
<td>87. uses both active and passive voice, whichever is appropriate</td>
<td>3.18</td>
<td>2.85</td>
</tr>
<tr>
<td>88. achieves the appropriate tone for the context, including the ability to achieve (1) a professional, formal tone and (2) a tone that indicates strength without arrogance</td>
<td>3.26</td>
<td>2.97</td>
</tr>
<tr>
<td>89. uses acronyms correctly</td>
<td>3.50</td>
<td>2.67</td>
</tr>
<tr>
<td>90. avoids jargon (unless appropriate)</td>
<td>3.53</td>
<td>2.86</td>
</tr>
<tr>
<td>91. correctly uses numbers and units in text</td>
<td>3.12</td>
<td>2.69</td>
</tr>
<tr>
<td>92. cites references in text when appropriate and lists references cited in an accepted format</td>
<td>3.26</td>
<td>2.41</td>
</tr>
<tr>
<td><strong>93. Writing style, grammar, mechanics Overall</strong></td>
<td><strong>3.35</strong></td>
<td><strong>2.88</strong></td>
</tr>
</tbody>
</table>
Clearly, of the two writing samples used in the test, Paper 1 was a better paper than Paper 2. It is interesting, though, that the writer of Paper 2 may have actually had a better command of the language than the writer of Paper 1 (see the result for outcome 22). Paper 2 obviously lacked in other areas, particularly substance. It is not necessary to draw any conclusions from this small sample, because this was not a direct assessment of student work, but rather a test of the assessment tool. It can be said that if the tool were used to evaluate a larger sample of individually written papers, and more of them were like Paper 1 than like Paper 2, CE students would be fairly well prepared to write at work.

**Recommendations for the Outcomes and for the Assessment Process**

Developing this draft of expected writing outcomes and an assessment tool was a very important first step in assessing CE student writing on an ongoing basis. Below are some recommendations for proceeding from this important first step.

- These outcomes are realistic and comprehensive; however, they are dynamic, and could change as a result of future assessment cycles. One suggestion is to eliminate Outcome 9 (describes the schedule for a project) unless the assignments for CE 457 and 458 clearly require a schedule. The department should decide if scheduling a project is an important learning objective for students.

- The method by which writing samples should be collected for the ongoing assessment process should be considered further. For example, the portfolio might include one “high-stakes” writing sample at the senior level. The assignment should be individually written. A random sample of these assignments could be assessed, using the writing outcomes, at the same time that the more general program outcomes are assessed.

- The outcomes should be communicated to students and used as frequently as possible for evaluating course assignments. Faculty do not need to use the entire list of outcomes if all do not apply for a particular assignment. However, the outcomes do provide a handy evaluation tool that is consistent from one course to another.
Streamlining our Program Outcomes

ASCE has teamed up with ABET to refine and update the list of minimum outcomes that a CE program should achieve. As such, the old “a through k” outcomes list has been re-worded and expanded slightly, as shown below. Note that the new list of outcomes has 15 rather than 11 items, but that item 12 only applies to graduates programs. We think that as we transition to the new ABET outcomes there is an opportunity to streamline the way we approach our own program outcomes. Rather than write our own outcomes and then demonstrate how these align with and satisfy the minimum ABET outcomes, we think it is a good idea to simply adopt the ABET outcomes, while looking for places where minor wording changes add some specificity to our program. The wording changes and adoption as departmental outcomes could take place this Fall, but in the mean time it is probably okay to go ahead and operate using the outcomes below - the spirit and intent of each item will not likely change much.

1. apply knowledge of mathematics, science, and engineering
2. design and conduct experiments and analyze and interpret experimental data
3. design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability
4. function as a member of a multidisciplinary team
5. identify, formulate, and solve engineering problems
6. explain professional and ethical responsibility
7. compose and present effective written, verbal, and graphical communications
8. draw upon a broad education to explain the impact of engineering solutions in a global, economic, environmental and societal context
9. explain the need for, and demonstrate the capacity for, life-long learning
10. explain contemporary issues as they relate to the solution of engineering problems
11. apply the techniques, skills, and modern engineering tools necessary for engineering practice
12. [MS Programs Only] synthesize and evaluate knowledge in a specialized area related to civil engineering
13. explain the elements of project management, construction, and asset management
14. explain the fundamentals of business, public policy and administration
15. explain the role of the leader, leadership principles, and attitudes conducive to effective professional practice of civil engineering

Surveys

Our most recent self-study report (March 2004) indicated that we would survey employers of our graduates every 3 years, and alumni at 3 years and 5 years after graduation. After much deliberation, we have decided that the effort that we put into surveys has never justified the disappointing response rates, and that we rarely get new information from the responses that we did get. We have tried mail-return surveys using all kinds of pre-posted envelops and cards. We have followed up with phone calls to see if we could get better response rates. Our internet based (Survey Monkey) form has never been used - not once in the year it has been operational. We propose that we reduce our use of surveys to a minimum, and survey in a setting where we may get a decent rate of voluntary response. We propose to survey the participants of the Spring Engineering Festival. We have not had a chance to check with the faculty involved, and would
welcome feedback or suggestions from the coordinators and any other faculty familiar with the Festival. If amenable, we propose the use of a survey similar to the attached draft. Perhaps it could be included on the back side of the evaluation sheet the Festival coordinators currently use. The results would be compiled and analyzed by the Assistant Department Head and distributed to faculty for feedback at the annual retreat.

Student Portfolio Review

Our most recent self-study report (March 2004) indicated that we would annually review portfolios of student work from CE 401, CE 457, CE 458 and CE 332. This has been partially accomplished, but in a sort of experimental mode where we used the departmental advisory committee to help develop and streamline the scoring instruments and processes that we use to assess the portfolios. With the help of Carolyn Plumb, these experiments have led to what we think is a constructive and sustainable process for collecting and reviewing student portfolios. We propose to collect course material as follows:

CE 202  Fall semester, from each of at least 3 assignments, collect 3 ungraded and randomly chosen submissions that focus on written communication skills
CE 401  Fall semester, from each of at least 3 assignments, collect 3 ungraded and randomly chosen submissions that focus on written communication skills
CE 320  Fall semester, from each of at least 3 lab write-ups, collect 3 ungraded and randomly chosen submissions
CE 458  Fall Semester, archive the final reports from 3 randomly chosen design groups.

In all cases we ask that the instructors attempt to avoid collecting work from the same students more than once (sample without replacement). Work-study help will be available if needed. We propose that Dr. Gunnink create and appoint a standing departmental committee consisting of the Assistant Department Head (Chair), two additional faculty members, and two members of the departmental advisory committee. The chair will coordinate the collections and archive them for assessment. The committee will be charged with the assessment of the portfolios, which would take place shortly after finals week each spring semester. It is anticipated that this will take each committee member 4 to 6 hours per year. The committee need not meet face-to-face, all materials will be duplicated and distributed by CE office staff, and the results of the assessment may be e-mailed back to the Chair using prepared forms that will be electronically distributed. The Chair will summarize the results annually and provide them to faculty at the retreat.

Direct Assessment of Student Work

An example of a technique for recording grades that ties outcomes assessment to graded work in an individual course was presented at an ABET assessment conference at Rose Hulman that Joel Cahoon and Carolyn Plumb attended in Spring 2006. Joel has volunteered to develop and institute a similar instrument. He will use the spreadsheet in the Fall 2006 semester in CE 431 on a trial basis. If the tool generates worthwhile information, Dr. Cahoon will continue to use the tool and prepare a summary for distribution to the faculty at each annual retreat. It is not anticipated that this approach will be taken in other courses, except maybe CE 435 and one more senior elective to be selected later.

Updating the Self Study Report

The activities proposed herein will, if adopted, be incorporated into an addendum to the March 2006 Self-Study document. The addendum will be prepared during the break between Spring 2007 semester and will be distributed electronically to faculty for voluntary feedback.
Please help the Civil Engineering department retain ABET accreditation by completing this short survey:

<table>
<thead>
<tr>
<th>Are you a graduate of a program in the CE department at MSU?</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do you employ or work with graduates from the CE department at MSU?</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

Based on a collective assessment from all your interactions with the CE department at MSU or with civil engineering graduates from MSU, please rate the ability of our graduates in regards to the following:

<table>
<thead>
<tr>
<th>How well do MSU Civil Engineering graduates:</th>
<th>1 = poor, 2 = below average, 3 = average, 4 = above average, 5 = excellent</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. apply knowledge of mathematics, science, and engineering</td>
<td>□ 1 □ 2 □ 3 □ 4 □ 5 □ Unknown</td>
</tr>
<tr>
<td>2. design and conduct experiments and analyze and interpret experimental data</td>
<td>□ 1 □ 2 □ 3 □ 4 □ 5 □ Unknown</td>
</tr>
<tr>
<td>3. design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability</td>
<td>□ 1 □ 2 □ 3 □ 4 □ 5 □ Unknown</td>
</tr>
<tr>
<td>4. function as a member of a multidisciplinary team</td>
<td>□ 1 □ 2 □ 3 □ 4 □ 5 □ Unknown</td>
</tr>
<tr>
<td>5. identify, formulate, and solve engineering problems</td>
<td>□ 1 □ 2 □ 3 □ 4 □ 5 □ Unknown</td>
</tr>
<tr>
<td>6. explain professional and ethical responsibility</td>
<td>□ 1 □ 2 □ 3 □ 4 □ 5 □ Unknown</td>
</tr>
<tr>
<td>7. compose and present effective written, verbal, and graphical communications</td>
<td>□ 1 □ 2 □ 3 □ 4 □ 5 □ Unknown</td>
</tr>
<tr>
<td>8. draw upon a broad education to explain the impact of engineering solutions in a global, economic, environmental and societal context</td>
<td>□ 1 □ 2 □ 3 □ 4 □ 5 □ Unknown</td>
</tr>
<tr>
<td>9. explain the need for, and demonstrate the capacity for, life-long learning</td>
<td>□ 1 □ 2 □ 3 □ 4 □ 5 □ Unknown</td>
</tr>
<tr>
<td>10. explain contemporary issues as they relate to the solution of engineering problems</td>
<td>□ 1 □ 2 □ 3 □ 4 □ 5 □ Unknown</td>
</tr>
<tr>
<td>11. apply the techniques, skills, and modern engineering tools necessary for engineering practice</td>
<td>□ 1 □ 2 □ 3 □ 4 □ 5 □ Unknown</td>
</tr>
<tr>
<td>12. relating to MS grads only - synthesize and evaluate knowledge in a specialized area related to civil engineering</td>
<td>□ 1 □ 2 □ 3 □ 4 □ 5 □ Unknown</td>
</tr>
<tr>
<td>13. explain the elements of project management, construction, and asset management</td>
<td>□ 1 □ 2 □ 3 □ 4 □ 5 □ Unknown</td>
</tr>
<tr>
<td>14. explain the fundamentals of business, public policy and administration</td>
<td>□ 1 □ 2 □ 3 □ 4 □ 5 □ Unknown</td>
</tr>
<tr>
<td>15. explain the role of the leader, leadership principles, and attitudes conducive to effective professional practice of civil engineering</td>
<td>□ 1 □ 2 □ 3 □ 4 □ 5 □ Unknown</td>
</tr>
</tbody>
</table>
To: Dr. Brett Gunnink, Civil Engineering Department Head

From: Dr. Joel Cahoon, Associate Professor

Subject: Direct Assessment of ABET Outcomes Instrument

Date: January 23, 2007

Based on faculty discussion at the 2006 CE departmental retreat, I used a direct outcomes assessment instrument on a trial basis in CE 431 during the Fall 2006 semester. Enclosed here is a summary of the trial and my recommendations for future uses of such an instrument.

The assessment instrument I used is of my own making, but is based on several such instruments that were presented and discussed at *Best Assessment Practices VIII - A Working Symposium* sponsored by ABET and the Rose-Hulman Institute of Technology in Terre Haute, Indiana on February 27-28, 2006.

There were nineteen students registered for this senior-level design-based elective. The course grades are based on formal and fully-graded homework assignments, two hourly exams, the final exam, and a group project (the course syllabus and outline are attached). When entering the grades for each assignment, the grade worksheet automatically prompts for the percentage of that assignment that can be said to correspond to each of the following ABET outcomes (summarized below as in the prompts in the worksheet). Also required is the extent to which each particular assignment counts toward the final course grade. Homework problems were graded in such a way that each individual problem was assessed, even when multiple problems were assigned simultaneously. Exams were considered as one assignment, even though each exam had multiple problems.

1. apply knowledge of math, science, and engineering
2. design and conduct experiments, analyze experimental data
3. design a system with realistic constraints
4. function as a member of a multidisciplinary team
5. identify, formulate, and solve engineering problems
6. explain professional and ethical responsibility
7. compose and present verbal, written and graphical communications
8. explain the impact of engineering solutions
9. explain the need for life-long learning
10. explain contemporary issues related to the solution of the problem
11. apply techniques, skills and modern engineering tools
12.
13. explain project management, construction, and asset management
14. explain business, public policy, and administration
15. explain leadership principles and attitudes conducive to professional practice

The worksheet provides direct assessment of student work by doubly weighted each graded assignment. The contribution of each assignment is first weighted by the percentage of each assignment said to correspond to each of the ABET outcomes, then by the weight that each assignment carries with respect to the final grade in the course. These weighted averages are used to indicate the overall performance of the students with respect to each outcome. These are summarized on the attached graphs.

Figure 1.

![Percentage of Course Devoted To Outcome](image)

Figure 2.

![Percentage of Expectations Met](image)

Figure 1 shows that in this course, 96% of the student generated work can be said to correspond to ABET outcomes 1, 2, 3, 5, 7, and 11 collectively. This is intuitive to me, as this course is a design-based senior-level elective that is not intended to reflect the remaining ABET electives in the 1 through 15 list. Figure 2 shows that all of the ABET
outcomes that have any presence in the course are being met at a high level - near or above the 80% level. The good news is that, according to this instrument, this course is performing well with respect to our ABET outcomes and I would not alter the course as a result of this assessment. If there were an ABET outcome that was heavily incorporated into the course (a high score in Figure 1) that also exhibited a performance weakness (a low score on Figure 2), then I would have considerable insight concerning the areas that should be targeted for improvement. In fact, I could go back into the worksheet and find the particular assignments that indicated that improvement was needed and start my changes there.

My recommendation for future use of direct assessment instruments is that we encourage faculty to use this approach on a voluntary basis if a) a newly developed course is being offered for the first time, b) a course is being significantly overhauled for other reasons, or c) there is some evidence that leads the instructor to believe that the course in question is somehow lacking with respect to one or more ABET objective that the instructor feels should be represented in the course.
MSU Departmental Assessment Update
Spring 2008

Department: Civil Engineering

Department Head: Brett Gunnink

Assessment Coordinator: Joel Cahoon

Date: July 2008

Degrees/Majors/Options Offered by Department

B.S. Civil Engineering
B.S. Civil Engineering with the Bio-Resources Engineering Option
B.S. Construction Engineering Technology
Three members of the Civil Engineering External Advisory Committee provided an analysis of a portfolio of student work to help us assess the extent to which we meet our ABET outcomes, and also to give us a spot-check on our specific goals related to written communication skills. The portfolio consisted of one each (randomly selected and not graded) of:

CE 202 homework assignment
CE 202 project
CE 332 lab report
CE 320 lab report
CE 401 final essay
CE 431 homework
CE 332 final exam
CE 332 quiz

The reviewers used our writing assessment instrument (essentially a grading sheet) to evaluate a unique sample from each of the first five items above. The remaining three items above were included to help the reviewers fill out our outcomes assessment survey.

Writing Assessments

The survey wording was converted to a 0 to 4 scale where the value 1 corresponds to “fair” and the value 2 corresponds to “average”. All subcategories with average responses less than 2 are shown in the table below. The responses not shown all had average responses above 2. Note that most of the assignments scored would not normally have a table of contents or a project schedule.

<table>
<thead>
<tr>
<th>Score</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.9</td>
<td>creates a usable table of contents</td>
</tr>
<tr>
<td>1.3</td>
<td>cites references in text when appropriate and lists references cited in an accepted format</td>
</tr>
<tr>
<td>1.4</td>
<td>understands when to cite references and how to paraphrase</td>
</tr>
<tr>
<td>1.6</td>
<td>uses lists when appropriate</td>
</tr>
<tr>
<td>1.7</td>
<td>concise sentences and paragraphs</td>
</tr>
<tr>
<td>1.7</td>
<td>describes the schedule for a project</td>
</tr>
<tr>
<td>1.7</td>
<td>connects ideas with transitions</td>
</tr>
<tr>
<td>1.7</td>
<td>shows understanding of effective use of design elements (e.g., font, color, and layout)</td>
</tr>
<tr>
<td>1.7</td>
<td>shows standard formal English (correct grammar, punctuation, spelling, and mechanics)</td>
</tr>
<tr>
<td>1.8</td>
<td>uses headings effectively to give the reader better access to the information</td>
</tr>
<tr>
<td>1.8</td>
<td>shows understanding not only of when to present information in a graphic aid (for example, to summarize, emphasize, give the big picture) but also of what type of graphic aid is most appropriate for the purpose and audience</td>
</tr>
<tr>
<td>1.8</td>
<td>shows graphic aids that not only are appropriate for the audience, but also are readable and consistent</td>
</tr>
<tr>
<td>1.9</td>
<td>clearly describes assumptions, methods/approach, design criteria, and software use</td>
</tr>
<tr>
<td>1.9</td>
<td>integrates graphic aids with text, both physically and verbally</td>
</tr>
<tr>
<td>1.9</td>
<td>uses acronyms correctly</td>
</tr>
<tr>
<td>1.9</td>
<td>develops coherent paragraphs</td>
</tr>
</tbody>
</table>
Outcomes Assessment

The survey terms were again converted to a 0 to 4 scale, but the terms used in this survey are different from those in the writing assessment instrument. In this survey, the numeric value corresponding to half-way between responses of “average” and “above average” is a 2.5. All survey responses, by category and subcategory, had an average score of greater than 2.5 except those below.

Outcome 3:

Our graduates will show capability in using modern software as a standard tool in the design or analysis process.

Indicate the level at which the outcome is met:

<table>
<thead>
<tr>
<th>outcome component</th>
<th>far below average</th>
<th>below average</th>
<th>average</th>
<th>above average</th>
<th>far above average</th>
<th>can’t evaluate</th>
</tr>
</thead>
<tbody>
<tr>
<td>overall</td>
<td></td>
<td></td>
<td></td>
<td>2.00</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Outcome 6:

Our graduates will consider social views and the environment in the design work proposed and performed.

Indicate the level at which the outcome is met:

<table>
<thead>
<tr>
<th>outcome component</th>
<th>far below average</th>
<th>below average</th>
<th>average</th>
<th>above average</th>
<th>far above average</th>
<th>can’t evaluate</th>
</tr>
</thead>
<tbody>
<tr>
<td>social views are considered</td>
<td></td>
<td></td>
<td></td>
<td>2.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>environment is considered</td>
<td></td>
<td></td>
<td></td>
<td>2.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>overall</td>
<td></td>
<td></td>
<td></td>
<td>2.00</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Degrees/Majors/Options Offered by Department

B.S. Civil Engineering
B.S. Civil Engineering with the Bio-Resources Engineering Option
B.S. Construction Engineering Technology (CET)

The ABET Accreditation Process

In addition to university-wide accreditation, all of the Bachelor's degree programs in the College of Engineering are independently accredited by ABET.

ABET is a federation of 29 professional and technical societies. Individual members of these societies - practicing professionals from industry and academe - form the body of ABET through its program evaluators (PEVs), Board of Directors, and four accreditation commissions, the Applied Science Accreditation Commission (ASAC), Computing Accreditation Commission (CAC), Engineering Accreditation Commission (EAC), and Technology Accreditation Commission (TAC). (www.abet.org).

Individual degree programs that are not found to have significant deficiencies are generally accredited on a six year cycle. The CE degree program (with AND without the Bio-Resources Option - accredited as one degree program) has just completed a sixth year in this cycle. The program evaluators were on campus in September 2009. The program evaluators are charged with providing a critical review of all elements of the degree program - curriculum, faculty, facilities, support, and the process for continuous improvement.
The ABET review begins with the development of a self-study document that is prepared by the department and submitted to the program evaluator prior to the on-campus visit. This self study document in not only a snapshot in time, but is an archive of the status of, and changes to, the department over the last six years. A major component of that archive is a description of the program's student outcomes, documentation of the evolution of these outcomes, details concerning continuous assessment of the outcomes, and procedures for addressing any shortcoming with respect to meeting the outcomes.

**Outcomes Assessment for the CE Program**

The department uses a variety of activities to establish student outcomes, to assess the outcomes themselves, to determine if students are meeting the outcomes once established, and to make adjustments to the curriculum or program structure when assessment activities indicate that outcomes are not met at a desired level. Examples of assessment activities are direct assessment of student work by our departmental External Advisory Committee (EAC), categorical scrutiny of the results of the Fundamental of Engineering (FE) exam, senior exit interviews, etc. The loop is completed by presenting the assessment results to the faculty (at our annual retreat) and to the EAC (at the annual meeting) for discussion and to determine what, if any, corrective actions are merited.

In general, whenever we have access to numerical or categorical metrics during the assessment process we tend to recommend additional inquiry or corrective action when a metric indicates below average performance. For example, when our students score below the national average on a component of the FE we would initiate additional inquiry to determine if corrective action is necessary. Or if a direct assessment of student work results in a average categorical rating of "below average" we would do the same. Furthermore, we tend to scrutinize components of the program that have the lowest scores even when the individual metric meets or exceeds the comparative average. Scrutinizing a component of the program does not always result in corrective action.

**This Document**

The portions of this document headed **Criterion 3…** and **Criterion 4…** are excerpts taken directly from the CE program Self Study as presented to the ABET program evaluator prior to the September 2009 campus visit. They provide a summary of the previous six years of outcomes assessment for the Civil Engineering degree program, as well as discussion of current status and future plans. The Self Study also includes numerous appendices with complete assessment data sets and documents. These are not included here but are archived in the Office of the Dean of the College of Engineering.
CRITERION 3. PROGRAM OUTCOMES

ABET definition: Program outcomes are narrower statements that describe what students are expected to know and be able to do by the time of graduation. These relate to the skills, knowledge, and behaviors that students acquire in their matriculation through the program. Assessment under this criterion is one or more processes that identify, collect, and prepare data to evaluate the achievement of program outcomes.

Evaluation under this criterion is one or more processes for interpreting the data and evidence accumulated through assessment practices. Evaluation determines the extent to which program outcomes are being achieved, and results in decisions and actions to improve the program.

A. Process for Establishing and Revising Program Outcomes

In our previous ABET cycle we had our own (MSU CE) program outcomes that mirrored but were not identical to the ABET program outcomes (formerly known as the ABET 2000 a-k). In 2006 the department adopted the ASCE recommended Body of Knowledge outcomes (the adoption process is documented in Criterion 4 of this self study). These outcomes are commonly referred to as the 15 BOK outcomes. These were discussed at a faculty retreat, and the consensus was that the 15 BOK outcomes as recommended by ASCE were appropriate for our program and were encompassing to the extent that we need not add additional outcomes. We recognize that outcome 12 was designed for graduate programs, but we decided to carry it along regardless as our profession moves towards discussion of post-baccalaureate work as part of the licensing process. We believe that remaining in harmony with the program outcomes as proposed by ASCE is appropriate.

B. Program Outcomes

1. Ability to apply knowledge of mathematics, science and engineering.
2. Ability to design and conduct experiments, as well as analyze and interpret data.
3. Ability to design a system, component, or process to meet desired needs.
4. Ability to function on multi-disciplinary teams.
5. Ability to identify, formulate, and solve engineering problems.
6. Understanding of professional and ethical responsibility.
7. Ability to communicate effectively.
8. The broad education necessary to understand the impact of engineering solutions in a global and societal context.
9. Recognition of the need for, and an ability to engage in, life-long learning.
10. Knowledge of contemporary issues.
11. Ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.
12. Ability to apply knowledge in a specialized area related to civil engineering (primarily MS level).
13. Understanding the elements of project management, construction, and asset management.
15. Understanding of the role of the leader and leadership principles and attitudes.
These outcomes were provided to faculty members at a faculty retreat, and are archived and available on request from the Department Head.

C. Relationship of Program Outcomes to Program Educational Objectives

Describe how the Program Outcomes lead to the achievement of the Program Educational Objectives.

Table 3-1 Map of MSU objectives and outcomes.

<table>
<thead>
<tr>
<th>Key:</th>
<th>3 = highly related</th>
<th>2 = moderately related</th>
<th>1 = somewhat related</th>
</tr>
</thead>
</table>

### All Graduates:

1. … enter the profession and advance to become registered professional engineers …

<table>
<thead>
<tr>
<th>1.</th>
<th>2.</th>
<th>3.</th>
<th>4.</th>
<th>5.</th>
<th>6.</th>
<th>7.</th>
<th>8.</th>
<th>9.</th>
<th>10.</th>
<th>11.</th>
<th>12.</th>
<th>13.</th>
<th>14.</th>
<th>15.</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>3</td>
<td>3</td>
<td>2</td>
<td>3</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

2. work on multi-disciplinary teams …

   | 1  | 1  | 2  | 3  | 2  | 2  | 3  | 2  | 3  | 1  | 3  | 3  | 2  | 2  | 2  |

3. … develop expertise in one of the sub-disciplines … engage in the life-long learning …

   | 3  | 3  | 2  | 2  | 3  | 2  | 3  | 2  | 2  | 3  | 2  | 2  | 2  | 2  | 1  |

4. contribute to society and the … profession …

   | 1  | 1  | 2  | 2  | 2  | 3  | 2  | 2  | 3  | 1  | 2  | 1  | 2  | 2  |     |

5. conduct affairs in a highly ethical manner … safety, health and welfare of the public … principles of sustainable development.

   | 2  | 1  | 2  | 3  | 3  | 3  | 2  | 3  | 2  | 2  | 1  | 1  | 2  | 2  | 1  |

### Some Graduates:

6. … surveying profession …

   | 2  | 3  | 1  | 1  | 3  | 2  | 2  | 2  | 2  | 1  | 3  | 2  | 1  | 1  | 1  |

7. begin careers in the construction industry

   | 2  | 3  | 1  | 2  | 3  | 2  | 2  | 2  | 2  | 2  | 1  | 2  | 3  | 2  | 2  |

8. earn advanced degrees …

   | 3  | 3  | 2  | 2  | 3  | 2  | 2  | 2  | 2  | 2  | 3  | 1  | 1  | 2  |     |
### D. Relationship of Courses in the Curriculum to the Program Outcomes

Describe the relationship of courses in the curriculum to the Program Outcomes.

#### Table 3-2. Map of MSU Outcomes and curriculum.

<table>
<thead>
<tr>
<th>Course or Group Name</th>
<th>Course or Courses</th>
<th>Minimum Total Credit Hours in Group</th>
<th>MSU Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Communications</strong></td>
<td>WRIT 101, BUS 201/WRIT 201/WRIT 221, CE 202, CLS 101/COM 110/US 101, ME 115 + ME 116</td>
<td>12</td>
<td>1 3 2 1 1</td>
</tr>
<tr>
<td><strong>Basic Science</strong></td>
<td>CHMY 141 + CHMY 142, PHYS 211 + PHYS 212/MB 301, BIOL 102/GEO 101/GPHY 284/LRES 201/MB 101</td>
<td>19</td>
<td>3 3 2 1 2 2 2 2 1 3 1</td>
</tr>
<tr>
<td><strong>Mathematics</strong></td>
<td>M 171 + M 172 + M 273 + M 274, I&amp;ME 350/STAT 332</td>
<td>18</td>
<td>3 3 2 2</td>
</tr>
<tr>
<td><strong>BPPPA Core</strong></td>
<td>BPPPA Core, I&amp;ME 325</td>
<td>6</td>
<td>1 2 2 1 2</td>
</tr>
<tr>
<td><strong>University Core</strong></td>
<td>IA, IH, IS, D (one of these is BPPPA core)</td>
<td>9</td>
<td>2 2 1</td>
</tr>
<tr>
<td><strong>Engineering Mechanics</strong></td>
<td>EM 251 + EM 252 + EM 253 + EM 335, EM 415/EM 435</td>
<td>12</td>
<td>3 3 1 2 3</td>
</tr>
<tr>
<td><strong>Engineering Science</strong></td>
<td>CE 201, CE 202, CHBE 213/EE 250/ME 320/ME/324</td>
<td>3</td>
<td>3 3 1 2 2</td>
</tr>
<tr>
<td><strong>Construction Practice</strong></td>
<td>CE 308</td>
<td>3</td>
<td>3 3 1 2 1 1 1 2</td>
</tr>
<tr>
<td><strong>Structures I</strong></td>
<td>CE 312</td>
<td>3</td>
<td>3 3 1 2 1 3 3 1</td>
</tr>
<tr>
<td><strong>Geotech Engr</strong></td>
<td>CE 320</td>
<td>3</td>
<td>3 1 3 2 2 1 1 3 3 1</td>
</tr>
<tr>
<td><strong>Hydrology</strong></td>
<td>CE 331</td>
<td>2</td>
<td>3 1 3 2 2 1 2</td>
</tr>
<tr>
<td><strong>Hydraulics</strong></td>
<td>CE 332</td>
<td>2</td>
<td>3 2 3 2 1 1 3 2 3 1</td>
</tr>
<tr>
<td><strong>Environ Engr</strong></td>
<td>CE 340</td>
<td>3</td>
<td>3 3 3 2 2 1 3 2 3 1</td>
</tr>
<tr>
<td><strong>Structures II</strong></td>
<td>CE 315</td>
<td>3</td>
<td>3 1 3 3 3 2 1 3 3 3 1</td>
</tr>
<tr>
<td><strong>Transp Engr</strong></td>
<td>CE 350</td>
<td>3</td>
<td>3 2 3 3 3 2 2 1 3 3 3 1</td>
</tr>
<tr>
<td><strong>Adv Hydrology</strong></td>
<td>BREN 432</td>
<td>3</td>
<td>3 2 3 3 2 2 1 3 2 3 1</td>
</tr>
<tr>
<td><strong>Sat Tramnt Sys</strong></td>
<td>BREN 441</td>
<td>3</td>
<td>3 1 3 3 2 2 1 3 2 3 1</td>
</tr>
<tr>
<td><strong>Professional Electives</strong></td>
<td>ENGR 310</td>
<td>12</td>
<td>3 2 3 3 2 2 1 1 3 3 2 2 1</td>
</tr>
<tr>
<td><strong>Design and Professionalism</strong></td>
<td>ENGR 499</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>
E. Documentation

Display material include sample work and syllabi from all courses listed on our check sheets including professional electives and service courses taught in other departments (some service courses common to multiple engineering degree programs will be displayed in a common area). Some of the display material will be separated and identified as being representative examples of each outcome.

F. Achievement of Program Outcomes

Explain the assessment and evaluation processes that periodically document and demonstrate the degree to which the Program Outcomes are attained. Describe the level of achievement of each Program Outcome. Discuss what evidence will be provided to the evaluation team that supports the levels of achievement of each Program Outcome.

Table 3-3  Map of MSU outcomes with assessment instruments.

<table>
<thead>
<tr>
<th>Key:</th>
<th>FE exam</th>
<th>Senior Exit Interviews</th>
<th>Departmental EAC</th>
<th>Documented Direct Assessments</th>
<th>Application in Design Experience</th>
<th>Curriculum Committee</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 - measured, but not strong indicator</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>1</td>
<td>2</td>
<td>12</td>
</tr>
<tr>
<td>2 - measured reasonably well</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>3 - measured well</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>13</td>
</tr>
<tr>
<td>4 - multi-disciplinary teams</td>
<td>5</td>
<td>3</td>
<td>3</td>
<td>2</td>
<td>5</td>
<td>1</td>
<td>17</td>
</tr>
<tr>
<td>5 - solve engineering problems</td>
<td>6</td>
<td>3</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>17</td>
</tr>
<tr>
<td>6 - professional and ethical responsibility.</td>
<td>7</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>9</td>
</tr>
<tr>
<td>7 - communicate effectively</td>
<td>8</td>
<td>2</td>
<td>1</td>
<td>3</td>
<td>3</td>
<td>2</td>
<td>11</td>
</tr>
<tr>
<td>8 - impact ... global and societal</td>
<td>9</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>9 - life-long learning</td>
<td>10</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>10 - contemporary issues</td>
<td>11</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>8</td>
</tr>
<tr>
<td>11 - modern engineering tools</td>
<td>12</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>15</td>
</tr>
<tr>
<td>12 - knowledge in specialized area</td>
<td>13</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td>14</td>
</tr>
<tr>
<td>13 - project management, construction</td>
<td>14</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>14 - business, public policy, admin</td>
<td>15</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>15 - leadership principles</td>
<td></td>
<td>15</td>
<td>21</td>
<td>24</td>
<td>23</td>
<td>29</td>
<td>20</td>
</tr>
</tbody>
</table>
CRITERION 4. CONTINUOUS IMPROVEMENT

A. Information Used for Program Improvement

The following are documentation of three cases where information from either direct assessment techniques or updates in learning outcomes were used for program improvement. The first documents the development of an assessment instrument used specifically to identify issues related to communication skills.

Civil Engineering Writing Evaluation Using a Draft of Writing Outcomes
CE Advisory Board Meeting, March 2005
Prepared by Carolyn Plumb

At the March 2005 CE Advisory Board meeting, board members, CE faculty, and CE graduate students developed a draft of writing outcomes for CE students. As a test, these outcomes were used to evaluate two randomly selected sample papers from CE 458. Seventeen people evaluated Paper #1, and eighteen people evaluated Paper #2. The scores for the papers are shown in the table below and on the next page.

Following the table is a brief summary of the results and recommendations for the outcomes and for the assessment process.

<table>
<thead>
<tr>
<th>Question Number</th>
<th>Question</th>
<th>Mean Scores (0-4)</th>
<th>Paper #1</th>
<th>Paper #2</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>includes the appropriate information and the appropriate level of detail for the audience</td>
<td>3.94</td>
<td>2.56</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>addresses the question/problem and provides an answer to why the information provided is important</td>
<td>3.68</td>
<td>2.89</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>constructs a logical and persuasive argument</td>
<td>3.24</td>
<td>2.19</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>develops an introduction that provides appropriate background, a purpose statement, and the scope of the document</td>
<td>3.76</td>
<td>3.00</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>clearly describes assumptions, methods/approach, design criteria, and software use</td>
<td>2.94</td>
<td>2.39</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>clearly and succinctly states and supports conclusions</td>
<td>3.21</td>
<td>2.11</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>summarizes, particularly for decision makers</td>
<td>3.82</td>
<td>2.72</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>understands when to cite references and how to paraphrase</td>
<td>3.06</td>
<td>2.21</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>describes the schedule for a project</td>
<td>1.42</td>
<td>1.88</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Content Overall</td>
<td>3.67</td>
<td>2.69</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>structures information in a logical order</td>
<td>3.91</td>
<td>2.81</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>creates a usable table of contents</td>
<td>4.00</td>
<td>2.76</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>develops coherent paragraphs</td>
<td>3.65</td>
<td>2.78</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>connects ideas with transitions</td>
<td>3.32</td>
<td>2.44</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>uses headings effectively to give the reader better access to the information</td>
<td>3.85</td>
<td>2.90</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>uses lists when appropriate</td>
<td>3.26</td>
<td>2.33</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>Organization Overall</td>
<td>3.77</td>
<td>2.72</td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>shows understanding not only of when to present information in a graphic aid (for example, to summarize, emphasize, give the big picture) but also of what type of graphic aid is most appropriate for the audience</td>
<td>3.32</td>
<td>2.50</td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>shows graphic aids that not only are appropriate for the audience, but also are readable and consistent</td>
<td>3.88</td>
<td>2.47</td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>integrates graphic aids with text, both physically and verbally</td>
<td>3.76</td>
<td>2.11</td>
<td></td>
</tr>
<tr>
<td>21</td>
<td>shows understanding of effective use of design elements (e.g., font, color, and layout)</td>
<td>3.82</td>
<td>2.53</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>Page design &amp; graphic aids overall</td>
<td>3.76</td>
<td>2.36</td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>shows standard formal English (correct grammar, punctuation, spelling, and mechanics)</td>
<td>3.09</td>
<td>3.22</td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>concise sentences and paragraphs</td>
<td>3.35</td>
<td>2.94</td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>uses both active and passive voice, whichever is appropriate</td>
<td>3.18</td>
<td>2.85</td>
<td></td>
</tr>
<tr>
<td>21</td>
<td>achieves the appropriate tone for the context, including the ability to achieve (1) a professional, formal tone and (2) a tone that indicates strength without arrogance</td>
<td>3.26</td>
<td>2.97</td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>uses acronyms correctly</td>
<td>3.50</td>
<td>2.67</td>
<td></td>
</tr>
<tr>
<td>23</td>
<td>avoids jargon (unless appropriate)</td>
<td>3.53</td>
<td>2.86</td>
<td></td>
</tr>
<tr>
<td>24</td>
<td>correctly uses numbers and units in text</td>
<td>3.12</td>
<td>2.66</td>
<td></td>
</tr>
<tr>
<td>25</td>
<td>cites references in text when appropriate and lists references cited in an accepted format</td>
<td>3.26</td>
<td>2.41</td>
<td></td>
</tr>
<tr>
<td>26</td>
<td>Writing style, grammar, mechanics Overall</td>
<td>3.35</td>
<td>2.88</td>
<td></td>
</tr>
</tbody>
</table>
Summary of Results

Clearly, Paper 1 was a better paper than Paper 2. It is interesting, though, that the writer of Paper 2 may have actually had a better command of the language than the writer of Paper 1 (see the result for question 18). Paper 2 obviously lacked in other areas, particularly substance.

It is difficult to draw any conclusions from this small sample. If a larger sample of individually written papers showed more papers like Paper 1 than Paper 2, CE students would be fairly well prepared to write at work. Combining these results with comments from the participants during this assessment as well as during the assessment of the more general program outcomes, question 5 (clearly describes assumptions, methods/approach, design criteria, and software use) is one that the department may want to emphasize more in CE 457 and 458.

Recommendations for the Outcomes and for the Assessment Process

Developing this draft of writing outcomes was a very important first step in assessing CE student writing on an ongoing basis. Below are some recommendations for how to proceed from this important first step.

- These outcomes are realistic and comprehensive; however, they are dynamic, and could change as a result of future assessment cycles. One suggestion I have is to eliminate question 9 (describes the schedule for a project) unless the assignments for CE 457 and 458 clearly require a schedule. The department should decide if scheduling a project is an important learning objective for students.
- The writing outcomes cannot be assessed by the current portfolio method because the paper samples in those portfolios are written by different students. In fact, I recommend removing the general communication outcome from the portfolio process and assessing communication/writing separately (unless, in the future, the portfolios include the writing of one individual).
- In regard to a process for assessing writing using this instrument, I recommend that one “high-stakes” writing sample at the senior level be collected. The assignment should be individually written. A random sample of these assignments could be assessed, using the writing outcomes, at the same time that the more general program outcomes are assessed.
- The outcomes should be communicated to students and used as frequently as possible for evaluating course assignments. Faculty do not need to use the entire list of outcomes if all do not apply for a particular assignment. However, the outcomes do provide a handy evaluation tool that is consistent from one course to another.

The following is the material distributed to and discussed by the faculty at the 2006 annual retreat.

ABET Update
Annual CE Department Retreat
August, 2006

Submitted by Brett Gunnink and Joel Cahoon

Streamlining our Program Outcomes

ASCE has teamed up with ABET to refine and update the list of minimum outcomes that a CE program should achieve. As such, the old “a through k” outcomes list has been re-worded and expanded slightly, as shown below. Note that the new list of outcomes has 15 rather than 11 items, but that item 12 only applies to graduates programs. We think that as we transition to the new ABET outcomes there is an opportunity to streamline the way we approach our own program outcomes. Rather than write our own outcomes and then demonstrate how these align with and
satisfy the minimum ABET outcomes, we think it is a good idea to simply adopt the ABET outcomes, while looking for places where minor wording changes add some specificity to our program. The wording changes and adoption as departmental outcomes could take place this Fall, but in the mean time it is probably okay to go ahead and operate using the outcomes below - the spirit and intent of each item will not likely change much.

1. apply knowledge of mathematics, science, and engineering
2. design and conduct experiments and analyze and interpret experimental data
3. design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability
4. function as a member of a multidisciplinary team
5. identify, formulate, and solve engineering problems
6. explain professional and ethical responsibility
7. compose and present effective written, verbal, and graphical communications
8. draw upon a broad education to explain the impact of engineering solutions in a global, economic, environmental and societal context
9. explain the need for, and demonstrate the capacity for, life-long learning
10. explain contemporary issues as they relate to the solution of engineering problems
11. apply the techniques, skills, and modern engineering tools necessary for engineering practice
12. [MS Programs Only] synthesize and evaluate knowledge in a specialized area related to civil engineering
13. explain the elements of project management, construction, and asset management
14. explain the fundamentals of business, public policy and administration
15. explain the role of the leader, leadership principles, and attitudes conducive to effective professional practice of civil engineering

Surveys

Our most recent self-study report (March 2004) indicated that we would survey employers of our graduates every 3 years, and alumni at 3 years and 5 years after graduation. After much deliberation, we have decided that the effort that we put into surveys has never justified the disappointing response rates, and that we rarely got new information from the responses that we did get. We have tried mail-return surveys using all kinds of pre-posted envelopes and cards. We have followed up with phone calls to see if we could get better response rates. Our internet based (Survey Monkey) form has never been used - not once in the year it has been operational. We propose that we reduce our use of surveys to a minimum, and survey in a setting where we may get a decent rate of voluntary response. We propose to survey the participants of the Spring Engineering Festival. We have not had a chance to check with the faculty involved, and would welcome feedback or suggestions from the coordinators and any other faculty familiar with the Festival. If amenable, we propose the use of a survey similar to the attached draft. Perhaps it could be included on the back side of the evaluation sheet the Festival coordinators currently use. The results would be compiled and analyzed by the Assistant Department Head and distributed to faculty for feedback at the annual retreat.

Student Portfolio Review

Our most recent self-study report (March 2004) indicated that we would annually review portfolios of student work from CE 401, CE 457, CE 458 and CE 332. This has been partially accomplished, but in a sort of experimental mode where we used the departmental advisory committee to help develop and streamline the scoring instruments and processes that we use to assess the portfolios. With the help of Carolyn Plumb, these experiments have led to what we think is a constructive and sustainable process for collecting and reviewing student portfolios. We propose to collect course material as follows:
CE 202 Fall semester, from each of at least 3 assignments, collect 3 ungraded and randomly chosen submissions that focus on written communication skills
CE 401 Fall semester, from each of at least 3 assignments, collect 3 ungraded and randomly chosen submissions that focus on written communication skills
CE 320 Fall semester, from each of at least 3 lab write-ups, collect 3 ungraded and randomly chosen submissions
CE 458 Fall Semester, archive the final reports from 3 randomly chosen design groups.

In all cases we ask that the instructors attempt to avoid collecting work from the same students more than once (sample without replacement). Work-study help will be available if needed. We propose that Dr. Gunnink create and appoint a standing departmental committee consisting of the Assistant Department Head (Chair), two additional faculty members, and two members of the departmental advisory committee. The chair will coordinate the collections and archive them for assessment. The committee will be charged with the assessment of the portfolios, which would take place shortly after finals week each spring semester. It is anticipated that this will take each committee member 4 to 6 hours per year. The committee need not meet face-to-face, all materials will be duplicated and distributed by CE office staff, and the results of the assessment may be e-mailed back to the Chair using prepared forms that will be electronically distributed. The Chair will summarize the results annually and provide them to faculty at the retreat.

Direct Assessment of Student Work

An example of a technique for recording grades that ties outcomes assessment to graded work in an individual course was presented at an ABET assessment conference at Rose Hulman that Joel Cahoon and Carolyn Plumb attended in Spring 2006. Joel has volunteered to develop and institute a similar instrument. He will use the spreadsheet in the Fall 2006 semester in CE 431 on a trial basis. If the tool generates worthwhile information, Dr. Cahoon will continue to use the tool and prepare a summary for distribution to the faculty at each annual retreat. It is not anticipated that this approach will be taken in other courses, except maybe CE 435 and one more senior elective to be selected later. (Note to ABET reviewer - this assessment instrument was used for 2 semesters by Dr. Cahoon. In consultation with Dr. Gunnink it was decided that the information generated by the instrument was not particularly enlightening and it would not be worth the time and effort required to institute the instrument in the department. The idea was abandoned. An example is given in Appendix F.)

Updating the Self Study Report

The activities proposed herein will, if adopted, be incorporated into an addendum to the March 2006 Self-Study document. The addendum will be prepared during the break between Spring 2007 semester and will be distributed electronically to faculty for voluntary feedback.

Please help the Civil Engineering department retain ABET accreditation by completing this short survey:

| Are you a graduate of a program in the CE department at MSU? | Yes | No |
| Do you employ or work with graduates from the CE department at MSU? | Yes | No |

Based on a collective assessment from all your interactions with the CE department at MSU or with civil engineering graduates from MSU, please rate the ability of our graduates in regards to the following:

<table>
<thead>
<tr>
<th>How well do MSU Civil Engineering graduates:</th>
<th>1 = poor, 2 = below average, 3 = average, 4 = above average, 5 = excellent</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. apply knowledge of mathematics, science, and engineering</td>
<td>□ 1 □ 2 □ 3 □ 4 □ 5 □ Unknown</td>
</tr>
<tr>
<td>2. design and conduct experiments and analyze</td>
<td>□ 1 □ 2 □ 3 □ 4 □ 5 □ Unknown</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>and interpret experimental data</td>
<td></td>
</tr>
<tr>
<td>3. design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability</td>
<td>□ 1 □ 2 □ 3 □ 4 □ 5 □ Unknown</td>
</tr>
<tr>
<td>4. function as a member of a multidisciplinary team</td>
<td>□ 1 □ 2 □ 3 □ 4 □ 5 □ Unknown</td>
</tr>
<tr>
<td>5. identify, formulate, and solve engineering problems</td>
<td>□ 1 □ 2 □ 3 □ 4 □ 5 □ Unknown</td>
</tr>
<tr>
<td>6. explain professional and ethical responsibility</td>
<td>□ 1 □ 2 □ 3 □ 4 □ 5 □ Unknown</td>
</tr>
<tr>
<td>7. compose and present effective written, verbal, and graphical communications</td>
<td>□ 1 □ 2 □ 3 □ 4 □ 5 □ Unknown</td>
</tr>
<tr>
<td>8. draw upon a broad education to explain the impact of engineering solutions in a global, economic, environmental and societal context</td>
<td>□ 1 □ 2 □ 3 □ 4 □ 5 □ Unknown</td>
</tr>
<tr>
<td>9. explain the need for, and demonstrate the capacity for, life-long learning</td>
<td>□ 1 □ 2 □ 3 □ 4 □ 5 □ Unknown</td>
</tr>
<tr>
<td>10. explain contemporary issues as they relate to the solution of engineering problems</td>
<td>□ 1 □ 2 □ 3 □ 4 □ 5 □ Unknown</td>
</tr>
<tr>
<td>11. apply the techniques, skills, and modern engineering tools necessary for engineering practice</td>
<td>□ 1 □ 2 □ 3 □ 4 □ 5 □ Unknown</td>
</tr>
<tr>
<td>12. relating to MS grads only - synthesize and evaluate knowledge in a specialized area related to civil engineering</td>
<td>□ 1 □ 2 □ 3 □ 4 □ 5 □ Unknown</td>
</tr>
<tr>
<td>13. explain the elements of project management, construction, and asset management</td>
<td>□ 1 □ 2 □ 3 □ 4 □ 5 □ Unknown</td>
</tr>
<tr>
<td>14. explain the fundamentals of business, public policy and administration</td>
<td>□ 1 □ 2 □ 3 □ 4 □ 5 □ Unknown</td>
</tr>
<tr>
<td>15. explain the role of the leader, leadership principles, and attitudes conducive to effective professional practice of civil engineering</td>
<td>□ 1 □ 2 □ 3 □ 4 □ 5 □ Unknown</td>
</tr>
</tbody>
</table>

The following documents the results of the use of the writing assessment instrument that was developed earlier:

**Fall 2007 Outcomes Assessment Summary**

**Civil Engineering EAC Subcommittee**

Three members of the Civil Engineering External Advisory Committee provided an analysis of a portfolio of student work to help us assess the extent to which we meet our ABET outcomes, and also to give us a spot-check on our specific goals related to written communication skills. The portfolio consisted of one each (randomly selected and not graded) of:

- CE 202 homework assignment
- CE 202 project
- CE 332 lab report
- CE 320 lab report
- CE 401 final essay
- CE 431 homework
The reviewers used our writing assessment instrument (essentially a grading sheet) to evaluate a unique sample from each of the first five items above. The remaining three items above were included to help the reviewers fill out our outcomes assessment survey.

Writing Assessments

The survey wording was converted to a 0 to 4 scale where the value 1 corresponds to “fair” and the value 2 corresponds to “average”. All subcategories with average responses less than 2 are shown in the table below. The responses not shown all had average responses above 2. Note that most of the assignments scored would not normally have a table of contents or a project schedule.

<table>
<thead>
<tr>
<th>Score</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.9</td>
<td>creates a usable table of contents</td>
</tr>
<tr>
<td>1.3</td>
<td>cites references in text when appropriate and lists references cited in an accepted format</td>
</tr>
<tr>
<td>1.4</td>
<td>understands when to cite references and how to paraphrase</td>
</tr>
<tr>
<td>1.6</td>
<td>uses lists when appropriate</td>
</tr>
<tr>
<td>1.7</td>
<td>concise sentences and paragraphs</td>
</tr>
<tr>
<td>1.7</td>
<td>describes the schedule for a project</td>
</tr>
<tr>
<td>1.7</td>
<td>connects ideas with transitions</td>
</tr>
<tr>
<td>1.7</td>
<td>shows understanding of effective use of design elements (e.g., font, color, and layout)</td>
</tr>
<tr>
<td>1.7</td>
<td>shows standard formal English (correct grammar, punctuation, spelling, and mechanics)</td>
</tr>
<tr>
<td>1.8</td>
<td>uses headings effectively to give the reader better access to the information</td>
</tr>
<tr>
<td>1.8</td>
<td>shows understanding not only of when to present information in a graphic aid (for example, to summarize, emphasize, give the big picture) but also of what type of graphic aid is most appropriate for the purpose and audience</td>
</tr>
<tr>
<td>1.8</td>
<td>shows graphic aids that not only are appropriate for the audience, but also are readable and consistent</td>
</tr>
<tr>
<td>1.9</td>
<td>clearly describes assumptions, methods/approach, design criteria, and software use</td>
</tr>
<tr>
<td>1.9</td>
<td>integrates graphic aids with text, both physically and verbally</td>
</tr>
<tr>
<td>1.9</td>
<td>uses acronyms correctly</td>
</tr>
<tr>
<td>1.9</td>
<td>develops coherent paragraphs</td>
</tr>
</tbody>
</table>

Outcomes Assessment

The survey terms were again converted to a 0 to 4 scale, but the terms used in this survey are different from those in the writing assessment instrument. In this survey, the numeric value corresponding to half-way between responses of “average” and “above average” is a 2.5. All survey responses, by category and subcategory, had an average score of greater than 2.5 except those below.

Outcome 3:

Our graduates will show capability in using modern software as a standard tool in the design or analysis process.

Overall: Average (2.00).

Outcome 6:
Our graduates will consider social views and the environment in the design work proposed and performed.

Social views are considered: Average (2.00)
Environment is considered: Average (2.00)
Overall: Average (2.00)

The use of the assessment instrument did not result in action because survey responses indicated no category where student performance was considered below average, and only a few instances where students were "average". It was at this point that the department reviewed the goal of annual portfolio assessments and decided that annual frequency was excessive relative to the information gained from the exercise. We will complete a portfolio review every third year - the next one will occur in the 2009-2010 academic year.

FE Exam Results

All BSCE students are required to take the FE exam during their senior year. They may choose to do so during their second-to-last semester (while enrolled in CE 457) or during their last semester (while enrolled in CE 458). During the semester that a student takes the exam, the student also enrolls in a 0-credit hour course (ENGR 499). The ENGR 499 course is graded pass-fail and students are assigned a passing grade if they attend the entire exam and show good-faith effort. This makes taking the FE a graduation requirement, however students are only required to pass ENGR 499, and are not required to pass the FE exam.

The cohort for all analyses and comparisons based on FE exam results is civil engineering students taking the civil engineering exam. Occasionally, one of our CE students chooses to take either the general exam or the environmental exam, but this occurs in too low of frequency to include in any assessment analysis.

Civil engineering students at MSU tend to fare very well on the FE exam. Figure 4.1 shows the ratio of the pass rate for MSU CE students to the pass rate nationally for the same cohort.

![Graph showing the ratio of MSU % Passing to National % Passing from October 2004 to October 2008. The ratio ranges from 1.10 to 1.41 with a cycle average of 1.24.](image-url)
Figure 4.1 The ratio of the pass rate for MSU CE students to the national pass rate.

As shown in Figure 4-1, our civil engineering students tend to pass the FE exam at a rate of 1.24 times the national average. In the exam in with the lowest ratio in this cycle (the most recent 9 exams for which we have data as of this writing), our CE students still passed the FE exam at a rate that was 1.10 time the national average, and in the best year our students passed the exam at 1.41 time the national rate.

Perhaps the most valuable component of the feedback from the FE exam is the results as delineated by topic areas. Figure 4-2 shows the average performance of our CE students relative to the performance at the national level in each of the topic areas when averaged over the cycle period. As demonstrated in Figure 4-2, there is no topic area for which, on the average, our CE students perform below national averages.

Figure 4-2. Performance in each topic area of the FE exam by MSU students relative to national results averaged over the cycle period.
As shown in Table 4-1, there were a few instances where MSU CE students did not achieve the national averages by topic area. These instances are rare (in only 15 of 185 instances national performance exceeded MSU CE performance) and in all 15 of these cases the difference is less than 1 standard deviation of the national performance. Note that in this accreditation cycle, our metric that triggers action of three consecutive exams with a topic area below the national average never occurred.
Senior Exit Interviews

The following is an example of the notes that the Department Head (or Program Coordinator, if the Department Head is not available) records during senior exit interview (more are archived in Appendix F):

2007-2008 Senior Exit Interview Summary

Senior exit interviews occurred on two occasions during the year. Civil Engineering students in the CE458 capstone course were interviewed in December of 2007 and May of 2008. The interviews were conducted by the department head and emphasized the total four year experience. During the interview, students were first asked to introduce themselves, and then tell where they were from and where they were going after graduation. A summary of where the graduating students were going is included the table below.

<table>
<thead>
<tr>
<th>Semester</th>
<th>Work - Consulting Engineers</th>
<th>Work - Contractor</th>
<th>Work - Other</th>
<th>Offers – Accepted</th>
<th>Actively Looking</th>
<th>Not Actively Looking</th>
<th>Graduate School</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall 07 (25)</td>
<td>9</td>
<td>3</td>
<td>1</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Spring 06 (35)</td>
<td>20</td>
<td>5</td>
<td>1</td>
<td>6</td>
<td></td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Total (60)</td>
<td>29</td>
<td>3</td>
<td>6</td>
<td>1</td>
<td>9</td>
<td>4</td>
<td>8</td>
</tr>
</tbody>
</table>

Students were asked to provide input regarding their experiences at MSU in two ways. First, they were asked to provide comments regarding program strengths/commendations. Next they were asked to provide comments regarding program weaknesses/recommendations. The following bullet list summarizes these comments.

Strengths/Commendations

- Structure Lab
- Engineering mechanics courses
- Well prepared for FE exam
- Hydraulics classes
- Faculty (4)
• Academic advising (3)
• Tait lab, when available

Weaknesses/Recommendations

• Availability of professional electives
• CE 308 (18) – too much duplication with senior design – return work promptly
• CE 457 – too many things vague or contrived (12)
• Senior designs course too much work for 2 credit class (6)
• BUS 201
• ME 115-116 – CAD preparation (16)
• Expanded Tait computer lab hours
• Heavy Construction/Senior Design schedule conflict
• Lack of Organic chemistry in BREN
• LRES 444 – too much overlap with BREN classes
• Heavy end-of-semester work loads
• Formally scheduling evening exams
• Lose the tough attitude – confidence killing environment – promote success not failure
• Don’t like no textbook classes
• Some faculty too interested in research
• Lab component in BREN classes is needed
• I&ME 325, estimating and scheduling topics could be in one course (4)
• Some academic advisors are poor (3)
• ENGR 310 – a waste of time
B. Actions to Improve the Program

Changes to component of the curriculum involving written communication:

As a result of numerous assessment activities, the following changes were made to the curriculum to address concerns having to do with written communication skills. A follow up assessment using the EAC/writing assessment instrument will be conducted in Spring 2010, the first opportunity to assess the cohort of students for whom the curriculum changes affected.

CE 202 Beginning with the 2006-2008 catalog, CE 202 transitioned from a 1 credit hour lab course dealing with computer applications to a 2 credit hour lab/recitation course having the original computer lab component but with a complementary writing component. The basic premise was that for each weekly computer assignment, there would be a writing exercise that was related to the computer work, either having to do with the computer based assignment directly or with an application of the material in the computer based assignment.

CE 401 Beginning with the 2006-2008 catalog, the syllabus for CE 401 was altered to increase the percentage of the course devoted to writing assignments. Alternate-week synopsis of historic engineering cases studies now submitted. The course also maintains the historic level of verbal presentations of cases studies.

CE 308 Beginning with the 2006-2008 catalog, the introductory construction management courses for CE's was combined with the similar course for CET's. The CET course had always relied heavily on written work, so when the courses were combined the CE majors essentially had an increase in the written communications component of their curriculum.

BUS 201 Beginning with the 2006-2008 catalog, CE majors could choose between two courses to satisfy the second writing course (the first one being WRIT 101W Freshman Composition). Students could still take BUS 201 (Managerial Communications) as before, but could elect to take WRIT 221 (Technical Writing, formerly ENGL 223) instead. In the 2008-2010 catalog, WRIT 201 (Composition II, formerly ENGL 221) was added as a third option.
The following was distributed and discussed at the 2007 annual faculty retreat, and documents the changes to the curriculum that were in effect, a response to ABET criteria:

To: Civil Engineering Faculty  
   Attendees of the 2007 CE Faculty Retreat

From: Brett Gunnink and Joel Cahoon

Date: August 2007

Re: Curriculum changes in response to the May 10, 2007 CE Body of Knowledge ABET Criteria.

The most recent refinements to the ABET criteria for CE programs are summarized in the attached documents. The CE degree program at Montana State University remains very much in line with nearly all of the criteria, but there are a few instances where we should consider making some small adjustments.

We have evaluated the new criteria with respect to our programs, and have identified the following discussion items. We have also taken the liberty of including suggested responses, and we are certainly open to other ideas. We would like for the outcome of the discussion to be action items that can be implemented in the next catalog.

BOK Outcome 1 - Math and Science

*Graduates can solve problems in mathematics through differential equations, calculus-based physics, chemistry, and one additional area of science.*

**Recommendation for CE:**

Have students choose between: Currently required for:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credit(s)</th>
<th>Term(s)</th>
<th>Department(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHBE 213</td>
<td>Material Science (3 cr, F,S)</td>
<td>3</td>
<td>F,S</td>
<td>CHE, CE, CET, IE, ME, MET</td>
</tr>
<tr>
<td>ME 324</td>
<td>Engineering Thermodynamics (3 cr, S)</td>
<td>3</td>
<td>S</td>
<td>CE, BREN, MET</td>
</tr>
<tr>
<td>EE 250</td>
<td>Circuits, Devices, and Motors (4 cr, F,S)</td>
<td>4</td>
<td>F,S</td>
<td>IE</td>
</tr>
</tbody>
</table>

Use the 3 credit hours that this frees up to require that students choose one of:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credit(s)</th>
<th>Term(s)</th>
<th>Prerequisite(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 102</td>
<td>Molecular and Cellular Biology (4 cr, F, S)</td>
<td>4</td>
<td></td>
<td>CHEM 131</td>
</tr>
<tr>
<td>BIOL 213</td>
<td>Introductory Biology: Cells to Organisms (4 cr, S)</td>
<td>4</td>
<td>STAT 216, CHEM 131</td>
<td></td>
</tr>
<tr>
<td>BIOL 214</td>
<td>Introductory Biology: Molecules to Cells (4 cr, F)</td>
<td>4</td>
<td></td>
<td>STAT 216, CHEM 131</td>
</tr>
<tr>
<td>LRES 201</td>
<td>Soil Resource (3 cr, F)</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MB 101IN</td>
<td>Microbiology in Today’s World (4 cr, F, S)</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ESCI 111IN</td>
<td>Physical Geology (4 cr, F, S, Su)</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GEOG 211</td>
<td>Geographic Info Science and Cartography (3 cr, F, S)</td>
<td>3</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Recommendation for CE-BREN:**

The BREN option is already in compliance with this ABET outcome, but we can consider making the check sheet requirement the same as above. BREN’s currently do not take CHBE 213, ME 324 is required, and BREN’s currently choose between LRES 201 and MB 101.

BOK Outcome 2 - Experimentation

*Graduates can design a civil engineering experiment to meet a need; conduct the experiment, and analyze and interpret the resulting data.*
Recommendation for CE and BREN:

The lab component of CE 332 will be substantially modified to be more inquiry-based.

**BOK 4 - Multi-Disciplinary Teams**

*Graduates can function effectively as members of a multi-disciplinary team.*

Recommendation for CE and BREN:

Student will be required to take ENGR 310 instead of the 5th core class.

**BOK Outcome 9 - Life-Long Learning**

*Graduates can demonstrate the ability to learn on their own, without the aid of formal instruction.*

Recommendation for CE and BREN:

Document (mandate?) participation in student clubs?
Document voluntary FE review session participation (with some target level)?

**BOK Outcome 14 - Business, Public Policy, and Public Administration**

*Graduates can explain key concepts and problem-solving processes used in business, public policy, and public administration.*

Recommendation for CE and BREN:

Student will be **required** to take one, and **encouraged** to take two, of the following courses as part of the university core requirements:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Prerequisites</th>
<th>Offered</th>
</tr>
</thead>
<tbody>
<tr>
<td>MGMT 231IS</td>
<td>Knowledge Creation and Inquiry in Business</td>
<td>3 cr</td>
<td>Pre: STAT 216</td>
<td>F07, 2 x 40 seat sections, both closed on 8/14</td>
</tr>
<tr>
<td>POLS 206 IS</td>
<td>The Government of the United States</td>
<td>3 cr</td>
<td>Pre: None</td>
<td>F07, 3 large sections, ~100 seats open on 8/14</td>
</tr>
<tr>
<td>POLS 214IS</td>
<td>Principles of Political Science</td>
<td>3 cr</td>
<td>Pre: None</td>
<td>F07, 1 x 80 seat section, closed on 8/14</td>
</tr>
<tr>
<td>ECON 101IS</td>
<td>Economic Way of Thinking</td>
<td>3 cr</td>
<td>Pre: None</td>
<td>F07, 3 x 250 seat section, ~270 seats open on 8/14</td>
</tr>
<tr>
<td>ECON 250IS</td>
<td>Honors Economics</td>
<td>4 cr</td>
<td>Pre: Honors Program</td>
<td></td>
</tr>
<tr>
<td>POLS 241D</td>
<td>Introduction to International Relations</td>
<td>3 cr</td>
<td>Pre: None</td>
<td>F07, 2 x 55 sections, both closed on 8/14</td>
</tr>
<tr>
<td>MGMT 245D</td>
<td>Cultural Dimensions of International Business</td>
<td>3 cr</td>
<td>Pre: None</td>
<td></td>
</tr>
<tr>
<td>MKTG 242D</td>
<td>Introduction to Global Markets</td>
<td>3 cr</td>
<td>Pre: None</td>
<td>F07, 2 x 35 sections, both closed on 8/14</td>
</tr>
</tbody>
</table>
BOK Outcome 15 - Leadership and Attitudes

Graduates can explain the role of the leader, leadership principles, and attitudes conducive to effective professional practice of civil engineering.

Recommendation for CE and BREN:

Have some of the guest speakers and some of the essays assignments in CE 401 focus on leadership issues rather than ethics and professionalism.

ENGR 310 was added to the curriculum in response to BOK outcome 5. This course has been extensively studied at the college level, and the results of this study are presented in Appendix D.

The above recommendations were discussed in detail at the 2007 faculty retreat. The changes that were made to the curriculum as a result of the discussion are shown on the annotated check sheet that follows. Only the CE check sheet is shown to demonstrate the changes. Changes to the CE-Bio-Resources check sheet were similar.
# A Grade of "C-" or Better Required in All Check Sheet Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>CR</th>
<th>Substitution CR</th>
</tr>
</thead>
<tbody>
<tr>
<td>CE 202</td>
<td>2</td>
<td>Results of direct assessment, +1 or hr.</td>
</tr>
<tr>
<td>CHEM 141 (CHEM 131)</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>EM 251</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>WRIT 11W (ENGL 121W)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>MATH 171Q (MATH 181Q)</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>MATH 172Q (MATH 182Q)</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>MATH 273Q (MATH 283Q)</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>ME 115</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>PHYS 211</td>
<td>4</td>
<td></td>
</tr>
</tbody>
</table>

Address signature above sworn copy.

A grade can only be received twice in these courses (W, I or letter grade). Courses in shaded areas may not be taken prior to the completion of all pre-professional requirements.

## Required Courses (48-51 CR)

### Basic Science
- Choose One:
  - BIOL 102
  - BIO 101N (BSCI 111N)
  - CHEM 250
  - CHEM 251
  - CHEM 252
  - CHEM 253 (CHEM 353)

### Engineering Science Elect.
- Choose One:
  - CHEE 213 or ECE 213
  - ME 250 or ME 252
  - ME 253
  - PHYS 231
  - MATH 224 (MATH 225)
  - MATH 116

### Professional Electives (12 CR Total, 2 Design Intensive (D) Courses *)

<table>
<thead>
<tr>
<th>Course</th>
<th>CR</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 102</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 141 (CHEM 131)</td>
<td>4</td>
</tr>
<tr>
<td>EM 251</td>
<td>3</td>
</tr>
<tr>
<td>WRIT 11W (ENGL 121W)</td>
<td>3</td>
</tr>
<tr>
<td>MATH 171Q (MATH 181Q)</td>
<td>4</td>
</tr>
<tr>
<td>MATH 172Q (MATH 182Q)</td>
<td>4</td>
</tr>
<tr>
<td>MATH 273Q (MATH 283Q)</td>
<td>4</td>
</tr>
<tr>
<td>ME 115</td>
<td>1</td>
</tr>
<tr>
<td>PHYS 211</td>
<td>4</td>
</tr>
<tr>
<td>BUS 210 or WRIT 211 (ENGL 211)</td>
<td>3</td>
</tr>
<tr>
<td>WRIT 221 (ENGL 223)</td>
<td>3</td>
</tr>
</tbody>
</table>

## 1.0 CORE

- Arts Inquiry - IA (6 CR) 6PPA
- Humanities Inquiry - H (3 CR)
- Social Science Inquiry - IS (3 CR)
- Diversity Inquiry - D (3 CR)

Business, Public Policy, and Public Administration Unit Core Elective (6PPA)

Check the courses above (6PPA Card) that satisfy this requirement.

## Transfer Credit Evaluation

### Transfer From:

Evaluator Sig. & Date: 5/21/2009

APPROVAL FOR GRADUATION

Advisor Sig. & Date:

Dept. Head Sig. & Date:

Assist. Dean Sig. & Date:

Note: 2.0 Core requirements for Contemporary Issues in Science (CSI) and Natural Science (SN) and department requirements are met by completing CHEM 141 and PHYS 211.
Engineering Graphics

As a result of senior exit interviews and discussions with the EAC, we have made changes in the way that engineering graphics are incorporated into the curriculum (changes made in the 2008-2009 academic year):

a) CE 201 - We now use Land Desktop in CE 202, CE 363 and CE 464 for the generation of topographic maps using total station data. We also use the software for engineering computations such as cut and fill diagrams. We will transition to Civil 3D in 2010 as our Land Desktop licenses expire.

b) ME 115 and 116. These courses have been modified to specifically accommodate CE and CET students by using Civil 3D in AutoCAD and by focusing on civil and architectural applications of computer aided drafting. The contemporary textbook for these courses reflects the change.

c) In CE 202, the program SketchUp is introduced for conceptual drawing and presentation graphics, and an introduction to GIS software (ArcInfo) is presented.

Miscellaneous Changes

There have been other changes to the curriculum that are associated with availability more so than as a result of assessment activities or responses to constituents. Examples are the expansion of the courses available to satisfy the verbal component of CORE 2.0 (courses with "US" designation) and alterations to the professional elective list from catalog to catalog. As courses become available in the university at large, they are scrutinized as possible enhancements to the curriculum - we include them where appropriate. As courses expire or change dramatically, they are sometimes removed from the curriculum.
MSU Departmental Assessment Update
Construction Engineering Technology
Fall 2009

Department: Civil Engineering
Department Head: Brett Gunnink
Assessment Coordinator: Joel Cahoon
Date: September 2009

Degrees/Majors/Options Offered by Department

B.S. Civil Engineering
B.S. Civil Engineering with the Bio-Resources Engineering Option
B.S. Construction Engineering Technology (CET)

The ABET Accreditation Process

In addition to university-wide accreditation, all of the Bachelor's degree programs in the College of Engineering are independently accredited by ABET.

ABET is a federation of 29 professional and technical societies. Individual members of these societies - practicing professionals from industry and academe - form the body of ABET through its program evaluators (PEVs), Board of Directors, and four accreditation commissions, the Applied Science Accreditation Commission (ASAC), Computing Accreditation Commission (CAC), Engineering Accreditation Commission (EAC), and Technology Accreditation Commission (TAC). (www.abet.org).

Individual degree programs that are not found to have significant deficiencies are generally accredited on a six year cycle. The CET degree program has just completed a sixth year in this cycle. The program evaluators were on campus in September 2009. The program evaluators are charged with providing a critical review of all elements of the degree program - curriculum, faculty, facilities, support, and the process for continuous improvement.

The ABET review begins with the development of a self-study document that is prepared by the department and submitted to the program evaluator prior to the on-campus visit. This self study document in not only a snapshot in time, but is an archive of the status of, and changes to, the
department over the last six years. A major component of that archive is a description of the program's student outcomes, documentation of the evolution of these outcomes, details concerning continuous assessment of the outcomes, and procedures for addressing any shortcoming with respect to meeting the outcomes.

**Outcomes Assessment for the CET Program**

The department uses a variety of activities to establish student outcomes, to assess the outcomes themselves, to determine if students are meeting the outcomes once established, and to make adjustments to the curriculum or program structure when assessment activities indicate that outcomes are not met at a desired level. Examples of assessment activities are direct assessment of student work by our departmental External Advisory Committee (EAC), categorical scrutiny of the results of the Level I Constructor Qualifying Exam (CQE), senior exit interviews, etc. The loop is completed by presenting the assessment results to the faculty (at our annual retreat) and to the EAC (at the annual meeting) for discussion and to determine what, if any, corrective actions are merited.

In general, whenever we have access to numerical or categorical metrics during the assessment process we tend to recommend additional inquiry or corrective action when a metric indicates below average performance. For example, when our students score below the national average on a component of the CQE we would initiate additional inquiry to determine if corrective action is necessary. Or if a direct assessment of student work results in an average categorical rating of "below average" we would do the same. Furthermore, we tend to scrutinize components of the program that have the lowest scores even when the individual metric meets or exceeds the comparative average. Scrutinizing a component of the program does not always result in corrective action.

**This Document**

The portions of this document headed **Criterion 3...** and **Criterion 4...** are excerpts taken directly from the CET program Self Study as presented to the ABET program evaluator prior to the September 2009 campus visit. They provide a summary of the previous six years of outcomes assessment for the Construction Engineering Technology degree program, as well as discussion of current status and future plans. The Self Study also includes numerous appendices with complete assessment data sets and documents. These are not included here but are archived in the Office of the Dean of the College of Engineering.
CRITERION 3. PROGRAM OUTCOMES

ABET definition: Program outcomes are narrower statements that describe what students are expected to know and be able to do by the time of graduation. These relate to the skills, knowledge, and behaviors that students acquire in their matriculation through the program.

- Process for Establishing and Revising Program Outcomes

The process for establishing and revising program outcomes is identical to the process for establishing program objectives described in the criterion 2 section of this self-study.

In 2006, when the program outcomes were last revised, it was decided to adopt ABET general outcomes a-k and program outcomes a-f as the MSU Construction Engineering Technology outcomes. ABET Construction Engineering Technology program specific outcomes are a-f, both at the associates level and bachelors level are discipline specific knowledge, techniques, skills and modern tools.

- Program Outcomes

Graduates of the MSU Construction Engineering Technology program have:

a. An appropriate mastery of the knowledge, techniques, skills and modern tools of Construction Engineering Technology, and are capable of:
   a. Utilizing modern instruments, methods, and techniques to implement construction contracts, documents and codes
   b. Evaluating materials and methods for construction projects
   c. Utilizing modern surveying methods for construction layout
   d. Determining forces and stresses in elementary structural systems
   e. Estimating material quantities and costs
   f. Employing productivity software to solve technical problems
   g. Producing and utilizing design, construction and operations documents
   h. Performing economic analyses and cost estimates related to design, construction, and maintenance of systems in the construction technical specialties
   i. Selecting appropriate construction materials and practices
   j. Applying principles of construction law and ethics
   k. Applying basic technical concepts for the solution of construction problems involving hydraulics and hydrology, geotechnics, structures, construction scheduling and management, and construction safety, and
   l. Performing standard analysis and design in structural elements.

b. An ability to apply current knowledge and adapt to emerging applications of mathematics science, engineering and technology
c. An ability to conduct, analyze and interpret experiments, and apply experimental results to improve processes

d. An ability to apply creativity in the design of systems, components, or processes appropriate to construction

e. An ability to function effectively on teams

f. An ability to identify, analyze and solve technical problems
g. An ability to communicate effectively

h. A recognition of the need for and an ability to engage in lifelong learning

i. An ability to understand professional, ethical and social responsibilities

j. A respect for diversity and a knowledge of contemporary professional, societal and global issues

k. A commitment to quality, timeliness and continuous improvement

- **Relationship of Program Outcomes to Program Educational Objectives**

Table 3-1 Map of MSU objectives and outcomes.

<table>
<thead>
<tr>
<th>Key:</th>
<th>3 = highly related</th>
<th>2 = moderately related</th>
<th>1 = somewhat related</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>All Graduates:</th>
<th>a. mastery of knowledge, techniques…</th>
<th>b. knowledge of math, sciences, engineering…</th>
<th>c. conduct analyze and interpret experiments…</th>
<th>d. creativity in design…</th>
<th>e. function effectively on teams</th>
<th>f. identify, analyze and solve technical problems</th>
<th>g. communicates effectively</th>
<th>h. lifelong learning</th>
<th>i. professional, ethical and social responsibilities</th>
<th>j. respect for diversity and knowledge…</th>
<th>k. commitment to quality, timeliness…</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. enter the construction industry and advance toward leadership positions…</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>2. work on multi-disciplinary teams and effectively communicate…</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>2</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>3. engage in the life-long learning</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>4. contribute to society and the construction industry…</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td>2</td>
<td>3</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>5. conduct their affairs in a highly ethical manner…</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Some Graduates:</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>6. enter the surveying profession…</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>7. earn a graduate degree</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>1</td>
<td>3</td>
</tr>
</tbody>
</table>
### Relationship of Courses in the Curriculum to the Program Outcomes

**Table 3-2.** Map of MSU outcomes and curriculum -- ABET general criteria outcomes.

<table>
<thead>
<tr>
<th>Key:</th>
<th>MSU Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 - Primary Attention</td>
<td>a. mastery of knowledge, techniques…</td>
</tr>
<tr>
<td>2 - Significant Attention</td>
<td>b. knowledge of math, sciences, engr…</td>
</tr>
<tr>
<td>1 - Peripheral Attention</td>
<td>c. conduct analyze and interpret experiments…</td>
</tr>
<tr>
<td></td>
<td>d. creativity in design…</td>
</tr>
<tr>
<td></td>
<td>e. function effectively on team</td>
</tr>
<tr>
<td></td>
<td>f. identify, analyze and solve technical…</td>
</tr>
<tr>
<td></td>
<td>g. communicate effectively.</td>
</tr>
<tr>
<td></td>
<td>h. lifelong learning</td>
</tr>
<tr>
<td></td>
<td>i. professional, ethical and social…</td>
</tr>
<tr>
<td></td>
<td>j. respect for diversity and knowledge…</td>
</tr>
<tr>
<td></td>
<td>k. commitment to quality timeliness…</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Course or Group Name</th>
<th>Course or Courses</th>
<th>Minimum Total Credit Hours in Group</th>
<th>3</th>
<th>2</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communications</td>
<td>WRIT 101</td>
<td></td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>BUS 201/WRIT 201/WRIT 221</td>
<td></td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>CLS 101/COM 110/US 101</td>
<td></td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>ME 115 + ME 116</td>
<td></td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Basic Science</td>
<td>CHMY 121</td>
<td></td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>GEO 101N</td>
<td></td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>PHYS 205 + PHYS 206</td>
<td></td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mathematics</td>
<td>M 151Q + M 165Q + M 166Q</td>
<td></td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>STAT 216Q</td>
<td></td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>University Core</td>
<td>IA, IH, IS, (plus ECNS 101IS)</td>
<td></td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Engineering Mechanics</td>
<td>EM 205 + EM215 + EM 331</td>
<td></td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Engineering Topics</td>
<td>ARCH 241</td>
<td></td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>CE 201</td>
<td></td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>CE 307</td>
<td></td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>CE 308</td>
<td></td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>CE 404</td>
<td></td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>CE 405</td>
<td></td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>CET 202</td>
<td></td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>CET 203</td>
<td></td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>CET 302</td>
<td></td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>CET 305</td>
<td></td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>CET 412</td>
<td></td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>CHBE 213</td>
<td></td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>EE 465</td>
<td></td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>MET 465</td>
<td></td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Business Management</td>
<td>ACTG 220/ACTG 201/I&amp;ME 373</td>
<td></td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>BUS 361</td>
<td></td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>ECNS 101IS + ECNS 202</td>
<td></td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>I&amp;ME 325</td>
<td></td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Professional Electives</td>
<td>ENGR 310</td>
<td></td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>CET 408R</td>
<td></td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Design and Professional</td>
<td>ENGR 310</td>
<td></td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>CET 408R</td>
<td></td>
<td>2</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 3-3. Map of MSU outcomes and curriculum – ABET Construction Engineering Technology program outcomes.

<table>
<thead>
<tr>
<th>Course or Group Name</th>
<th>Course or Courses</th>
<th>Minimum Total Credit Hours in Group</th>
<th>MSU Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communications</td>
<td>WRIT 101 / BUS 201 / WRIT 201 / WRIT 221 / CLS 101 / COM 110 / US 101 / ME 115 + ME 116</td>
<td>11 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3</td>
<td></td>
</tr>
<tr>
<td>Basic Science</td>
<td>CHMY 121 / GEO 101N / PHYS 205 + PHYS 206</td>
<td>16</td>
<td></td>
</tr>
<tr>
<td>Mathematics</td>
<td>M 151Q + M 165Q + M 166Q / STAT 216Q</td>
<td>13</td>
<td></td>
</tr>
<tr>
<td>University Core</td>
<td>IA, IH, IS, (plus ECNS 101IS)</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>Engineering Mechanics</td>
<td>EM 205 + EM 215 + EM 331</td>
<td>9 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3</td>
<td></td>
</tr>
<tr>
<td>Engineering Topics</td>
<td>ARCH 241 / CE 201 / CE 307 / CE 308 / CE 404 / CE 405 / CET 202 / CET 203 / CET 302 / CET 305 / CET 412 / CHBE 213 / EE 465 / MET 465</td>
<td>41 2 3 3 3 3 3 3 3 3 3 3 3 3 3 3</td>
<td></td>
</tr>
<tr>
<td>Engineering Topics</td>
<td>ACTG 220 / ACTG 201 / I&amp;ME 373 / BUS 361 / ECNS 101IS + ECNS 202 / I&amp;ME 325</td>
<td>15</td>
<td>2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2</td>
</tr>
<tr>
<td>Business Management</td>
<td></td>
<td>8</td>
<td>2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2</td>
</tr>
<tr>
<td>Professional Electives</td>
<td></td>
<td>8</td>
<td>2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2</td>
</tr>
<tr>
<td>Design and Professional</td>
<td>ENGR 310 / CET 408R</td>
<td>6 3 1 1 1 1 1 1 1 1 1 1 1 1 1 1</td>
<td></td>
</tr>
</tbody>
</table>

Key:
- 3 - Primary Attention
- 2 - Significant Attention
- 1 - Peripheral Attention

MSU Outcomes:
- a. constructing, modifying, and using construction contracts and documents
- b. evaluating material and methods for construction... structural... structural...
- c. surveying... structural...
- d. forces and stresses... structural...
- e. estimating material quantities and costs...
- f. using productivity software... technical problems...
- g. producing and using construction documents...
- h. economic analyses and cost estimates...
- i. selecting construction materials & practices...
- j. applying construction law and ethics...
- k. basic technical concepts...
- l. analysis and design and structural...
• **Documentation**

Course notebooks will be prepared for the visiting team’s review. These notebooks will contain class instructional materials and examples of student work. In addition, program outcome notebooks will be prepared to facilitate the finding of student work related to a particular outcome of interest. These outcome notebooks will direct the visiting team to particular course notebooks or portions of course notebooks that contain student work that demonstrate the achievement of the outcome.

• **Achievement of Program Outcomes**

The level 1 constructor qualifying exam is the principle quantitative assessment tool used to measure level of achievement of program outcomes. Table 3-1 contains exam score data for MSU construction engineering technology graduates from the April 2005 exam until the April 2009 exam. The ratio column show the ratio of MSU score or pass rate to the national score or pass rate. The last column in the table shows averages calculated over the cycle period. Highlighted fields indicate that the ratio is less than one, or that MSU student performed below the national average. If the area is not highlighted, MSU students performed above the national average. For this time period MSU student performance exceeded the national average in all exam topic areas. From some exam areas performance on the exam was below the national average early in the cycle but exceeded it by the end of the cycle. In the continuous improvement section of this self-study, we will discuss how this improvement was achieved. These data indicate a high level of achievement for program outcomes related to exam content (a,b,c,d,e,f,g,k).

In addition to the assessment data included in this self-study, the visiting team will be able to examine student work from completed courses that provide evidence of achievement of program outcomes. The MSU Employer Partner Career Fair Survey (Appendix F) provides further evidence of achievement of program outcomes (a,b,e,g,h,j).
# Table 3-1 – Level 1 Constructor Qualifying Exam data.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>MSU Nation Ratio</td>
<td>MSU Nation Ratio</td>
<td>MSU Nation Ratio</td>
<td>MSU Nation Ratio</td>
<td>MSU Nation Ratio</td>
</tr>
<tr>
<td>Total Number Tested</td>
<td>38 827</td>
<td>19 502</td>
<td>26 934</td>
<td>14 619</td>
<td>29 1040</td>
</tr>
<tr>
<td>Total Number Passed</td>
<td>28 494</td>
<td>14 300</td>
<td>16 530</td>
<td>10 388</td>
<td>27 671</td>
</tr>
<tr>
<td>Total Number Failed</td>
<td>10 333</td>
<td>5 202</td>
<td>10 404</td>
<td>4 231</td>
<td>2 369</td>
</tr>
<tr>
<td>Percent Passing</td>
<td>0.74 0.60* 1.23</td>
<td>0.74 0.60* 1.23</td>
<td>0.62 0.57* 1.08</td>
<td>0.71 0.63* 1.14</td>
<td>0.93 0.65 1.44</td>
</tr>
<tr>
<td>Average Exam Score</td>
<td>223 214 1.04</td>
<td>217 212 1.02</td>
<td>215 209 1.03</td>
<td>221 215 1.03</td>
<td>237 217 1.09</td>
</tr>
<tr>
<td>Communication Skills</td>
<td>12 11 1.02</td>
<td>13 12 1.04</td>
<td>12 12 1.01</td>
<td>12 11 1.02</td>
<td>14 12 1.16</td>
</tr>
<tr>
<td>Engineering Concepts</td>
<td>22 20 1.12</td>
<td>20 18 1.11</td>
<td>19 16 1.08</td>
<td>25 23 1.08</td>
<td>26 23 1.12</td>
</tr>
<tr>
<td>Management Concepts</td>
<td>13 12 1.07</td>
<td>14 14 1.01</td>
<td>15 14 1.08</td>
<td>10 9 1.08</td>
<td>11 10 1.10</td>
</tr>
<tr>
<td>Materials, Methods &amp; Plan Reading</td>
<td>24 23 1.01</td>
<td>22 22 1.00</td>
<td>22 22 1.00</td>
<td>25 25 0.97</td>
<td>28 26 1.08</td>
</tr>
<tr>
<td>Bidding &amp; Estimating</td>
<td>34 33 1.02</td>
<td>33 31 1.06</td>
<td>32 31 1.04</td>
<td>34 32 1.07</td>
<td>36 32 1.12</td>
</tr>
<tr>
<td>Budgeting/Costing &amp; Control</td>
<td>25 24 1.08</td>
<td>23 23</td>
<td>0.98</td>
<td>25 23 1.08</td>
<td>22 22 1.00</td>
</tr>
<tr>
<td>Planning, Scheduling &amp; Control</td>
<td>30 29 1.04</td>
<td>31 31 1.01</td>
<td>30 30 0.99</td>
<td>30 31 0.98</td>
<td>32 31 1.03</td>
</tr>
<tr>
<td>Construction Safety</td>
<td>18 17 1.06</td>
<td>18 18 1.00</td>
<td>16 17 0.95</td>
<td>19 18 1.03</td>
<td>20 18 1.06</td>
</tr>
<tr>
<td>Surveying &amp; Project Layout</td>
<td>10 9 1.12</td>
<td>10 9 1.10</td>
<td>10 9 1.10</td>
<td>9 8 1.10</td>
<td>10 8 1.23</td>
</tr>
<tr>
<td>Project Administration</td>
<td>35 35 0.99</td>
<td>33 34 0.98</td>
<td>33 33 1.00</td>
<td>35 35 1.02</td>
<td>36 35 1.03</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>MSU Nation Ratio</td>
<td>MSU Nation Ratio</td>
<td>MSU Nation Ratio</td>
<td>MSU Nation Ratio</td>
<td>MSU Nation Ratio</td>
</tr>
<tr>
<td>Total Number Tested</td>
<td>19 588</td>
<td>27 1154</td>
<td>32 554</td>
<td>27 1009</td>
<td>231 7227</td>
</tr>
<tr>
<td>Total Number Passed</td>
<td>14 329</td>
<td>21 664</td>
<td>25 323</td>
<td>27 666</td>
<td>182 4365</td>
</tr>
<tr>
<td>Total Number Failed</td>
<td>5 238</td>
<td>6 490</td>
<td>7 231</td>
<td>0 343</td>
<td>49 2861</td>
</tr>
<tr>
<td>Percent Passing</td>
<td>0.74 0.56* 1.32</td>
<td>0.78 0.58* 1.35</td>
<td>0.78 0.58* 1.34</td>
<td>1.00 0.66* 1.52</td>
<td>0.79 0.60 1.30</td>
</tr>
<tr>
<td>Average Exam Score</td>
<td>229 211 1.09</td>
<td>225 211 1.06</td>
<td>230 212 1.08</td>
<td>241 220 1.10</td>
<td>226 213 1.06</td>
</tr>
<tr>
<td>Communication Skills</td>
<td>10 10 1.02</td>
<td>9 9 1.06</td>
<td>11 10 1.11</td>
<td>13 12 1.16</td>
<td>12 11 1.07</td>
</tr>
<tr>
<td>Engineering Concepts</td>
<td>24 20 1.21</td>
<td>22 20 1.11</td>
<td>22 20 1.10</td>
<td>23 20 1.13</td>
<td>23 20 1.12</td>
</tr>
<tr>
<td>Management Concepts</td>
<td>9 9 1.03</td>
<td>9 9 1.04</td>
<td>9 9 1.05</td>
<td>10 10 1.09</td>
<td>11 11 1.06</td>
</tr>
<tr>
<td>Materials, Methods &amp; Plan Reading</td>
<td>24 23 1.04</td>
<td>25 23 1.07</td>
<td>25 23 1.05</td>
<td>24 22 1.07</td>
<td>24 23 1.03</td>
</tr>
<tr>
<td>Bidding &amp; Estimating</td>
<td>40 34 1.16</td>
<td>38 35 1.10</td>
<td>39 35 1.14</td>
<td>40 35 1.15</td>
<td>36 33 1.09</td>
</tr>
<tr>
<td>Budgeting/Costing &amp; Control</td>
<td>24 22 1.12</td>
<td>24 22 1.10</td>
<td>24 22 1.10</td>
<td>26 23 1.11</td>
<td>24 23 1.06</td>
</tr>
<tr>
<td>Planning, Scheduling &amp; Control</td>
<td>32 30 1.05</td>
<td>31 31 1.01</td>
<td>33 31 1.06</td>
<td>38 35 1.11</td>
<td>32 31 1.03</td>
</tr>
<tr>
<td>Construction Safety</td>
<td>16 16 1.03</td>
<td>16 15 1.05</td>
<td>16 16 1.03</td>
<td>19 17 1.10</td>
<td>17 17 1.04</td>
</tr>
<tr>
<td>Surveying &amp; Project Layout</td>
<td>7 6 1.17</td>
<td>7 6 1.11</td>
<td>7 6 1.11</td>
<td>5 5 1.06</td>
<td>8 7 1.13</td>
</tr>
<tr>
<td>Project Administration</td>
<td>43 41 1.04</td>
<td>43 41 1.04</td>
<td>44 41 1.07</td>
<td>43 42 1.03</td>
<td>38 37 1.02</td>
</tr>
</tbody>
</table>

* Cases where MSU students scored below the national average.
Figure 3-1 – MSU student performance on constructor qualifying exam compared to national average for various exam topic areas.
CRITERION 4. CONTINUOUS IMPROVEMENT

**ABET definition:** Assessment is one or more processes that identify, collect, and prepare data to evaluate the achievement of program outcomes and program educational objectives.

**ABET definition:** Evaluation is one or more processes for interpreting the data and evidence accumulated through assessment practices. Evaluation determines the extent to which program outcomes or program educational objectives are being achieved, and results in decisions and actions to improve the program.

- **Assessment of Program Educational Objectives**

  The department used several tools to assess achievement of program educational objectives. These tools and how they are used are discussed in the following paragraphs.

  **Constructor Qualification Exam (CQE)**
  A requirement for graduation is the Constructor Qualifying – Level I Exam. This nationally normalized exam is taken by student when they are enrolled in the capstone class, CET 408R. The exam is given both during the fall and spring semester each year. Pass rate on this exam is an indicator of level of achievement of program objectives.

  **MSU Career Services Salary Survey**
  MSU Career Services conducts a survey of graduating seniors. This survey provides information about where students go after graduation, job placement and starting salaries.

  **MSU Career Services Employer Surveys**
  The department use to conduct its own employer and alumni surveys. This proved to be a time consuming endeavor; participation rate were low and information gleaned from these surveys was not particularly insightful. MSU Career Services conducts two surveys. The first survey, “How did students measure up?” is given to employers who interview on campus. The second survey “MSU Employer Partner Career Fair Survey” is given to employers who participate in the MSU career fairs. Both of these surveys include information that promises to be valuable for program assessment.

  **Department Advisory Committee**
  The Department Advisory Committee (DAC) meets annually in the fall for a 1-2 day meeting. The DAC agenda very frequently includes review and/or assessment and/or evaluation of program objectives and outcomes. As part of these meetings the DAC meets with groups of students and faculty members. The department head communicate input from the DAC to the department faculty and curriculum committee as appropriate.

- **Evaluation of Program Educational Objectives**

  Annually, each August prior to the start of the new school, the department holds a 1 day retreat. One of the agenda items at these retreats is review of assessment data an evaluation of program outcomes and objective. Prior to these retreats, the department head and/or program coordinators review assessment data and debrief the faculty on levels of achievement for outcomes and objectives. If the levels of achievement are low or need to be improved, the faculty develops strategies for improving these levels of achievement. While the whole
faculty participates in strategy development, implementation of these strategies is assigned to the curriculum committee, the program coordinator, the department head or department staff.

- **Assessment of Program Outcomes**

The department used several tools to assess achievement of program outcomes. These tools and how they are used are discussed in the following paragraphs. Some of the same tools that are used to assess program objectives can also be sued to assess program outcomes.

**Constructor Qualification Exam (CQE)**

A requirement for graduation is the Constructor Qualifying – Level I Exam. This nationally normalized exam is taken by student when they are enrolled in the capstone class, CET 408R. The exam is given both during the fall and spring semester each year. Performances in exam topic areas are indicators of achievement of program outcomes. Exam topic areas include:

- Communication Skills (g)
- Engineering Concepts (a,b,c,d,f)
- Management Concepts (a)
- Materials, Methods & Plan reading (a)
- Bidding & Estimating (a)
- Budgeting/Costing & Control (a)
- Planning, Scheduling & Control (a)
- Construction Safety (a)
- Surveying and Project Layout (a)
- Project Administration (a,k)

The program outcomes that are assessed by the exam topic area are shown in parenthesis after the topic area.

**MSU Career Services Employer Surveys**

The department use to conduct its own employer and alumni surveys. This proved to be a time consuming endeavor; participation rate were low and information gleaned from these surveys was not particularly insightful. MSU Career Services conducts two surveys. The first survey, “How did students measure up?” is given to employers who interview on campus. The second survey “MSU Employer Partner Career Fair Survey” is given to employers who participate in the MSU career fairs. Both of these surveys include information that promises to be valuable for program assessment (a,b,e,g,h,j)

**Capstone Project Review**

Each semester, the program coordinator reviews students’ capstone project reports, and debriefs each student team on the project. This capstone project review is an especially important assessment tool for program outcomes h, i, j, and k. The program coordinator debriefs the department head and core program faculty and reports to the faculty at the department retreat as appropriate.

**Senior Exit Interviews**

Interviews with graduating seniors are conducted by the department head each semester. In these interviews small groups of graduating senior are asked to reflect and comment on the
strengths and weaknesses of the program. The department head compiles these results and shares them with program and department faculty and the department curriculum committee as appropriate. At the time of the last ABET review these interviews were being conducted by the program coordinator. For a time, primarily due to personnel changes, these interviews were done intermittently. They were reinstated during the 2008-2009 academic year and are now being conducted by the department head.

Department Advisory Committee
The Department Advisory Committee (DAC) meets annually in the fall for a 1-2 day meeting. The DAC agenda very frequently includes review and/or assessment and/or evaluation of program objectives and outcomes. As part of these meetings the DAC meets with groups of students and faculty members. The department head communicate input from the DAC to the department faculty and curriculum committee as appropriate.

College Advisory Committee
The College Advisory Committee (CAC) meets annually in the spring for a 1-2 day meeting. The Dean of Engineering chairs this committee with department heads participating in the committee’s activities. As with the DAC, the CAC meeting agenda very frequently includes educational assessment related items. As part of these meetings the CAC meets with groups of students and faculty members. The department heads communicate input from the CAC to the department faculty and curriculum committee as appropriate.

Department Curriculum Committee
The Department Curriculum Committee (DCC) while often responding to input from other assessment tools also provides direct heuristic input regarding achievement of program outcomes. The DCC represents the faculty that interacts with students on a daily basis. There is not group that understand the nuances of student strengths and weaknesses relative to program outcomes better than the faculty.

- Evaluation of Program Outcomes
Annually, each August prior to the start of the new school, the department holds a 1 day retreat. One of the agenda items at these retreats is review of assessment data an evaluation of program outcomes and objective. Prior to these retreats, the department head and/or program coordinators review assessment data and debrief the faculty on levels of achievement for outcomes and objectives. If the levels of achievement are low or need to be improved, the faculty develops strategies for improving these levels of achievement. While the whole faculty participates in strategy development, implementation of these strategies is assigned to the curriculum committee, the program coordinator, the department head or department staff.
Continuous Improvement of the Program

Since our last ABET visit in 2002, there have been several improvements to the program that have resulted from assessment.

These include:

- Raising expectations
- CAD instruction
- ENGR 310
- Internship organization

Raising expectations
In 2002, a few months prior to the last ABET visit, the department hired a new department head, Brett Gunnink. While the ABET review went well, in the months following the visit, Gunnink heard concern expressed about the program. This concern was express by employers of the department’s graduates, alumni and some faculty both informally and through the DAC. The concern expressed was that some of the “academic rigor and toughness” of the program had been eroded. Following this, there were several changes in the department faculty, including two negative tenure decisions, and the subsequent hires of Professors Lutey and Peterson. In the fall of 2005, with these new faculty members on board, the department discussed the problem and possible remedies. It was decided that the problem did not lie in the content of the curriculum, but rather in the quality of instruction, more specifically the expectation that the faculty had for students. It was decided that effort should be made, particularly in the construction management core courses, to increase expectations and restore academic rigor in these courses. In short, students would be expected to work harder.

If one examines the level 1 constructor qualifying exam results (Table 3-1) for the fall 2005 through November 2006 exams, one can identify several weak topic areas; weak topic areas being defined as a topic area where MSU students scored below the national average. For these areas, the ratio of the MSU score to the National score is less than 1. In 2005 and 2006 there were five topic areas that were weak for at least one exam. These were Materials, Methods and Plan Reading; Budgeting/Costing & Control; Planning Scheduling & Control; Construction Safety; and Project Administration. The construction management core faculty (Lutey, Knoll, and Peterson) worked to improve the quality of construction management courses, specifically by raising expectations of the students. While it is difficult to describe how this was done, the results of their efforts were measurable. For the last five exams (April 2007 through April 2009) MSU students have scored above the national average in all topic areas on all exams. Further, for the April 2009 exam, the pass rate was 100% (27 students). The May 2009 graduating class was the first MSU Construction Engineering Technology class to have a 100% pass rate.

CAD instruction
As a result of senior exit interviews and discussions with the DAC, we have made changes in the way that engineering graphics are incorporated into the curriculum (changes made in the 2008-2009 academic year):
a) ME 115 and 116. These courses have been modified to specifically accommodate CET and CE students by using Civil 3D in AutoCAD and by focusing on civil and architectural applications of computer aided drafting. The contemporary textbook for these courses reflects the change.

b) CE 201 - We now use Land Desktop in CE 202, CE 363 and CE 464 for the generation of topographic maps using total station data. We also use the software for engineering computations such as cut and fill diagrams. We will transition to Civil 3D in 2010 as our Land Desktop licenses expire.

c) In CET 203, the program SketchUp is introduced for conceptual drawing and presentation graphics, and an introduction to GIS software (ArcInfo) is presented. We plan to introduce students to BIM software in this class in the future.

** ENGR 310 – Introduction to Engineering **

The department, including the Construction Engineering Technology program, participated in the development of what is now a junior level multi-disciplinary design course. For students graduating under the 2008-2010 (current) catalog, ENGR 310 is a required course. The following paragraphs describe the development of ENGR 310 and subsequent assessment result for this course. Note that this is an excerpt from Appendix D of this self-study.

In 2002, the College of Engineering initiated a program to offer a multi-disciplinary design opportunity for the senior design project. The “No Walls” program had students take an engineering design course (ENGR 401) offered through the general engineering program as a substitute for their discipline’s capstone course(s).

Over the next two years, the overhead of coordinating a large number of projects became overwhelming. Every project was unique, with unique team composition and advisory structure. The specific requirements for each project were negotiated each semester between the respective capstone instructors, advisors, and students. This was a time consuming and often confusing process. For example, it was often unclear who would decide the students’ grades (the advisors or instructor) because the model was different for every project. Furthermore, many students felt they had significantly more requirements placed on them than their classmates working on single-discipline teams. And finally, while some projects were very successful, many were not.

Therefore, the College embarked on a study to determine a best path forward with respect to multi-disciplinary engineering. The two-year study (2005 to 2007) was led by Dr. Durward Sobek (IE), MSU’s first Boeing Professor. This study followed the engineering design process. After an information-gathering stage, an ad-hoc cross-disciplinary team of faculty developed and refined multi-disciplinary learning objectives, criteria for evaluating alternatives, and several alternatives for the best local option for multi-disciplinary learning. The alternatives were then evaluated using a selection matrix. The top alternatives were further refined and taken to the broader faculty for comment.
Gathering Information
Before diving into solutions, Sobek and Plumb (Director of Educational Innovation and Strategic Projects) conducted an investigation to define what problem we really want to address and identify possible solutions. These activities included: a study of multi-disciplinary programs at other institutions, an in-house comparison of curricula to identify existing multi-disciplinary courses and experiences, an investigation of the current state of design instruction within the College via interviews with design instructors, and discussions with advisory board members.

Establishing Design Objectives
From the groundwork investigation, a team of faculty representing the college’s programs developed an initial set of objectives for the multi-disciplinary program, whatever shape it might take. These objectives were presented to a cross-disciplinary advisory team that included representatives from all programs (except Construction Engineering Technology) and the Dean’s Office, and were refined through several iterations.

The adopted objectives of the College’s multi-disciplinary initiative are to build in our graduates the capacity to:

- View engineering projects from a systems perspective.
- Recognize and appreciate trade-offs across disciplinary perspectives.
- Communicate technical and other trade-offs, and negotiate satisfactory resolution.
- Generate creative, integrated and effective solutions collaboratively.

Ultimately, the college’s goal is to include disciplines outside the College in the multi-disciplinary experiences for students; however, we would begin with engineering, engineering technology, and computer science programs.

In summer of 2006, Plumb submitted a proposal for the week-long Engineering Education Leadership Institute, sponsored by the Center for the Advancement of the Study of Engineering Education (CASEE). The proposal was accepted, and a team of 6 from MSU attended the institute to focus on the process of developing a multi-disciplinary experience for students as well as an implementation schedule. Attendees included Dean Marley, Assistant Dean Sherick, Sobek, Plumb, Chris Jenkins (Mechanical and Industrial Engineering Department Head), and Brett Gunnink (Civil Engineering Department Head).

Generating Design Alternatives and Converging to a Final Solution
After the initial groundwork, the advisory team generated seven alternative approaches to accomplish the above objectives.

The advisory team evaluated the set of alternatives against the following criteria, developed from concerns raised in interviews with College design faculty:

- Ability to meet multi-disciplinary objectives
- Complementary to curricular objectives of participating programs
- Ability to achieve good fit between project needs and disciplines represented
- Ability to achieve consistency in expectations/requirements of students
- Implementation and support cost (actual dollars)
- Reasonable faculty load (e.g., faculty hours required per student)
- Acceptance among College faculty
- Space needs

From the evaluation of the alternatives, two surfaced as the strongest: (1) a junior-level design course and (2) a suite of design electives at the junior-senior levels. More detail was added to these two alternatives and they were “shopped” to college faculty at the August department retreats in 2006. The 2 alternatives, along with input from faculty, were presented to the college’s Curriculum Committee, and that committee recommended adopting the junior-level design course in fall 2006.

During spring and fall 2007, programs in the college added ENGR 310, Introduction to Engineering Design, as a required course, changing their respective curricula to accommodate the course.
Implementing ENGR 310, Introduction to Engineering Design

ENGR 310, Introduction to Engineering Design, “Introduces engineering students to topics such as design process, creative design, project management, teamwork, and technical leadership while highlighting the skills needed to work in a multi-disciplinary environment” (the catalog description). The course has 2 credits of lecture, and 1 credit of recitation. Students are placed in a mixed, multi-disciplinary recitation session to design a project and produce a formal technical report. Each recitation section is facilitated by a TA (either a graduate student or an adjunct faculty) and includes two project teams. The teams consist of between 3 to 5 students. Students maintain a journal on their project work, produce a final report, and also produce a poster and participate in the college’s Design Fair.

The first pilot section of the course was offered in spring of 2007, and another pilot was offered in fall 2007. These pilot sections had low enrollment—fewer than 15 students in each offering. Spring and fall 2008, the course was populated by students from most of the programs, with over 80 students in spring and nearly 100 in fall 2008. Spring 2009, over 100 students are enrolled in the course.

The specific topics in the course include:

- Personality Profiles
- Team Dynamics
- Design Process Modeling
  - Needs Assessment
  - Performance Metrics
  - Alternatives Planning
  - Concept Development
  - Human Factors
  - Project Management
  - Risk Analysis
  - Lifecycle Engineering
  - Cost Analysis
  - Failure Analysis
- General Topics: Intellectual Property, Ethics

Following is a list of ENGR 310 projects from fall 2008:

- Coil Gun
- Solar Ethanol Still
- Grey Water Collector System
- Rainwater Catchment System
- Water Retrial/Filtration System
- Automated Window Blinds
- Automated Breakfast Cooking System
- Heated Running Boards
- Off-the Grid Light Source
- Off-the Grid Evaporative Cooler
- Utility Cord Management System for Genie Lifts
- Split Snowboard
- Door Ram
- RFID Tracking System
- Backcountry Ski Binding
- Automated Cat Feeder System
- Self Contained Cooler
- Bicycle Generator
- Automatic Pipette Filler

A number of the above projects were related to the Engineers Without Borders work with a village in Kenya.
In spring 2009, the course student makeup was as follows (in mid-December, prior to the beginning of the semester):

<table>
<thead>
<tr>
<th>ME</th>
<th>25</th>
<th>25.0%</th>
</tr>
</thead>
<tbody>
<tr>
<td>MET</td>
<td>10</td>
<td>10.0%</td>
</tr>
<tr>
<td>IE</td>
<td>8</td>
<td>8.0%</td>
</tr>
<tr>
<td>EE</td>
<td>13</td>
<td>13.0%</td>
</tr>
<tr>
<td>CE</td>
<td>6</td>
<td>6.0%</td>
</tr>
<tr>
<td>CET</td>
<td>1</td>
<td>1.0%</td>
</tr>
<tr>
<td>ChE</td>
<td>27</td>
<td>27.0%</td>
</tr>
<tr>
<td>CompE</td>
<td>3</td>
<td>3.0%</td>
</tr>
<tr>
<td>CompS</td>
<td>7</td>
<td>7.0%</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

Assessment of ENGR 310

The assessment plan for ENGR 310 includes several methods: a rubric measuring an individual’s performance on a multi-disciplinary team, course project grades, an open-ended questionnaire required of students in lieu of a final exam, a follow-up web survey of students who are completing their senior capstone design course, and the ENGR 310 Advisory Committee.

In parallel with the course development process, and as one measure of determining our success at meeting the multi-disciplinary objectives, we began developing a rubric, a performance measure for an individual’s performance on a multi-disciplinary team. This rubric was pilot tested in the course in spring and fall of 2007. To ensure the validity of the rubric, it was developed with the input of the college’s design faculty as well as the college’s Engineering Advisory Board. As another measure of validity, rubric scores are compared to final project scores each semester. In addition, data have indicated an acceptable level of inter-rater reliability.

The 5 key attributes on the rubric are:
- Interpersonal communication and collaboration
- Understanding & communicating disciplinary tradeoffs and empathy for diverse perspectives
- Planning/organization & accountability/reliability
- Common goals/shared outcomes & conflict management and resolution
- Willingness to learn and inclusive decision making

Students complete the rubric each semester, scoring each team member as well as themselves. The rubric scores are then compared with the final project scores.

The rubric can be valuable in two ways: (1) as an instructional tool, mid-semester, to give students formative assessment information about their performance on the multi-disciplinary team, and (2) as a way to determine if the course objectives are being met, particularly since we expect that the course instructor will change.

The second method of course assessment is an open-ended questionnaire at the end of each semester. Students are required to complete the questionnaire, which is actually an assessment of the course and what they learned in the course, in lieu of a final exam.

The third method of course assessment is a follow-up web survey of students who have taken ENGR 310 and are enrolled in their senior capstone design course. The thrust of the survey is to understand how well ENGR 310 prepares students to work on a design project with a team. A few of these capstone projects are multi-disciplinary, but most involve students from a single program. We have only one set of survey results so far: Spring 2009, the web survey was completed by 48 of the 166 students who took the course spring 2008 and fall 2008: 1 Bioengineering student, 11 ChemE students, 2 CS students, 17 Electrical and Computer Engineering students, 4 IE students, 9 ME students, and 4 MET students.
Students were asked to indicate their level of agreement with statements about the course, using the following scale:

- Strongly Disagree = 1
- Somewhat Disagree = 2
- Neutral = 3
- Somewhat Agree = 4
- Strongly Agree = 5

Table D-1 shows the results from this survey.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Disagree</th>
<th>Somewhat Disagree</th>
<th>Neutral</th>
<th>Somewhat Agree</th>
<th>Strongly Agree</th>
<th>Ave. Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGR 310 improved my understanding of the engineering design process.</td>
<td>2</td>
<td>6</td>
<td>10</td>
<td>18</td>
<td>12</td>
<td>3.67</td>
</tr>
<tr>
<td>ENGR 310 helped me view engineering projects from a systems perspective.</td>
<td>4</td>
<td>4</td>
<td>10</td>
<td>23</td>
<td>7</td>
<td>3.52</td>
</tr>
<tr>
<td>I know better how and where to get started on design projects after taking ENGR 310.</td>
<td>5</td>
<td>5</td>
<td>10</td>
<td>18</td>
<td>10</td>
<td>3.48</td>
</tr>
<tr>
<td>ENGR 310 improved my effectiveness at working on a team.</td>
<td>7</td>
<td>7</td>
<td>13</td>
<td>12</td>
<td>9</td>
<td>3.19</td>
</tr>
<tr>
<td>ENGR 310 improved my effectiveness in leading a team.</td>
<td>5</td>
<td>7</td>
<td>1</td>
<td>18</td>
<td>7</td>
<td>3.31</td>
</tr>
<tr>
<td>ENGR 310 increased my ability to plan projects.</td>
<td>4</td>
<td>3</td>
<td>11</td>
<td>21</td>
<td>9</td>
<td>3.58</td>
</tr>
<tr>
<td>I am more effective at managing design projects after taking ENGR 310.</td>
<td>5</td>
<td>7</td>
<td>10</td>
<td>17</td>
<td>9</td>
<td>3.38</td>
</tr>
<tr>
<td>ENGR 310 helped me become a more creative problem-solver.</td>
<td>7</td>
<td>11</td>
<td>15</td>
<td>12</td>
<td>3</td>
<td>2.85</td>
</tr>
<tr>
<td>ENGR 310 increased my confidence in my ability to work through an engineering design problem collaboratively.</td>
<td>6</td>
<td>6</td>
<td>14</td>
<td>11</td>
<td>11</td>
<td>3.31</td>
</tr>
<tr>
<td>I feel the tools and strategies learned in ENGR 310 have helped me make better decisions in a design context.</td>
<td>6</td>
<td>4</td>
<td>14</td>
<td>17</td>
<td>7</td>
<td>3.31</td>
</tr>
<tr>
<td>I think my performance in my senior capstone project benefited from taking ENGR 310.</td>
<td>8</td>
<td>7</td>
<td>15</td>
<td>12</td>
<td>5</td>
<td>2.98</td>
</tr>
<tr>
<td>I feel that, after taking ENGR 310, I’m better prepared to function on multi-disciplinary teams in the future.</td>
<td>8</td>
<td>5</td>
<td>10</td>
<td>15</td>
<td>10</td>
<td>3.29</td>
</tr>
</tbody>
</table>

The Engineering 310 Faculty Advisory Committee will be reviewing the results of the survey and recommending changes in the course as necessary.
The final method of assessing ENGR 310 is the ENGR 310 Faculty Advisory Committee. In spring of 2008, an ad hoc committee of faculty representing the departments was charged by Dean Marley with recommending a long-term instructional plan for ENGR 310. The committee made two recommendations: (1) establish an ENGR 310 Faculty Advisory Committee, with representation from all of the departments, and (2) hire or appoint a “permanent” instructor for ENGR 310, preferably a full-time tenure track or adjunct professor with industry experience. The Advisory Committee would have the following responsibilities:

- Selecting instructors (in the interim, before the “permanent” instructor hire) and coordinating with appropriate department heads for teaching release.
- Ensuring that course logistics are taken care of, such as meeting rooms and times, instructor of record, TA appointments, number of sections taught, etc.
- Ensuring that course content meets the original intent through a minimum topical coverage list.
- Ensuring that course content supports the needs of College programs.
- Facilitating communication with programs regarding ENGR 310 issues.
- Course assessment.
- Submitting an annual report to the Dean at the end of each academic year.

*Assessment of Ability to Function on a Multi-Disciplinary Team*
In addition to assessing whether ENGR 310 is working as a course, the individual programs will be assessing their students’ ability to “function on a multi-disciplinary team.” Several avenues for this level of assessment will be available to the programs, and each program can choose the assessment avenues that work best, considering their program’s Assessment Plan.

- Rubric and final project data for each program’s students will be available to departments.
- Follow-up survey data will also be available for the students from each program. This data will be categorized according to whether the student worked on a multi-disciplinary senior capstone project or a single discipline project.
- The college’s Director of Educational Innovation and Strategic Projects offers programs the service of developing alumni and employer surveys, and these surveys could be used as one measure of ability to function on a multi-disciplinary team.
Internship organization
As a result of Capstone Project Reviews and input from the DAC, we have made changes to our internship. Strong job markets of a few years ago results in employer intern demand exceeding supply. These same markets also promoted a minority student attitude that the job market was so good that internships were not necessary to land a desirable job at graduation. The faculty has long believed that gaining industry experience through summer internships was very beneficial for Construction Engineering Technology Students. In order to better show that, curriculum flow charts were modified to show participation in internships both after the sophomore year and junior year. Also, a 1 credit hour version of CET 476, internship, was created. Now, students are strongly encouraged to take a 1 or 2 credit hours CET 476 internship after their sophomore year and a 2 credit hour CET 476 internship after their junior year. The new 1 credit hour internship was first offered in 2008. At the end of this sections are the syllabi for these internship courses.
Objective of an Internship:

An internship can be defined as an advanced student or graduate in a professional field gaining supervised practical experience. One of the reasons the internship program was created at MSU was to give the student the ability to enhance their leadership, ethical and professional skills. By having the opportunity to practice classroom theory in reality, this allows an individual to grow in their personal integrity and realize the importance of proper ethical and professional behavior along with leadership and management skills required in a real world setting. This one credit hour internship is to help you understand the process of construction (the daily activities that go on) and what areas you need to learn to be more efficient in and how your academics and self-learning can play a part in this understanding of self-improvement.

Assignments due:

There will be four reports due every 3rd week: four employer evaluation feedback forms, one completed per each report period and one final report with a final employer evaluation feedback form at the end of your internship. A collective total of five reports with five employer evaluation feedback forms and an action photograph of yourself on the jobsite working needs to be completed per the requirements of this course to receive a grade for your internship.

Each report will be single-spaced, 2 to 3 pages in length with a cover sheet and reference/bibliography as an attachment, the cover sheet and reference page are not to be included in the paper length. You are required to interview at least one person within the company and have one written source per assignment in your report. The written source should be an outside source like a professional trade journals, etc. Please do not use standard college textbooks, you need to expand your professional knowledge, therefore outside sources are required. Each report is due by Friday at 5 pm on weeks #3, #6, #9 and #12 of your internship unless other arrangements have been made with your advisor. The first Monday that your internship starts is considered week number one. Each report will be computer generated, 12-point font in Times New Roman. The final report, the final evaluation and your photo are due no later than Friday, August 21, 2009 (remember, school starts on Monday, August 31, 2009 this year).

Four Reports: You are required to write a report about your evaluation feedback from your employer and how you plan to improve upon your weakness and continue to improve upon your strengths. You should think about this carefully so that you can learn from each evaluation and continuously improve your performance. You need to include at least one outside source on the topics of improvement that support WHY you need to improve and HOW to improve. This written report will be attached to your employer’s evaluation and will collectively become part of your report.

So to reiterate, your tri-weekly report should include your cover page, summary of how and where you need to improve, employer’s feedback evaluation, and your reference page. Again the body of your overall report, including your narrative and evaluation summary, should be 2 to 3 pages in length.

Final Report: Your final report is due no later than Friday, August 21, 2009. It should be single-spaced, 3 to 4 pages in length and will deal with your five evaluations and how you would improve through classes, outside education, etc. It will be based on your advisor’s feedback and personal reflections on the last five employer evaluation feedbacks and how you made personal improvements to the evaluation comments as well as reflect upon your final evaluation given by your employer and how you plan to improve upon these comments over the course of your remaining college career and beyond into your professional career. An action photo is required of yourself performing the assigned duties per your internship. Please have a caption page attached to your photo that includes your name, year in school and major, your job title, the company you worked for, project name and its location. Either digital or 35 mm is acceptable for this requirement but make sure that you have your caption page attached otherwise, you photo will not get posted.
The final report, final evaluation form and photo are all due as one package no later than Friday, August 21, 2009.

**Grading:**

<table>
<thead>
<tr>
<th>Report #1 and Evaluation #1</th>
<th>15% report &amp; feedback evaluation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Report #2 and Evaluation #2</td>
<td>20% report &amp; feedback evaluation</td>
</tr>
<tr>
<td>Report #3 and Evaluation #3</td>
<td>20% report &amp; feedback evaluation</td>
</tr>
<tr>
<td>Report #4 and Evaluation #4</td>
<td>20% report &amp; feedback evaluation</td>
</tr>
<tr>
<td>Final Report and Evaluation</td>
<td>25% report &amp; feedback evaluation</td>
</tr>
</tbody>
</table>
Objective of an Internship:

An internship can be defined as an advanced student or graduate in a professional field gaining supervised practical experience. One of the reasons the internship program was created at MSU was to give the student the ability to enhance their leadership, ethical and professional skills. By having the opportunity to practice classroom theory in reality, this allows an individual to grow in their personal integrity and realize the importance of proper ethical and professional behavior along with leadership and management skills required in a real world setting.

Assignments due:

There will be four reports due every 3rd week: four employer evaluation feedback forms, one completed per each report period and one final report with a final employer evaluation feedback form at the end of your internship. A collective total of five reports with five employer evaluation feedback forms and an action photograph of yourself on the jobsite working needs to be completed per the requirements of this course to receive a grade for your internship.

Each report will be single-spaced, 2 to 3 pages in length with a cover sheet and reference/bibliography as an attachment, the cover sheet and reference page are not to be included in the paper length. You are required to interview at least one person within the company and have one written source per assignment in your report. The written source should be an outside source like a professional trade journals, etc. Please do not use standard college textbooks, you need to expand your professional knowledge, therefore outside sources are required.

Each report is due by Friday at 5 pm on weeks #3, #6, #9 and #12 of your internship unless other arrangements have been made with your advisor. The first Monday that your internship starts is considered week number one.

Each report will be computer generated, 12-point font in Times New Roman. The final report, the final evaluation and your photo are due no later than Friday, August 21, 2009 (remember, school starts on Monday, August 31, 2009 this year).

Four Reports: You are required to write a report about your evaluation feedback from your employer and how you plan to improve upon your weakness and continue to improve upon your strengths. You should think about this carefully so that you can learn from each evaluation and continuously improve your performance. You need to include at least one outside source on the topics of improvement that support WHY you need to improve and HOW to improve. This written report will be attached to your employer’s evaluation and will collectively become part of your report.

So to reiterate, your tri-weekly report should include your cover page, summary of how and where you need to improve, employer’s feedback evaluation, and your reference page. Again the body of your overall report, including your narrative and evaluation summary should be 2 to 3 pages in length.

Final Report: Your final report is due no later than Friday, August 21, 2009. It should be single-spaced, 7 to 10 pages in length and will deal with your four topics and how you would improve your investigation on these topics based on your advisor’s feedback and personal reflections on the four topic areas during the course of your internship over the last 12 weeks.

You also need to summarize the last four employer evaluation feedbacks and how you made personal improvements to the evaluation comments as well as reflect upon your final evaluation given by your employer and how you plan to improve upon these comments over the course of your remaining college career and beyond into your professional career.

Suggestion for organization of final report: Write your summary of the four topic areas first and then the summary of your evaluations last and use a header/title for each within your final report. The body of your final
report, including your overall summary of the four topic areas and the overall summary of your five evaluations should be 7 to 10 pages in length. A cover sheet is required and a reference page is optional.

An action photo is required of yourself performing the assigned duties per your internship. Please have a caption page attached to your photo that includes your name, year in school and major, your job title, the company you worked for, project name and its location. Either digital or 35 mm is acceptable for this requirement but make sure that you have your caption page attached otherwise, you photo will not get posted.

The final report, final evaluation form and photo are all due as one package no later than Friday, August 21, 2009.

Grading:
- Report #1 and Evaluation #1: 15% report & feedback evaluation
- Report #2 and Evaluation #2: 20% report & feedback evaluation
- Report #3 and Evaluation #3: 20% report & feedback evaluation
- Report #4 and Evaluation #4: 20% report & feedback evaluation
- Final Report and Evaluation: 25% report & feedback evaluation

4 Topics to Cover:
Use a systems approach to research each of the 4 topics. You need to investigate how your topic affects the industry as a whole as well as the company you are working for and the project you are working on. Your investigation needs to be specific to your internship and what you want to gain from this internship experience besides 2 credit hours.
MSU Departmental Assessment Update
Spring 2007

Department: Chemical and Biological Engineering

Department Head: Dr. Ron Larsen

Assessment Coordinator: Dr. Ron Larsen

Date: 4-19-2007

Degrees/Majors/Options Offered by Department
BS in Chemical Engineering
Assessment Update 2006

CHBE assessment activities during AY 2005-06 and 2006-07 included the following:

- Course Reviews: CHBE 215, 411, 442, 328, 438, 443, 100, 327, 424, 216, 321, 323
- FE Exam Results
- Graduating Senior Survey Results
- Alumni Survey Results
- Student Portfolio: Unit Operations Laboratory Report
- Student Portfolio: Transport Project
- DAC review of faculty proposals
  - Curriculum changes (AY 2005-06)
  - Curriculum changes (AY 2006-07)
  - Focus Area changes (AY 2006-07)
- DAC involvement in rewriting Program Objective (AY 2006-07)

Department Advisory Committee (DAC) Input
The [2005-06] DAC’s conclusions (additional information on file):

- The curriculum changes proposed by the faculty are an effective and appropriate modification that is targeted at addressing weaknesses identified by the FE exam scores, student surveys, and alumni surveys.
- The wording change proposed in the Program Educational Objectives and Outcomes is endorsed.
- Felt that individual course reviews were the prerogative of faculty.
- Unit Operations Laboratory Reports showed a mixed level of performance, but program outcomes b and g generally met at a moderate or better level of performance.

The [2006-07] DAC’s conclusions:

- Approved the Program Objectives developed with students and proposed to faculty.
- Approved the Focus Area proposal.
- Nothing new gleaned from survey (alumni, graduating senior) and FE Exam results; approve using multi-year accumulated results to try to get better data.
- Transport project demonstrated student proficiency in program outcomes a and e.
Curriculum and Other Changes in Response to Assessment

**AY 2006-07 Proposals currently being implemented**

- CHBE 307 (4 cr) [CHBE Thermodynamics] was broken into CHBE 307 (3 cr) [CHBE Thermo I] and CHBE 407 (2 cr) [CHBE Thermo II]. Assessment of the success of this change must wait until CHBE 407 has been taught (Fall 2007).
- CHBE 322 (4 cr) [Fluid Mechanics and Heat Transfer] was split into CHBE 321 (3 cr) and CHBE 322 (3 cr). Partial assessment of the success of this change is possible now (students are comfortable with the change). The impact of the change on the heat transfer portion of the FE Exam must wait until the students take the FE Exam (Sp 2008).
- CHBE 310 (3 cr) [Introduction to Chemical Process Design] moved from spring of the junior year to fall of the senior year, and renamed CHBE 410. CHBE 410 will be offered for the first time Fall 2007.
- CHBE 400 [Professionalism in Chemical and Biological Engineering] content will be incorporated into CHBE 410; CHBE 400 eliminated. This change will be effective Fall 2007.
- CHBE 411 (2 cr) [Chemical and Biological Engineering Design I] – scale back the team projects (design through the process flow diagram stage but not detailed design of individual pieces of equipment.) Instead, students will be tasked with researching and incorporating health and safety, environmental, political, and social issues into their fall semester design report and presentation. An introduction to process simulation will be included in CHBE 411. Effective Fall 2007.
- CHBE 412 (3 cr) [Chemical and Biological Engineering Design I] – credits increased from 2 to 3 to account for greater emphasis on team projects in this course. Effective Spring 2008.

**AY 2006-07 Proposal to be implemented**

- Focus Areas (targeted technical electives) will continue to be presented to students, but will no longer be graduation requirements. The only graduation requirement will be the total number of technical elective credits. Effective Fall 2007.

**Program Objectives Rewritten**

As detailed above, the CHBE Program Objectives were rewritten in AY 2006-07. The proposed program objectives were developed by the DAC and student representatives, and adopted by the faculty on 2/16/2007.
MSU Departmental Assessment Report

Spring 2008

Department: Chemical and Biological Engineering

Department Head: Ronald W. Larsen

Assessment Coordinator: Ronald W. Larsen (interim)

Date: September 19, 2008

Degrees/Majors/Options Offered by Department

BS Chemical Engineering
BS Bioengineering (not yet accredited)
MS Chemical Engineering
MS Environmental Engineering
PhD Engineering, Chemical Engineering Option

Assessment Activities

CHBE assessment activities during AY 2007-08 included the following:

- Inputs Assessment
  - Curriculum Review
  - Course Reviews: CHBE 100, CHBE 213, CHBE 215, CHBE 322, CHBE 411, CHBE 412, CHBE 442, CHBE 120, CHBE 438, CHBE 443, CHBE 451 – a change in approach pushed these reviews into Fall 2008.

- Outcomes Assessment
  - CHBE 411 Interim Design Report, Outcome g (ability to communicate effectively)
  - FE Exam Results
  - Survey Results: Alumni, Employer, Graduating Seniors

- Objectives Assessment (no scheduled assessment in 2007-08)

- Assessment Plan Review
  - Course/Outcomes Matrix
  - Response Thresholds (establishing thresholds in preparation for 2008-09 review)
Details of Assessment Activities

Inputs Assessment

- **Curriculum Review**
  
  A significant review of the curriculum was prompted by the retirement of two faculty members within the department and MSU’s change to a student credit hour funding model. The following were discussed:

  - Lab plan
  - Integrating HYSYS throughout the curriculum
  - ENGR 310 (Multi-disciplinary design course)
  - Potential New Directions
    - Contemporary Issues in Science course (energy/sustainability focus)
    - Focus Areas and new technical elective courses
    - BioE minor and Dual (ChE/BiOE) degree
    - Seamless MS degrees (ChE, BioE, EnvE)

  The Department Advisory Committee recommended the Contemporary Issues in Science course as soon as possible.

- **Course Reviews**
  
  There were a significant number of courses to be reviewed in 2007-08.

  - CHBE 100
  - CHBE 120
  - CHBE 213
  - CHBE 215
  - CHBE 322
  - CHBE 411, CHBE 412
  - CHBE 442, CHBE 443
  - CHBE 438
  - CHBE 451

  This prompted a discussion of less onerous alternatives to the course review process. Ultimately the faculty opted to have each instructor present their course to the faculty and receive immediate faculty feedback. Because of the timing of the decision (Spring retreat), this forced the 2007-08 course reviews into Fall 2008. Those reviews are currently underway.
Outcomes Assessment

- CHBE 411 Interim Design Report, Outcome g (ability to communicate effectively)

Interim Design Reports were collected and assessed by faculty and DAC members. The DAC concluded that the targeted outcome is being met, and that the assessment rubric was useful.

- FE Exam Results

FE Exam results were assessed by faculty and DAC members. Successful pass rates, well above the national average did not indicate that any changes are needed.

- Survey Results: Alumni, Employer, Graduating Seniors

Alumni, Employer, Graduating Seniors survey results were assessed by faculty and DAC members. No sources of concern were observed.

Objectives Assessment

There were no scheduled objective assessment activities in 2007-08. However the new Program Objectives were considered as part of the curriculum review discussion.

Assessment Plan Review

- Course/Outcomes Matrix

The matrix relating courses to program outcomes was considered, but due to the significant curriculum changes currently underway it was felt that Fall 2008 would be a better time to reexamine the Course/Outcomes Matrix. That review will occur this semester.

- Response Thresholds

Response thresholds are scheduled to be reviewed in 2008-09, but the Department Head’s proposed thresholds were reviewed and modified to allow the thresholds to be in place for a time before the 2008-09 review.

Department Advisory Committee (DAC) Input

The complete DAC Report to Faculty is available on the Department’s Assessment website. Only the Assessment Results are included here.
**ABET Assessment Results**

- The DAC found that the Department is meeting the outcomes based on the evidence in the CHBE 411 Design Reports, FE Exam results, and survey results (alumni, employer, and senior exit). The 411 Design reports were useful in assessing program outcomes. The assessment rubric was a good tool to perform the outcome assessments.

- The DAC recommends that the department send out the ABET assessment material in advance of next years council meeting. This would allow much of the assessment activity to be done in advance of the meeting.

- The DAC compliments the Chemical and Biological Engineering faculty and staff on delivering a high quality engineering program to MSU students. The assessment results show impressive evidence of the high technical skill level and preparedness of MSU Chemical Engineering graduates.

**Curriculum and Other Changes in Response to Assessment**

- ENGR 310 (3 cr) [Multi-Disciplinary Design] has been incorporated into the curriculum. This required eliminating CHBE 410 and moving much of that content in CHBE 411 and CHBE 412 which will both be 3 cr courses in the future. A three-credit CORE course was also eliminated.
  - This has the advantage of building multi-disciplinary design into the curriculum, but the success of the course will need to be assessed.

- CHBE DESIGN (CHBE 411, CHBE 412)
  - The ethics case students that had been a part of CHBE 410 will be incorporated in CHBE 411.
  - The decision on when to teach economics should be left to the new instructor, Dr. Peyton.
Assessment Update 2009
Prepared: July 27, 2009

CHBE assessment activities during AY 2008-09 included the following:

- Inputs Assessment
  - Threshold Response Review
  - Course Reviews: all CHBE courses
    *Note: The Faculty modified to course assessment process in May 2008, and decided to apply the new process to all courses in 2008-09. Starting Fall 2009 we will return to reviewing one-third of the courses each year.*

- Direct Outcomes Assessment
  - Final Design Reports (Outcome C)
  - Senior Lab Reports (Outcomes B and G)
  - Various Examples of Student Work (Outcomes H, I, and J)
  - Intern Performance Evaluations (Outcome D)

- Objectives Assessment (no scheduled assessment in 2008-09)

- Assessment Plan Review
  - Response Thresholds

Details of Assessment Activities

Inputs Assessment

- **Threshold Response Review**
  The Faculty tightened the response thresholds proposed by the Department Head. DAC review occurred in March 2009. New response thresholds are as follows:

<table>
<thead>
<tr>
<th>Tool</th>
<th>Scale</th>
<th>Threshold</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student Portfolio Assessment Rubrics</td>
<td>0 – unacceptable 1 – marginal 2 – acceptable 3 – exceptional</td>
<td>Combined score for any outcome below 2.0 invokes inquiry.</td>
</tr>
<tr>
<td>Senior Exit Interviews</td>
<td>1 – poor 2 – not well 3 – fairly well 4 – well 5 – very well</td>
<td>Combined score for any outcome below 3.0 invokes inquiry.</td>
</tr>
<tr>
<td>Alumni Surveys – Strengths and Abilities</td>
<td>1 – poor 3 – average 5 – strong</td>
<td>Combined score for any objective below 3.0 invokes inquiry.</td>
</tr>
<tr>
<td>Employer Surveys</td>
<td>Not Quantitative</td>
<td>DAC members and faculty review employer comments</td>
</tr>
<tr>
<td>FE Exam Results –</td>
<td></td>
<td>DAC members and faculty review results. Scores below national average</td>
</tr>
<tr>
<td>Overall Pass Rate</td>
<td>invokes faculty inquiry.</td>
<td></td>
</tr>
<tr>
<td>-------------------</td>
<td>-------------------------</td>
<td></td>
</tr>
<tr>
<td>FE Exam Results – Individual Topics</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DAC members and faculty review results. Scores below national average discussed by faculty for potential response. (Not all lower than average scores require responses, or rather, the decision may be to not respond in some cases.)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **Response to Outcome C Deficiency**

  Two of five reviewers gave scores of 1 (marginal) on one assessment element of Outcome C: Has safety been considered appropriately? The other three reviewers gave that element a 2 (acceptable). The average is 1.6, below the threshold of 2, thereby invoking an “inquiry”.

  Note: The two reviewers giving marginal scores reviewed different design reports.

  **Faculty Response:**

  The Design instructor has already responded by moving safety lectures earlier in CHBE 412. A Design Report Guide will be developed to help students cover all required areas. A Safety section will be a required component of design reports from this point on.

  We will assess outcome C again using this year’s final design reports by sending sample reports to DAC members (the members who were unable to attend this year’s DAC meeting so that we get fresh eyes) with the Outcome C scoring rubric. The assessment outcome will be presented to the faculty as soon as it is available so that additional responses can be made, if needed.

  **DAC Review and Response**

  - I have reviewed some of student design reports and determined that satisfactory steps have been taken to address the deficiency relating to safety.
  - Safety in Senior Design Reports. Fish oil: score = 2/acceptable. Craft Brewery: score = 2/acceptable (would have been a 3 except for suggesting signs rather than mechanical guarding)
  - Safety in Senior Design Reports: I viewed the Coal Bed Methane Water Treatment Project and the Coal to Methanol Projects. I rated both at level 2, "Safety awareness has clearly been part of the proposed design." Each could have been improved by emphasizing safety early on, for example, in the early summary. The report would point out that, like the economics, safety will be getting close scrutiny at every step of the way throughout the design, construction, and operation of the project to all of the stakeholders.
  - Benzene Remediation: 3 Exceptional, Demonstrated understanding of basic process safety through use of HAZOP which was beyond just personal (slips, trips, and falls).
  - Coal Bed Methane Water Treatment: 1 Marginal, Only discussed safety from a very high level and did not indicate specific process design elements for building an inherently safer plant.
  - Craft Brewery: 3 Exceptional, This team recommended process related equipment beyond the use of procedural barriers, dependant on human intervention.
  - Safety in Senior Design Reports. Benzene: score = 3/excellent. CO2 Sequestration: score = 2/acceptable. I actually thought they were both pretty good, especially the HAZOP portions. I had a slight impression that the Benzene folks took it a little more seriously.
- I took a look at four of the reports – those that look like they would have the most substantial safety concerns (e.g., methanol synthesis). The quality of the safety considerations was highly variable. I did like the inclusion of the HAZOP analysis. However, there were a number of superficial suggestions. I did not see an instance of where safety was built into the system. Most of the time it was suggested that a sensor be put into the system to detect the failure. How about a fail-open (or fail-closed) valve where appropriate to make the system fail-safe rather than relying on sensors (think of what happened at Three Mile Island). I would also like to have seen details given. Rather than just saying that personal protective equipment is needed, specify what equipment (ear protection, steel-toes shoes, respirators, air packs, etc.) is actually needed. Saying the operators need PPE is easy to write without really understanding what it means. What I saw was an improvement. In some cases the students did an excellent job; in others clearly more thought about safety was needed.

- **Course Reviews**

All CHBE courses were reviewed in 2008-09. The review process was as follows:

1. The faculty member prepared a course notebook containing:
   - The Instructor’s assessment of the course:
     - Expected primary and secondary outcomes
     - Major changes since last review
     - Instructor’s assessment
     - Student assessment summary
     - Overall assessment
   - All course handouts
     - Syllabus
     - Instructional Outcomes
     - Other handouts
     - Homework Problems
     - Exams
   2. The assessment was distributed to faculty members at a faculty meeting, and presented by the instructor. The course notebook was passed around as the course was discussed.
   3. Faculty members discussed the course and the assigned outcomes. Changes to expected outcomes were recorded if needed.
   4. Ultimately, the Department Head asked for a vote on whether the course as presented has the potential to meet the expected outcomes.

There were some updates of the expected outcomes for the courses, but all votes were positive.

**Outcomes Assessment**

- **CHBE 411 Interim Design Report, Outcome g (ability to communicate effectively)**

Interim Design Reports were collected and assessed by faculty and DAC members. The DAC concluded that the targeted outcome is being met, and that the assessment rubric was useful.
Objectives Assessment

There were no scheduled objective assessment activities in 2008-09.

Assessment Plan Review

- **Course/Outcomes Matrix**
  
The matrix relating courses to program outcomes was reviewed as the courses were reviewed. Some updates were made.

- **Response Thresholds**
  
Response thresholds as updated by the Faculty in 2008 were approved by faculty and DAC.

Department Advisory Committee (DAC) Input

The complete DAC Report to Faculty is available on the Department’s Assessment website. Only the Assessment Results are included here.

### ABET Assessment Results

The DAC evaluated the following ABET accreditation categories

Students will have:
B. The ability to design and conduct experiments as well as to analyze and interpret data
C. The ability to design a system, component, or process to meet desired needs
D. The ability to function on multi-disciplinary teams
G. The ability to communicate effectively
H. Broad education necessary to understand the impact of engineering solutions in a global / societal context
I. Recognition of the need for and ability to engage in lifelong learning
J. Knowledge of contemporary issues


ABET Assessment Results, cont’d...

The DAC found all the areas listed above to be performing at, or well above average. The lowest performing area was “C”, the ability to design a system, component, or process to meet desired needs. The committee felt Senior Capstone reports to be weak in the areas of process related safety issues and communication through the use of process flow diagrams.

- The DAC felt both staff and students both demonstrated exceptional research ability as evident in Final Design Reports, Senior Lab Results, Coursework, and discussions with students.

- The DAC recommends the following to demonstrate competency in the area of multi-discipline teams
  - The DAC felt the assessment rubric presented by Dr. Carolyn Plumb for ENGR 310 was a good measure and should be maintained
  - The DAC felt the selection of projects carries a very important role in the learning opportunity for ENGR 310. The committee recommends addition of pre-defined structured problem statements, so members from each engineering discipline can contribute to the technical design.
  - The DAC recommends internship evaluations be continued and encouraged (in addition to ENGR 310) as a 3rd party evaluation of program.
MSU Departmental Assessment Report
Spring 2011

Department: Chemical and Biological Engineering

Department Head: Ron Larsen

Assessment Coordinator: Jeff Heys

Date: June 2, 2011

Degrees/Majors/Options Offered by Department

- BS Chemical Engineering
- BS Bioengineering
CHBE Assessment Activities 2010-2011
June 2, 2011

Department Advisory Committee (DAC) Meeting, February 25, 2011

Program Objectives Review
A member of the DAC suggested including “Process Safety” in our Program Objectives. There was a lot of support for this among the DAC members and the faculty. The following changes were proposed:

Our graduates:
• will be confident in their ability to apply chemical engineering fundamentals.
• will be proactive problem solvers.
• will pursue lifelong learning.
• will be effective communicators.
• will be effective team members.
• will be highly ethical engineering professionals.
• will understand process safety.

Note: The Bioengineering Program Objectives are intentionally very similar (“chemical” is changed to “bio” in the first objective.)

Meeting with Students, March 23, 2011

Program Objectives Review
Our assessment officer invited all students to a meeting to discuss assessment issues – pizza was used as an inducement. Students in attendance ranged from sophomores to seniors. The proposed change in our Program Objectives was discussed. The students proposed the following changes:

Our graduates:
• will be confident in their ability to apply chemical engineering fundamentals.
• will be proactive effective problem solvers.
• will have the ability to pursue lifelong learning.
• will be effective communicators.
• will be effective team members.
• will be highly ethical engineering professionals.
• will understand process safety.

Other feedback on the programs:

• Create senior design projects that are of uniform difficulty – some are currently too easy and some are too difficult.
• More “real world” example problems and homework problems in courses (Dr. Carlson was identified as being very good at this).
• More hands-on-learning (desire to “build something”) – one simple suggestion for implementation would be to add a mechanical engineering fabrication-type class to the list of technical electives.
• Consider adding one or two more opportunities for public speaking during the 4 years
• More programming (e.g., MATLAB) in CHBE 120 (this was only expressed by students that took the course from the previous instructor).

Faculty Retreat, May 3, 2011
The CHBE faculty met to discuss the following assessment items:

• **Inputs Review** – do our course materials look like they will cause students to meet our Program Outcomes?
• **Summative Assessments** – does the work produced by our students indicate that Program Outcomes are being met?
• **Direct Assessment** – are the key indicators that we are monitoring showing any issues that we should address?
• **Program Objectives** review

The results of those discussions are listed below.

**Inputs Review**
The following courses were presented by the instructors and reviewed by the faculty:

• **CHBE 213 (EMAT 251):** No concerns were noted. There was some discussion on one of the secondary outcomes associated with this course, Outcome J (knowledge of contemporary issues), and the instructor (Samborsky) describe the contemporary issues content of the course include bridge failures, self-healing materials, and other issues associated with modern materials.

• **CHBE 226 (EBIO 216):** No concerns were noted. Outcome G (communication) was addressed through a five page paper in the course, and outcome J (contemporary issues) were widely addressed in the course through discussions of algo biofuels, plant tours, etc.

• **CHBE 424 (ECHM 424):** No concerns were noted. Outcome J is largely addressed during the last week of lectures on stability and global climate, and outcome K is covered through a number of modern computational tools including COMSOL. There was some discussion over whether or not outcome C (design a system or process) is sufficiently covered in this course, but the student projects made it clear that design of systems and devices is an important theme in the course.

• **CHBE 324 (EBIO 324):** No concerns were noted. This course has now been taught twice at Montana State University and the content is now established. Outcome K is covered through a COMSOL based project.

• **CHBE 322 (ECHM 322):** No major concerns were noted. This course had a new instructor during the past academic year, and the HYSYS design project was not included in the course. Since outcome C (design of a system or process) is a secondary outcome
for this course, the outcomes may need to be revised in the future if the HYSYS design project is not reintroduced. The instructor indicated that she was planning to include a HYSYS design project during the next academic year.

Summative Assessments
The following examples of student work were reviewed by the faculty using rubrics tied to our Program Outcomes:

- **CHBE 439 Project**
  BioE Outcomes A and E: knowledge of math, engineering and science; ability to formulate and solve engineering problems
  - Outcome A: average score was 2.1 (acceptable)
  - Outcome E: average score was 2.0 (acceptable)

- **CHBE 424 Transport modeling project**
  ChE Outcomes A and E: knowledge of math, engineering and science; ability to formulate and solve engineering problems
  - Outcome A: average score was 2.4 (acceptable)
  - Outcome E: average score was 2.4 (acceptable)

- **CHBE 412 Final design report**
  ChE and BioE Outcomes C and H: ability to design a system and global and societal context)
  - Outcome C: average score was 2.5 (acceptable)
  - Outcome H: average score was 2.7 (exceptional)

- **CHBE 324 computational project**
  BioE Outcome K: modern engineering tools
  - BioE Outcome K: average score was 2.3 for CHBE 324 projects (acceptable)

- **CHBE 323 HYSYS Project**
  ChE Outcome K: use modern engineering tools
  - ChE Outcome K: average score was 2.3 for CHBE 323 projects (acceptable)

- **CHBE 438 Contemporary issues project**
  ChE and BioE Outcomes I and J: life-long learning and knowledge of contemporary issues
  - Outcome I: average score was 2.2 (acceptable)
  - Outcome J: average score was 2.1 (acceptable)

Note that we have begun assessing student work from the BioE program in preparation for seeking accreditation at some point in the future.

A few suggestions were made by faculty members during this assessment. Specifically, a suggestion was made to revise the first question on the rubric for outcome K.

RESULT: Average scores from each of the rubrics were at or above threshold levels; no faculty response required.
Direct Assessment
We are building a data set of key indicators that we can use to monitor student performance on Program Outcomes. Data is being collected now, and will be reviewed at a faculty meeting in the fall.

Program Objectives Review
The faculty reviewed the changes proposed by the DAC and the students. The following changes were adopted (the faculty chose to retain the term “proactive” in the second objective.)

*Chemical Engineering Program Objectives*
Our graduates:
- will be confident in their ability to apply chemical engineering fundamentals.
- will be proactive problem solvers.
- will have the ability to pursue lifelong learning.
- will be effective communicators and team members.
- will be highly ethical engineering professionals.
- will embrace process safety.

*Bioengineering Program Objectives*
Our graduates:
- will be confident in their ability to apply bioengineering fundamentals.
- will be proactive problem solvers.
- will have the ability to pursue lifelong learning.
- will be effective communicators and team members.
- will be highly ethical engineering professionals.
- will embrace process safety.
Department: Chemistry and Biochemistry

Department Head: David Singel

Assessment Coordinator: Martin Teintze

Degrees/Majors/Options Offered by Department
B.S. in Chemistry
  Chemistry (Professional) Option
  Biochemistry Option
  Teaching Option
Department of Chemistry & Biochemistry  
Assessment updates 2005-2007

1. Discipline-Specific Knowledge

The plan to use the American Chemical Society standardized tests as an assessment tool was implemented for Biochemistry starting in the Spring of 2005. The test was given as a voluntary exercise in BCHM 444 that did not impact the students’ grades. Average performance on this test among the Chemistry majors was very good, consistently exceeding the average score on the same test given to our incoming graduate students in August of each year. Our MSU undergrads have also turned in the top 3 scores on this test, outperforming all students who received their undergraduate education elsewhere. The ACS tests in Organic, Inorganic, and Physical Chemistry have not been used to date.

2. Communication and Problem-Solving Skills

All of our undergraduate majors participate in research projects and give a seminar in CHEM/BCHM 401 and present at least two posters, one at the Undergraduate Scholars Conference, and one at the Departmental Poster Session held each year. There is consensus among the faculty that these presentations are almost all of professional quality (the faculty mentors see to that). The students are graded for their presentations in 401, but no formal assessment of the posters has been implemented yet.

3. Overall Assessment

Department has started tracking its graduates. Out of 49 students graduating in 2005-2007, 15 have started Ph.D. programs in chemistry or a related discipline, 8 are attending medical or dental school, 15 are employed doing research in chemistry or a related discipline (4 at MSU and the others in the private sector), 2 are teaching at the secondary school level, and one is currently employed in a non-science occupation. Of those enrolled in graduate programs, all are at excellent schools, including MIT, Stanford, Duke, University of Colorado, University of Wisconsin, and University of California, Santa Barbara. Two are Ph.D. students at MSU, one in Biochemistry and one in Cell Biology.

We have not asked our students to provide GRE or MCAT scores as originally planned, nor have we asked them to complete exit surveys. These will be implemented with the class of 2008.

4. National Awards

During the past 3 years, our majors have been the recipients of 3 Goldwater Scholarships, 4 Beckman Scholarships, and one Amgen Research Scholarship.
Department of Chemistry & Biochemistry
Assessment update 2009

1. Discipline-Specific Knowledge
The plan to use the American Chemical Society standardized tests as an assessment tool was implemented for Biochemistry starting in the Spring of 2005, and in Physical and Organic Chemistry starting Spring 2009. The tests were given as a voluntary exercise in BCHM 444 and CHEM 326 that did not impact the students’ grades, and as a final exam that counts toward the grade on CHEM 312. These courses enroll both majors and non-majors. Average performance on these tests was 34.1, 31.0, and 41.6, which is above the national means reported by the ACS (32.6, 26.3, and 35.3, respectively). On the Biochemistry test, scores have also consistently exceeded the average score on the same test given to our incoming graduate students in August of each year. The top scores among the graduate students have been from the small minority that did their undergraduate studies at MSU also, indicating that our MSU undergrads are better prepared for graduate studies than our graduate students who received their undergraduate education elsewhere.

2. Communication and Problem-Solving Skills
All of our undergraduate majors participate in research projects and give a seminar in CHEM/BCHM 401 and present at least two posters, one at the Undergraduate Scholars Conference, and one at the Departmental Poster Session held each year. There is consensus among the faculty that these presentations are almost all of professional quality (the faculty mentors see to that). The students are graded for their presentations in 401, but no formal assessment of the posters has been attempted.

3. Overall Assessment
Department has started tracking its graduates. Out of 85 students graduating 2005-2009, 21 have started Ph.D. programs in chemistry or a related discipline, 10 are attending medical or dental school (5 more are now applying), 19 are employed doing research in chemistry or a related discipline, 4 are teaching at the secondary school level, one is in pharmacy school, one is in the army, and one is currently employed in a non-science occupation. Of those enrolled in graduate programs, all are at excellent schools, including MIT (2), Stanford (2), Duke, Cornell, University of Colorado (2), University of Wisconsin, University of Washington, University of California, Santa Barbara and University of Texas, San Antonio. Four are Ph.D. students at MSU, three in Chemistry & Biochemistry and one in Cell Biology. Many of those employed or looking for jobs after graduation plan to enter graduate school after a year or two.

Exit surveys. These were implemented with the class of 2008. Only 4 of 15 graduates completed the form that year. In 2009, students in the capstone seminar (CHEM/BCHM 401) were asked to fill out the survey, and this netted a better return (8 out of 20 graduates). Those who responded gave overall very positive evaluations of their curriculum. The most commonly cited strength was the undergraduate research experience. The most common criticisms were about courses in other departments that are required, such as Biology and Math.

4. National Awards
During the past 5 years, our majors have been the recipients of 5 Goldwater Scholarships, 6 Beckman Scholarships, two Amgen Research Scholarships, and one Mitchell Scholarship.
Assessment report for the 2012/2013 academic year
Department of Chemistry and Biochemistry

Prepared by: Prof. Mary Cloninger, Head of the Department
July 30, 2013

During the 2012/2013 academic year, the assessment that was performed in the Department of Chemistry and Biochemistry was focused on three major learning outcomes involving the advanced undergraduate students. In all cases, the students’ proficiencies were evaluated during their CHMY 494 and BCH 494 capstone seminar courses. They were also evaluated during the department’s annual undergraduate research poster symposium.

Learning Outcome 1
Professional, biochemistry, and teaching options: Students will be able to clearly communicate research findings in an oral presentation and poster session format.

Assessment for Learning Outcome 1
Twenty-two senior undergraduate students and one junior were evaluated for clarity and depth of oral presentation during a 25 minute PowerPoint presentation to their peers in CHMY 494 and BCH 494 senior capstone seminar during the spring semester of 2013. These students also presented posters (which were evaluated) at the Undergraduate Research Poster Symposium that is held annually by the Department of Chemistry and Biochemistry in April. All of the students successfully communicated their research findings in both formats.

Learning Outcome 2
Professional, biochemistry, and teaching options: Students will be able to solve problems related to chemistry and biochemistry.

Assessment for Learning Outcome 2
The ability of twenty-two senior undergraduate students and one junior to comprehensively solve problems related to chemistry and biochemistry were evaluated during their 25 minute oral PowerPoint presentations to their peers in CHMY 494 and BCH 494 senior capstone seminar during the spring semester of 2013. These students also presented posters (which were evaluated) at the Undergraduate Research Poster Symposium that is held annually by the Department of Chemistry and Biochemistry in April. All of the students demonstrated successful mastery of this task. Through their presentations, it was clear that two of the students were less comfortable with independent problem solving related to chemistry and biochemistry than the rest of the students, although they were able to succeed in the end. All students mastered the problem solving learning objective as demonstrated by their presentation of the progress that they were able to make and then describe for their research projects.
Learning Outcome 3
Biochemistry option: Students will understand the problems in another biological science (e.g., microbiology, cell biology, neuroscience, plant or animal science) that biochemical techniques help solve.

Assessment for Learning Outcome 3
Twenty-two senior undergraduate students and one junior were evaluated for clarity and depth of oral presentation during a 25 minute PowerPoint presentation to their peers in CHMY 494 and BCH 494 senior capstone seminar during the spring semester of 2013. All of the students demonstrated extremely high mastery of this learning option.

Additional assessment information
I am including the following assessment information in this document because I don’t have a record of it ever being recorded in a previous report. To supplement the information below, we will reassess the organic chemistry learning outcomes at the end of the 2014 spring semester for our majors.

In the spring of 2011, the American Chemical Society (ACS) organic subject exam was administered to chemistry and biochemistry option majors at the end of their sophomore year as the final exam for CHMY 333 (Honors Organic Chemistry II; no teaching option students were enrolled in this class). The average score earned on the test was at the 73rd percentile for the nationally accrued scores, as posted on the ACS website. The mean student score was at the 75th percentile. 77% of the students in the class scored 61% or better. Clearly, the Montana State chemistry and biochemistry option majors dramatically out-performed national averages and norms on this test.

Note
The updated assessment plan for the learning outcomes for undergraduate majors in the Department of Chemistry and Biochemistry is attached.
<table>
<thead>
<tr>
<th>Learning Outcomes</th>
<th>Assessment Year</th>
<th>Target course(s) for Assessment Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professional option: Students will demonstrate a broad knowledge base in organic chemistry.(^1)</td>
<td>2011-12</td>
<td></td>
</tr>
<tr>
<td>Professional option: Students will demonstrate a broad knowledge base in inorganic chemistry.(^2)</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Professional option: Students will demonstrate broad knowledge base in physical chemistry.(^3)</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Professional option: Students will demonstrate broad knowledge base in analytical chemistry.(^4)</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Professional option: Students will demonstrate broad knowledge base in biochemistry.(^5)</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Professional, biochemistry, and teaching options: Students will be able to clearly communicate research findings in an oral presentation and poster session format.</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Professional, biochemistry, and teaching options: Students will be able to solve problems related to chemistry and biochemistry.</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Biochemistry option: Students will have a solid foundation in all aspects of biochemistry.(^5)</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Biochemistry option: Students will be able to apply mathematical tools and computational methods to biochemical problems.</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Biochemistry option: Students will understand the problems in another biological science (e.g., microbiology, cell biology, neuroscience, plant or animal science) that biochemical techniques help solve.</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Teaching option: Students develop instructional and pedagogical competence such that they meet state certification standards.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\(^1\) Including nomenclature and molecular structure of organic compounds; stereochemistry; reactivities of the various functional groups; synthetic organic chemistry; physical organic chemistry; application of spectroscopy to organic structure elucidation; and fundamental skills in the organic chemistry lab.

\(^2\) Including atomic structure and chemical bonding of inorganic compounds; reactions and properties of representative members of the various families of the periodic table.

\(^3\) Including quantum chemistry; statistical thermodynamics; spectroscopy; and classical thermodynamics and kinetics; and fundamental skills and data analysis in the physical chemistry laboratory.

\(^4\) Including equilibria, and acid-base chemistry; modern instrumental methods in electrochemistry, chromatography and spectroscopy; and fundamental skills in the analytical chemistry laboratory.

\(^5\) Including cell organization; carbohydrate and lipid structure; protein and nucleic acid structure; enzyme kinetics; energetics; the major metabolic pathways for carbohydrates, lipids, and amino acids; regulation of gene function; and fundamental skills in the biochemistry laboratory.
MSU Departmental Assessment Update
Spring 2007

Unit: College of Business

Dean: Rich Semenik

Assessment Coordinator: Susan Dana, Interim Assoc. Dean for Academic Affairs

Date: May 4, 2007

Degrees/Majors/Options Offered by Department

- Bachelor of Science in Business with options in:
  Accounting
  Finance
  Management
  Marketing

  o Minors in:
    Accounting
    Business Administration
    Entrepreneurship and Small Business Management
    International Business
    Management of Information Technology

- Master of Professional Accountancy
Montana State University  
College of Business  

Student Learning Assessment Plan Activity and Results Update  
Spring 2007  

Assessment of learning in the College of Business in 2006-07 occurred in three areas:  
1. Assessment of learning methodology  
2. Organization of assessment of learning effort  
3. Review of courses and curriculum  

1. ASSESSMENT OF LEARNING METHODOLOGY  
The mission of the College of Business is “to provide excellence in undergraduate and select  
graduate business education. To accomplish this, the College . . . [e]ncourages critical thinking,  
effective communication, life-long learning, ethical decision-making, and social responsibility . .  
.” Accordingly, the College is in the process of assessing student learning in the listed areas.  

The College’s Strategic Initiatives Committee (SIC) spent AY 2006-07 defining the concepts,  
goals and objectives for each area of student learning and refining the methodology for assessing  
student learning. The results of assessments have also been analyzed and presented to the faculty  
for discussion.  

Updates on the SIC’s progress on assessment were presented to the full College at faculty  
meetings as follows:  

Feb. 28: Presentation by the SIC on progress to date on assessment of learning; presentation  
of MFT and CCTST results; presentation of rubrics for use in course-embedded  
assessments (in attendance: Linda Adams, Tim Alzheimer, Harry Benham, Laura  
Black, Bill Brown, Scott Bryant, Anne Christensen, Susan Dana, Nancy Dodd, Greg  
Durham, Craig Ehler, Dave Foster, Marc Giullian, Dan Hammond, Frank Kerins,  
Mike Kroff, Chris Lamb, James Lin, Joe McCarty, Dan Moshavi, Bruce Raymond,  
Mike Reilly, Dennis Schmidt, Omar Shehryar, Priscilla Wisner)  

Apr. 4: Presentation on assessment of learning process and proposal for creation of new  
Assurance of Learning Committee (in attendance: Tim Alzheimer, Harry Benham,  
Laura Black, Bill Brown, Scott Bryant, Anne Christensen, Susan Dana, Nancy  
Dodd, Greg Durham, Craig Ehler, Dave Foster, Marc Giullian, Dan Hammond,  
Martha Joh Kearn, Frank Kerins, Mike Kroff, Chris Lamb, James Lin, Joe  
McCarty, Micki Munro, Mike Reilly, Dennis Schmidt, Omar Shehryar, Linda Ward,  
Priscilla Wisner)
A. Business Knowledge

Concept
Students shall acquire a common body of knowledge and vocabulary of business. As articulated in course syllabi, students shall gain knowledge of the theory and practices used in management of organizations, operations, and human resources; accounting; corporate finance; marketing; information systems and technology; and law. As they specialize further in their respective option(s), students shall demonstrate their ability to integrate this knowledge in solving business problems.

Goal
Students will have strong working knowledge of fundamental concepts in accounting, finance, management, marketing, information technology, strategy and law.

Objective
The College’s institutional mean on the Major Field Test will regularly fall in the top quartile.

Assessment Progress
The College has administered the Major Field Test in Business to all graduating seniors since Summer 2005. The MFT has been taken by approximately 150,000 students at over 500 colleges of business around the nation. As of Spring 2007, the College’s institutional mean on the MFT is 95%. Although the College is extremely pleased with this result, a team of faculty is currently analyzing the distribution of scores among students and disciplines in order to identify whether improvement is possible in some areas.

Responses to the College’s Spring 2006 Alumni Survey (n=103) show that CoB alumni are more satisfied than alumni of our “Select 6” peer institutions: (mean scores on scale of 1-7/Select 6 mean):
- Business degree provided knowledge and skills to succeed: 5.77/5.39
- Effectiveness of skills training: 5.40/5.21
- Effectiveness of developing abilities: 5.32/5.17

B. Critical Thinking

Concept
Critical thinking is the process of purposeful, self-regulatory judgment.* Critical thinking is defined as the ability to structure and synthesize ambiguous information, to sort relevant from irrelevant information, to apply technical knowledge to new problem settings, to analyze and summarize information and to interpret the results of analysis. Critical thinking makes use of the higher cognitive objectives: application, analysis, synthesis, and evaluation.


Goal
Students will be able to engage in critical thinking to solve business problems.

Objectives
A. Students will be able to:
1. Analyze disparate and conflicting information from a variety of sources. (Analysis)
2. Evaluate, clarify and classify information to determine its relevance to solving an issue or problem. (Evaluation).
3. Provide solutions to problems and testable predictions regarding specific situations by using general principles. (Deduction).
4. Infer general principles by examining specific examples (Induction).
5. Make a recommendation on the basis of circumstantial evidence and prior conclusions rather than on the basis of direct observation. (Inference).

B. Students will regularly average a score of 75% correct on the CCTST.

C. Students on average will achieve a score of at least “satisfactory” on the course embedded measure.

Assessment Progress
The California Critical Thinking Skills Test has been administered in BUS 474 since Spring 2006. The mean student score is typically 70-75% correct. Unlike the MFT, the CCTST does not use comparative data based on institutional mean scores, but according to Insight Assessments, the creators of the CCTST, 70-75% correct is a very high score. The CCTST is typically taken by students in many disciplines, not only business, as well as by working professionals.

In addition to the CCTST, in Fall 2007 the College will begin assessing critical thinking by applying a critical thinking rubric to a random sample of student papers in BUS 474, the senior capstone course. A draft rubric, which is attached, has been drafted and will be tested in Summer 2007 in preparation for launch in Fall 2007.

The 2006 Senior Survey (n=12), revealed the following data (scale of 1-5):

- Professors emphasize higher order thinking skills: 4.17
- Major courses helped respect and value different points of view: 4.08
- Major courses helped critically analyze arguments: 4.25
- Major courses helped think logically and deductively: 4.38
- Major courses helped think creatively: 4.04

C. Effective Written Communication

Concept
Effective written communication demonstrates professionalism and the use of standard business English. Such writing is direct, courteous, grammatically correct, and not overly casual. A student’s writing must demonstrate appropriate sentence structure, mechanics, grammar, word usage, tone and word choice, organization and focus, and development of ideas.

Goal
Students will be able to communicate effectively and professionally in writing.

Objectives
A. Students will:
   1. Organize and develop ideas effectively
   2. Adopt an appropriate tone
   3. Employ correct grammar, sentence structure and mechanics
   4. Use appropriate vocabulary
   5. Correctly cite sources for facts, quotations and ideas.

B. Students on average will achieve a score of at least “satisfactory” on the course embedded measure

C. In order to be formally admitted to the College, students must achieve a score of at least 3 on the WorkKeys Test of Business Writing

*Assessment Progress*

The WorkKeys Test of Business Writing has been administered in BUS 201 since Fall 2005. A score of at least Level 3 is required for formal admission to the College for all students. 80-83% of business students in Bus 201 are scoring at Level 3 or higher.

In addition to the WorkKeys Test, in Fall 2007 the College will begin assessing students’ writing skills by applying a written communication rubric to a random sample of student papers in BUS 474, the senior capstone course. A draft rubric, which is attached, has been drafted and will be tested in Summer 2007 in preparation for launch in Fall 2007.

The 2006 Senior Survey (n=12), revealed the following data (scale of 1-5):
   - Major courses helped write clearly: 3.79
   - Major courses helped write persuasive arguments: 4.04

D. Effective Oral Communication

*Concept*

Effective oral communication requires facility with standard oral presentational forms including impromptu, extemporaneous, informational, and persuasive speaking.

*Goal*

Students will be able to communicate effectively and professionally in oral presentations.

*Objectives*

A. Students will:
   1. Organize and develop ideas effectively
   2. Employ technology effectively in support of the message
   3. Speak extemporaneously with minimal hesitations and fillers
   4. Adopt an appropriate tone
   5. Use appropriate vocabulary
   6. Employ correct grammar and sentence structure
   7. Use appropriately the time allotted for the presentation.
B. Students on average will achieve a score of at least “satisfactory” on the course embedded measure

Assessment Progress
A draft rubric for assessing oral communication has been developed and is attached. The College is in the process of determining the most effective methodology for assessing oral communication.

The 2006 Senior Survey (n=12), revealed the following data (scale of 1-5):
Major courses helped speak confidently in public settings: 4.50

E. Life-Long Learning
Concept
Following the work of Knowles (1990), the College defines lifelong, self-directed learning as the process by which "individuals take a lifelong initiative, with or without the help of others, to diagnose their own learning needs, formulating their own learning goals, identifying human and material resources for their own learning, choosing and implementing appropriate learning strategies, and evaluating their own learning outcomes."

Goal
Students shall acquire the skills and knowledge necessary to take a lifelong initiative, with or without the help of others, to diagnose their own learning needs, formulate their own learning goals, choose and implement appropriate learning strategies, and evaluate their own learning outcomes. (Knowles 1990)

Objectives
Students shall be able to:
1. Demonstrate effective team skills
2. Identify their own learning needs and preferred learning styles
3. Demonstrate the ability effectively to research information in furtherance of their own learning
4. Demonstrate effective critical thinking skills

Assessment Progress
The College has not yet adopted an assessment plan for life-long learning. Critical thinking skills are already assessed as described above. Assessment of life-long learning skills will be on the agenda for Fall 2007.

The 2006 Senior Survey (n=12), revealed the following data (scale of 1-5):
- Major courses helped learn independently: 4.25
- Major courses broadened intellectual interests: 4.00
- MSU provided opportunities to collaborate in teams: 4.70
F. Ethical Decision-Making and Social Responsibility

Concept
Rational and ethical decision-making deals with issues of human conduct and the rules that should govern human action. It is characterized by respect for others, an awareness of justice, and sensitivity to the universal application of rules of conduct. Rational and ethical decision-making focuses explicitly on two critical questions: What is right or wrong? and What is good or bad? A graduate of the COB will be competent in rational and ethical decision-making when s/he is able to assess critically her/his actions and the actions of others with respect to these two questions.

Goal
Students will appreciate the ethical and social responsibility dimensions of business decision-making.

Objectives
Students will be able to:
1. Recognize the ethical and societal implications of proposed actions
2. Effectively employ decision-making tools to evaluate the ethical and societal effects of a variety of options
3. Make a sound decision in accordance with the analysis and evaluation of options.

Assessment Progress
In Fall 2007 the College will begin assessing ethical decision-making and social responsibility by applying an ethics rubric to a random sample of student papers in BUS 474, the senior capstone course. A draft rubric, which is attached, has been drafted and will be tested in Summer 2007 in preparation for launch in Fall 2007.

2. Organization of Assessment of Learning Effort
Until April 2007, the assessment of learning process was managed by the College’s Strategic Initiatives Committee (SIC). At that point it became apparent that another committee should be created which would report to the College’s Curriculum Committee and whose task would be to focus entirely on assessment of learning.

Assurance of Learning Organization

- Faculty
- Strategic Initiatives Committee
- Curriculum Committee
- AoL Committee
Therefore, after a presentation to the full faculty on a proposal to create a new College Assurance of Learning (AoL) Committee, eight faculty members plus Susan Dana, Interim Assoc. Dean for Academic Affairs, volunteered to serve on the AoL Committee.

The AoL Committee will manage the assessment of learning process by: identifying, developing and revising assessment methodologies; administering the assessment tools; analyzing the results; and making recommendations for changes to the curriculum to the College Curriculum Committee, which in turn will make recommendations to the faculty.

The AoL Committee met for the first time on May 3, 2007. The committee will finalize the course-embedded assessment measures and methodology, test the methodology in Summer 2007, then conduct full assessments in Fall 2007.

3. Review of Courses and Curriculum

*BUS 101 US, Freshman Seminar*

The College faculty identified the need to review and revise BUS 101US, the College’s freshman seminar. One half day of the College’s faculty retreat on January 7, 2007, was devoted to a full faculty discussion of the objectives of BUS 101. That discussion revealed little consensus among the faculty except that the College probably does need a freshman (or perhaps sophomore) level “introduction to business” course. Therefore, a BUS 101 Task Force was created to propose a “new BUS 101.” The task force consisted of one tenure-track representative from each disciplinary option (accounting, finance, management, marketing), two adjunct faculty members who have taught BUS 101 in the past, and the Interim Associate Dean for Academic Affairs. The task force forwarded a recommendation to the College’s administration in late April 2007 for review for financial implications. The proposal will be presented to the faculty early in the Fall 2007 semester.
Information Technology
The faculty also identified information technology (IT) as an area of the curriculum needing attention. An IT Task Force was created in January 2007 consisting of four faculty members who teach IT (two tenure track, two adjunct) plus the Associate Dean for Administration and Finance to review and propose revisions to the College’s IT curriculum. This task force is surveying faculty about their IT expectations for students and expects to make a recommendation to the faculty in Fall 2007.
<table>
<thead>
<tr>
<th><strong>Grading Rubric for Critical Thinking Assessment</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>0 -- Unacceptable</strong></td>
</tr>
<tr>
<td><strong>Analysis</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td><strong>Evaluation</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td><strong>Deduction</strong></td>
</tr>
<tr>
<td><strong>Induction</strong></td>
</tr>
<tr>
<td><strong>Inference</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

Total:
<table>
<thead>
<tr>
<th>Grading Rubric for Written Communication Assessment</th>
<th>0 -- Unacceptable</th>
<th>1 -- Barely Acceptable</th>
<th>2 -- Satisfactory</th>
<th>3 -- Outstanding</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Development of Ideas</strong></td>
<td>No clear thesis.</td>
<td>Thesis implied but not developed.</td>
<td>Thesis present but not fully developed.</td>
<td>Thesis clear and well-developed.</td>
<td>Score</td>
</tr>
<tr>
<td></td>
<td>No clear argument, or argument is not supported by logical analysis.</td>
<td>Argument confusing because of frequent lack of logical connections between ideas.</td>
<td>Generally thoughtful development of argument with some gaps in logic or reasoning.</td>
<td>Logical arguments and analysis are easy to follow.</td>
<td>Score</td>
</tr>
<tr>
<td></td>
<td>Little understanding of assigned topic.</td>
<td>Basic understanding of assigned topic.</td>
<td>Competent understanding of assigned topic.</td>
<td>Thorough understanding of assigned topic.</td>
<td>Score</td>
</tr>
<tr>
<td></td>
<td>Essentially no evidence that author has seriously considered the issue.</td>
<td>Little evidence of author's own ideas.</td>
<td>Some of author's own ideas but not well-developed or well-supported.</td>
<td>Independent and creative ideas.</td>
<td>Score</td>
</tr>
<tr>
<td></td>
<td>No discernible conclusion.</td>
<td>Conclusion perfunctory.</td>
<td>Conclusion briefly summarizes paper but does not tie it into a coherent whole.</td>
<td>Conclusion clear and comprehensive.</td>
<td>Score</td>
</tr>
<tr>
<td></td>
<td>No connections from one idea to the next; paper presents random series of ideas.</td>
<td>Little connection between ideas.</td>
<td>Transitions between ideas usually smooth but some are sudden and/or unclear.</td>
<td>Smooth transitions between ideas.</td>
<td>Score</td>
</tr>
<tr>
<td><strong>Tone &amp; Word Choice</strong></td>
<td>Tone overly casual.</td>
<td>Tone frequently too informal.</td>
<td>Tone generally professional.</td>
<td>Tone consistently professional.</td>
<td>Score</td>
</tr>
<tr>
<td></td>
<td>Word choice often incorrect/inappropriate.</td>
<td>Word choice simplistic, and/or occasionally incorrect/inappropriate.</td>
<td>Word choice unexceptional but appropriate.</td>
<td>Word choice varied, sophisticated and appropriate.</td>
<td>Score</td>
</tr>
<tr>
<td><strong>Spelling, Grammar &amp; Punctuation</strong></td>
<td>Excessive errors (average more than 3 per page)</td>
<td>Frequent errors (average 2-3 per page)</td>
<td>Occasional errors (average 1 per page)</td>
<td>Very few errors (av. fewer than 1 per page)</td>
<td>Score</td>
</tr>
<tr>
<td>GRADING RUBRIC FOR WRITTEN COMMUNICATION ASSESSMENT</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-----------------------------------------------------</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Sentence &amp; Paragraph Structure</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0 -- Unacceptable</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Many sentences unclear or ambiguous</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Paragraphs generally no discernible topic sentence or focus.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quotations often irrelevant and/or interrupt the paper</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 -- Barely Acceptable</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sentences generally understandable and simplistic.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Paragraphs generally have focus but often no clear topic sentence.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quotations occasionally irrelevant and/or not well-integrated into writing.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 -- Satisfactory</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sentences short and uninteresting but clearly understandable.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Most paragraphs contain topic sentence, and are focused and coherent.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quotations appropriate but/or occasionally interfere with flow of writing.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 -- Outstanding</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sentence structure varies, making paper interesting to read.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Each paragraph contains topic sentence, is focused and coherent, and develops an idea in a systematic way.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quotations appropriate and integrated seamlessly.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Sources &amp; References</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0 -- Unacceptable</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sources for facts, quotations and ideas not adequately indicated.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sources do not support the author’s points.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Too few sources used.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 -- Barely Acceptable</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Where appropriate, sources for most facts, quotations and ideas are indicated.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sources somewhat unrelated to author’s points.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>More or a greater variety of sources should be used.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 -- Satisfactory</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Where appropriate, sources for almost all facts, quotations and ideas are indicated.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sources generally support author’s points.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>More or a greater variety of sources should be used.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 -- Outstanding</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Where appropriate, sources for all facts, quotations and ideas are indicated.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sources consistently support author’s points.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Appropriate variety of sources.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Total:
<table>
<thead>
<tr>
<th>GRADING RUBRIC FOR ORAL COMMUNICATION ASSESSMENT</th>
<th>0 -- Unacceptable</th>
<th>1 – Barely Acceptable</th>
<th>2 -- Satisfactory</th>
<th>3 -- Outstanding</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No clear thesis</td>
<td>Conclusion perfunctory.</td>
<td>Conclusion summarizes presentation but does not tie it into coherent whole.</td>
<td>Conclusion clear and comprehensive.</td>
<td>Score</td>
</tr>
<tr>
<td></td>
<td>No connections from one idea to the next; presentation is random series of ideas.</td>
<td>Thesis implied but not developed.</td>
<td>Thesis present but not fully developed.</td>
<td>Thesis clear and well-developed.</td>
<td>Score</td>
</tr>
<tr>
<td></td>
<td>No clear argument, or argument is not supported by logical analysis.</td>
<td>Argument confusing because of frequent lack of logical connections between ideas.</td>
<td>Generally thoughtful development of argument with some gaps in logic or reasoning.</td>
<td>Logical arguments and analysis are easy to follow.</td>
<td>Score</td>
</tr>
<tr>
<td><strong>Content Knowledge</strong></td>
<td>Little understanding of assigned topic.</td>
<td>Basic understanding of assigned topic.</td>
<td>Competent understanding of assigned topic.</td>
<td>Thorough understanding of assigned topic.</td>
<td>Score</td>
</tr>
<tr>
<td></td>
<td>Essentially no evidence that author has seriously considered the issue.</td>
<td>Little evidence of author’s own ideas.</td>
<td>Some of author’s own ideas but not well-developed or well-supported.</td>
<td>Independent and creative ideas.</td>
<td>Score</td>
</tr>
<tr>
<td><strong>Tone</strong></td>
<td>Consistently inappropriately casual.</td>
<td>Frequently inappropriately casual</td>
<td>Generally professional but occasionally inappropriately casual.</td>
<td>Consistently professional yet accessible</td>
<td>Score</td>
</tr>
<tr>
<td><strong>Use of Technology</strong></td>
<td>Technology distracts significantly from the presentation</td>
<td>Technology adds little to presentation</td>
<td>Technology adds somewhat to audience’s ability to follow presentation</td>
<td>Technology enhances and helps explain presentation</td>
<td>Score</td>
</tr>
<tr>
<td></td>
<td>Visuals irrelevant to the subject matter</td>
<td>Visuals require audience to strain to read and/or comprehend</td>
<td>Visuals relate to subject matter</td>
<td>Visuals well-designed, easy for audience to comprehend</td>
<td>Score</td>
</tr>
<tr>
<td></td>
<td>Visuals very hard for audience to read, comprehend</td>
<td>Visuals contain several spelling or grammar errors</td>
<td>Visuals generally easy for audience to read, comprehend</td>
<td>Visuals contain virtually no spelling or grammar errors</td>
<td>Score</td>
</tr>
<tr>
<td></td>
<td>Visuals contain frequent spelling or grammar errors</td>
<td>Makes errors in use of technology</td>
<td>Visuals contain only occasional spelling or grammar errors</td>
<td>Error-free use of technology</td>
<td>Score</td>
</tr>
<tr>
<td></td>
<td>Unfamiliar with technology</td>
<td></td>
<td>Only 1 or 2 glitches</td>
<td></td>
<td>Score</td>
</tr>
</tbody>
</table>
# Grading Rubric for Oral Communication Assessment

<table>
<thead>
<tr>
<th></th>
<th>0 -- Unacceptable</th>
<th>1 -- Barely Acceptable</th>
<th>2 -- Satisfactory</th>
<th>3 -- Outstanding</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Delivery</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Frequent grammatical errors interfere with presentation</td>
<td>Occasional grammatical errors distract audience</td>
<td>Some grammatical errors, but is not distracting to audience</td>
<td>Very few grammatical errors</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Inaudible</td>
<td>Voice often too low to understand and/or mumbles</td>
<td>Voice occasionally too low or mumbles</td>
<td>Clear voice</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Speaks very fast or very slow</td>
<td>Often speaks too fast or too slow</td>
<td>Occasionally speaks too fast or slow</td>
<td>Measured and consistent speaking rate</td>
<td></td>
</tr>
<tr>
<td></td>
<td>No eye contact</td>
<td>Occasional eye contact</td>
<td>Moderate eye contact</td>
<td>Frequent eye contact</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Reads presentation</td>
<td>Reads most of presentation</td>
<td>Generally extemporaneous with some reading</td>
<td>Almost entirely extemporaneous</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Consistently slouches or leans on object</td>
<td>Frequently slouches or leans on object</td>
<td>Occasionally slouches or leans</td>
<td>Erect posture</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Appears uninterested</td>
<td>Little expression of interest or confidence</td>
<td>Generally enthusiastic and confident</td>
<td>Consistently enthusiastic &amp; confident</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Uses monotone</td>
<td>Frequent monotone</td>
<td>Aware of audience, occasionally adapts presentation to reactions of audience</td>
<td>Sensitive to audience, works hard to keep audience interest</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Appears not to notice audience</td>
<td>Does not try to engage audience</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Time</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Excessively long or short (&gt;20% of allotted time)</td>
<td>Too long or short (15-20% of allotted time)</td>
<td>Slightly too long or short (5-15% of allotted time)</td>
<td>Used time allotted</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Total:</td>
</tr>
</tbody>
</table>
## Grading Rubric for Ethical Decision-Making & Social Responsibility Assessment

<table>
<thead>
<tr>
<th></th>
<th>0 -- Unacceptable</th>
<th>1 – Barely Acceptable</th>
<th>2 -- Satisfactory</th>
<th>3 -- Outstanding</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Recognition of Ethical/Social Responsibility Issues</strong></td>
<td>Little or no recognition of relevant ethical issues</td>
<td>Identifies some of the relevant ethical issues</td>
<td>Identifies the most salient ethical issues</td>
<td>Identifies all relevant ethical issues</td>
<td>Identifies all relevant ethical issues</td>
</tr>
<tr>
<td><strong>Knowledge of Ethical/Social Responsibility Decision-Making Tools</strong></td>
<td>Little or no understanding of ethical tools</td>
<td>Superficial knowledge of ethical tools</td>
<td>Working knowledge of ethical tools</td>
<td>Comprehensively articulates relevant approaches to ethical issues</td>
<td>Comprehensively articulates relevant approaches to ethical issues</td>
</tr>
<tr>
<td><strong>Evaluation of Options for Action</strong></td>
<td>Little or no recognition of options</td>
<td>Identifies only two reasonable options</td>
<td>Identifies several reasonable options</td>
<td>Clear and thoughtful identification of multiple options</td>
<td>Clear and thoughtful identification of multiple options</td>
</tr>
<tr>
<td></td>
<td>Does not recognize more than one reasonable option</td>
<td>Superficial analysis of social and/or personal implications of options with little specific support</td>
<td>Competent analysis of social and personal implications of each option supported by some specific information</td>
<td>Comprehensive analysis of social and personal implications of each option using specific information</td>
<td>Comprehensive analysis of social and personal implications of each option using specific information</td>
</tr>
<tr>
<td></td>
<td>Essentially no independent thought</td>
<td>Analysis shows little independent thought</td>
<td>Analysis shows some independent thought</td>
<td>Independent analysis</td>
<td>Independent analysis</td>
</tr>
<tr>
<td><strong>Decision</strong></td>
<td>No decision or Decision reflects little or no serious engagement with ethics and social responsibility</td>
<td>Makes a decision based on superficial ideas about ethics and social responsibility</td>
<td>Reflects competent but not fully-developed ideas on ethics and social responsibility</td>
<td>Reflects well-developed ideas on ethics and social responsibility</td>
<td>Reflects well-developed ideas on ethics and social responsibility</td>
</tr>
<tr>
<td></td>
<td>Supported with persuasive arguments and evidence</td>
<td>Not supported with persuasive arguments and evidence</td>
<td>Supported with generally persuasive arguments and some evidence</td>
<td>Supported with clear and persuasive arguments and evidence</td>
<td>Supported with clear and persuasive arguments and evidence</td>
</tr>
<tr>
<td></td>
<td>Does not persuade that other option(s) is/are not optimal</td>
<td>Acknowledges other options but does not effectively persuade they are not optimal</td>
<td>Acknowledges other options but does not effectively persuade they are not optimal</td>
<td>Effectively persuades that other options are not optimal</td>
<td>Effectively persuades that other options are not optimal</td>
</tr>
</tbody>
</table>

Total:
Department: College of Business

Department Head: Rich Semenik, Dean

Assessment Coordinator: Susan Dana
Assoc. Dean for Academic Affairs

Date: May 7, 2008

Degrees/Majors/Options Offered by Department

• Bachelor of Science in Business with options in:
  Accounting
  Finance
  Management
  Marketing

  o Minors in:
    Accounting
    Business Administration
    Entrepreneurship and Small Business Management
    International Business
    Management of Information Technology

• Master of Professional Accountancy
Montana State University
College of Business

Student Learning Assessment Plan Activity and Results Update
Spring 2008

Background
During 2004-07 the College’s Strategic Initiatives Committee (SIC) created an assessment of learning structure, which included identifying the College’s learning goals, identifying where in the curriculum each learning goal is addressed, and developing a preliminary plan for assessment of learning according to those learning goals. The SIC’s membership consists of one faculty representative of each of the College’s four options (accounting, finance, management, marketing), a representative of the adjunct faculty, the Assistant Dean for Student Services, and the Associate Dean for Academic Affairs.

In April 2007, at the recommendation of the SIC, the faculty created an Assurance of Learning (AoL) Committee to continue the assessment of learning process, allowing the SIC to focus on other strategic planning matters. The AoL Committee in AY 2007-08 consisted of nine members: five tenure-track faculty, three adjunct faculty, and the Associate Dean for Academic Affairs who chairs the committee. The AoL Committee reports to the College’s Curriculum Committee and indirectly to the SIC to the extent its activities relate to strategic planning.

The AoL Committee manages the assessment of learning process by: identifying, developing and revising assessment methodologies; administering the assessment tools; analyzing the results; and making recommendations for changes to the curriculum to the College Curriculum Committee, which in turn will make recommendations to the faculty. Concurrently with the AoL Committee’s assessment of learning activities, the SIC continues its strategic management activities, including reviewing the learning goals in the College’s mission, and the Curriculum Committee pursues its regular review of the College’s curriculum.

Because of overlapping membership among the SIC, Curriculum Committee and AoL Committee, total participation on the three committees in AY 2007-08 was 19 (12 tenure track faculty (including faculty from all four options), 5 adjunct faculty and 2 administrators). Thus, half of the tenure track faculty served on at least one of the three committees.
Assessment of Learning in Undergraduate Program
The College’s mission statement contains learning goals in knowledge of business, critical thinking, quantitative reasoning, oral and written communication, ethical decision making and lifelong learning. The attached Assessment of Learning Plan contains detailed definitions and objectives as well as status reports and results for each learning goal. The following is a summary of the status of assessment activities in the College.

Assessment of Knowledge of Business
The College has administered the Major Field Test in Business in the Senior Seminar, BUS 474, since summer 2005. Overall, as of spring 2008 the College’s institutional mean is at the 89th percentile compared to over 500 other undergraduate business programs. Because the College’s objective is that the College’s institutional mean on the Major Field Test will regularly fall in the top quartile, these results suggest that no dramatic changes to the curriculum are currently needed.

However, the College recently obtained a more detailed analysis of the MFT results that allow a review of the performance of students by option. In fall 2008 the AoL Committee will review these results to determine whether improvements can and should be made to one or more of the option curricula.

Assessment of Critical Thinking
During spring and summer 2007 the AoL Committee developed and tested a rubric for assessing critical thinking (attached) and applied it to a representative sample of case studies submitted by graduating seniors in their Senior Seminar (BUS 474) during the fall semester. The results are shown in the table on the right. Students meet the College’s goal that 75% of students meet or exceed expectations on each element of the rubric only on their ability to make a sound decision. Only 67% of students meet or exceed expectations on ability effectively to assimilate information, and only 72% meet or exceed expectations on ability to analyze score at the satisfactory or superior level on critical thinking. Therefore, the College must improve student learning on critical thinking.
At the College faculty retreat on January 11, 2008 the AoL Committee led the faculty in a discussion of the results of the critical thinking, written communication and ethical decision making assessments and asked the faculty to brainstorm ways to improve student learning in these areas. A summary of the results of the retreat is attached.

The most notable outcome of the retreat was a strong sense of the faculty that improving students’ critical thinking, writing, and ethical decision making skills is the task of all faculty members and can not be accomplished simply through one course. Therefore, during spring 2008 the AoL Committee discussed more specifically what the College can do to improve students’ learning in these areas. Preliminary recommendations with respect to critical thinking include:

1. Develop a common definition of critical thinking which everyone understands and agrees to.
2. Develop a common understanding of the criteria for measuring critical thinking, including assimilation, evaluation and conclusion.
3. Identify effective teaching methodologies for critical thinking, and incorporate critical thinking into select BUS and option courses.
4. Educate faculty about how to incorporate critical thinking into classes, similar to the ideas for ethical decision making (see below). Invite an expert to a faculty retreat.
5. Create a checklist for faculty and students describing the elements of good critical thinking and ethical decision making for use as guidelines. Such a tool could be used continuously throughout many courses to reinforce the concepts.
6. Create a “CoB Core Library” in print or online that would contain material on all learning goals, including critical thinking, and could be used throughout many courses.
7. Consider alternative or additional measurement tools for measuring critical thinking, including off-the-shelf tools.

The AoL Committee will work during the summer to refine these proposals for presentation to the Curriculum Committee in the fall.

Assessment of Quantitative Reasoning
The faculty voted as of Nov. 28, 2007, to include quantitative reasoning as a student learning goal in the College’s mission. Because of the very recent addition of quantitative reasoning to the mission, the faculty has not yet developed a precise definition or specific goals and objectives.
nor has quantitative reasoning yet been assessed. However, as the accompanying table shows, the College’s institutional mean on the quantitative business analysis subset of the MFT has consistently been high. The AoL Committee in fall 2008 will discuss whether additional measures of student learning in quantitative reasoning are desirable.

Assessment of Written Communication

During spring and summer 2007 the AoL Committee developed and tested a rubric for assessing written communication (attached) and applied it to a representative sample of case studies submitted by graduating seniors in their Senior Seminar (BUS 474) during the fall semester. The results of that assessment are shown are right. Students attain the College goal that 75% meet or exceed expectations on two of the three elements of the rubric. However, only 67% of students meet or exceed expectations on grammar and sentence/paragraph structure. These results indicate the College must help students improve their writing skills with a particular emphasis on grammar and sentence/paragraph structure.

As noted above, at the College faculty retreat on January 11, 2008 the AoL Committee led the faculty in a discussion of the results of the critical thinking, written communication and ethical decision making assessments and asked the faculty to brainstorm ways to improve student learning in these areas. A summary of the results of the retreat is attached. During spring 2008 the AoL Committee discussed more specifically what the College can do to improve students’ written communication. Preliminary proposals include:

Faculty

1. Provide to faculty the writing rubric and training on how to use it
   - Solicit input on current rubric, revise rubric accordingly
   - Advise faculty on using rubric as a tool for grading, organizing and teaching
   - Distribute rubric to students at orientations, in every class in which writing is required, with every writing assignment
   - Bracken Business Communications Clinic (BBCC) coaches should use the rubric to help students assess their own writing

2. BBCC coaches report to faculty on how students react to writing assignments, ways to improve assignments
   - Develop “best practices” in writing assignments
3. Do faculty needs assessment
   • What is faculty attitude toward writing assignments, what are the obstacles, what do faculty need to feel more comfortable with writing assignments in their classes
   • Use results to determine next steps

4. Depending on results of faculty needs assessment, invite expert for workshop on teaching and assessing writing

Students

1. Create Cultural Shift
   • Establish CoB Student Writing Award – send message to students that we value writing and take it seriously
   • Emphasize importance of writing skills in BUS 302
   • Write guide to professional behavior – e.g. “Top Ten Rules of Professionalism”

2. Have option faculty review writing experience of students in their options
   • E.g. follow student paths through the option, analyze where in the curriculum students are required to write, what kind of writing is required, and what kind of feedback students receive
   • Depending on results, encourage (or require?) option to revise its curriculum to address the writing needs of students

3. Encourage faculty to:
   • Include paragraph in syllabus about writing expectations in course
   • Require students to take first paper in course to BBCC, or, require students with poor writing skills to go to the BBCC (esp. in 100- and 200-level courses)

4. BBCC workshops
   • Mini-workshops for classes – i.e. faculty could invite BBCC coach into class to give 20 minute tutorial on specific topic
   • Longer workshops for groups of students needing coaching on specified topics – e.g. how to write a topic sentence, how to organize a paragraph, etc.

5. Student writing portfolios
   • In one course (BUS 302?) require students to assemble writing portfolio, submit to BBCC for developmental evaluation of strengths and weaknesses

6. BUS 101 and 201 must emphasize grammar, sentence construction and paragraph construction
Long Term Goals

1. Require every CoB student to meet certain writing standards in order to advance in the CoB (i.e. in junior year, post-WorkKeys exam) – perhaps using writing portfolio

2. Reduce BUS 201 sections to approx. 20 in order to enable frequent writing and individualized feedback

3. Hire tenure track Business Communication faculty member

The AoL Committee will work during the summer to refine these proposals for presentation to the Curriculum Committee in the fall.

Assessment of Oral Communication

A draft rubric to assess oral communication has been created to assess student presentations in the Senior Seminar (BUS 474). The AoL Committee is working on developing an effective process, including video taping the presentations for assessment.

Assessment of Ethical Decision Making and Social Responsibility

During spring and summer 2007 the AoL Committee developed and tested a rubric for assessing ethical decision making and social responsibility (attached) and applied it to a representative sample of case studies submitted by graduating seniors in their Senior Seminar (BUS 474) during Fall semester. The results at right show that 94% of students meet or exceed expectations on ability to recognize ethical issues, but the College does not meet its goal that 75% of student shall meet or exceed expectations on knowledge of ethical decision-making tools, evaluation of options for action, and ability to make a decision. These results suggest strongly that the College must enable students to improve their learning in these areas.

As noted above, at the College faculty retreat on January 11, 2008 the AoL Committee led the faculty in a discussion of the results of the critical thinking, written communication and ethical decision making assessments and asked the faculty to brainstorm ways to improve student learning in these area. A summary of the results of the retreat is attached. During spring 2008 the AoL Committee discussed more specifically what the College can do to improve students’ ethical decision making. Preliminary proposals include:

1. Focus on the process for decision-making
2. Teach ethics across the curriculum – integrate into all courses in organized way. Embed broad concepts of ethics in select BUS courses, then focus in upper level option courses on ethics in ways that are specific to the option.

3. Enable faculty to feel competent to teach ethics. This requires clarity on what we mean by “ethics.” Perhaps create a uniform “9 steps” approach so all faculty approach ethics in the same way.

4. Invite an outside expert to address a faculty retreat on teaching ethics and critical thinking.

5. Influence the College culture by, for example, having student teams compete in ethics case competitions, create award for ethics understanding, create student honor council. The point is to reward understanding of ethics rather than punish ethical failings.

The AoL Committee will work during the summer to refine these proposals for presentation to the Curriculum Committee in the fall.

_Assessment of Life-Long Learning_

Despite the challenges of assessing life-long learning, the SIC and the College faculty recently reaffirmed its commitment to engaging students in ways that promote continuous learning. Given the nature of life-long learning, the assessment approach must necessarily represent the development of potential, rather than the affirmation of capacity. Therefore, the objectives for assessing life-long learning focus primarily on providing to students opportunities to learn the skills necessary for life-long learning. The attached AoL Plan lists the specific objectives and shows the ways in which the College is meeting these objectives. Also attached is a matrix showing where in the Business Pre-Core and Core the necessary learning opportunities occur.

_Assessment of Learning in Master of Professional Accountancy Program_

The Accounting Option faculty are developing a plan for assessment of MPAc student learning. While the first-time CPA pass rate for the College’s MPAc students is very high, the faculty recognize that the CPA exam is not the only or necessarily even the best way to measure student learning.

The table on the following page shows the current status of assessment of learning for each learning goal in the Master of Professional Accountancy program’s mission.
<table>
<thead>
<tr>
<th>Learning Goal</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communication and behavior that is professional and ethical</td>
<td>• Methodology to be determined. Accounting option faculty and accounting advisory board to discuss and further evaluate.</td>
</tr>
</tbody>
</table>
| Application of accounting theory                 | • All MPAc students required to take and pass comprehensive exam covering audit, financial, tax and legal issues  
• Until 2003, students scored in top 10 nationally on the CPA pass rate for first-time takers in 17 of 21 years, including first in the nation 5 times. Data not available since 2003 |
| Technical competence and adaptability.           | • Until 2003, students scored in top 10 nationally on the CPA pass rate for first-time takers in 17 of 21 years, including first in the nation 5 times. Data not available since 2003  
• Course-embedded measured established in Advanced Accounting course; under development in Research Methods course |
| Critical thinking                                | • Course-embedded measure tested  
• When and where to assess to be determined |
| Skills for lifelong learning                     | • Methodology to be determined |
## Undergraduate Program Assessment of Learning Plan

**May 2008**

### College of Business

**Undergraduate Program Assessment of Learning Plan**  
**May 2008**

<table>
<thead>
<tr>
<th>Mission-Driven Learning Outcomes</th>
<th>Goals &amp; Objectives</th>
<th>Assessment Methodology</th>
<th>Results</th>
<th>To Do</th>
</tr>
</thead>
</table>
| **Knowledge of Business**       | **Goal & Objectives**  
Students shall acquire a common body of knowledge and vocabulary of business. As articulated in course syllabi, students shall gain knowledge of the theory and practices used in management of organizations, operations, and human resources; accounting; corporate finance; marketing; information systems and technology; and law. As they specialize further in their respective option(s), students shall demonstrate their ability to integrate this knowledge in solving business problems.  
| Students will have strong working knowledge of fundamental concepts in accounting, finance, management, marketing, information technology, strategy and law.  
The College’s institutional mean on the Major Field Test will regularly fall in the top quartile. | **Major Field Test**  
**Alumni, employer, placement surveys** | **MFT administered in BUS 474 every semester since Summer 2005.**  
The College’s overall institutional mean on the MFT for the period Summer 2005 through Spring 2008 is in the 89th percentile (n=676).  
Responses to Spring 2006 Alumni Survey (n=103) show CoB alumni more satisfied than alumni of Select 6 institutions: (mean scores on scale of 1-7/Select 6 mean):  
- Business degree provided knowledge and skills to succeed: 5.77/5.39  
- Effectiveness of skills training: 5.40/5.21  
- Effectiveness of developing abilities: 5.32/5.17 | **AoL Committee to analyze student performance on the MFT subsections by option.** |
<table>
<thead>
<tr>
<th>Mission-Driven Learning Outcomes</th>
<th>Goals &amp; Objectives</th>
<th>Assessment Methodology</th>
<th>Results</th>
<th>To Do</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Critical Thinking</strong></td>
<td><strong>Goal</strong> Students will be able to engage in critical thinking to solve business problems.</td>
<td>Rubric in BUS 474 using representative sample of student case analyses.</td>
<td>Rubric for course embedded measure has been developed and tested and was applied in BUS 474 in Fall 2007 for first time. Results show students are meeting the College goal of 75% meeting or exceeding expectations on only one of the three elements of the rubric: • Assimilation of information: 67% • Ability to analyze information: 72% • Sound decision-making: 78%</td>
<td>Identify and implement changes to curriculum to improve students’ critical thinking skills with focus on assimilation and analysis of information.</td>
</tr>
<tr>
<td><strong>Critical Thinking</strong> Critical thinking is the process of purposeful, self-regulatory judgment.* Critical thinking is defined as the ability to structure and synthesize ambiguous information, to sort relevant from irrelevant information, to apply technical knowledge to new problem settings, to analyze and summarize information and to interpret the results of analysis. Critical thinking makes use of the higher cognitive objectives: application, analysis, synthesis, and evaluation.</td>
<td><strong>Objectives</strong> 1. Students will be able to: a. Assimilate and interpret disparate and conflicting information correctly; b. Evaluate, clarify and classify information to determine its relevance to solving an issue or problem; c. Use general principles to create reasonable solutions and/or predictions; and d. Make a decision based on evidence and prior evaluation. 2. 75% of seniors will meet or exceed expectations on each element of the rubric.</td>
<td>California Critical Thinking Skills Test (discontinued after Fall 2007)</td>
<td>2006 Senior Survey (n=12); 1-5 scale): • Professors emphasize higher order thinking skills: 4.17 • Major courses helped respect and value different points of view: 4.08 • Major courses helped critically analyze arguments: 4.25 • Major courses helped think logically and deductively: 4.38 • Major courses helped think creatively: 4.04</td>
<td></td>
</tr>
</tbody>
</table>

*Note: Critical thinking is a process that involves higher-order thinking skills such as analysis, synthesis, and evaluation.
### Quantitative Reasoning

**Mission-Driven Learning Outcomes**
The faculty voted as of Nov. 28, 2007, to include quantitative reasoning as a student learning goal in the College’s mission because the faculty believes it is an essential skill for our students. Because of the very recent addition of quantitative reasoning to the mission, the faculty has not yet developed specific goals and objectives.

**Goals & Objectives**
Because of the very recent addition of quantitative reasoning to the mission, the faculty has not yet developed a precise definition of the concept.

**Assessment Methodology**
MFT sub-score on quantitative business analysis.
Course-embedded measure.

**Results**
The College’s institutional mean on the quantitative analysis subsection of the MFT is in the 90th percentile.

**To Do**
Develop definition, goals and objectives.
Determine appropriate measure(s).

### Effective Written Communication

**Mission-Driven Learning Outcomes**
Effective written communication demonstrates professionalism and the use of standard business English. Such writing is direct, courteous, grammatically correct, and not overly casual. A student’s writing must demonstrate appropriate sentence structure, mechanics, grammar, word usage, tone and word choice, organization and focus, and development of ideas.

**Goals & Objectives**
**Goal**
Students will be able to communicate effectively and professionally in writing.

**Objectives**
1. Students will:
   a. Organize and develop ideas effectively;
   b. Employ correct spelling and punctuation;
   c. Employ correct grammar, sentence and paragraph structure; and
   d. Correctly cite sources for facts, quotations and ideas.
2. 75% of seniors will meet or exceed expectations on each element of the rubric.
3. In order to be formally admitted

**Assessment Methodology**
Rubric in BUS 474
WorkKeys Test of Business Writing in BUS 201

**Results**
Rubric for course embedded measure has been developed and tested and was applied in BUS 474 in Fall 2007 for first time. Results show students are meeting the College goal of 75% meeting or exceeding expectations on two of the three elements of the rubric:
- Organization & development: 89%
- Spelling & Punctuation: 78%
- Grammar & Sentence/Paragraph Structure: 67%

WorkKeys Test of Business Writing has been administered in BUS 201 since Fall 2005. A score of at least Level 3 is required for formal admission to the College for all students. 80-83% of business students in Bus 201 score at Level 3 or higher.

**To Do**
Identify and implement changes to curriculum to improve students’ writing skills with a particular emphasis on grammar and sentence/paragraph structure.
### Mission-Driven Learning Outcomes

<table>
<thead>
<tr>
<th>Goals &amp; Objectives</th>
<th>Assessment Methodology</th>
<th>Results</th>
<th>To Do</th>
</tr>
</thead>
</table>
| to the College, students must achieve a score of at least 3 on the WorkKeys Test of Business Writing. | Rubric applied to video-taped student presentations in BUS 474 | • Major courses helped write clearly: 3.79  
• Major courses helped write persuasive arguments: 4.04 | Finalize rubric. |

#### Effective Oral Communication
Effective oral communication requires facility with standard oral presentational forms including impromptu, extemporaneous, informational, and persuasive speaking.

<table>
<thead>
<tr>
<th>Goal</th>
<th>Results</th>
<th>To Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students will be able to communicate effectively and professionally in oral presentations.</td>
<td>Draft rubric has been created. Rubric requires further editing and testing.</td>
<td>Finalize rubric.</td>
</tr>
<tr>
<td><strong>Objectives</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Students will:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Organize and develop ideas effectively;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Employ technology effectively in support of the message;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. Speak extemporaneously with minimal hesitations and fillers;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>d. Adopt an appropriate tone;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>e. Use appropriate vocabulary;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>f. Employ correct grammar and sentence structure; and</td>
<td></td>
<td></td>
</tr>
<tr>
<td>g. Use appropriately the time allotted for the presentation.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. 75% of seniors will meet or exceed expectations on each element of the rubric.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2006 Senior Survey (n=12; 1-5 scale):
• Major courses helped speak confidently in public settings: 4.50

The AoL Committee has identified several members of the College’s Board of Advisors who are willing to assist in the assessment of oral presentations.

The College established the Bracken Business Communication Clinic (BBCC) in 2005 to provide professional business communication coaching, including on oral presentations, to students. In 2005-06 the BBCC served 507 student appointments; in 2006-07 that number rose to 765 appointments, a 66% increase over the previous year. Use at the mid-point of the 2007 fall semester is 27% higher that at the same point in the 2006 fall semester.

#### Ethical Decision-Making & Social Responsibility
Rational and ethical decision-making deals with issues of human conduct and the rules

<table>
<thead>
<tr>
<th>Goal</th>
<th>Results</th>
<th>To Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students will appreciate the ethical and social responsibility dimensions of business decision-making.</td>
<td>Rubric for course embedded measure has been developed and tested and was applied in BUS 474 in Fall 2007 for first time. Results show students are meeting the College goal of 75% meeting or</td>
<td>Identify and implement changes to curriculum to improve students’ ethical decision-making skills</td>
</tr>
</tbody>
</table>

Rubric in BUS 474.
## Mission-Driven Learning Outcomes

**Objectives**

1. Students will be able to:
   a. Recognize the ethical and societal implications of proposed actions;
   b. Demonstrate knowledge of ethical decision-making tools;
   c. Effectively evaluate the ethical and societal effects of a variety of options; and
   c. Make a sound decision in accordance with the analysis and evaluation of options.

2. 75% of seniors will meet or exceed expectations on each element of the rubric.

Exceeding expectations on only one of the four elements of the rubric:
- Recognition of issues: 94%
- Knowledge of ethical tools: 72%
- Evaluation of options: 68%
- Decision-making: 54%

### To Do

- Identify opportunities for case study, experiential, and applied learning activities in the curriculum.
- Identify opportunities for developing team skills in the curriculum.
- Identify opportunities for technology and research skill development activities in the curriculum.

**Results**

The College has developed a matrix showing where team, technology and research learning opportunities occur in the Business Pre-Core and Core.

1. Applied learning activities occur throughout the curriculum.
2. Team skills are taught and practiced throughout the curriculum, including in BUS 101, 201, 301, 341, 361 and 474.
3. Technology skills are taught in CS150, BUS 311 and BUS 331. All students are required to take the research course designated for the student’s option (ACCT 325, FIN 326).
<table>
<thead>
<tr>
<th>Mission-Driven Learning Outcomes</th>
<th>Goals &amp; Objectives</th>
<th>Assessment Methodology</th>
<th>Results</th>
<th>To Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>and evaluating their own learning outcomes.&quot;</td>
<td>complex business problems 2. Students will have extensive opportunities to learn in team settings and to develop effective team skills 3. Students will have the opportunity to develop the ability effectively to research information in furtherance of learning 4. Students will demonstrate effective critical thinking skills</td>
<td>curriculum. 4. Critical thinking assessment currently in place.</td>
<td>457R, MGMT 475R, MKTG 342R). 4. Critical thinking results are described above.</td>
<td></td>
</tr>
</tbody>
</table>

College of Business Faculty Retreat  
January 11, 2008  
Summary of Assessment of Learning Discussion

The AoL Committee presented the results of the Fall 2007 assessments of critical thinking, written communication and ethical decision-making. The faculty divided among tables to consider how to improve student learning in one area. Specific questions for faculty included:

- What kind of courses/activities will improve student learning?
- Where in the curriculum should course/assignment(s)/activities occur?
- Where in the CoB should activities occur?
- What do faculty need to know/learn to help improve student learning?
- How can faculty learn what is needed?

The results:

**Critical Thinking**

**A. Tasks**

- Problem Solving
  - move students from looking for “right” answer to developing thoughtful, defensible position
- Debates
  - including formal debates in which students are assigned a position on an issue
- Healthy Skepticism
- More case studies
  - do not give students a series of questions, but make assignment more open-ended – let students figure it out
- Interpreting quantitative data – need to learn how to evaluate data
- Need for breadth of knowledge
- Developmental Writing
  - i.e., pose question to students, have them write 2 pp; then give feedback, and pose a follow-up question; students rewrite first 2 pp, then write more in response to follow-up question; etc.; keep going back over previous writing, improve, develop analysis
- AOL Communication Evaluation MKTG 449 cases

**B. Where in curriculum?**

- Start early – e.g. dd some tasks to BUS101
- Consistent repetition of tasks (See A. Tasks)

The faculty discussion following the group’s presentation included the following points:

- Need to teach problem-solving techniques
- Students must be able to think abstractly
- Self-directed learners are much better critical thinkers
- Need to get students to be skeptical
• but students also need to know difference between appropriate and inappropriate questioning
• Students need context and knowledge to be able to think critically
  o i.e. need to read, have interdisciplinary knowledge
• Use Bloom’s Taxonomy to develop assignments – lower level in BUS 101, higher in upper-level courses
• There are ways to move students up the critical thinking scale – need to help them learn to tolerate the disequilibrium they feel when faced with higher level thinking
• Faculty need training on how to teach critical thinking

Written Communication
• Mandate writing
  o Assign papers in every class, early in semester
  o Create writing portfolios
  o Could pick particular courses in which students receive more intensive feedback – e.g. both faculty grading and required BBCC coaching
  o Use shorter assignments to get students writing more (less than or equal to one page)
  o Require revise & resubmit in classes
  o Use peer evaluation/critique methods
  o Share examples (not attributed) of good/bad writing in class
• More emphasis on grammar, sentence, paragraph structure in BUS 201
• Teach what Executive Summary is
• Mandate BBCC coaching
  o If students are required to take one piece of writing to the BBCC, are likely to return for more coaching on subsequent papers
• Writing workshops for students, esp. at-risk students
• Create COB writing award
• Is part of faculty role to assess writing – part of our job
• Faculty need to learn to grade writing
  o Need to get all faculty thinking about writing the same way
  o Need workshops
  o Need to learn to grade writing efficiently
  o Provide to faculty general rubric that is used to assess all writing.
• More resources for BBCC

Ethical Decision Making
• Faculty must feel more comfortable with what ethical decision-making is
  o Need education and training
  o Perhaps good retreat topic
• Need to create a curricular structure/model/framework that is developmental, consistent and standardized
  o Framework begins in BUS 101 and then carried throughout curriculum
  o Need coordination re: how and where will be taught
  o Overlap with and link to critical thinking
• Do not need to require ethics in every course because most courses already address it – just need better coordination and standardization
• Emphasis on cases and practical applications
  o Teach from right thing to do and bottom-line business perspectives
  o Discuss ethics in daily life
  o Ambiguous cases w/ increasing complexity
• Find way to involve clubs
## GRADING RUBRIC FOR CRITICAL THINKING ASSESSMENT

<table>
<thead>
<tr>
<th></th>
<th>Below Expectations (0)</th>
<th>Meets Expectations (1)</th>
<th>Exceeds Expectations (2)</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Assimilate</strong></td>
<td>Fails to include relevant information</td>
<td>Includes some relevant information</td>
<td>Includes most relevant information</td>
<td>Score</td>
</tr>
<tr>
<td></td>
<td>Includes excessive irrelevant information</td>
<td>Minimal amount of irrelevant information</td>
<td>Does not include irrelevant information</td>
<td>Score</td>
</tr>
<tr>
<td></td>
<td>Misinterprets or mischaracterizes information</td>
<td>Generally interprets information accurately</td>
<td>Consistently interprets information accurately</td>
<td>Score</td>
</tr>
<tr>
<td></td>
<td>Fails to include or is confused by information from a variety of viewpoints</td>
<td>Includes some disparate and potentially conflicting information from a variety of viewpoints</td>
<td>Effectively includes disparate and potentially conflicting information from a variety of viewpoints</td>
<td>Score</td>
</tr>
<tr>
<td><strong>Evaluate</strong></td>
<td>Demonstrates no or little independent/creative thought</td>
<td>Demonstrates some independent and creative thought</td>
<td>Consistently demonstrates independent and creative thought</td>
<td>Score</td>
</tr>
<tr>
<td></td>
<td>Is unable to or superficially uses general principles to create reasonable solutions and/or predictions</td>
<td>Limited use of general principles to create reasonable solutions and/or predictions</td>
<td>Effectively uses general principles to create reasonable solutions and/or predictions</td>
<td>Score</td>
</tr>
<tr>
<td></td>
<td>Is unable to or superficially uses specific examples to support analysis</td>
<td>Limited use of specific examples to support analysis</td>
<td>Effectively uses specific examples to support analysis</td>
<td>Score</td>
</tr>
<tr>
<td></td>
<td>Does not evaluate alternative perspectives (e.g., functional, short/long term, strategic/tactical, internal/external)</td>
<td>Some evaluation of alternative perspectives (e.g., functional, short/long term, strategic/tactical, internal/external)</td>
<td>Effectively evaluates alternative perspectives (e.g., functional, short/long term, strategic/tactical, internal/external)</td>
<td>Score</td>
</tr>
<tr>
<td></td>
<td>Exhibits close-mindedness or hostility</td>
<td></td>
<td></td>
<td>Score</td>
</tr>
<tr>
<td><strong>Conclude</strong></td>
<td>No decision</td>
<td>Irresolute decision</td>
<td>Clear decision</td>
<td>Score</td>
</tr>
<tr>
<td></td>
<td>Decision not based on or only superficially based on sound evidence and prior evaluation</td>
<td>Decision somewhat based on sound evidence and prior evaluation</td>
<td>Decision clearly based on sound evidence and prior evaluation</td>
<td>Score</td>
</tr>
<tr>
<td></td>
<td>Decision not supported with persuasive arguments</td>
<td>Decision somewhat supported with persuasive arguments</td>
<td>Decision clearly supported with persuasive arguments</td>
<td>Score</td>
</tr>
<tr>
<td></td>
<td>Does not acknowledge other potential outcomes</td>
<td>Acknowledges other potential outcomes, does not effectively persuade they are less desirable</td>
<td>Effectively persuades that other potential outcomes are less desirable</td>
<td>Score</td>
</tr>
<tr>
<td></td>
<td>Decision based on biased information/reasoning</td>
<td></td>
<td></td>
<td>Score</td>
</tr>
</tbody>
</table>

**Total:**
### Written Communication Assessment Rubric

<table>
<thead>
<tr>
<th></th>
<th>0 – Below Expectations</th>
<th>1 – Meets Expectations</th>
<th>2 – Exceeds Expectations</th>
<th>Score</th>
</tr>
</thead>
</table>
| **Organization & Development of Ideas** | □ No, or poorly communicated, introduction  
□ No clear thesis  
□ Little or no logical connection from one idea to the next  
□ Conclusion (when needed) absent or perfunctory | □ Introduction implies but does not clearly state thesis, purpose and/or organization of paper  
□ Thesis present but not fully developed  
□ Generally thoughtful development of argument with some gaps in logic or reasoning.  
□ Conclusion (when needed) briefly summarizes paper but does not tie it into a coherent whole. | □ Clear introduction states thesis, purpose and organization of paper  
□ Thesis clear and well-developed  
□ Logical arguments and analysis are easy to follow  
□ Conclusion (when needed) is clear and comprehensive. | 0     |
| **Spelling & Punctuation** | □ Frequent errors (average ≥ 3 per page)  
□ Errors interfere with communication | □ Occasional errors (average 1-2 per page)  
□ Errors do not substantially interfere with communication | □ Very few errors (av. ≤1 per page)  
□ Errors do not interfere with communication | 0     |
| **Grammar, Sentence & Paragraph Structure** | □ Sentences regularly contain grammatical errors or other problems (e.g. tone, word choice) that interfere with communication  
□ Paragraphs generally lack focus  
□ Writing overly informal.  
□ Quotations often interrupt the flow of writing | □ Sentences are generally grammatically correct but occasionally awkward (e.g. with respect to tone, word choice)  
□ Paragraphs generally focused and coherent.  
□ Writing generally professional.  
□ Quotations occasionally interfere with flow of writing. | □ Sentence structure makes paper easy to read  
□ Paragraphs are focused and coherent  
□ Writing consistently professional.  
□ Quotations are integrated seamlessly. | 1     |
| **Sources & References** | □ Sources for facts, quotations and ideas not properly indicated.  
□ Sources do not support the author’s points.  
□ Too few sources used | □ Where appropriate, sources for most facts, quotations and ideas are properly indicated.  
□ Sources generally support the author’s points.  
□ More or a greater variety of sources should be used. | □ Where appropriate, sources for all facts, quotations and ideas are properly indicated.  
□ Sources consistently support author’s points.  
□ Appropriate variety of sources. | 2     |

Total:
### Ethical Decision Making and Social Responsibility
#### Assessment of Learning Rubric
#### Fall 2007

<table>
<thead>
<tr>
<th>Score</th>
<th>0 – Below Expectations</th>
<th>1 – Meets Expectations</th>
<th>2 – Exceeds Expectations</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Recognition of Ethical/Social Responsibility Issues</strong></td>
<td>□ Little or no recognition of relevant ethical issues</td>
<td>□ Identifies some of the relevant ethical issues</td>
<td>□ Identifies all relevant ethical issues</td>
</tr>
<tr>
<td></td>
<td>□ Fails to recognize one or more of the most salient ethical issues</td>
<td>□ Identifies the most salient ethical issue</td>
<td>□ Demonstrates creativity and insight into identification of ethical issues</td>
</tr>
<tr>
<td><strong>Knowledge of Ethical/Social Responsibility Decision-Making Tools</strong></td>
<td>□ Little or no understanding of ethical tools</td>
<td>□ Working knowledge of ethical tools</td>
<td>□ Comprehensively articulates relevant approaches to ethical issues</td>
</tr>
<tr>
<td></td>
<td>□ Undeveloped understanding of implications of ethical tools</td>
<td>□ Competent understanding of implications of ethical tools</td>
<td>□ Demonstrates deep understanding of implications of ethical tools</td>
</tr>
<tr>
<td><strong>Evaluation of Options for Action</strong></td>
<td>□ No recognition of options or recognizes only one reasonable option</td>
<td>□ Identifies reasonable alternative options</td>
<td>□ Identifies multiple reasonable options</td>
</tr>
<tr>
<td></td>
<td>□ Superficial analysis of social and/or personal implications of options with little specific support</td>
<td>□ Competent analysis of social and personal implications of each option supported by some specific information</td>
<td>□ Comprehensive analysis of social and personal implications of each option using specific information</td>
</tr>
<tr>
<td><strong>Decision</strong></td>
<td>□ No decision or decision reflects little or no serious engagement with ethics and social responsibility</td>
<td>□ Decision reflects competent but not fully-developed ideas on ethics and social responsibility</td>
<td>□ Decision reflects well-developed ideas on ethics and social responsibility</td>
</tr>
<tr>
<td></td>
<td>□ Not supported with persuasive arguments and evidence</td>
<td>□ Supported with generally persuasive arguments and some evidence</td>
<td>□ Supported with clear and persuasive arguments and evidence</td>
</tr>
<tr>
<td></td>
<td>□ No other options recognized</td>
<td>□ Acknowledges other options with some recognition of their legitimacy</td>
<td>□ Effectively persuades that other options are not optimal</td>
</tr>
</tbody>
</table>

*Decision tools include Universalism, Relativism, Social Contract, Pareto Optimality, Cost-Benefit, Golden Rule, appeal to Moral/Ethical principle or authority: e.g. Corporate Codes of Conduct, Mission Statements, Utilitarianism, Fairness, Justice, or Rights etc.*
<table>
<thead>
<tr>
<th>Core Curriculum Matrix</th>
<th>Skill-Related Objectives</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Written Communication</td>
</tr>
<tr>
<td>101: Freshman Seminar</td>
<td>Memo format, position memos, team reports, Gregg worksheets, strategic plan</td>
</tr>
<tr>
<td>201: Managerial Communication</td>
<td>Letters, memos, résumés, quizzes, and formal reports</td>
</tr>
<tr>
<td>221: Principles of Accounting I</td>
<td>Financial ratios project, short answers &amp; essays on exams</td>
</tr>
<tr>
<td>222: Principles of Accounting II</td>
<td>Homework problems that emphasize the compilation and synthesis of both quantitative and non-quantitative information</td>
</tr>
<tr>
<td>301: Management &amp; Organizations</td>
<td>Three papers, essay questions on exams</td>
</tr>
<tr>
<td>302: Career Perspectives</td>
<td>Written assignments such as interviews and self-assessments</td>
</tr>
<tr>
<td>311: Information Systems</td>
<td>Chapter Analysis papers, essay exam questions</td>
</tr>
<tr>
<td>331: Operations Management</td>
<td>Some written responses to questions but writing style not component of grading</td>
</tr>
<tr>
<td>341: Marketing</td>
<td>Group and individual written assignments, essays on exams.</td>
</tr>
<tr>
<td>351: Finance</td>
<td>Written descriptions of problem solving approach on cases, problems, and exams</td>
</tr>
<tr>
<td>361: Introduction to Law</td>
<td>Individual and team written assignments – graded on both content and style and grammar</td>
</tr>
<tr>
<td>Course</td>
<td>Written Communication</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>-----------------------</td>
</tr>
<tr>
<td>474: Senior Seminar</td>
<td>Several industry and company level analyses and Business Strategy Game report</td>
</tr>
<tr>
<td>Required non-business pre-core courses</td>
<td>Math 170, Survey of Calculus; STAT 216, Elementary Statistics; STAT 217, Intermediate Statistical Concepts, or MGMT 231, Knowledge Creation and Inquiry in Business; ECON 102, Macroeconomics; ECON 21, Micro Economics</td>
</tr>
<tr>
<td>University Core Requirements</td>
<td>ENGL 121, College Writing I</td>
</tr>
<tr>
<td>Core Curriculum Matrix (page 2)</td>
<td>Qualitative Objectives</td>
</tr>
<tr>
<td>--------------------------------</td>
<td>------------------------</td>
</tr>
<tr>
<td><strong>Lifelong Learning</strong></td>
<td><strong>Ethics</strong></td>
</tr>
<tr>
<td>101: Freshman Seminar</td>
<td>Personal strategic plan; professional development log</td>
</tr>
<tr>
<td>201: Managerial Communication</td>
<td>Team projects, participation, cooperation, effective communication</td>
</tr>
<tr>
<td>221: Principles of Accounting I</td>
<td>Financial ratio analysis project</td>
</tr>
<tr>
<td>222: Principles of Accounting II</td>
<td>Collaborative in-class problem solving</td>
</tr>
<tr>
<td>301: Mgmt &amp; Organizations</td>
<td>Opportunities to work in teams and learn about teams; written expressions of thoughts and ideas; research</td>
</tr>
<tr>
<td>302: Career Perspectives</td>
<td>Self assessments and discernment are encouraged; projects develop research and planning skills</td>
</tr>
<tr>
<td>311: Info-Systems</td>
<td>Teamwork, expression, research, and critical thinking to pull it all together</td>
</tr>
<tr>
<td>Lifelong Learning</td>
<td>Ethics</td>
</tr>
<tr>
<td>------------------</td>
<td>--------</td>
</tr>
<tr>
<td><strong>331: Operations Management</strong>&lt;br&gt;The course is designed for individual learning done outside the class; class time used for clarification and extension of material</td>
<td>Most material has an ethical dimension which must be considered; questions on group projects have ethical ethics element</td>
</tr>
<tr>
<td><strong>341: Marketing</strong>&lt;br&gt;Class discussions to understand real-life events, understanding cross functional coordination of market to students’ career</td>
<td>Class discussion and case studies of ethical marketing</td>
</tr>
<tr>
<td><strong>351: Finance</strong>&lt;br&gt;Introduction to topics such as portfolio theory and rates of return which are important for future</td>
<td>Discussed in the context of current events</td>
</tr>
<tr>
<td><strong>361: Introduction to Law</strong>&lt;br&gt;Team based learning; Class objectives include - identification and development of personal value system; ability to see all sides of an issue before judging others, Respect those who disagree with you, Accept that the world is ambiguous and become comfortable with (and perhaps even enjoy) making decisions in uncertain environments , Improve your intellectual discipline – you should be your own harshest critic, enjoy rigorous thinking</td>
<td>One and a half week module on ethics and social responsibility, including a RAT and case discussion, on-going discussions throughout the semester</td>
</tr>
<tr>
<td><strong>474: Senior Seminar</strong>&lt;br&gt;Teamwork – course structure on team-based learning; expression required, research is required for projects, students must engage in critical thinking</td>
<td>Ethics and social responsibility issues are discussed in context of current events, company strategies for the BGS require students to confront moral and ethical issues.</td>
</tr>
<tr>
<td><strong>University Core Requirements</strong>&lt;br&gt;One Humanities course required. Courses in the Humanities will explore ethical and moral, aesthetic and creative, historical and descriptive dimensions of human cultural traditions, emphasizing methods of reaching a conclusion, formulating an interpretation, or making a judgment in the discipline.</td>
<td></td>
</tr>
</tbody>
</table>
MSU Departmental Assessment Update
Spring 2009

Department: College of Business

Department Head: Dan Moshavi, Interim Dean

Assessment Coordinator: Susan Dana
Assoc. Dean for Academic Affairs

Date: June 4, 2009

Degrees/Majors/Options Offered by College
Note: The College of Business does not have departments.

• Bachelor of Science in Business with options in:
  Accounting
  Finance
  Management
  Marketing

  o Minors in:
    Accounting
    Business Administration
    Entrepreneurship and Small Business Management
    International Business
    Management of Information Technology

• Master of Professional Accountancy
I. Background
The Assessment of Learning (AoL) Committee of the College of Business manages the assessment of learning process in the College by: identifying, developing and revising assessment methodologies; administering the assessment tools; analyzing the results; and making recommendations for changes to the curriculum to the College’s Curriculum Committee, which in turn makes recommendations to the College’s faculty.

The AoL Committee also reports to the College’s Strategic Initiatives Committee to the extent its activities relate to strategic planning.

The AoL Committee in 2008-09 consisted of nine volunteer faculty members, including five tenure track faculty members, two adjunct faculty members, the coordinator of the Bracken Business Communication Clinic, and the Associate Dean for Academic Affairs who chaired the committee. The members represented three of the four options in the College (marketing was not represented).

II. Faculty Attitudes Toward Assessment of Learning
In fall 2008 the AoL Committee conducted a survey of College of Business faculty members’ attitudes toward assessment of learning in an effort to gauge faculty awareness and commitment to the assessment of learning process. Response rates to questions varied, but overall 45 out 55 faculty members responded to the survey, representing 82% of all faculty. Of the respondents, 54% were tenure-track faculty and 46% were adjunct faculty.

The survey reveals a high degree of buy-in by the faculty to the assessment of learning process. For example, 85% of respondents strongly or moderately agreed with the statement “I am in favor of using measurable outcomes (such as the MFT and rubrics) to assess the impact of our academic programs on our students in achieving elements of the CoB mission.” Fully 80% of respondents strongly or moderately agreed with the statement “I have made changes to elements of courses I teach in order to be better aligned with the CoB education goals in our mission statement.”
The survey also reveals some areas in which the AoL Committee can strive to better educate faculty about and include faculty in the assessment of learning process. For example, only 27% of faculty reported that they are very or quite involved in the College’s assessment of learning process. This is most likely due to the fact that until this point the AoL Committee has itself conducted the assessments in BUS 474. In the future, the AoL Committee plans to enlist other faculty members to conduct the assessments in their own classes. Of somewhat more concern is the fact that 33% of respondents said they had only some or little degree of understanding of the College’s assessment of learning process, and 31% strongly or moderately agreed that the “most important reason for the assessment process in the CoB is to meet AACSB accrediting standards.” While these respondents represent a minority of faculty, these results do suggest that the AoL Committee should continue to educate faculty about the value of the assessment of learning process.

III. Assessment of Learning in Undergraduate Program
The College’s mission statement contains learning goals in knowledge of business, critical thinking, quantitative reasoning, oral and written communication, ethical decision making and lifelong learning. The following is a summary of the status of assessment activities relative to each learning goal.

A. Knowledge of Business

Learning Outcomes
Students shall acquire a common body of knowledge and vocabulary of business. As articulated in course syllabi, students shall gain knowledge of the theory and practices used in management of organizations, operations, and human resources; accounting; corporate finance; marketing; information systems and technology; and law. As they specialize further in their respective option(s), students shall demonstrate their ability to integrate this knowledge in solving business problems.

Goal and Objective
Students will have strong working knowledge of fundamental concepts in accounting, finance, management, marketing, information technology, strategy and law. The College’s institutional mean on the Major Field Test will regularly fall in the top quartile.

Assessment Activities and Results
The College has administered the Major Field Test in Business to 885 seniors in the Senior Seminar, BUS 474, since summer 2005. Overall, since summer 2005 the College’s institutional mean on the MFT is at the 91st percentile compared to over 500 other undergraduate business programs. The fall 2008 cohort of seniors, totaling 53 students, scored in the 91st percentile, while the spring 2009 cohort of seniors, totaling 141 students, scored in the 96th percentile compared to cohorts from over 500 other undergraduate business programs. These MFT results were presented to the College’s faculty at faculty meetings on December 3, 2008 and April 29, 2009.
The College is currently meeting its objective that the College’s institutional mean on the Major Field Test will regularly fall in the top quartile.

A more nuanced review of our students’ performance on the subject areas covered by the MFT reveals that our students score above the 75th percentile in each subject area, and above the 90th percentile in many areas.

Our students score lowest in management and international business, although they still score above the 75% in both of these areas. We have examined the MFT questions on management
and have concluded that these questions do not fairly test what the College teaches in management. For example, several questions require students to know the name of management theories that were popular 25 years ago. The College’s management faculty do not teach these theories by name, choosing instead to focus on more current theories and practical applications. Therefore, the AoL Committee and the management faculty are not concerned by our students’ relatively lower scores on management questions on the MFT. The international business questions on the MFT address primarily international economics, which our students admittedly do not know well, except for our finance students who predictably score very high on international business (98th percentile). International business may be an area the College should consider covering more comprehensively in its curriculum.

As of spring 2008 the AoL Committee has been able to obtain a more detailed analysis of our students’ performance on the MFT broken down by each student’s option (i.e. accounting, finance, management, marketing). These results show some interesting variations among options on all subject areas of the MFT, which we understand is a normal result at other colleges of business around the nation. Rather than include these results in this update, we invite the reader to request details of these results from the Associate Dean of Academic Affairs at the College of Business.

Overall, College of Business seniors perform very strongly on the MFT compared to seniors from over 500 other undergraduate schools of business around the country.

With four years of data from 885 students showing fairly consistent levels of performance, and in consideration of the $5,500 annual cost of the MFT, the AoL Committee has decided that it is not necessary to continue to administer the MFT to every senior every year. Therefore, from now on the MFT will be administered to seniors in BUS 474 only every other year. This level of frequency will enable the College to assess student learning frequently enough to ensure adequate monitoring of students’ performance.

B. Critical Thinking

Learning Outcomes

Critical thinking is the process of purposeful, self-regulatory judgment. Critical thinking is defined as the ability to structure and synthesize ambiguous information, to sort relevant from irrelevant information, to apply technical knowledge to new problem settings, to analyze and summarize information and to interpret the results of analysis. Critical thinking makes use of the higher cognitive objectives: application, analysis, synthesis, and evaluation.

Goal

Students will be able to engage in critical thinking to solve business problems.

Objectives
1. Students will be able to:
   a. Assimilate and interpret disparate and conflicting information correctly;
   b. Evaluate, clarify and classify information to determine its relevance to solving an issue or problem;
   c. Use general principles to create reasonable solutions and/or predictions; and
   d. Make a decision based on evidence and prior evaluation.
2. 75% of seniors will meet or exceed expectations on each element of the rubric.

Assessment Activities and Results
Critical thinking is particularly important because it is the foundation of all of the other learning goals of the College. For example, one can not produce good writing without effective critical thinking, and quantitative reasoning and ethical decision-making are subsets of critical thinking. It is therefore critical that seniors be competent critical thinkers.

The AoL Committee’s assessment of business students’ critical thinking skills in fall 2007 revealed that while students met the College’s goal that 75% of students meet or exceed expectations on their ability to make a sound decision, only 67% of students met or exceeded expectations on ability effectively to assimilate information, and only 72% met or exceeded expectations on ability to evaluate information (see 2008 College of Business Departmental Assessment Update).

At the College’s faculty retreat on January 11, 2008, the faculty reached a consensus that improving students’ critical thinking is the task of all faculty members and can not be accomplished simply through one course, but that most faculty do not feel comfortable “teaching” critical thinking because they do not know exactly what it is or how to teach it. Therefore, the AoL Committee spent most of 2008 and 2009 developing a plan for how to help faculty more effectively “teach” critical thinking.

During 2008 the AoL Committee asked each option to assess the extent to which its faculty teach critical thinking. The results revealed that while almost every faculty member in each of the four options claims to “teach” critical thinking, in fact what they do is expect students to engage in critical thinking without actually teaching the steps of critical thinking. It is difficult for students to learn how to think critically, however, unless they are taught the process of critical thinking.

Therefore, the AoL Committee in spring 2009 developed a draft recommendation to the Curriculum Committee on how to help faculty teach the process of critical thinking throughout the College’s curriculum in a consistent and iterative way. The AoL Committee gave a quick preview of the recommendation to the full faculty at the April 29, 2009, faculty meeting. The Committee will continue to work on this draft recommendation over the summer with the expectation that it will be delivered to the Curriculum Committee early in the fall 2009 semester.

In summary, the AoL Committee’s recommendation offers a consistent model of critical thinking that all faculty members can use to teach the process of critical thinking. This model, which is
based on a variety of critical thinking models, requires a student to follow the same five steps to analyze and solve any problem. It is broad enough to be relevant to any discipline but specific enough to require a student to follow a deliberate process. The Committee’s expectation is that by the time a student graduates, s/he will have encountered and used this model so often that s/he will remember and use the model as a matter of course. The memorable acronym for the model (PIRATe) will help students remember the steps. PIRATe stands for:

<table>
<thead>
<tr>
<th>Purpose</th>
<th>What am I trying to accomplish? What problem am I trying to solve?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Information</td>
<td>What facts are relevant to my purpose?</td>
</tr>
<tr>
<td>Reference</td>
<td>What theories, models, rules, etc. should I use to solve this problem?</td>
</tr>
<tr>
<td>Analysis</td>
<td>What are the results when I apply the relevant theories, models, etc., to the relevant facts? Are there alternatives? What assumptions and inferences am I making?</td>
</tr>
<tr>
<td>The conclusion</td>
<td>What is the answer to the problem?</td>
</tr>
</tbody>
</table>

The AoL Committee will further recommend that specific courses at all four levels of the curriculum be designated as courses in which the instructor will specifically teach how to use the PIRATe model of critical thinking and will require students explicitly to use the model in their analyses. The goal is to ensure that students are taught the process at the appropriate level for their development, and that the process is reiterated consistently throughout the curriculum. Each course must reiterate and build on what came before and must prepare students for the next level, lest students fail to apply lessons learned in one course to the next. It is expected that all other courses at the CoB will also address the CoB’s learning goals in appropriate ways and will use the same processes taught in the designated courses. In other words, it is essential that these skills be highlighted throughout the curriculum in order to enable students to recognize their value, practice the skills, and experience improvement over time.

In order to assist both faculty and students to master the PIRATe model, the AoL Committee intends to create a guide to PIRATe that can be attached to syllabi and class assignments. Faculty will also be encouraged to use the Committee’s critical thinking rubric to teach students the College’s expectations with respect to critical thinking and to assess students’ critical thinking skills as part of their grading in the course.

Once students have been sufficiently exposed to the PIRATe model of critical thinking, the AoL Committee will again assess the critical thinking skills of seniors in BUS 474.

C. Quantitative Reasoning
The faculty voted as of Nov. 28, 2007, to include quantitative reasoning as a student learning goal in the College’s mission. The AoL Committee in 2008 developed the following definition of and learning goals for quantitative reasoning.
Learning Outcomes
Quantitative reasoning is the ability to use mathematical concepts to understand and interpret data, make sound inferences, draw logical conclusions and make well-supported decisions. Quantitative reasoning, as a component of critical thinking, requires the use of application, analysis, synthesis and evaluation.

Goal
Students will be able to employ quantitative reasoning as a tool for solving business problems.

Objectives
1. Students will be able to:
   a. Interpret mathematical models such as formulas, graphs and tables and draw inferences from them;
   b. Represent quantitative information symbolically, visually, numerically and verbally;
   c. Evaluate quantitative information while recognizing its limitations;
   d. Integrate quantitative information into decisions and recommendations.

2. 75% of seniors will meet or exceed expectations on each element of the rubric.

Assessment Activities and Results
The College created a new course, BUS 211, Business Software Applications, that is required for all business majors beginning with the 2008-10 Catalog. This course is a skills-based course taken in the sophomore year in which students utilize word-processing, spreadsheet, database management and presentation skills. The course is designed to teach some intermediate skills with a primary focus on application of those skills in problem-solving and decision making. Topics related to quantitative reasoning include:
   - Data analysis and decision making tools using Excel, including: creating basic formulas and functions; designing charts and graphs; creating Excel lists and pivot tables; using business modeling with financial emphasis; and using decision tools
   - Data creation, capture, and storage using Access, including: creating tables, creating queries, and creating and using forms to produce reports.

The creation of BUS 211 allows the College’s curriculum to focus early in a student’s academic career on quantitative reasoning skills, and allows the College at the upper level to focus more on the management of information than on the creation of the information. The College expects this course to contribute significantly to students’ quantitative reasoning skills, but having been taught for only one year, the course is too new to allow any assessment of its success.

The College has not yet created a methodology for assessing students’ quantitative reasoning skills upon graduation. However, seniors in the College of Business consistently score well above the 90th percentile on the quantitative reasoning part of the MFT, suggesting that our students are strong in this area.
The AoL Committee still needs to determine whether the MFT is a sufficient measure of student quantitative reasoning skills or whether the College should develop additional measures that address the College’s quantitative reasoning goals more specifically.

D. Written Communication

Learning Outcomes
Effective written communication demonstrates professionalism and the use of standard business English. Such writing is direct, courteous, grammatically correct, and not overly casual. A student’s writing must demonstrate appropriate sentence structure, mechanics, grammar, word usage, tone and word choice, organization and focus, and development of ideas.

Goal
Students will be able to communicate effectively and professionally in writing.

Objectives
1. Students will:
   a. Organize and develop ideas effectively;
   b. Employ correct spelling and punctuation;
   c. Employ correct grammar, sentence and paragraph structure; and
   d. Correctly cite sources for facts, quotations and ideas.
2. 75% of seniors will meet or exceed expectations on each element of the rubric.
3. In order to be formally admitted to the College, students must achieve a score of at least 3 on the WorkKeys Test of Business Writing.

Assessment Activities and Results
Students perform well on the ACT WorkKeys Test of Business Writing, which is required for formal admission to the College of Business (typically between sophomore and junior years) and is administered every semester in BUS 201, Managerial Communications. The test is scored on a scale of 1-5, and the College requires a score of at least a 3 for formal admission to the College. Students scoring less than a 3 may retake the test the following semester, and the vast majority of these then score a 3 or better. The College in 2007 established an appeals process for students who twice score less than a 3, which requires students to submit a portfolio of writing as well as to write a timed memo in longhand explaining why their writing does in fact meet the standards for a score of 3 on the WorkKeys Test.

Between fall 2005 and spring 2008, 80-83% business students taking the test for the first time achieved a score of 3 or better. In fall 2008, 99% of students scored a 3 or better (167/169 students), and in spring 2009 100% achieved a score of 3 or better (143 students). Since 2007, only three students have used the appeals process after twice scoring less than 3 and all three have been admitted to the College based on their writing portfolios. We are not sure why students’ performance on the WorkKeys Test has improved so dramatically, but since the College has not made any dramatic changes to the writing curriculum since 2005 it seems likely that the best explanation is that students have begun to realize that a good performance on the test is necessary for full admission to the College and that they are therefore taking it more seriously than in the past.

Despite students’ achievements on the WorkKeys Test, however, the College’s assessment of students’ writing skills shows that seniors do not meet the College’s expectations for sentence and paragraph structure. The AoL Committee’s assessment of business students’ writing skills in fall 2007 revealed that while students met the College’s goal that 75% of students met or exceeded expectations in their organization and development of ideas and spelling/punctuation, only 67% of students met or exceeded expectations with respect to grammar and sentence/paragraph structure (see 2008 College of Business Departmental Assessment Update). Moreover, fewer than 20% of students exceeded expectations in any of the three categories, with none achieving that distinction with respect to grammar and sentence/paragraph structure.

At the College’s faculty retreat on January 11, 2008, the faculty agreed that, as with critical thinking, improving students’ writing skills must be addressed throughout the curriculum, not just through a single course. But, as with critical thinking, faculty expressed frustration at not knowing how best to “teach” writing. This frustration is reflected in results of the AoL Committee’s survey of faculty writing activities in their courses. As with critical thinking, the results showed that most faculty require at least some writing in their courses, but although many are using the AoL Committee’s writing rubric developed in 2007, few actually teach or support the process of writing or allow students to engage in iterative writing.

Therefore, the AoL Committee arranged an all-day workshop on teaching writing on Saturday, February 21, 2009, attended by 44 of 60 College of Business faculty, staff and administrators, including many adjunct instructors. The workshop was led by Dr. Chris Anson, Professor of

---

English and Director of the Campus Speaking and Writing Program at North Carolina State University. Entitled “Writing, Thinking, Learning, and Professionalization: A Workshop for Faculty in the College of Business,” the workshop provided the faculty with guidance and tools for improving student writing through both “low-stakes” and “high-stakes” writing (see attached agenda). The AoL Committee followed the workshop up with an informal brown bag lunch on low-stakes writing on April 20, 2009, attended by 12 faculty members, most of whom had adopted one or more of Dr. Anson’s ideas in their classes. The AoL Committee intends to continue to organize faculty discussions around the teaching of writing.

In addition, the AoL Committee’s draft recommendation to the Curriculum Committee will propose that, as with critical thinking, the faculty designate certain required courses throughout the College’s curriculum as writing-intensive courses in which faculty would require both low-stakes and high-stakes writing as means to better learning as well as improved writing. These courses would help students understand that writing is a process that requires constant iteration and editing, and would require students to engage actively in that process. Instructors of other courses would also incorporate low-stakes and high-stakes writing but not necessarily as intensively as would be the case in the designated writing courses. The writing rubric developed by the AoL Committee in 2007 should assist faculty in these efforts (see attached rubric).

In addition, a tenure-track faculty member will in summer 2009 for the first time take over the design and coordination of the BUS 201, Managerial Communications, a required course for all business majors. This course has the potential to improve student writing but needs attention and resources. The new coordinator worked during the spring 2009 semester on exploring improvements, which will be implemented over the next two years as some changes can be made immediately while others require more planning and/or resources. Changes may include everything from the focus of the course to pedagogical methods to section sizes.

The Bracken Business Communication Clinic (BBCC) will continue to play an important role in improving student writing, and the College is hopeful that additional funding of the BBCC will be forthcoming from a donor to expand its services. The BBCC currently provides one-on-one writing support to students enrolled in business courses. The BBCC is staffed by business writing professionals who coach students on oral presentations and written assignments, including basic grammar, punctuation, sentence structure and tenses, and business themes, content and organization of material. In the past, students have used the BBCC for help with resumes, executive summaries, memos, articles, papers and more. The BBCC is currently open from 12:30-4:30 five days per week. (See http://www.montana.edu/wwwdb/bracken/bbcc.htm)

In the fall 2008 semester, the BBCC had a total of 494 student appointments with 221 different students (spring semester statistics are not yet available). 77% of the BBCC’s appointments in the fall served students who came to the BBCC two or more times during the semester.

---

3 Dr. Anson also led a shorter workshop for the wider MSU community on Friday, February 20, which was attended by several College of Business faculty members.
Because of limited resources the BBCC is currently able only to provide one-on-one coaching to students who make appointments. Should the College be successful in obtaining additional funding from a donor, the BBCC could offer a additional services, such as expanded hours, writing workshops for students, grading assistance for faculty, training for faculty on writing and grading assignments, and a variety of other services. With funding, the College could also establish a student writing award.

The AoL Committee has also discussed the possibility of requiring students to assemble and submit writing portfolios as a condition of formal admission to the College and/or of graduation. The Committee does not intend formally to propose such a requirement to the faculty at this time, however, because a) while such a portfolio may allow the College to assess student writing it does not necessarily lead to improved writing, and b) the College does not currently have the resources to review and act upon 250 student writing portfolios per year.

E. Oral Communication

Learning Outcomes
Effective oral communication requires facility with standard oral presentational forms including impromptu, extemporaneous, informational, and persuasive speaking.

Goal
Students will be able to communicate effectively and professionally in oral presentations.

Objectives

1. Students will:
   a. Organize and develop ideas effectively;
   b. Employ technology effectively in support of the message;
   c. Speak extemporaneously with minimal hesitations and fillers;
   d. Adopt an appropriate tone;
   e. Use appropriate vocabulary;
   f. Employ correct grammar and sentence structure; and
   g. Use appropriately the time allotted for the presentation.

2. 75% of seniors will meet or exceed expectations on each element of the rubric.

Assessment Activities and Results
The AoL Committee video-taped several student presentations in BUS 474, the Senior Capstone Course, in December 2008 and tested its draft oral communication rubric on these presentations. The test resulted in some revisions to the rubric which was then used in May 2009 by instructors in BUS 474 to assess student oral presentations in that course. (See attached rubric.) Results are not yet available.
F. Ethical Decision Making and Social Responsibility

Learning Outcomes
Rational and ethical decision-making deals with issues of human conduct and the rules that should govern human action. It is characterized by respect for others, an awareness of justice, and sensitivity to the universal application of rules of conduct. Rational and ethical decision-making focuses explicitly on two critical questions: What is right or wrong? and What is good or bad? A graduate of the COB will be competent in rational and ethical decision-making when s/he is able to assess critically her/his actions and the actions of others with respect to these two questions.

Goal
Students will appreciate the ethical and social responsibility dimensions of business decision-making.

Objectives
1. Students will be able to:
   a. Recognize the ethical and societal implications of proposed actions;
   b. Demonstrate knowledge of ethical decision-making tools;
   c. Effectively evaluate the ethical and societal effects of a variety of options; and
   c. Make a sound decision in accordance with the analysis and evaluation of options.
2. 75% of seniors will meet or exceed expectations on each element of the rubric.

Assessment Activities and Results
The AoL Committee’s assessment of seniors’ ethical decision making skills in fall 2007 revealed that 94% of students meet or exceed expectations on ability to recognize ethical issues, but the College does not meet its goal that 75% of student shall meet or exceed expectations on knowledge of ethical decision-making tools, evaluation of options for action, and ability to make a decision (see 2008 College of Business Departmental Assessment Update). As noted in the College’s 2008 Assessment Update, the College’s faculty has expressed uncertainty about how to teach ethics because of a lack of training.

On June 2, 2008, the AoL Committee hosted Dr. Kathy Lund Dean from Idaho State University in a discussion of how to “teach” ethical decision making in a business curriculum. Thirteen members of the College’s faculty and administration attended, including all members of the AoL Committee. Dr. Dean emphasized the connection between ethical decision making and critical thinking, pointing out that it is the process rather than the ultimate conclusion that is important to decision making. Thus, it is more appropriate to speak of enabling or facilitating responsible decision making than of “teaching ethics.”

The AoL Committee’s fall survey of how ethics is covered in the College’s curriculum shows that, as with writing and critical thinking, most faculty claim to reinforce or emphasize ethical decision making without actually teaching the associated critical thinking process or ethical theories.
The AoL Committee’s draft recommendation to the College’s Curriculum Committee will recommend that specific courses at all four levels of the curriculum be designated to focus explicitly on the process of ethical decision making as part of critical thinking, and that these courses use a consistent set of ethics models or theories for students to apply within the PIRATe critical thinking model described above. The AoL Committee still needs to identify the ethics models/theories to be employed.

G. Life-Long Learning

Learning Outcomes
Following the work of Knowles (1990), the College defines lifelong, self-directed learning as the process by which "individuals take a lifelong initiative, with or without the help of others, to diagnose their own learning needs, formulating their own learning goals, identifying human and material resources for their own learning, choosing and implementing appropriate learning strategies, and evaluating their own learning outcomes."

Goal
Students will experience a learning environment that promotes the skills needed for life-long learning. Because life-long learning is a difficult concept to operationalize and resistant to measurement, the objectives for this learning goal refer primarily to the learning opportunities provided to students by the College.

Objectives
1. Learning will take place in the context of authentic and complex business problems
2. Students will have extensive opportunities to learn in team settings and to develop effective team skills
3. Students will have the opportunity to develop the ability effectively to research information in furtherance of learning
4. Students will demonstrate effective critical thinking skills

Assessment Activities and Results
As noted in the College’s 2008 Assessment Update, given the nature of life-long learning, the assessment approach must necessarily represent the development of potential, rather than the affirmation of capacity. Therefore, the objectives for assessing life-long learning focus primarily on providing to students opportunities to learn the skills necessary for life-long learning. The College’s 2008 Assessment Update contains further information about the ways in which the College is meeting these objectives. No further assessment of life-long learning is planned.

IV. Assessment of Learning in Master of Professional Accountancy Program

A committee of the accounting group (AoL MPAc committee) was formed to review and revise the learning goals and objectives of the MPAc program so that they best depict desired outcomes for MPAc students. In addition, the AoL MPAc committee was to consider assessment for each specific learning objective.
The AoL MPAc committee has developed a preliminary list of Goals and Objectives (see attached table) for consideration and review by the accounting faculty and is currently in the process of gathering feedback from accounting group members regarding:

1. The accuracy and appropriateness of the MPAc goals and objectives identified by the committee
2. The classes in which the skills and knowledge for each objective will be addressed
3. Assessment/measurement methods for each objective
4. Determining how the undergraduate rubrics for critical thinking, ethical decision making, written and oral communication may be adapted for use in assessing MPAc learning objectives.

The MPAc AoL learning goals and objectives should be finalized during the Fall 2009 semester and the assessment plan should be developed and implemented during the 2009-2010 academic year.
Curriculum Coverage of CoB Learning Goals
Summary of Results, Feb 2009 (ACCT not reporting)

**CT** = Critical Thinking  **QR** = Quantitative Reasoning  **W** = Writing  **OC** = Oral Communication  **ED** = Ethical Decision Making

I = **Introduced** = Basic concepts related to learning goal are discussed in a general manner.

R = **Reinforced** = Learning goal is discussed in a more nuanced context; one or more assignments are completed related to the learning goal.

E = **Emphasized** = Learning goal is explored in depth, perhaps with a focus on the professional context in which students are likely to encounter an issue related to the goal; one or more assignments are completed that require a careful, critical analysis of an issue related to the learning goal (e.g. for critical thinking, ethical decision making or quantitative reasoning) or an outcome reflecting an understanding of the learning goal (e.g. for written or oral communication).

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Learning Goals</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Business Core</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BUS 101</td>
<td>Freshman Seminar</td>
<td>I I I I I</td>
<td></td>
</tr>
<tr>
<td>BUS 201</td>
<td>Managerial Communication</td>
<td>R E E R</td>
<td></td>
</tr>
<tr>
<td>BUS 211</td>
<td>Business Software Applications</td>
<td>E E R R R</td>
<td></td>
</tr>
<tr>
<td>BUS 221</td>
<td>Principles of Accounting I</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BUS 222</td>
<td>Managerial Accounting (Mgmt &amp; Mktg)</td>
<td>E E E R</td>
<td></td>
</tr>
<tr>
<td>ACCT 223</td>
<td>Principles of Accounting II (Acct &amp; Fin)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BUS 301</td>
<td>Management &amp; Organization</td>
<td>E E E R</td>
<td></td>
</tr>
<tr>
<td>BUS 302</td>
<td>Career Perspectives</td>
<td>R E E R</td>
<td></td>
</tr>
<tr>
<td>BUS 311</td>
<td>Information Systems</td>
<td>E E R R R</td>
<td></td>
</tr>
<tr>
<td>BUS 331</td>
<td>Operations Management</td>
<td>E E R R R</td>
<td></td>
</tr>
<tr>
<td>BUS 341</td>
<td>Introductory Marketing</td>
<td>E I E E E</td>
<td></td>
</tr>
<tr>
<td>BUS 351</td>
<td>Finance</td>
<td>E E R R R</td>
<td></td>
</tr>
<tr>
<td>BUS 361</td>
<td>Introduction to Law</td>
<td>E E E E</td>
<td></td>
</tr>
<tr>
<td>BUS 474</td>
<td>Senior Seminar</td>
<td>E R E R R</td>
<td></td>
</tr>
</tbody>
</table>

**Accounting Required Courses (Undergrad only)**
<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Learning Goals</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACCT 325</td>
<td>Accounting Information Systems</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ACCT 327</td>
<td>Intermediate Accounting I</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ACCT 328</td>
<td>Intermediate Accounting II</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ACCT 421</td>
<td>Audit</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ACCT 425</td>
<td>Individual Taxation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ACCT 432</td>
<td>Governmental Accounting</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ACCT 433</td>
<td>Cost/Managerial Accounting</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Accounting Electives (Undergrad only)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ACCT 434</td>
<td>Cost/Managerial Accounting II</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ACCT 444</td>
<td>Advanced Information Systems</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ACCT 453</td>
<td>Financial Statement Analysis (FIN 453)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ACCT 476</td>
<td>Internship</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Finance Required Courses</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FIN 352</td>
<td>Intermediate Finance</td>
<td>E</td>
<td>R</td>
</tr>
<tr>
<td>FIN 453</td>
<td>Financial Statement Analysis</td>
<td>E</td>
<td>R</td>
</tr>
<tr>
<td>FIN 455</td>
<td>Investments I</td>
<td>R</td>
<td>E</td>
</tr>
<tr>
<td>FIN 457</td>
<td>Financial Markets &amp; Institutions I</td>
<td>R</td>
<td>R</td>
</tr>
<tr>
<td></td>
<td><strong>Finance Electives</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FIN 409</td>
<td>Intro to Applied Investing (DA Davidson)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FIN 450</td>
<td>Real Estate Investing &amp; Finance</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FIN 451</td>
<td>Entrepreneurial Finance</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FIN 452</td>
<td>International Finance</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FIN 456</td>
<td>Investment Management</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FIN 458</td>
<td>Financial Markets &amp; Institutions II</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Management Required Courses</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MGMT 366</td>
<td>Managerial Action &amp; Analysis I</td>
<td>E</td>
<td>R</td>
</tr>
<tr>
<td>MGMT 403</td>
<td>Human Resources Management</td>
<td>R</td>
<td>R</td>
</tr>
<tr>
<td>Course</td>
<td>Title</td>
<td>Learning Goals</td>
<td>Comments</td>
</tr>
<tr>
<td>------------------------</td>
<td>-----------------------------------------------</td>
<td>----------------</td>
<td>-------------------------------</td>
</tr>
<tr>
<td>MGMT 466</td>
<td>Managerial Action &amp; Analysis II</td>
<td>E R R R E</td>
<td></td>
</tr>
<tr>
<td>MGMT 475</td>
<td>Management Practicum</td>
<td>E R/E E R R</td>
<td>QR depends on project</td>
</tr>
<tr>
<td></td>
<td><strong>Management Electives</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MGMT 314</td>
<td>Business Web Site Design</td>
<td>E E R R</td>
<td></td>
</tr>
<tr>
<td>MGMT 315</td>
<td>Networks &amp; Telecommunications</td>
<td>E E R R</td>
<td></td>
</tr>
<tr>
<td>MGMT 402</td>
<td>Leadership in Business Organizations</td>
<td>E R R R</td>
<td></td>
</tr>
<tr>
<td>MGMT 406</td>
<td>Negotiation and Dispute Resolution</td>
<td>E R E E</td>
<td></td>
</tr>
<tr>
<td>MGMT 412</td>
<td>Design of E-Commerce Sites</td>
<td>E R R R</td>
<td></td>
</tr>
<tr>
<td>MGMT 413</td>
<td>Contemporary Support Systems</td>
<td>E E</td>
<td></td>
</tr>
<tr>
<td>MGMT 414</td>
<td>Data-Driven Business Web Services</td>
<td>E E R R</td>
<td></td>
</tr>
<tr>
<td>MGMT 460</td>
<td>Management Tutorial (BUS 101 Associate)</td>
<td>R E E E</td>
<td></td>
</tr>
<tr>
<td>MGMT 461</td>
<td>Small Business Management</td>
<td>E R R R R</td>
<td></td>
</tr>
<tr>
<td>MGMT 462</td>
<td>Entrepreneurship</td>
<td>E R R R</td>
<td></td>
</tr>
<tr>
<td>MGMT 463</td>
<td>Entrepreneurial Experience</td>
<td>E R E E</td>
<td></td>
</tr>
<tr>
<td>MGMT 464</td>
<td>International Management</td>
<td>R R R E</td>
<td></td>
</tr>
<tr>
<td>MGMT 468</td>
<td>Business Ethics and Society</td>
<td>R R E R</td>
<td></td>
</tr>
<tr>
<td>MGMT 473</td>
<td>Modern Management of Western Resources</td>
<td>R R R R</td>
<td></td>
</tr>
<tr>
<td>MGMT 476</td>
<td>Internship</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Marketing Required Courses</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MKTG 342</td>
<td>Marketing Research</td>
<td>E E E R E</td>
<td></td>
</tr>
<tr>
<td>MKTG 343</td>
<td>Consumer Behavior</td>
<td>R E E E</td>
<td></td>
</tr>
<tr>
<td>MKTG 443</td>
<td>Promotion</td>
<td>E E E R</td>
<td></td>
</tr>
<tr>
<td>MKTG 445</td>
<td>Professional Selling</td>
<td>E E E</td>
<td></td>
</tr>
<tr>
<td>MKTG 449</td>
<td>Marketing Management</td>
<td>E E E E R</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Marketing Electives</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MKTG 441</td>
<td>International Marketing</td>
<td>R R R R</td>
<td></td>
</tr>
<tr>
<td>MKTG 444</td>
<td>Retail Management</td>
<td>R E E E E R</td>
<td></td>
</tr>
<tr>
<td>MKTG 446</td>
<td>Marketing for Entrepreneurs</td>
<td>E E R R</td>
<td></td>
</tr>
<tr>
<td>Course</td>
<td>Title</td>
<td>Learning Goals</td>
<td>Comments</td>
</tr>
<tr>
<td>----------</td>
<td>-----------------------------------------------</td>
<td>----------------</td>
<td>----------</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CT  QR  W  OC  ED</td>
<td></td>
</tr>
<tr>
<td>MKTG 447</td>
<td>Marketing Mix Design (practicum)</td>
<td>E   E   E   E   R</td>
<td></td>
</tr>
<tr>
<td>MKTG 476</td>
<td>Internship</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Service Courses</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FIN 251</td>
<td>Personal Finance</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ACCT 220</td>
<td>Survey of Accounting</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MGMT 204</td>
<td>Introduction to Business</td>
<td>I   I   I   I   I</td>
<td></td>
</tr>
<tr>
<td>MGMT 245</td>
<td>Cultural Dimensions of Int’l Bus</td>
<td>R   R   R   R   R</td>
<td></td>
</tr>
<tr>
<td>MGMT 231</td>
<td>Business Research Methods</td>
<td>E   E   E   R   R</td>
<td></td>
</tr>
<tr>
<td>MKTG 242</td>
<td>Introduction to Global Markets</td>
<td>R   R   R   E   E</td>
<td></td>
</tr>
</tbody>
</table>
Writing, Thinking, Learning, and Professionalization:  
A Workshop for Faculty in the College of Business  
February 21, 2009

Dr. Chris Anson, North Carolina State University

Agenda

9:00 Welcome and introduction(s)

9:10 Assignment case  
*In this opening activity, participants will read and critique two sample writing assignments in order to derive broader principles for effective design. Follow-up discussion moves from specific concerns about the assignments to the general characteristics. (This process, discussed later, can also be used with students in order to help them internalize principles for effective responses to writing assignments.)*

9:45 Instructional cycle; low-stakes assignments  
*Brief presentation introducing the instructional design model, which will also help to structure the rest of the day (working from learning goals to assignment design to support for learning/writing to final evaluation of the results). We will briefly review options for low-stakes writing (the predominant focus of the previous day’s workshop—but I can expand this if few or none of the Business School faculty will attend the day before).*

10:15 Application  
*Brief small-group work discussing ways to incorporate writing-to-learn/low-stakes writing into coursework. Select examples culled during very brief follow-up. The focus here is primarily on learning content, not necessarily on honing skills or learning genres of business writing.*

10:30 Break

10:45 Supporting development (I): (presentation)  
*Moving into the next stage of the instructional cycle, this presentation demonstrates (using actual examples) ways that learning and writing improvement can be maximized from specific assignments. The first part of support includes specific activities, often woven into classroom instruction, that relate to the assignment, which in turn relate directly to the learning goals of the course (if design principles have been attended to fully).*

11:00 Application  
*Participants return to the sample assignments and consider, in small groups, ways to build in support for the assignment in order to more fully realize the learning goals of the course. Brief discussion to follow.*
11:15 Supporting development (II): Response and revision

Participants will read a relatively brief student paper and then to evaluate it as if they were doing so in a course. Brief discussion will draw out specific problems that the group can generally agree on. A transcript of part of a student peer response group will demonstrate that the students themselves, in discussing the same paper before a teacher had seen it, came up with similar concerns and suggestions for the student writing. This demonstration will lead to some briefly presented strategies for incorporating peer response into instruction, especially for larger and higher-stakes writing assignments. Other forms of response (including self-assessment) will be described as ways to encourage revision, which is at the heart of writing improvement.

12:00 Lunch break

1:00 Assessment case

Participants will read two brief student papers based on a fully articulated assignment. Using a simple rubric, they will try to evaluate the paper in small groups, reaching consensus about the score. Follow-up will reveal that the student who met the learning goals of the assignment—which is translated into the rubric—scored better even though the writing is a little rougher and has a few more errors than what's seen in the other student's paper. This demonstrates a simple but powerful principle: that the lens we use to evaluate writing is based on clearly articulated learning goals, and then creates a certain degree of selectivity during the evaluation process (which makes evaluation clearer and simpler). If surface issues such as grammar are important, then they should become part of the learning goals and therefore part of the assessment rubric.

1:45 Methods of assessment

This brief presentation will describe several methods of responding to and evaluating student writing, primarily analytical scales and holistic descriptions. There will also be further discussion of how to handle error/correctness in writing.

2:15 Break

2:25 Systemic issues

This final part of the workshop will involve a brief presentation and some Q&A about broader issues at the course and curricular level. We'll look at ways to link assignment outcomes to course outcomes, and how to create better articulation between courses and broader curricular goals (i.e., portfolios, or how to scaffold students' learning across courses in the major or concentration).

3:30 Adjourn
## Grading Rubric for Critical Thinking Assessment

<table>
<thead>
<tr>
<th></th>
<th>Below Expectations (0)</th>
<th>Meets Expectations (1)</th>
<th>Exceeds Expectations (2)</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Assimilate</strong></td>
<td>- Fails to include relevant information</td>
<td>- Includes some relevant information</td>
<td>- Includes most relevant information</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Includes excessive irrelevant information</td>
<td>- Minimal amount of irrelevant information</td>
<td>- Does not include irrelevant information</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Misinterprets or mischaracterizes information</td>
<td>- Generally interprets information accurately</td>
<td>- Consistently interprets information accurately</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Fails to include or is confused by information from a variety of viewpoints</td>
<td>- Includes some disparate and potentially conflicting information from a variety of viewpoints</td>
<td>- Effectively includes disparate and potentially conflicting information from a variety of viewpoints</td>
<td></td>
</tr>
<tr>
<td><strong>Evaluate</strong></td>
<td>- Demonstrates no or little independent/creative thought</td>
<td>- Demonstrates some independent and creative thought</td>
<td>- Consistently demonstrates independent and creative thought</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Is unable to or superficially uses general principles to create reasonable solutions and/or predictions</td>
<td>- Limited use of general principles to create reasonable solutions and/or predictions</td>
<td>- Effectively uses general principles to create reasonable solutions and/or predictions</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Is unable to or superficially uses specific examples to support analysis</td>
<td>- Limited use of specific examples to support analysis</td>
<td>- Effectively uses specific examples to support analysis</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Does not evaluate alternative perspectives (e.g., functional, short/long term, strategic/tactical, internal/external)</td>
<td>- Some evaluation of alternative perspectives (e.g., functional, short/long term, strategic/tactical, internal/external)</td>
<td>- Effectively evaluates alternative perspectives (e.g., functional, short/long term, strategic/tactical, internal/external)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Exhibits close-mindedness or hostility</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Conclude</strong></td>
<td>- No decision</td>
<td>- Irresolute decision</td>
<td>- Clear decision</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Decision not based on or only superficially based on sound evidence and prior evaluation</td>
<td>- Decision somewhat based on sound evidence and prior evaluation</td>
<td>- Decision clearly based on sound evidence and prior evaluation</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Decision not supported with persuasive arguments</td>
<td>- Decision somewhat supported with persuasive arguments</td>
<td>- Decision clearly supported with persuasive arguments</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Does not acknowledge other potential outcomes</td>
<td>- Acknowledges other potential outcomes, does not effectively persuade they are less desirable</td>
<td>- Effectively persuades that other potential outcomes are less desirable</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Decision based on biased information/reasoning</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Total:
# Written Communication Assessment Rubric

<table>
<thead>
<tr>
<th>Score</th>
<th>0 – Below Expectations</th>
<th>1 – Meets Expectations</th>
<th>2 – Exceeds Expectations</th>
<th>Total:</th>
</tr>
</thead>
</table>
| **Organization & Development of Ideas** | □ No, or poorly communicated, introduction  
□ No clear thesis  
□ Little or no logical connection from one idea to the next  
□ Conclusion (when needed) absent or perfunctory | □ Introduction implies but does not clearly state thesis, purpose and/or organization of paper  
□ Thesis present but not fully developed  
□ Generally thoughtful development of argument with some gaps in logic or reasoning.  
□ Conclusion (when needed) briefly summarizes paper but does not tie it into a coherent whole. | □ Clear introduction states thesis, purpose and organization of paper  
□ Thesis clear and well-developed  
□ Logical arguments and analysis are easy to follow  
□ Conclusion (when needed) is clear and comprehensive. | Score |
| **Spelling & Punctuation** | □ Frequent errors (average ≥ 3 per page)  
□ Errors interfere with communication | □ Occasional errors (average 1-2 per page)  
□ Errors do not substantially interfere with communication | □ Very few errors (av. ≤1 per page)  
□ Errors do not interfere with communication | Score |
| **Grammar, Sentence & Paragraph Structure** | □ Sentences regularly contain grammatical errors or other problems (e.g. tone, word choice) that interfere with communication  
□ Paragraphs generally lack focus  
□ Writing overly informal.  
□ Quotations often interrupt the flow of writing | □ Sentences are generally grammatically correct but occasionally awkward (e.g. with respect to tone, word choice)  
□ Paragraphs generally focused and coherent.  
□ Writing generally professional.  
□ Quotations occasionally interfere with flow of writing. | □ Sentence structure makes paper easy to read  
□ Paragraphs are focused and coherent.  
□ Writing consistently professional.  
□ Quotations are integrated seamlessly. | Score |
| **Sources & References** | □ Sources for facts, quotations and ideas not properly indicated.  
□ Sources do not support the author’s points.  
□ Too few sources used | □ Where appropriate, sources for most facts, quotations and ideas are properly indicated.  
□ Sources generally support the author’s points.  
□ More or a greater variety of sources should be used. | □ Where appropriate, sources for all facts, quotations and ideas are properly indicated.  
□ Sources consistently support author’s points.  
□ Appropriate variety of sources. | Score |
<table>
<thead>
<tr>
<th>Proposed Rubric: 4-13-09</th>
<th>MSU College of Business Oral Communication Rubric for Formal Presentations</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Below Expectations (0)</strong></td>
<td><strong>Meets Expectations (1)</strong></td>
</tr>
<tr>
<td><strong>Organization &amp; Development of Ideas</strong></td>
<td></td>
</tr>
<tr>
<td>○ Introduction is nonexistent or does not clearly state thesis, purpose and organization of presentation.</td>
<td>○ Clear introduction states thesis, purpose and organization.</td>
</tr>
<tr>
<td>○ Little or no connection exists from one idea to the next, or ideas lack support.</td>
<td>○ Arguments and analysis are easy to follow and well supported.</td>
</tr>
<tr>
<td>○ There is no discernible conclusion or conclusion is not clear and comprehensive.</td>
<td>○ Conclusion is clearly stated and comprehensive.</td>
</tr>
<tr>
<td>○ Responses to audience questions are evasive or incomplete.</td>
<td>○ Responses to audience questions are direct and complete.</td>
</tr>
<tr>
<td><strong>Delivery</strong></td>
<td></td>
</tr>
<tr>
<td>○ Pitch of voice and/or speaking rate interfere(s) with presentation.</td>
<td>○ Speech is clear, of appropriate volume and of a measured pace.</td>
</tr>
<tr>
<td>○ Frequent verbal fillers or inappropriate terminology used.</td>
<td>○ Professional word choice is used with few verbal fillers.</td>
</tr>
<tr>
<td>○ Eye contact is infrequent, inappropriate or concentrated.</td>
<td>○ Eye contact is frequent, appropriate and audience-wide.</td>
</tr>
<tr>
<td>○ Relies excessively on notes or visuals for cues.</td>
<td>○ Reliance on notes and visuals are minimal.</td>
</tr>
<tr>
<td>○ Body language or motion is distracting.</td>
<td>○ Posture, position and movement are appropriate and convey reasonable confidence.</td>
</tr>
<tr>
<td>○ Duration is excessively long or short (&lt; or &gt;10 % of allotted time).</td>
<td>○ Time is properly managed (within 10 % of allotted time).</td>
</tr>
<tr>
<td><strong>Presentation Aids (visuals, audios, handouts, props)</strong></td>
<td></td>
</tr>
<tr>
<td>○ Presentation aids are inappropriately used, hard to follow or inaccurate.</td>
<td>○ Presentation aids are professional, clear, and void of distracting errors.</td>
</tr>
<tr>
<td>○ Presentation aids are primarily repetitive with speech or offer unnecessary content.</td>
<td>○ Presentation aids fully support speech to enable greater audience understanding.</td>
</tr>
<tr>
<td>○ Avoidable errors or disruptions in use of supporting technology interfere with presentation.</td>
<td>○ Supporting technology is effectively used.</td>
</tr>
<tr>
<td><strong>Team Dynamics</strong></td>
<td></td>
</tr>
<tr>
<td>○ Speaker transitions are nonexistent or disruptive to the presentation flow.</td>
<td>○ Verbal transitions between speakers effectively direct audience attention.</td>
</tr>
<tr>
<td>○ Speaking responsibilities are noticeably unbalanced.</td>
<td>○ Presentation and question responses are appropriately shared between team members.</td>
</tr>
<tr>
<td>○ Non-speaking team members distract audience from key speaker.</td>
<td>○ Non-speaking team members demonstrate a professional demeanor.</td>
</tr>
</tbody>
</table>
# Ethical Decision Making and Social Responsibility Assessment of Learning Rubric

**Fall 2007**

<table>
<thead>
<tr>
<th>Score</th>
<th>0 – Below Expectations</th>
<th>1 – Meets Expectations</th>
<th>2 – Exceeds Expectations</th>
<th>Score</th>
</tr>
</thead>
</table>
| **Recognition of Ethical/Social Responsibility Issues** | □ Little or no recognition of relevant ethical issues  
□ Fails to recognize one or more of the most salient ethical issues | □ Identifies some of the relevant ethical issues  
□ Identifies the most salient ethical issue | □ Identifies all relevant ethical issues  
□ Demonstrates creativity and insight into identification of ethical issues |       |
| **Knowledge of Ethical/Social Responsibility Decision-Making Tools** * | □ Little or no understanding of ethical tools  
□ Undeveloped understanding of implications of ethical tools | □ Working knowledge of ethical tools  
□ Competent understanding of implications of ethical tools | □ Comprehensively articulates relevant approaches to ethical issues  
□ Demonstrates deep understanding of implications of ethical tools |       |
| **Evaluation of Options for Action** | □ No recognition of options or recognizes only one reasonable option  
□ Superficial analysis of social and/or personal implications of options with little specific support | □ Identifies reasonable alternative options  
□ Competent analysis of social and personal implications of each option supported by some specific information | □ Identifies multiple reasonable options  
□ Comprehensive analysis of social and personal implications of each option using specific information |       |
| **Decision** | □ No decision or decision reflects little or no serious engagement with ethics and social responsibility  
□ Not supported with persuasive arguments and evidence  
□ No other options recognized | □ Decision reflects competent but not fully-developed ideas on ethics and social responsibility  
□ Supported with generally persuasive arguments and some evidence  
□ Acknowledges other options with some recognition of their legitimacy | □ Decision reflects well-developed ideas on ethics and social responsibility  
□ Supported with clear and persuasive arguments and evidence  
□ Effectively persuades that other options are not optimal |       |

*Decision tools include Universalism, Relativism, Social Contract, Pareto Optimality, Cost-Benefit, Golden Rule, appeal to Moral/Ethical principle or authority: e.g. Corporate Codes of Conduct, Mission Statements, Utilitarianism, Fairness, Justice, or Rights etc.*
## Master of Professional Accountancy Assurance of Learning Plan (preliminary)

<table>
<thead>
<tr>
<th>Goal</th>
<th>Objective</th>
<th>Courses</th>
<th>Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Critical Thinking*</td>
<td>Students can identify issues, research and analyze issues in light of theory, and reach well-reasoned, supportable conclusions. Students can think critically in applying their technical competence, exhibiting professionalism, communicating their ideas and solutions, approaching ethical issues and adapting to new technology.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| Technical Competency  | 1. Financial Reporting  
   - Locate and apply appropriate financial accounting principles and standards (U.S. and International)  
   - Identify and apply elements of quality financial reporting  
   2. Assurance/Risk Management  
   - Locate and apply appropriate standards for auditing and other assurance services (U.S. and International) and accepted frameworks for internal control  
   - Identify threats to information quality and formulate appropriate responses  
   3. Taxation  
   - Locate and apply appropriate tax laws (U.S. and multi-jurisdictional)  
   - Identify and evaluate tax planning strategies for individuals and business entities  
   4. General Accounting and Business Areas  
   - Locate and apply appropriate concepts from all business disciplines  
   - Integrate knowledge across business disciplines                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |         |             |
| Professionalism       | 1. Appreciate the role of accounting professionals in business and society  
   2. Demonstrate professional values, attitudes, and behavior  
   3. Identify threats to the credibility of the accounting profession  
   4. Appreciate the need to continue life-long learning  
   5. Recognize the value of diversity  
   6. Work effectively in teams                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |         |             |
| Ethical Decision-Making | 1. Identify ethical issues in accounting and business decisions  
   2. Recognize appropriate ethical frameworks  
   3. Formulate courses of action in response to ethical dilemmas                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |         |             |
| Communication         | 1. Write in an effective manner for accounting and business professionals.  
   2. Deliver effective oral presentations                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |         |             |
| Application of Technology | 1. Apply appropriate technology to solve accounting and business problems.  
   2. Use technology to develop and present strategic information.  
   3. Adapt to new technology                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |         |             |

* Critical Thinking is an over-arching goal to be incorporated in all of the learning goals and objectives in the assurance of learning plan.
MSU Departmental Assessment Update
Spring 2010

Department: College of Business

Department Head: Dan Moshavi, Dean

Assessment Coordinator: Susan Dana
Assoc. Dean for Academic Affairs

Date: July 2, 2010

Degrees/Majors/Options Offered by College
Note: The College of Business does not have departments.

• Bachelor of Science in Business with options in:
  Accounting
  Finance
  Management
  Marketing

  o Minors in:
    Accounting
    Business Administration
    Entrepreneurship and Small Business Management
    International Business
    Management of Information Technology

• Master of Professional Accountancy
Montana State University
College of Business

Student Learning Assessment Plan Activity and Results Update
Spring 2010

I. Background
The Assessment of Learning (AoL) Committee of the College of Business manages the assessment of learning process in the College by: identifying, developing and revising assessment methodologies; administering the assessment tools; analyzing the results; and making recommendations for changes to the curriculum to the College’s Curriculum Committee, which in turn makes recommendations to the College’s faculty.

The AoL Committee in 2009-10 consisted of nine volunteer faculty members, including four tenure track faculty members, three adjunct faculty members, the coordinator of the Bracken Business Communication Clinic, and the Associate Dean for Academic Affairs who chaired the committee. The members represented three of the four options in the College (marketing was not represented).

II. Assessment of Learning in Undergraduate Program
The College’s mission statement contains learning goals in knowledge of business, critical thinking, quantitative reasoning, oral and written communication, ethical decision making and lifelong learning. The following is a summary of the status of assessment activities relative to each learning goal.

A. Knowledge of Business

Learning Outcomes
Students shall acquire a common body of knowledge and vocabulary of business. As articulated in course syllabi, students shall gain knowledge of the theory and practices used in management of organizations, operations, and human resources; accounting; corporate finance; marketing; information systems and technology; and law. As they specialize further in their respective option(s), students shall demonstrate their ability to integrate this knowledge in solving business problems.

Goal and Objective
Students will have strong working knowledge of fundamental concepts in accounting, finance, management, marketing, information technology, strategy and law. The College’s institutional mean on the Major Field Test will regularly fall in the top quartile.

Assessment Activities and Results
The College has administered the Major Field Test in Business to 885 seniors in the Senior Seminar, BUS 474, since summer 2005. Overall, since summer 2005 the College’s institutional mean on the MFT is at the 91st percentile compared to over 500 other undergraduate business programs. The fall 2008 cohort of seniors, totaling 53 students, scored in the 91st percentile, while the spring 2009 cohort of seniors, totaling 141 students, scored in the 96th percentile compared to cohorts from over 500 other undergraduate business programs. Please see the College’s Spring 2009 Update for more information.
The College is currently meeting its objective that the College’s institutional mean on the Major Field Test will regularly fall in the top quartile.

With four years of data from 885 students showing fairly consistent levels of performance, and in consideration of the $5,500 annual cost of the MFT, the AoL Committee decided in 2009 not to administer the MFT in 2009-10. It will be administered again in 2010-11.

B. Critical Thinking

Learning Outcomes
Critical thinking is the process of purposeful, self-regulatory judgment. Critical thinking is defined as the ability to structure and synthesize ambiguous information, to sort relevant from irrelevant information, to apply technical knowledge to new problem settings, to analyze and summarize information and to interpret the results of analysis. Critical thinking makes use of the higher cognitive objectives: application, analysis, synthesis, and evaluation.

Goal
Students will be able to engage in critical thinking to solve business problems.

Objectives
1. Students will be able to:
   a. Assimilate and interpret disparate and conflicting information correctly;
   b. Evaluate, clarify and classify information to determine its relevance to solving an issue or problem;
   c. Use general principles to create reasonable solutions and/or predictions; and
   d. Make a decision based on evidence and prior evaluation.

2. 75% of seniors will meet or exceed expectations on each element of the rubric.

Assessment Activities and Results
During 2009 the AoL Committee developed a Framework for Critical Thinking that offers a consistent model of critical thinking that all faculty members can use to teach the process of critical thinking. This model, which is based on a variety of existing critical thinking models, requires a student to follow the same steps to analyze and solve any problem. It is broad enough to be relevant to any discipline but specific enough to require a student to follow a deliberate process. The Committee’s expectation is that by the time a student graduates, s/he will have encountered and used this model so often that s/he will remember and use the model as a matter of course.

The original model, called PIRATe (for Purpose, Information, Reference, Analysis and The Conclusion), was introduced in BUS 101, Freshman Seminar, in fall 2009. After trying to use the model, both faculty and students found it to be confusing. Therefore, toward the end of the fall 2009 semester the AoL Committee developed a second model, called PEAS (Problem, Evidence, Analysis, Solution). This model was used in MGMT 204, Introduction to Business, in spring 2010 with far greater success than PIRATe. The PEAS model stands for the following:

---

Problem | Define the problem to be solved. What question(s) do you have to answer? Be careful! It is not always obvious what is the real problem and what is merely a symptom of the problem.

Evidence | Identify relevant facts and data. Ask yourself:
- How do I know these are facts rather than opinions, inferences or assumptions?
- From what perspective am I viewing the evidence? Are there other perspectives from which to view the evidence?
- What additional information do I need?

Analysis | Generate and evaluate three or four alternative solutions to the problem in light of the evidence and relevant rules, theories, models, concepts, techniques, perspectives or guidelines. Ask yourself:
- Does each alternative really address the problem to be solved?
- How well does the evidence support each alternative?
- Do I need to find more or different evidence or data to help me generate and/or assess alternatives?
- What are the strengths and weaknesses of each alternative?
- What assumptions and inferences am I making? Are these justified?
- What are the practical implications of each alternative?
- What criteria will I use to determine which is the optimal alternative?

Solution | Choose the optimal solution. Test your solution to make sure it addresses the problem, is based on good evidence, does not ignore relevant facts and data, and meets your decision-making criteria. Explain why your solution is better than the alternatives.

Please see the attachment for the full Framework for Critical Thinking.

The Framework for Critical Thinking has been distributed to all faculty in the College of Business. It is the intention of the AoL Committee that PEAS will be used in multiple courses in 2010-11. Faculty will be encouraged to use the Committee’s critical thinking rubric to teach students the College’s expectations with respect to critical thinking and to assess students’ critical thinking skills as part of their grading in the course. Once students have been sufficiently exposed to the PEAS model of critical thinking, the AoL Committee will again assess the critical thinking skills of seniors in BUS 474.

In order to help faculty become more comfortable with teaching critical thinking skills and with designing assignments that promote critical thinking, the College held an all-day retreat on March 6, 2010, called “Laying the Groundwork for Critical Thinking.” The retreat was led Dr. Terry Doyle, Professor of Reading at Ferris State University and was attended by 42 faculty members and College administrators. A copy of Dr. Doyle’s slides is available at http://learnercenteredteaching.wordpress.com/2010/01/18/san-jacinto-college-facilitating-learning-workshop/.

C. Quantitative Reasoning

Learning Outcomes
Quantitative reasoning is the ability to use mathematical concepts to understand and interpret data, make sound inferences, draw logical conclusions and make well-supported decisions. Quantitative reasoning, as a component of critical thinking, requires the use of application, analysis, synthesis and evaluation.

**Goal**
Students will be able to employ quantitative reasoning as a tool for solving business problems.

**Objectives**
1. Students will be able to:
   a. Interpret mathematical models such as formulas, graphs and tables and draw inferences from them;
   b. Represent quantitative information symbolically, visually, numerically and verbally;
   c. Evaluate quantitative information while recognizing its limitations;
   d. Integrate quantitative information into decisions and recommendations.

2. 75% of seniors will meet or exceed expectations on each element of the rubric.

**Assessment Activities and Results**
Seniors in the College of Business consistently score well above the 90th percentile on the quantitative reasoning part of the Major Field Test in Business, suggesting that our students are strong in this area.

The AoL Committee still needs to determine whether the MFT is a sufficient measure of student quantitative reasoning skills or whether the College should develop additional measures that address the College’s quantitative reasoning goals more specifically. Because the College’s students score well on the quantitative reasoning part of the MFT, the AoL Committee has chosen to focus on more critical areas of student learning, and will address quantitative reasoning in the future.

**D. Written Communication**

**Learning Outcomes**
Effective written communication demonstrates professionalism and the use of standard business English. Such writing is direct, courteous, grammatically correct, and not overly casual. A student’s writing must demonstrate appropriate sentence structure, mechanics, grammar, word usage, tone and word choice, organization and focus, and development of ideas.

**Goal**
Students will be able to communicate effectively and professionally in writing.

**Objectives**
1. Students will:
   a. Organize and develop ideas effectively;
   b. Employ correct spelling and punctuation;
   c. Employ correct grammar, sentence and paragraph structure; and
   d. Correctly cite sources for facts, quotations and ideas.

2. 75% of seniors will meet or exceed expectations on each element of the rubric.

3. In order to be formally admitted to the College, students must achieve a score of at least 3 on the WorkKeys Test of Business Writing.
**Assessment Activities and Results**

The College has in the last several years engaged in significant efforts to improve students’ writing skills, including developing a rubric, holding a faculty retreat focused on improving writing skills, and hosting a variety of seminars to discuss improving writing skills (please see the 2008-09 College of Business Assessment Update). These efforts to increase faculty familiarity with methods for improving student writing continued in 2009-10. In addition, several lower division courses were revised to focus more effectively on improving students’ writing skills.

The course content for BUS 201, Managerial Communication, a required course for business students, was significantly revised in 2009-2010 to better teach professional communication skills. The learning objectives of the course now include the following:

1. Build and protect your professional reputation by recognizing the personal and organizational risks and opportunities inherent in communicating by voice and in writing
2. Know how to manage your own writing process so that you minimize the pains of writing and maximize the effectiveness of communications
3. Organize and develop logical written representation of your thoughts
4. Revise your own or others’ prose to increase clarity and brevity
5. Craft and execute a variety of professional-quality correspondence,
6. Choose wisely among various modes of communication
7. Create and deliver professional-quality presentations, and
8. Develop and/or reinforce habits of communicating clearly, including using correct grammar and sentence structure and correctly citing sources for facts, quotations, and ideas

Not only have student evaluations of the course improved as a result of this redesign, but it is the expectation of the College that student writing skills will improve as well. Moreover, the College will reduce class size in BUS 201 from 45 to 40 for the 2010-11 academic year to improve the ability of faculty to provide personalized feedback to students.

Faculty have also revised other courses to increase the focus on writing skills. BUS 101, Freshman Seminar, and MGMT 204, Introduction to Business, were both revised to increase emphasis on effective writing and critical thinking. Many faculty members teaching upper division courses have also revised their writing assignments and feedback methods using tips from Dr. Chris Anson, who conducted a workshop on teaching writing for the College in spring 2009 (please see the College’s 2009-10 Assessment Update).

The increased emphasis on writing in BUS 101/MGMT 204 and improved teaching of professional communication skills in BUS 201, coupled with deliberate efforts by many faculty members to stress writing quality in upper division courses, is expected to result in improved writing skills in the future. In fact, improvement in the writing skills of seniors in the College has already occurred since the College’s last assessment of writing in 2007.

The College assessed writing skills in BUS 474, Senior Seminar, in spring 2010. Significant improvement was shown over the 2007 assessment in all areas assessed and the College is exceeding its goal that 75% of students meet or exceed expectations on each element of the rubric:

---

2 Students are required to take one of these two courses for formal admission to the College in the junior year.
### Organization & Development of Ideas

<table>
<thead>
<tr>
<th></th>
<th>Below Expectations</th>
<th>Meets Expectations</th>
<th>Exceeds Expectations</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>11%</td>
<td>72%</td>
<td>17%</td>
</tr>
<tr>
<td>2010</td>
<td>7%</td>
<td>47%</td>
<td>46%</td>
</tr>
</tbody>
</table>

### Spelling & Punctuation

<table>
<thead>
<tr>
<th></th>
<th>Below Expectations</th>
<th>Meets Expectations</th>
<th>Exceeds Expectations</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>22%</td>
<td>61%</td>
<td>17%</td>
</tr>
<tr>
<td>2010</td>
<td>13%</td>
<td>53%</td>
<td>33%</td>
</tr>
</tbody>
</table>

### Grammar, and Sentence & Paragraph Structure

<table>
<thead>
<tr>
<th></th>
<th>Below Expectations</th>
<th>Meets Expectations</th>
<th>Exceeds Expectations</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>33%</td>
<td>67%</td>
<td>0%</td>
</tr>
<tr>
<td>2010</td>
<td>17%</td>
<td>53%</td>
<td>30%</td>
</tr>
</tbody>
</table>

Significant improvement has also been achieved at the sophomore/junior level as evidenced by the results of the WorkKeys Test of Business Writing,³ on which a score of 3 or better (scale 1-5) is required for all students for formal admission to the College.

### WorkKeys Test of Business Writing

<table>
<thead>
<tr>
<th></th>
<th>Students Scoring 1 or 2</th>
<th>Students Scoring 4 or 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>19%</td>
<td>35%</td>
</tr>
<tr>
<td>2010</td>
<td>5%</td>
<td>51%</td>
</tr>
</tbody>
</table>

The AoL Committee continues to encourage faculty to use the College’s writing rubric to both teach the elements of good writing and provide feedback to students on their writing skills. Perhaps because of the College’s increased emphasis on writing, between fall 2007 and fall 2009 there was a 77% increase in student appointments at the College’s Bracken Business Communications Clinic (BBCC).

During summer 2010, the BBCC will move to a much larger space in the old University Studies office on the 4th floor of Reid Hall, which will make the BBCC more visible and pleasant for both students and coaches. The College is hopeful that a donor will be forthcoming to help fund additional BBCC coaches which will enable the BBCC to expand its hours and serve more students.

The College hopes in the future to designate certain required courses throughout the College’s curriculum as writing-intensive courses in which faculty would require both low-stakes and high-stakes writing as means to better learning as well as improved writing. These courses would have lower enrollment caps than other courses in the College so that faculty can provide frequent and substantive feedback to students on their writing skills. Given the College’s current budget challenges, however, the College has not yet been able to create such courses.

E. Oral Communication

Learning Outcomes
Effective oral communication requires facility with standard oral presentational forms including impromptu, extemporaneous, informational, and persuasive speaking.

Goal
Students will be able to communicate effectively and professionally in oral presentations.

Objectives

1. Students will:
   a. Organize and develop ideas effectively;
   b. Employ technology effectively in support of the message;
   c. Speak extemporaneously with minimal hesitations and fillers;
   d. Adopt an appropriate tone;
   e. Use appropriate vocabulary;
   f. Employ correct grammar and sentence structure; and
   g. Use appropriately the time allotted for the presentation.

2. 75% of seniors will meet or exceed expectations on each element of the rubric.

Assessment Activities and Results
The AoL Committee assessed the oral presentation skills of 169 of 207 total students in BUS 474, Senior Seminar, in spring and fall 2009, using an oral communication rubric developed and tested in 2008. The results show that while the College well exceeds its goal that 75% of seniors will meet or exceed expectations on organization/development of ideas and presentation aids, only 74% of students met or exceeded expectations with respect to delivery:

<table>
<thead>
<tr>
<th>Oral Presentation Skills, BUS 474, Spring &amp; Fall 2009</th>
<th>Below Expectations</th>
<th>Meets Expectations</th>
<th>Exceeds Expectations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Organization &amp; Development of Ideas</td>
<td>8%</td>
<td>70%</td>
<td>22%</td>
</tr>
<tr>
<td>Delivery</td>
<td>26%</td>
<td>58%</td>
<td>16%</td>
</tr>
<tr>
<td>Presentation Aids</td>
<td>2%</td>
<td>70%</td>
<td>28%</td>
</tr>
</tbody>
</table>

The biggest challenges for students with respect to delivery are the frequent use of verbal fillers or inappropriate terminology; infrequent, inappropriate or concentrated eye contact; and excessive reliance on notes or visual aids.

It should be relatively easy to improve student delivery skills simply by giving students effective feedback and giving them an opportunity to practice improving their skills throughout the curriculum.

In spring 2010 the AoL Committee surveyed all courses in the College to understand how often business students are required to engage in oral presentations and thus how many opportunities students have to received feedback and improve their delivery skills. The survey shows that a total of 30 courses in the College require some kind of oral presentation. Of these courses, 7 are required of all business students, and include courses at every level (100- through 400-level courses). The faculty members of all 30 courses were asked to review the AoL Committee’s oral presentation rubric and report on
whether the rubric would be helpful to them in assessing student presentations. The response was overwhelmingly positive, with many faculty members acknowledging that they tend to focus much more on content than on delivery skills in their assessments of oral presentations.

In 2010-11 the AoL Committee intends to work with the faculty members in whose courses oral presentations are already required to improve assessment and feedback on delivery skills. In addition, the BBCC’s move to a much larger space in the old University Studies office on the 4th floor of Reid Hall will provide the BBCC with a conference in room in which students will be able to video their oral presentations and receive feedback from BBCC coaches.

The College recognizes that, in addition to formal presentations, an assessment of oral communication skills should also include the ability to carry on less structured professional and social conversations. The AoL Committee has not yet identified an effective way to assess such skills, except to note that the fall 2009 employer survey conducted by MSU’s Office of Career Services shows that employers rate the verbal communication skills of College of Business students higher than those of MSU students generally (4.1 compared to 3.9 on a 1-5 scale).

F. Ethical Decision Making and Social Responsibility

Learning Outcomes
Rational and ethical decision-making deals with issues of human conduct and the rules that should govern human action. It is characterized by respect for others, an awareness of justice, and sensitivity to the universal application of rules of conduct. Rational and ethical decision-making focuses explicitly on two critical questions: What is right or wrong? and What is good or bad? A graduate of the COB will be competent in rational and ethical decision-making when s/he is able to assess critically her/his actions and the actions of others with respect to these two questions.

Goal
Students will appreciate the ethical and social responsibility dimensions of business decision-making.

Objectives
1. Students will be able to:
   a. Recognize the ethical and societal implications of proposed actions;
   b. Demonstrate knowledge of ethical decision-making tools;
   c. Effectively evaluate the ethical and societal effects of a variety of options; and
   c. Make a sound decision in accordance with the analysis and evaluation of options.
2. 75% of seniors will meet or exceed expectations on each element of the rubric.

Assessment Activities and Results
Building on the PEAS Framework for Critical Thinking (see B. Critical Thinking above), the AoL Committee has created Ethical PEAS, a framework for ethical decision making (see attachment). Like the Framework for Critical Thinking, Ethical PEAS has been distributed to all faculty in the College of Business. Faculty will be encouraged to use Ethical PEAS in conjunction with the Committee’s ethical decision making rubric to teach students the College’s expectations with respect to ethical decision making and to assess students’ skills as part of their grading in the course.
Once students have been sufficiently exposed to the PEAS Framework for Critical Thinking and the Ethical PEAS model, the AoL Committee will again assess the ethical decision making skills of seniors in BUS 474.

G. Life-Long Learning

Learning Outcomes
Following the work of Knowles (1990), the College defines lifelong, self-directed learning as the process by which "individuals take a lifelong initiative, with or without the help of others, to diagnose their own learning needs, formulating their own learning goals, identifying human and material resources for their own learning, choosing and implementing appropriate learning strategies, and evaluating their own learning outcomes."

Goal
Students will experience a learning environment that promotes the skills needed for life-long learning. Because life-long learning is a difficult concept to operationalize and is resistant to measurement, the objectives for this learning goal refer primarily to the learning opportunities provided to students by the College.

Objectives
1. Learning will take place in the context of authentic and complex business problems
2. Students will have extensive opportunities to learn in team settings and to develop effective team skills
3. Students will have the opportunity to develop the ability effectively to research information in furtherance of learning
4. Students will demonstrate effective critical thinking skills

Assessment Activities and Results
As noted in the College’s 2008 Assessment Update, given the nature of life-long learning, the assessment approach must necessarily represent the development of potential, rather than the affirmation of capacity. Therefore, the objectives for assessing life-long learning focus primarily on providing to students opportunities to learn the skills necessary for life-long learning. The College’s 2008 Assessment Update contains further information about the ways in which the College is meeting these objectives. No further assessment of life-long learning is planned.

III. Assessment of Learning in Master of Professional Accountancy Program

A committee of the accounting group (AoL MPAc committee) was formed in 2008 to review and revise the learning goals and objectives of the MPAc program so that they best depict desired outcomes for MPAc students. In addition, the AoL MPAc committee was to consider assessment for each specific learning objective.

The AoL MPAc committee in 2008-09 developed a preliminary list of Goals and Objectives (see attached table) for consideration and review by the accounting faculty. Unfortunately progress slowed during 2009-10 and the committee is still in the process of gathering feedback from accounting group members regarding:
1. The accuracy and appropriateness of the MPAc goals and objectives identified by the committee
2. The classes in which the skills and knowledge for each objective will be addressed
3. Assessment/measurement methods for each objective
4. Determining how the undergraduate rubrics for critical thinking, ethical decision making, written
   and oral communication may be adapted for use in assessing MPAc learning objectives.

The committee intends to finalize MPAc AoL learning goals and objectives and develop an assessment
plan during the 2010-11 academic year.
Why is Critical Thinking Important?
The mission of the College of Business includes encouraging critical thinking, quantitative reasoning, effective communication, ethical decision-making, social responsibility, and life-long learning. Critical thinking is particularly important because it is the foundation of all learning. For example, you cannot produce good writing without effective critical thinking, and persuasive quantitative reasoning and ethical decision-making require effective critical thinking. It is therefore vital that you develop your skills as a critical thinker. Once you have developed your ability to analyze a problem carefully and rationally to reach a persuasive conclusion you will be well-equipped to handle almost any problem that comes your way in your professional or personal life.

What is Critical Thinking?
Critical thinking is the ability to structure and synthesize ambiguous information, to sort relevant from irrelevant information, to apply technical knowledge to new problem settings, to analyze information, to interpret the results of your analysis and to draw conclusions based on standards and/or criteria.

Accordingly, it is the objective of the College of Business that upon graduation, you will be able to use critical thinking to solve business problems. More specifically, you will be able to:

a. Assimilate and interpret disparate and conflicting information correctly;
b. Evaluate, clarify and classify information to determine its relevance to solving an issue or problem;
c. Use general principles to create reasonable solutions and/or predictions; and
d. Make a decision based on evidence and prior evaluation.

What is a Framework for Critical Thinking?
In order to help you hone your critical thinking skills, the College has created a framework to guide your critical thinking. The framework consists of four steps which are easily remembered by the acronym PEAS, which stands for Problem, Evidence, Analysis and Solution. Follow the framework in sequence, circling back frequently as necessary to redefine the problem, gather more evidence or conduct additional assessment. If you use this framework to solve every problem you encounter, you will become a powerful critical thinker, which in turn will allow you to be an influential and effective professional.
PEAS Framework for Critical Thinking

Follow each step in sequence, circling back frequently to check your assumptions and make sure your analysis is complete.

Problem
Define the problem to be solved. What question(s) do you have to answer? Be careful! It is not always obvious what is the real problem and what is merely a symptom of the problem.

Evidence
Identify relevant facts and data. Ask yourself:
- How do I know these are facts rather than opinions, inferences or assumptions?
- From what perspective am I viewing the evidence? Are there other perspectives from which to view the evidence?
- What additional information do I need?

Analysis
Generate and evaluate three or four alternative solutions to the problem in light of the evidence and relevant rules, theories, models, concepts, techniques, perspectives or guidelines. Ask yourself:
- Does each alternative really address the problem to be solved?
- How well does the evidence support each alternative?
- Do I need to find more or different evidence or data to help me generate and/or assess alternatives?
- What are the strengths and weaknesses of each alternative?
- What assumptions and inferences am I making? Are these justified?
- What are the practical implications of each alternative?
- What criteria will I use to determine which is the optimal alternative?

Solution
Choose the optimal solution. Test your solution to make sure it addresses the problem, is based on good evidence, does not ignore relevant facts and data, and meets your decision-making criteria. Explain why your solution is better than the alternatives.

You may wish to use the following chart to help you organize your evaluation of the relative merits of each alternative solution to the problem.

<table>
<thead>
<tr>
<th>Possible Solutions</th>
<th>Pros</th>
<th>Cons</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solution 1:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Solution 2:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Solution 3:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Solution 4:</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
PEAS Framework for Critical Thinking
Montana State University College of Business

Problem
- Define the problem to be solved

Evidence
- Identify relevant facts and data

Analysis
- Generate and evaluate alternative solutions in light of the evidence

Solution
- Choose the best solution
Framework for Ethical Decision-Making

Why Ethical Decision-Making?
The mission of the College of Business includes encouraging ethical decision-making and social responsibility. Ethical decision-making is characterized by respect for others, an awareness of justice, and sensitivity to the application of rules of conduct. It is an essential skill for all professionals. Accordingly, an objective of the College of Business is that upon graduation, you will appreciate the ethical and social responsibility dimensions of business decision-making. More specifically, you will be able to:

a. Recognize the ethical and societal implications of proposed actions;
b. Demonstrate knowledge of ethical decision-making tools;
c. Effectively evaluate the ethical and societal effects of a variety of options; and
d. Make a sound decision in accordance with the analysis and evaluation of options.

What is a Framework for Ethical Decision Making?
In order to help you hone your ethical decision making skills, the College created a tool to guide your ethical decision making process. Based on PEAS, the College’s Framework for Critical Thinking, the Framework for Ethical Decision Making offers you a four step process for effective ethical decision making. If you use this framework to solve every ethical problem you encounter, you will become a powerful ethical decision-maker, which in turn will allow you to be an influential and effective professional.

How is the Framework Used?
PEAS stands for Problem, Evidence, Analysis, and Solution. Each word represents a crucial problem solving step. As you move forward from step to step, you may need to circle back to earlier steps to redefine the problem, gather more evidence or conduct additional assessment.

While the Framework for Ethical Decision Making follows the same PEAS steps as the Framework for Critical Thinking, the Framework for Ethical Decision Making asks you to assess problems in terms of ethical guidelines and theories and consider their implications for your decision. For example, the “Analysis” step requires you to identify specific ethical guidelines and theories as well as analyze possible problem solutions in light of those guidelines and theories. Thus, the Framework for Ethical Decision Making is an important variation on the Framework for Critical Thinking.

Keep in mind that there is not necessarily a “right” answer to an ethical dilemma. Ethical decision making is often difficult because you must decide not between “right” and “wrong” but between “right” and “right.” Ethical decision making is as much about the process of decision making as it is about your answer to the problem.
What Are Ethical Guidelines and Theories?
Ethical guidelines and theories are tools and principles that can help you determine an appropriate course of action for a particular situation. Each guideline and theory has strengths and weaknesses that should be evaluated in terms of each stakeholder and the context of the problem. Some of the most widely-used ethical guidelines and theories include:

Front Page of the Newspaper Test
Would you be comfortable if your actions were revealed on the front page of the newspaper? If so, your conduct is ethical (but may not be the only ethical solution or the best solution).

End/Means Test
Does an ethical goal (end) justify the way you get to that goal (means)? In other words, does the overall good justify cutting corners to get there?

The Golden Rule
Do unto others as you would have them do unto you. In other words, treat others as you would wish to be treated. This rule can be helpful, but keep in mind that it is possible that another person may not want to be treated as you prefer to be treated.

Utilitarianism
What act or rule results in the greatest good for the greatest number? Do the benefits of the action outweigh the costs/harm to all the stakeholders? Keep in mind that costs and benefits can be hard to identify because they are not only economic, but may also be social, environmental, legal, cultural, etc.

Professional Standards or Codes of Conduct
Many professions such as accountants, financial advisers, human resource managers, and marketing agents have published standards or codes that members must abide by to remain in good standing. In addition, many businesses have their own internal codes of conduct. Such standards can help professionals determine the appropriate course of action in a given situation.

---

The Ethical PEAS
Framework for Ethical Decision Making

Answer the following questions in sequence to arrive at an appropriate solution:

1. Problem
   - What is the ethical problem to be solved?
   - What question(s) do I need to answer?

2. Evidence
   - What relevant facts and figures do I know?
   - How do I know these are facts rather than opinions, inferences or assumptions?
   - Who are the affected stakeholders? What are their interests?
   - What do I not know that is relevant to solving the problem?

3. Analysis
   - What ethical guidelines and theories will I use to help me decide what to do? Consider at least 3-4 different theories, such as:
     o Front Page of the Newspaper Test
     o End/Means Test
     o The Golden Rule
     o Utilitarianism
     o Professional Standards of Codes of Conduct
   - What legal rules are relevant to the problem?
   - What 3-4 possible solutions would solve the problem?
   - Evaluate each alternative solution in light of each ethical theory and applicable legal rules.
   - What are the practical implications, both positive and negative, of each alternative solution? How are the stakeholders affected by each alternative? Use the attached chart to assess the effects of each alternative solution.
   - What assumptions and inferences am I making? Are these justified?
   - Which solution am I most comfortable with? Why?
   - Does my solution solve the problem and answer the questions identified in Step #1?

4. Solution
   - What is my solution to the problem?
   - Understanding the dimensions of the problem, using all relevant evidence, applying a variety of ethical theories, and paying close attention to my analysis, why is mine the best solution?
   - How will I explain my solution to all of the stakeholders?
Chart for Ethical Decision Making

Use this chart to help you organize your evaluation of the relative merits of each alternative solution to an ethical problem.

<table>
<thead>
<tr>
<th>Possible Solutions</th>
<th>Pros</th>
<th>Cons</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solution 1:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Solution 2:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Solution 3:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Solution 4:</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The Problem [state the ethical problem clearly and succinctly]:
PEAS Framework for Critical Thinking
Montana State University College of Business

**Problem**
- Define the problem to be solved

**Evidence**
- Identify relevant facts and data

**Analysis**
- Generate and evaluate alternative solutions in light of the evidence

**Solution**
- Choose the best solution
## Master of Professional Accountancy Assurance of Learning Plan (preliminary)

<table>
<thead>
<tr>
<th>Goal</th>
<th>Objective</th>
</tr>
</thead>
<tbody>
<tr>
<td>Critical Thinking*</td>
<td>Students can identify issues, research and analyze issues in light of theory, and reach well-reasoned, supportable conclusions. Students can think critically in applying their technical competence, exhibiting professionalism, communicating their ideas and solutions, approaching ethical issues and adapting to new technology.</td>
</tr>
</tbody>
</table>
| Technical Competency      | 1. Financial Reporting  
- Locate and apply appropriate financial accounting principles and standards (U.S. and International)  
- Identify and apply elements of quality financial reporting  
2. Assurance/Risk Management  
- Locate and apply appropriate standards for auditing and other assurance services (U.S. and International) and accepted frameworks for internal control  
- Identify threats to information quality and formulate appropriate responses  
3. Taxation  
- Locate and apply appropriate tax laws (U.S. and multi-jurisdictional)  
- Identify and evaluate tax planning strategies for individuals and business entities  
4. General Accounting and Business Areas  
- Locate and apply appropriate concepts from all business disciplines  
- Integrate knowledge across business disciplines |
| Professionalism           | 1. Appreciate the role of accounting professionals in business and society  
2. Demonstrate professional values, attitudes, and behavior  
3. Identify threats to the credibility of the accounting profession  
4. Appreciate the need to continue life-long learning  
5. Recognize the value of diversity  
6. Work effectively in teams |
| Ethical Decision-Making   | 1. Identify ethical issues in accounting and business decisions  
2. Recognize appropriate ethical frameworks  
3. Formulate courses of action in response to ethical dilemmas |
| Communication             | 1. Write in an effective manner for accounting and business professionals.  
2. Deliver effective oral presentations |
| Application of Technology | 1. Apply appropriate technology to solve accounting and business problems.  
2. Use technology to develop and present strategic information.  
3. Adapt to new technology |

* Critical Thinking is an over-arching goal to be incorporated in all of the learning goals and objectives in the assurance of learning plan.
Degrees/Majors/Options Offered by College
Note: The College of Business does not have departments.

- Bachelor of Science in Business with options in:
  - Accounting
  - Finance
  - Management
  - Marketing

- Minors in:
  - Accounting
  - Business Administration
  - Entrepreneurship and Small Business Management
  - International Business
  - Management of Information Technology

- Master of Professional Accountancy
I. Background
The Assessment of Learning (AoL) Committee of the College of Business manages the assessment of learning process in the College by: identifying, developing and revising assessment methodologies; administering the assessment tools; analyzing the results; and making recommendations for changes to the curriculum to the College’s Curriculum Committee, which in turn makes recommendations to the College’s faculty.

The AoL Committee in 2010-11 consisted of nine volunteer faculty members, including four tenure track faculty members, three adjunct faculty members, the coordinator of the Bracken Business Communication Clinic, and the Associate Dean for Academic Affairs who chaired the committee. Members represented all options in the College except marketing.

II. Assessment of Learning in Undergraduate Program
The College’s mission statement contains learning goals in knowledge of business, critical thinking, quantitative reasoning, oral and written communication, ethical decision making and lifelong learning. The following is a summary of the status of assessment activities relative to each learning goal.

A. Knowledge of Business
Learning Outcomes
Students shall acquire a common body of knowledge and vocabulary of business. As articulated in course syllabi, students shall gain knowledge of the theory and practices used in management of organizations, operations, and human resources; accounting; corporate finance; marketing; information systems and technology; and law. As they specialize further in their respective option(s), students shall demonstrate their ability to integrate this knowledge in solving business problems.

Goal and Objective
Students will have strong working knowledge of fundamental concepts in accounting, finance, management, marketing, information technology, strategy and law. The College’s institutional mean on the Major Field Test will regularly fall in the top quartile.

Assessment Activities and Results
The College has administered the Major Field Test in Business to 1079 seniors in the Senior Seminar, BUS 474, since summer 2005. Overall, since summer 2005 the College’s institutional mean on the MFT is at the 90th percentile compared to over 650 other undergraduate business programs.

Because of the $5500 cost of the MFT, it was not administered in 2009 – 2010.
MFT results for the academic year 2010 – 2011 were as follows. Summer 2010 16 students took the MFT and scored in the 73rd percentile of the national norms. Fall 2010 saw 47 students take the MFT and scoring in the 82%. Spring 2011 127 students took the MFT and scored in the 85% percentile. A weighted average of a three groups would place the college’s graduates in the 83% percentile. Therefore, the College is currently meeting its objective that the College’s institutional mean on the Major Field Test will regularly fall in the top quartile.

Due to the High Cost of the MFT, it will not be administered again until AY 2012-13.

B. Critical Thinking

Learning Outcomes
Critical thinking is the process of purposeful, self-regulatory judgment.1 Critical thinking is defined as the ability to structure and synthesize ambiguous information, to sort relevant from irrelevant information, to apply technical knowledge to new problem settings, to analyze and summarize information and to interpret the results of analysis. Critical thinking makes use of the higher cognitive objectives: application, analysis, synthesis, and evaluation.

Goal
Students will be able to engage in critical thinking to solve business problems.

Objectives
1. Students will be able to:
   a. Assimilate and interpret disparate and conflicting information correctly;
   b. Evaluate, clarify and classify information to determine its relevance to solving an issue or problem;
   c. Use general principles to create reasonable solutions and/or predictions; and
   d. Make a decision based on evidence and prior evaluation.
2. 75% of seniors will meet or exceed expectations on each element of the rubric.

Assessment Activities and Results
During 2009 the AoL Committee developed a Framework for Critical Thinking that offers a consistent model of critical thinking that all faculty members can use to teach the process of critical thinking. This model, which is based on a variety of existing critical thinking models, requires a student to follow the same steps to analyze and solve any problem. It is broad enough to be relevant to any discipline but specific enough to require a student to follow a deliberate process. The Committee’s expectation is that by the time a student graduates, s/he will have encountered and used this model so often that s/he will remember and use the model as a matter of course.

The original model, called PIRATe (for Purpose, Information, Reference, Analysis and The Conclusion), was introduced in BUS 101, Freshman Seminar, in fall 2009. After trying to use the model, both faculty and students found it to be confusing. Therefore, toward the end of the fall 2009 semester the AoL Committee developed a second model, called PEAS (Problem, Evidence, Analysis, Solution). This model was used in MGMT 204, Introduction to Business, in spring 2010 with far greater success than PIRATe. The PEAS model stands for the following:

______________________________________
Problem | Define the problem to be solved. What question(s) do you have to answer? Be careful! It is not always obvious what is the real problem and what is merely a symptom of the problem.

Evidence | Identify relevant facts and data. Ask yourself:
- How do I know these are facts rather than opinions, inferences or assumptions?
- From what perspective am I viewing the evidence? Are there other perspectives from which to view the evidence?
- What additional information do I need?

Analysis | Generate and evaluate three or four alternative solutions to the problem in light of the evidence and relevant rules, theories, models, concepts, techniques, perspectives or guidelines. Ask yourself:
- Does each alternative really address the problem to be solved?
- How well does the evidence support each alternative?
- Do I need to find more or different evidence or data to help me generate and/or assess alternatives?
- What are the strengths and weaknesses of each alternative?
- What assumptions and inferences am I making? Are these justified?
- What are the practical implications of each alternative?
- What criteria will I use to determine which is the optimal alternative?

Solution | Choose the optimal solution. Test your solution to make sure it addresses the problem, is based on good evidence, does not ignore relevant facts and data, and meets your decision-making criteria. Explain why your solution is better than the alternatives.

The full PEAS Framework for Critical Thinking was attached to the 2009 – 2010 version of this report.

The PEAS Framework for Critical Thinking and the COB’s Critical Thinking Rubric have been distributed to all faculty in the College of Business. During 2010-2011, the faculty were surveyed to assess the extent to which these tools were being used within the College. In that survey, the response rate was 53%. For PEAS, 50% of the faculty have use the tool, 50% find it effective, and 77% expressed a desire to learn more about how to use the tool effectively. For the Critical Thinking Rubric, 33% use the tool, 39% found it useful, and 67% expressed a desire to learn more about how to use the tool effectively.

On November 30th, members of the CoB AoL Committee conducted a panel discussion MSU’s Teaching and Learning Committee on our techniques for assessing writing and critical thinking. The PEAS framework and our Critical Thinking Rubric had a central role in that panel discussion.

C. Quantitative Reasoning

Learning Outcomes
Quantitative reasoning is the ability to use mathematical concepts to understand and interpret data, make sound inferences, draw logical conclusions and make well-supported decisions. Quantitative
reasoning, as a component of critical thinking, requires the use of application, analysis, synthesis and evaluation.

**Goal**
Students will be able to employ quantitative reasoning as a tool for solving business problems.

**Objectives**
1. Students will be able to:
   a. Interpret mathematical models such as formulas, graphs and tables and draw inferences from them;
   b. Represent quantitative information symbolically, visually, numerically and verbally;
   c. Evaluate quantitative information while recognizing its limitations;
   d. Integrate quantitative information into decisions and recommendations.

2. 75% of seniors will meet or exceed expectations on each element of the rubric.

**Assessment Activities and Results**
While seniors in the College of Business consistently score well above the 90th percentile on the quantitative reasoning part of the Major Field Test in Business, faculty were concerned that student’s quantitative skills were not as well developed as they should be.

The AoL Committee began the process of articulating a minimal set of quantitative skills that students must possess. The distinction between quantitative skills and quantitative reasoning was discussed at length. The consensus that emerged was that quantitative reasoning is a subset of the more general critical thinking and that students need quantitative skills to use within our critical thinking framework to perform quantitative reasoning. The process of articulating a minimal set of quantitative skills is ongoing. The AoL Committee is near the point of presenting a list to the faculty for their consideration. Tentatively, that list is as follows:

**Statistical Analysis – perform and Interpret basic statistical tests**

1. Perform data manipulations (e.g. percentages, percentage changes, absolute numbers), and organize data graphically.
2. Calculate and interpret measures of central tendency (mean, median and mode), measures of dispersion (range, variance and standard deviation), and correlations between elements given a data set. Calculate and interpret hypothesis tests for means and proportions (including those from two or more populations).
3. Use linear regression to examine the hypothesized relationships between variables and evaluate the probability that the observed relationship could be attributed to sampling error or chance.

**Financial Analysis:**

4. Apply and interpret time value of money concepts.
5. Calculate and interpret the net present value of a proposed business project given a schedule of the projected costs, benefits (capital budget) and cost of capital (hurdle rate).
6. Explain how assets, liabilities, equity, income, and expenses are represented in the income statement, balance sheet, and statement of cash flows. Explain the relationship between net income and retained earnings.
7. Determine and interpret the trended and current financial condition of a firm using standard accounting statements, financial ratios and comparisons to industry standards.

**Managerial Analysis:**

8. Segregate production costs into fixed and variable categories and calculate a breakeven point using a contribution margin approach. Describe how a change in costs or selling price will impact the breakeven point.
9. Given historical data regarding such things as sales, costs or production levels, use linear trend and/or averaging techniques to forecast future values.
10. Given data regarding production, find the Cost of Goods Sold.

The above list of quantitative skills is still under development. Thus there are no assessment results using these skills. Until this approach is completed, we continue to rely upon our students’ performance on the quantitative MFT questions. Those scores continue to be above the 90th percentile.

**D. Written Communication**

**Learning Outcomes**
Effective written communication demonstrates professionalism and the use of standard business English. Such writing is direct, courteous, grammatically correct, and not overly casual. A student's writing must demonstrate appropriate sentence structure, mechanics, grammar, word usage, tone and word choice, organization and focus, and development of ideas.

**Goal**
Students will be able to communicate effectively and professionally in writing.

**Objectives**
1. Students will:
   a. Organize and develop ideas effectively;
   b. Employ correct spelling and punctuation;
   c. Employ correct grammar, sentence and paragraph structure; and
   d. Correctly cite sources for facts, quotations and ideas.
2. 75% of seniors will meet or exceed expectations on each element of the rubric.
3. In order to be formally admitted to the College, students must achieve a score of at least 3 on the WorkKeys Test of Business Writing.

**Assessment Activities and Results**
The College has in the last several years engaged in significant efforts to improve students’ writing skills, including developing a rubric, holding a faculty retreat focused on improving writing skills, and hosting a variety of seminars to discuss improving writing skills (please see the 2008-09 College of Business Assessment Update). These efforts to increase faculty familiarity with methods for improving student writing continued in 2010-11. In addition, several lower division courses were revised to focus more effectively on improving students’ writing skills.

The course content for BUS 201, Managerial Communication, a required course for business students, was significantly revised in 2009-2010 to better teach professional communication skills. The learning objectives of the course now include the following:
1. Build and protect your professional reputation by recognizing the personal and organizational risks and opportunities inherent in communicating by voice and in writing.
2. Know how to manage your own writing process so that you minimize the pains of writing and maximize the effectiveness of communications.
3. Organize and develop logical written representation of your thoughts.
4. Revise your own or others’ prose to increase clarity and brevity.
5. Craft and execute a variety of professional-quality correspondence.
6. Choose wisely among various modes of communication.
7. Create and deliver professional-quality presentations, and
8. Develop and/or reinforce habits of communicating clearly, including using correct grammar and sentence structure and correctly citing sources for facts, quotations, and ideas.

Not only have student evaluations of the course improved as a result of this redesign, but it is the expectation of the College that student writing skills will improve as well. Moreover, the College will reduce class size in BUS 201 from 45 to 40 for the 2010-11 academic year to improve the ability of faculty to provide personalized feedback to students.

Faculty have also revised other courses to increase the focus on writing skills. BUS 101, Freshman Seminar, and MGMT 204, Introduction to Business, were both revised to increase emphasis on effective writing and critical thinking. Many faculty members teaching upper division courses have also revised their writing assignments and feedback methods using tips from Dr. Chris Anson, who conducted a workshop on teaching writing for the College in spring 2009 (please see the College’s 2009-10 Assessment Update).

The increased emphasis on writing in BUS 101/MGMT 204 and improved teaching of professional communication skills in BUS 201, coupled with deliberate efforts by many faculty members to stress writing quality in upper division courses, is expected to result in improved writing skills in the future. In fact, improvement in the writing skills of seniors in the College has already occurred since the College’s last assessment of writing in 2007.

The College assessed writing skills in BUS 474, Senior Seminar, in spring 2010. Significant improvement was shown over the 2007 assessment in all areas assessed and the College is exceeding its goal that 75% of students meet or exceed expectations on each element of the rubric:

<table>
<thead>
<tr>
<th>Organization &amp; Development of Ideas</th>
<th>Below Expectations</th>
<th>Meets Expectations</th>
<th>Exceeds Expectations</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>11%</td>
<td>72%</td>
<td>17%</td>
</tr>
<tr>
<td>2010</td>
<td>7%</td>
<td>47%</td>
<td>46%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Spelling &amp; Punctuation</th>
<th>Below Expectations</th>
<th>Meets Expectations</th>
<th>Exceeds Expectations</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>22%</td>
<td>61%</td>
<td>17%</td>
</tr>
<tr>
<td>2010</td>
<td>13%</td>
<td>53%</td>
<td>33%</td>
</tr>
</tbody>
</table>

2 Students are required to take one of these two courses for formal admission to the College in the junior year.
Significant improvement has also been achieved at the sophomore/junior level as evidenced by the results of the WorkKeys Test of Business Writing,\(^3\) on which a score of 3 or better (scale 1-5) is required for all students for formal admission to the College.

<table>
<thead>
<tr>
<th>WorkKeys Test of Business Writing</th>
<th>Students Scoring 1 or 2</th>
<th>Students Scoring 4 or 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>19%</td>
<td>35%</td>
</tr>
<tr>
<td>2010</td>
<td>5%</td>
<td>51%</td>
</tr>
<tr>
<td>2011</td>
<td>11%</td>
<td>41%</td>
</tr>
</tbody>
</table>

The AoL Committee continues to encourage faculty to use the College’s writing rubric to both teach the elements of good writing and provide feedback to students on their writing skills. Perhaps because of the College’s increased emphasis on writing, between fall 2007 and fall 2009 there was a 77% increase in student appointments at the College’s Bracken Business Communications Clinic (BBCC).

During summer 2010, the BBCC moved to a less visible space on the 4th floor of Reid Hall. Despite the move, student appointments remained constant over the year.

Assessment of writing was part of the panel presented by the CoB AoL Committee. At that MSU Teaching and Learning Committee panel, the CoB writing rubric and assessment techniques were shared with the wider MSU community.

### E. Oral Communication

**Learning Outcomes**

Effective oral communication requires facility with standard oral presentational forms including impromptu, extemporaneous, informational, and persuasive speaking.

**Goal**

Students will be able to communicate effectively and professionally in oral presentations.

**Objectives**

1. Students will:
   a. Organize and develop ideas effectively;
   b. Employ technology effectively in support of the message;
   c. Speak extemporaneously with minimal hesitations and fillers;

---

d. Adopt an appropriate tone;
e. Use appropriate vocabulary;
f. Employ correct grammar and sentence structure; and
g. Use appropriately the time allotted for the presentation.

2. 75% of seniors will meet or exceed expectations on each element of the rubric.

Assessment Activities and Results
The AoL Committee assessed the oral presentation skills of 169 of 207 total students in BUS 474, Senior Seminar, in spring and fall 2009, using an oral communication rubric developed and tested in 2008. In 2010 – 2011, an assessment of oral communication skills of 65 students in BUS 302 was conducted. The results show that while the College well exceeds its goal that 75% of seniors will meet or exceed expectations on organization/development of ideas and presentation aids, in 2009 only 74% of students met or exceeded expectations with respect to delivery:

<table>
<thead>
<tr>
<th>Oral Presentation Skills, BUS 474, Spring &amp; Fall 2009: BUS 302, Spring 2010</th>
<th>Below Expectations</th>
<th>Meets Expectations</th>
<th>Exceeds Expectations</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2009</td>
<td>2010</td>
<td>2009</td>
</tr>
<tr>
<td>Organization &amp; Development of Ideas</td>
<td>8%</td>
<td>6%</td>
<td>70%</td>
</tr>
<tr>
<td>Delivery</td>
<td>26%</td>
<td>11%</td>
<td>58%</td>
</tr>
<tr>
<td>Presentation Aids</td>
<td>2%</td>
<td>0%</td>
<td>70%</td>
</tr>
</tbody>
</table>

The data in the above table suggest that major strides were made in Oral Presentation skills between 2009 and 2010, particularly in Delivery. However, the two assessments were undertaken on slightly different populations with different tasks. The 2010 Oral Communication Evaluation group stressed that faculty training is necessary for consistent application of the rubric and that further clarification is needed to assess presentation aids. In the 2009 assessment, frequent verbal fillers inadequate eye contact and excessive reliance on notes or visual aides were cited as common student weaknesses. In the 2010 assessment, the assessment team noted that individual students performed well across categories but that the transition to the next speaker was awkward.

In 2010-11 the AoL Committee surveyed the faculty concerned their use the CoB’s Communication Rubric. Slightly less than a third of faculty uses the rubric, a third find the rubric helpful, and two thirds would like to learn more about how to use the rubric effectively. The BBCC’s move to a much larger space in the old University Studies office on the 4th floor of Reid Hall has provided the BBCC with a conference in room in which students will be able to video their oral presentations and receive feedback from BBCC coaches.

The College recognizes that formal presentations are a necessary business skill that can be developed through repeated practice and consistent, constructive feedback. A problem often cited by faculty is class time: providing each student in a 30 person course the opportunity to speak for 5 minutes would take up a week’s instructional time. In addition, the College recognizes that an assessment of oral communication skills should also include the ability to carry on less structured professional and social conversations. The AoL Committee has not yet identified an effective way to assess such skills, except to note that the fall 2009 employer survey conducted by MSU’s Office of Career Services shows that employers rate the verbal communication skills of College of Business students higher than those of MSU students generally (4.1 compared to 3.9 on a 1-5 scale).
F. Ethical Decision Making and Social Responsibility

Learning Outcomes
Rational and ethical decision-making deals with issues of human conduct and the rules that should govern human action. It is characterized by respect for others, an awareness of justice, and sensitivity to the universal application of rules of conduct. Rational and ethical decision-making focuses explicitly on two critical questions: What is right or wrong? and What is good or bad? A graduate of the COB will be competent in rational and ethical decision-making when s/he is able to assess critically her/his actions and the actions of others with respect to these two questions.

Goal
Students will appreciate the ethical and social responsibility dimensions of business decision-making.

Objectives
1. Students will be able to:
   a. Recognize the ethical and societal implications of proposed actions;
   b. Demonstrate knowledge of ethical decision-making tools;
   c. Effectively evaluate the ethical and societal effects of a variety of options; and
   d. Make a sound decision in accordance with the analysis and evaluation of options.
2. 75% of seniors will meet or exceed expectations on each element of the rubric.

Assessment Activities and Results
Building on the PEAS Framework for Critical Thinking (see B. Critical Thinking above), the AoL Committee has created Ethical PEAS, a framework for ethical decision making that was attached to last year’s report. Like the Framework for Critical Thinking, Ethical PEAS has been distributed to all faculty in the College of Business. Faculty will be encouraged to use Ethical PEAS in conjunction with the Committee’s ethical decision making rubric to teach students the College’s expectations with respect to ethical decision making and to assess students’ skills as part of their grading in the course.

The College’s Spring Retreat speaker was Dr. Mary Gentile on Giving Voice to Values. Dr. Gentile has developed an approach to ethics instruction that overcomes many faculty’s reluctance to “teaching ethics.” With the benefit of Dr. Gentiles approach, faculty are hopefully more comfortable using Ethical PEAS.

Seniors in BUS 474 were given a case assignment this Spring designed for the assessment of their ethical and social responsibility decision making. The AoL Committee has not yet read these cases and applied the Ethical Decision Making/ Social Responsibility Rubric to the student cases. Evaluating those cases will be undertaken Fall 2011.

G. Life-Long Learning

Learning Outcomes
Following the work of Knowles (1990), the College defines lifelong, self-directed learning as the process by which "individuals take a lifelong initiative, with or without the help of others, to diagnose their own learning needs, formulating their own learning goals, identifying human and
material resources for their own learning, choosing and implementing appropriate learning strategies, and evaluating their own learning outcomes."

**Goal**

Students will experience a learning environment that promotes the skills needed for life-long learning. Because life-long learning is a difficult concept to operationalize and is resistant to measurement, the objectives for this learning goal refer primarily to the learning opportunities provided to students by the College.

**Objectives**

1. Learning will take place in the context of authentic and complex business problems
2. Students will have extensive opportunities to learn in team settings and to develop effective team skills
3. Students will have the opportunity to develop the ability effectively to research information in furtherance of learning
4. Students will demonstrate effective critical thinking skills

**Assessment Activities and Results**

As noted in the College’s 2008 Assessment Update, given the nature of life-long learning, the assessment approach must necessarily represent the development of potential, rather than the affirmation of capacity. Therefore, the objectives for assessing life-long learning focus primarily on providing to students opportunities to learn the skills necessary for life-long learning. The College's 2008 Assessment Update contains further information about the ways in which the College is meeting these objectives. No further assessment of life-long learning is planned.

**III. Assessment of Learning in Master of Professional Accountancy Program**

A committee of the accounting group (AoL MPAc committee) was formed in 2008 to review and revise the learning goals and objectives of the MPAc program so that they best depict desired outcomes for MPAc students. In addition, the AoL MPAc committee was to consider assessment for each specific learning objective. Unfortunately progress 2008 – 2010 has been very slow.

During the 2010-2011 academic year, the AoL MPAc committee made significant progress in establishing learning outcomes, goals, and objectives and development and testing of rubrics.

**Learning Outcomes**

The following learning outcomes have been defined, with goals and objectives specified.

1. Critical Thinking
2. Technical Competency
   a. Financial Reporting
   b. Audit services
   c. Taxation
   d. Business Environment
3. Professionalism
4. Ethical Decision-Making
5. Written Communication
6. Oral Communication
Assessment Activities
For Critical Thinking, a rubric has been developed and has been tested. For Technical Competencies, specific questions have been embedded within appropriate graduate courses to enable assessment technical competencies. Professionalism is proving to be difficult. One result of attempted to assess this outcome has been the establishment of a "Professionalism Bootcamp" – a program featuring representatives of Accounting Firms covering be bases of the professional behaviors they will be expecting of future employees. Ethical Decision-Making, Written Communication, and Oral Communication rubrics are still under development.

For the 2011-12 academic year, it is anticipated that the development and testing of all rubrics will be completed and baseline assessment levels established.
Degrees/Majors/Options Offered by College
Note: The College of Business does not have departments.

- Bachelor of Science in Business with options in:
  Accounting
  Finance
  Management
  Marketing

- Minors in:
  Accounting
  Business Administration
  Entrepreneurship and Small Business Management
  International Business
  Management of Information Technology

- Master of Professional Accountancy
I. Background
The Assessment of Learning (AoL) Committee of the College of Business manages the assessment of learning process in the College by: identifying, developing and revising assessment methodologies; administering the assessment tools; analyzing the results; and making recommendations for changes to the curriculum to the College's Academic Programs Committee, which in turn makes recommendations to the College's faculty.

The AoL Committee in 2011-12 consisted of eight volunteer faculty members, including four tenure track faculty members, two adjunct faculty members, the coordinator of the Bracken Business Communication Clinic, and the Associate Dean for Academic Affairs who chaired the committee. Members represented all options in the College although the Accounting representative was on sabbatical.

II. Assessment of Learning in Undergraduate Program
The College's mission statement contains learning goals in knowledge of business, critical thinking, quantitative reasoning, oral and written communication, ethical decision making and lifelong learning. The following is a summary of the status of assessment activities relative to each learning goal.

A. Knowledge of Business

Learning Outcomes
Students shall acquire a common body of knowledge and vocabulary of business. As articulated in course syllabi, students shall gain knowledge of the theory and practices used in management of organizations, operations, and human resources; accounting; corporate finance; marketing; information systems and technology; and law. As they specialize further in their respective option(s), students shall demonstrate their ability to integrate this knowledge in solving business problems.

Goal and Objective
Students will have strong working knowledge of fundamental concepts in accounting, finance, management, marketing, information technology, strategy and law. The College’s institutional mean on the Major Field Test will regularly fall in the top quartile.

Assessment Activities and Results
The College has administered the Major Field Test in Business to 1079 seniors in the Senior Seminar, BUS 474, since summer 2005. Overall, since summer 2005 the College’s institutional mean on the MFT is at the 90th percentile compared to over 650 other undergraduate business programs.
Because of the $5500 cost of the MFT, it was not administered in 2009 – 2010 nor 2011-12. The MFT, it be administered again this coming academic year, AY 2012-13.

The College’s performance is summarized in the following chart. Over the 5 year period shown, the College’s institutional average was 90.1 percent indicating that MSU’s College of Business Students scored higher than 90% of all business students taking this exam. In the chart the horizontal line indicates the trend in scores. This trend appears to be slightly downward and the 2010 – 2011 results do appear lower than the previous years.

B. Critical Thinking

Learning Outcomes
Critical thinking is the process of purposeful, self-regulatory judgment. Critical thinking is defined as the ability to structure and synthesize ambiguous information, to sort relevant from irrelevant information, to apply technical knowledge to new problem settings, to analyze and summarize information and to interpret the results of analysis. Critical thinking makes use of the higher cognitive objectives: application, analysis, synthesis, and evaluation.

Goal
Students will be able to engage in critical thinking to solve business problems.

Objectives

---

1. Students will be able to:
   a. Correctly identify the problem or issue;
   b. Identify relevant facts and data, including reconciling disparate information;
   c. Analyze the problem or issue using general principles to create reasonable solutions and/or predictions; and
   d. Make a clear decision based on consistent evidence and prior analysis.
2. 75% of seniors will meet or exceed expectations on each element of the rubric.

Assessment Activities and Results
During 2009 the AoL Committee developed a Framework for Critical Thinking that offers a consistent model of critical thinking that all faculty members can use to teach the process of critical thinking. This model, which is based on a variety of existing critical thinking models, requires a student to follow the same steps to analyze and solve any problem. It is broad enough to be relevant to any discipline but specific enough to require a student to follow a deliberate process. The Committee’s expectation is that by the time a student graduates, s/he will have encountered and used this model so often that s/he will remember and use the model as a matter of course.

The current model, PEAS, was first used in MGMT 204, Introduction to Business, in spring 2010. Subsequently it has be widely used throughout the college. The PEAS model stands for the following:

<table>
<thead>
<tr>
<th>Problem</th>
<th>Define the problem to be solved. What question(s) do you have to answer? Be careful! It is not always obvious what is the real problem and what is merely a symptom of the problem.</th>
</tr>
</thead>
</table>
| Evidence | Identify relevant facts and data. Ask yourself:  
  • How do I know these are facts rather than opinions, inferences or assumptions?  
  • From what perspective am I viewing the evidence? Are there other perspectives from which to view the evidence?  
  • What additional information do I need? |
| Analysis | Generate and evaluate three or four alternative solutions to the problem in light of the evidence and relevant rules, theories, models, concepts, techniques, perspectives or guidelines. Ask yourself:  
  • Does each alternative really address the problem to be solved?  
  • How well does the evidence support each alternative?  
  • Do I need to find more or different evidence or data to help me generate and/or assess alternatives?  
  • What are the strengths and weaknesses of each alternative?  
  • What assumptions and inferences am I making? Are these justified?  
  • What are the practical implications of each alternative?  
  • What criteria will I use to determine which is the optimal alternative? |
| Solution | Choose the optimal solution. Test your solution to make sure it addresses the problem, is based on good evidence, does not ignore relevant facts and data, and meets your decision-making criteria. Explain why your solution is better than the alternatives. |
The full PEAS Framework for Critical Thinking was attached to the 2009 – 2010 version of this report. The PEAS Framework for Critical Thinking and the COB’s Critical Thinking Rubric have been distributed to all faculty in the College of Business. Approximately, 50% of the faculty have use the tool, 50% find it effective, and 77% expressed a desire to learn more about how to use the tool effectively.

On November 30, 2010, members of the CoB AoL Committee conducted a panel discussion MSU’s Teaching and Learning Committee on our techniques for assessing writing and critical thinking. The PEAS framework and our Critical Thinking Rubric had a central role in that panel discussion.

The following table shows the results of the Critical Thinking Assessment conducted Spring 2012 using a sample of student cases from students in the capstone BUS 474 course. These figures indicate that well over 75% of our students meet or exceed expectations. However, the very low percentages exceeding expectations is somewhat troubling.

<table>
<thead>
<tr>
<th>Critical Thinking</th>
<th>% Not Meeting Expectations</th>
<th>% Meeting Expectations</th>
<th>% Exceeding Expectations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Problem</td>
<td>13</td>
<td>87</td>
<td>0</td>
</tr>
<tr>
<td>Evidence</td>
<td>7</td>
<td>87</td>
<td>7</td>
</tr>
<tr>
<td>Analysis</td>
<td>7</td>
<td>93</td>
<td>0</td>
</tr>
<tr>
<td>Solution</td>
<td>7</td>
<td>87</td>
<td>7</td>
</tr>
<tr>
<td><strong>Overall</strong></td>
<td><strong>8</strong></td>
<td><strong>88</strong></td>
<td><strong>3</strong></td>
</tr>
</tbody>
</table>

C. Quantitative Reasoning

Learning Outcomes
Quantitative reasoning is the ability to use mathematical concepts to understand and interpret data, make sound inferences, draw logical conclusions and make well-supported decisions. Quantitative reasoning, as a component of critical thinking, requires the use of application, analysis, synthesis and evaluation.

Goal
Students will be able to employ quantitative reasoning as a tool for solving business problems.

Objectives
1. Students will be able to:
   a. Interpret mathematical models such as formulas, graphs and tables and draw inferences from them;
   b. Represent quantitative information symbolically, visually, numerically and verbally;
   c. Evaluate quantitative information while recognizing its limitations;
   d. Integrate quantitative information into decisions and recommendations.

2. 75% of seniors will meet or exceed expectations on each element of the rubric.

Assessment Activities and Results
While seniors in the College of Business consistently score well above the 90th percentile on the quantitative reasoning part of the Major Field Test in Business, faculty were concerned that student’s quantitative skills were not as well developed as they should be.
The AoL Committee began the process of articulating a minimal set of quantitative skills that students must possess. The distinction between quantitative skills and quantitative reasoning was discussed at length. The consensus that emerged was that quantitative reasoning is a subset of the more general critical thinking and that students need quantitative skills to use within our critical thinking framework to perform quantitative reasoning. Ten essential quantitative skills have been articulated and affirmed by the faculty. The top-ten quantitative skills are:

### Statistical Analysis – perform and Interpret basic statistical tests

1. Identify and select random samples.
2. Perform data manipulations (e.g. percentages, percentage changes, absolute numbers), and organize data graphically.
3. Calculate and interpret measures of central tendency (mean, median and mode), measures of dispersion (range, variance and standard deviation), and correlations between elements given a data set. Calculate and interpret hypothesis tests for means and proportions (including those from two or more populations).
4. Use linear regression to examine the hypothesized relationships between variables and evaluate the probability that the observed relationship could be attributed to sampling error or chance.

### Financial Analysis:

5. Apply and interpret time value of money concepts.
6. Calculate and interpret the net present value of a proposed business project given a schedule of the projected costs, benefits (capital budget) and cost of capital (hurdle rate).
7. Explain how assets, liabilities, equity, income, and expenses are represented in the income statement, balance sheet, and statement of cash flows. Explain the relationship between net income and retained earnings.
8. Determine and interpret the trended and current financial condition of a firm using standard accounting statements, financial ratios and comparisons to industry standards.

### Managerial Analysis:

9. Segregate production costs into fixed and variable categories and calculate a breakeven point using a contribution margin approach. Describe how a change in costs or selling price will impact the breakeven point.
10. Given historical data regarding such things as sales, costs or production levels, use linear trend and/or averaging techniques to forecast future values.

The curriculum in each Option has been mapped to indicate where the above skills are either taught or reinforced. The next step is to work with each Option and instructors in the mapped courses to insure that all COB students have sufficient repetitions/applications of these skills to insure they are mastered. Until this approach is completed, we continue to rely upon our students’ performance on the quantitative MFT questions. Those scores continue to be above the 90th percentile.

### D. Written Communication
Learning Outcomes
Effective written communication demonstrates professionalism and the use of standard business English. Such writing is direct, courteous, grammatically correct, and not overly casual. A student’s writing must demonstrate appropriate sentence structure, mechanics, grammar, word usage, tone and word choice, organization and focus, and development of ideas.

Goal
Students will be able to communicate effectively and professionally in writing.

Objectives
1. Students will:
   a. Organize and develop ideas effectively;
   b. Employ correct spelling and punctuation;
   c. Employ correct grammar, sentence and paragraph structure; and
   d. Correctly cite sources for facts, quotations and ideas.
2. 75% of seniors will meet or exceed expectations on each element of the rubric.
3. In order to be formally admitted to the College, students must achieve a score of at least 3 on the WorkKeys Test of Business Writing.

Assessment Activities and Results
The College has in the last several years engaged in significant efforts to improve students’ writing skills, including developing a rubric, holding a faculty retreat focused on improving writing skills, and hosting a variety of seminars to discuss improving writing skills (please see the 2008-09 College of Business Assessment Update). These efforts to increase faculty familiarity with methods for improving student writing continued in 2010-11. In addition, several lower division courses were revised to focus more effectively on improving students’ writing skills.

The course content for BUS 201, Managerial Communication, a required course for business students, was significantly revised in 2009-2010 to better teach professional communication skills. The learning objectives of the course now include the following:

1. Build and protect your professional reputation by recognizing the personal and organizational risks and opportunities inherent in communicating by voice and in writing
2. Know how to manage your own writing process so that you minimize the pains of writing and maximize the effectiveness of communications
3. Organize and develop logical written representation of your thoughts
4. Revise your own or others’ prose to increase clarity and brevity
5. Craft and execute a variety of professional-quality correspondence,
6. Choose wisely among various modes of communication
7. Create and deliver professional-quality presentations, and
8. Develop and/or reinforce habits of communicating clearly, including using correct grammar and sentence structure and correctly citing sources for facts, quotations, and ideas

Not only have student evaluations of the course improved as a result of this redesign, but it is the expectation of the College that student writing skills will improve as well. Moreover, the College will reduce class size in BUS 201 from 45 to 40 for the 2010-11 academic year to improve the ability of faculty to provide personalized feedback to students.
Faculty have also revised other courses to increase the focus on writing skills. BUS 101, Freshman Seminar, and MGMT 204, Introduction to Business, were both revised to increase emphasis on effective writing and critical thinking. Many faculty members teaching upper division courses have also revised their writing assignments and feedback methods using tips from Dr. Chris Anson, who conducted a workshop on teaching writing for the College in spring 2009 (please see the College’s 2009-10 Assessment Update).

The increased emphasis on writing in BUS 101/MGMT 204 and improved teaching of professional communication skills in BUS 201, coupled with deliberate efforts by many faculty members to stress writing quality in upper division courses, is expected to result in improved writing skills in the future. In fact, improvement in the writing skills of seniors in the College has already occurred since the College’s last assessment of writing in 2007.

The College assessed writing skills in BUS 474, Senior Seminar, in spring 2010. Significant improvement was shown over the 2007 assessment in all areas assessed and the College is exceeding its goal that 75% of students meet or exceed expectations on each element of the rubric:

<table>
<thead>
<tr>
<th>Organization &amp; Development of Ideas</th>
<th>Below Expectations</th>
<th>Meets Expectations</th>
<th>Exceeds Expectations</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>11%</td>
<td>72%</td>
<td>17%</td>
</tr>
<tr>
<td>2010</td>
<td>7%</td>
<td>47%</td>
<td>46%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Spelling &amp; Punctuation</th>
<th>Below Expectations</th>
<th>Meets Expectations</th>
<th>Exceeds Expectations</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>22%</td>
<td>61%</td>
<td>17%</td>
</tr>
<tr>
<td>2010</td>
<td>13%</td>
<td>53%</td>
<td>33%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Grammar, and Sentence &amp; Paragraph Structure</th>
<th>Below Expectations</th>
<th>Meets Expectations</th>
<th>Exceeds Expectations</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>33%</td>
<td>67%</td>
<td>0%</td>
</tr>
<tr>
<td>2010</td>
<td>17%</td>
<td>53%</td>
<td>30%</td>
</tr>
</tbody>
</table>

Significant improvement has also been achieved at the sophomore/junior level as evidenced by the results of the WorkKeys Test of Business Writing, on which a score of 3 or better (scale 1-5) is required for all students for formal admission to the College.

<table>
<thead>
<tr>
<th>WorkKeys Test of Business Writing</th>
<th>Students Scoring 1 or 2</th>
<th>Students Scoring 3</th>
<th>Students Scoring 4 or 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>19%</td>
<td>46%</td>
<td>35%</td>
</tr>
<tr>
<td>2010</td>
<td>5%</td>
<td>44%</td>
<td>51%</td>
</tr>
<tr>
<td>2011</td>
<td>11%</td>
<td>48%</td>
<td>41%</td>
</tr>
<tr>
<td>2012</td>
<td>7%</td>
<td>51%</td>
<td>42%</td>
</tr>
</tbody>
</table>

2 Students are required to take one of these two courses for formal admission to the College in the junior year.

3 See http://www.act.org/workkeys/assess/bus_writ/.
The AoL Committee continues to encourage faculty to use the College’s writing rubric to both teach the elements of good writing and provide feedback to students on their writing skills. Students continue to increase their appointments at the College’s Bracken Business Communications Clinic (BBCC).

Writing will be assessed again in the 2012-2013 Academic Year.

**E. Oral Communication**

**Learning Outcomes**

Effective oral communication requires facility with standard oral presentational forms including impromptu, extemporaneous, informational, and persuasive speaking.

**Goal**

Students will be able to communicate effectively and professionally in oral presentations.

**Objectives**

1. Students will:
   a. Organize and develop ideas effectively;
   b. Employ technology effectively in support of the message;
   c. Speak extemporaneously with minimal hesitations and fillers;
   d. Adopt an appropriate tone;
   e. Use appropriate vocabulary;
   f. Employ correct grammar and sentence structure; and
   g. Use appropriately the time allotted for the presentation.
2. 75% of seniors will meet or exceed expectations on each element of the rubric.

**Assessment Activities and Results**

The AoL Committee assessed the oral presentation skills of 169 of 207 total students in BUS 474, Senior Seminar, in spring and fall 2009, using an oral communication rubric developed and tested in 2008. In 2010 – 2011, an assessment of oral communication skills of 65 students in BUS 302 was conducted. The results show that while the College well exceeds its goal that 75% of seniors will meet or exceed expectations on organization/development of ideas and presentation aids, in 2009 only 74% of students met or exceeded expectations with respect to delivery:

<table>
<thead>
<tr>
<th>Oral Presentation Skills, BUS 474, Spring &amp; Fall 2009</th>
<th>BUS 302, Spring 2010</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Below Expectations</td>
</tr>
<tr>
<td></td>
<td>2009</td>
</tr>
<tr>
<td>Organization &amp; Development of Ideas</td>
<td>8%</td>
</tr>
<tr>
<td>Delivery</td>
<td>26%</td>
</tr>
<tr>
<td>Presentation Aids</td>
<td>2%</td>
</tr>
</tbody>
</table>

The data in the above table suggest that major strides were made in Oral Presentation skills between 2009 and 2010, particularly in Delivery. However, the two assessments were undertaken on slightly different populations with different tasks. The 2010 Oral Communication Evaluation group stressed that faculty training is necessary for consistent application of the rubric and that further clarification is needed to assess presentation aids. In the 2009 assessment, frequent verbal
fillers inadequate eye contact and excessive reliance on notes or visual aides were cited as common student weaknesses. In the 2010 assessment, the assessment team noted that individual students performed well across categories but that the transition to the next speaker was awkward.

In 2010-11 the AoL Committee surveyed the faculty concerned their use the CoB's Communication Rubric. Slightly less than a third of faculty uses the rubric, a third find the rubric helpful, and two thirds would like to learn more about how to use the rubric effectively. The BBCC's move to a much larger space in the old University Studies office on the 4th floor of Reid Hall has provided the BBCC with a conference in room in which students will be able to video their oral presentations and receive feedback from BBCC coaches.

The College recognizes that formal presentations are a necessary business skill that can be developed through repeated practice and consistent, constructive feedback. A problem often cited by faculty is class time: providing each student in a 30 person course the opportunity to speak for 5 minutes would take up a week's instructional time. In addition, the College recognizes that an assessment of oral communication skills should also include the ability to carry on less structured professional and social conversations. The AoL Committee has not yet identified an effective way to assess such skills, except to note that the fall 2009 employer survey conducted by MSU’s Office of Career Services shows that employers rate the verbal communication skills of College of Business students higher than those of MSU students generally (4.1 compared to 3.9 on a 1-5 scale).

Oral Communication will be assessed again in the 2012-2013 Academic Year.

F. Ethical Decision Making and Social Responsibility

Learning Outcomes
Rational and ethical decision-making deals with issues of human conduct and the rules that should govern human action. It is characterized by respect for others, an awareness of justice, and sensitivity to the universal application of rules of conduct. Rational and ethical decision-making focuses explicitly on two critical questions: What is right or wrong? and What is good or bad? A graduate of the COB will be competent in rational and ethical decision-making when s/he is able to assess critically her/his actions and the actions of others with respect to these two questions.

Goal
Students will appreciate the ethical and social responsibility dimensions of business decision-making.

Objectives
1. Students will be able to:
   a. Recognize the ethical and societal implications of proposed actions;
   b. Demonstrate knowledge of ethical decision-making tools;
   c. Effectively evaluate the ethical and societal effects of a variety of options; and
   c. Make a sound decision in accordance with the analysis and evaluation of options.
2. 75% of seniors will meet or exceed expectations on each element of the rubric.

Assessment Activities and Results
Building on the PEAS Framework for Critical Thinking (see B. Critical Thinking above), the AoL Committee has created Ethical PEAS, a framework for ethical decision making that was attached to
last year’s report. Like the Framework for Critical Thinking, Ethical PEAS has been distributed to all faculty in the College of Business. Faculty will be encouraged to use Ethical PEAS in conjunction with the Committee’s ethical decision making rubric to teach students the College’s expectations with respect to ethical decision making and to assess students’ skills as part of their grading in the course.

The College’s Spring 2011 Retreat featured a presentation by Dr. Mary Gentile on *Giving Voice to Values*. Dr. Gentile has developed an approach to ethics instruction that overcomes many faculties reluctance to “teaching ethics.” But many faculty fault Dr. Gentile’s approach for focusing exclusively on being heard and influencing an organization after reaching a personal ethical decision. There are certainly two pieces: reaching an ethical decision and acting effectively based on that decision. The faculty was not willing to totally abandon the ethical decisions component in our assessment of ethical decision-making and social responsibility.

Seniors in BUS 474 were given a case assignment Spring 2011 designed for the assessment of their ethical and social responsibility decision making. Fall 2011 the AoL Committee read these cases and applied the Ethical Decision Making/ Social Responsibility Rubric with the results reported below.

<table>
<thead>
<tr>
<th>Ethics &amp; Social Responsibility</th>
<th>% Not Meeting Expectations</th>
<th>% Meeting Expectations</th>
<th>% Exceeding Expectations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recognition</td>
<td>0</td>
<td>76</td>
<td>24</td>
</tr>
<tr>
<td>Knowledge of Ethical Tools</td>
<td>48</td>
<td>32</td>
<td>20</td>
</tr>
<tr>
<td>Evaluation</td>
<td>2</td>
<td>83</td>
<td>15</td>
</tr>
<tr>
<td>Decision</td>
<td>9</td>
<td>78</td>
<td>13</td>
</tr>
<tr>
<td>Overall</td>
<td>15</td>
<td>84</td>
<td>18</td>
</tr>
</tbody>
</table>

The above results were presented to the COB Faculty in December and occasioned considerable discussion. Our students performed reasonably well in all aspects except naming the specific ethical tool or standard employed. Our Ethical PEAS framework mentions a number of ethical tools (Front Page of Newspaper Test, Golden Rule, Utilitarianism) then emphasis is on the Critical Thinking process rather than then name of a tool. After considerable discussion, the COB Faculty agreed that it is the thought process, not the name of a specific tool, that is important. Consequently, the AoL Committee drafted a revised Ethics and Social Responsibility rubric dropping “Knowledge of Ethical Tools” but with increased emphasis on the “Evaluation” process. BUS 474 cases from the Spring 2012 semester were used to test this revised rubric with the following results.

<table>
<thead>
<tr>
<th>Ethics &amp; Social Responsibility</th>
<th>% Not Meeting Expectations</th>
<th>% Meeting Expectations</th>
<th>% Exceeding Expectations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recognition</td>
<td>3</td>
<td>90</td>
<td>7</td>
</tr>
<tr>
<td>Evaluation</td>
<td>20</td>
<td>70</td>
<td>10</td>
</tr>
<tr>
<td>Decision</td>
<td>3</td>
<td>93</td>
<td>3</td>
</tr>
<tr>
<td>Overall</td>
<td>9</td>
<td>84</td>
<td>7</td>
</tr>
</tbody>
</table>

**G. Life-Long Learning**

**Learning Outcomes**
Following the work of Knowles (1990), the College defines lifelong, self-directed learning as the process by which "individuals take a lifelong initiative, with or without the help of others, to diagnose their own learning needs, formulating their own learning goals, identifying human and material resources for their own learning, choosing and implementing appropriate learning strategies, and evaluating their own learning outcomes."

**Goal**
Students will experience a learning environment that promotes the skills needed for life-long learning. Because life-long learning is a difficult concept to operationalize and is resistant to measurement, the objectives for this learning goal refer primarily to the learning opportunities provided to students by the College.

**Objectives**
1. Learning will take place in the context of authentic and complex business problems
2. Students will have extensive opportunities to learn in team settings and to develop effective team skills
3. Students will have the opportunity to develop the ability effectively to research information in furtherance of learning
4. Students will demonstrate effective critical thinking skills

**Assessment Activities and Results**
As noted in the College’s 2008 Assessment Update, given the nature of life-long learning, the assessment approach must necessarily represent the development of potential, rather than the affirmation of capacity. Therefore, the objectives for assessing life-long learning focus primarily on providing to students opportunities to learn the skills necessary for life-long learning. The College's 2008 Assessment Update contains further information about the ways in which the College is meeting these objectives. No further assessment of life-long learning is planned.

### III. Assessment of Learning in Master of Professional Accountancy Program

A committee of the accounting group (AoL MPAc committee) was formed in 2008 to review and revise the learning goals and objectives of the MPAc program so that they best depict desired outcomes for MPAc students. In addition, the AoL MPAc committee was to consider assessment for each specific learning objective. Unfortunately progress 2008 – 2010 has been very slow.

During the 2010-2011 academic year, the AoL MPAc committee made significant progress in establishing learning outcomes, goals, and objectives and development of rubrics.

**Learning Outcomes**
The Master of Professional Accountancy (MPAc) program has specified the following learning outcomes with associated goals and objectives:
1. Critical Thinking
2. Technical Competency
   a. Financial Reporting
   b. Audit services
   c. Taxation
   d. Business Environment
3. Professionalism
Assessment Activities
During the 2011-2012 academic year, the Accounting Option Faculty developed a Professionalism rubric to measure those aspects of Professionalism not already measured by other rubrics. Tests of all rubrics and course imbedded Technical Competencies were initiated. Some rubric tests need to be completed. For course imbedded Technical Competency measures, additional thought needs to go into dis-aggregating the assessments for specific sub-topics and developing a consistent, defensible method for determining whether a student has failed to meet expectations, met expectations, or exceeded expectations. Results of completed rubric tests are reported below. Accounting Option Faculty need to review these results and determine whether or not their assessment measures need further refinement. Copies of the Critical Thinking, Professionalism, Ethical Decision Making, Written Communication, and Oral Communication rubrics can be found in the appendix to this document.

1. Critical Thinking:

<table>
<thead>
<tr>
<th>CT Category</th>
<th>% Not Meeting Expectations</th>
<th>% Meeting Expectations</th>
<th>% Exceeding Expectations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assimilate</td>
<td>15</td>
<td>65</td>
<td>20</td>
</tr>
<tr>
<td>Evaluate</td>
<td>45</td>
<td>45</td>
<td>10</td>
</tr>
<tr>
<td>Conclude</td>
<td>30</td>
<td>70</td>
<td>0</td>
</tr>
</tbody>
</table>

To the extent that these preliminary results are valid, they indicate that MPAc students are very good at assimilating all the relative information but they are deficient in using that information to evaluate alternatives and reach a defensible conclusion.

3. Technical Competency:
   a. Financial Reporting  
      (Assessment to be based on Final Exam to be given Spring 2012 semester)
   b. Audit Services  
      (Assessment to be based on Final Exam to be given Fall 2012 semester)
   c. Taxation

<table>
<thead>
<tr>
<th>Tax Category</th>
<th>% Not Meeting Expectations</th>
<th>% Meeting Expectations</th>
<th>% Exceeding Expectations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calculate Corp tax</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Schedule M-1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Partnership Formation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>S-Corp Taxable Income</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>State Taxes, multi-state</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Estate Taxes</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
d. Business Environment
   (Assessment to be based on Final Exam to be given this semester)

4. Professionalism

<table>
<thead>
<tr>
<th>Professionalism Trait</th>
<th>% Not Meeting Expectations</th>
<th>% Meeting Expectations</th>
<th>% Exceeding Expectations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increased Awareness of …</td>
<td>0</td>
<td>20</td>
<td>80</td>
</tr>
<tr>
<td>Reflections of Personal Strength</td>
<td>0</td>
<td>45</td>
<td>55</td>
</tr>
<tr>
<td>Reflections of Personal Weakness</td>
<td>0</td>
<td>55</td>
<td>45</td>
</tr>
</tbody>
</table>

Professionalism is considered to be an overarching framework with characteristics of professionalism observed in written communications, oral communications, ethical decision-making, technical competency, and in student engagement with the profession of accountancy. Student engagement with the profession of accountancy is the area addressed by the “Professionalism” rubric as all the other professionalism objectives are integrated with and inextricable from these other objectives that are assessed by other rubrics. The assessments for ethical decision-making, technical competency, and oral and written communication are sufficient for those professionalism characteristics. With this engagement with the profession of accountancy assessment, all aspects of the overarching “professionalism” are covered. Please see the Appendix for further discussion of the development of the professionalism concept and rubric.

5. Ethical Decision-Making

<table>
<thead>
<tr>
<th>Ethics Category</th>
<th>% Not Meeting Expectations</th>
<th>% Meeting Expectations</th>
<th>% Exceeding Expectations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Awareness of Ethical Dilemma</td>
<td>0</td>
<td>90</td>
<td>10</td>
</tr>
<tr>
<td>Identify Potential Consequences</td>
<td>0</td>
<td>90</td>
<td>10</td>
</tr>
<tr>
<td>Identify Framework</td>
<td>50</td>
<td>30</td>
<td>20</td>
</tr>
<tr>
<td>Defensible Decision</td>
<td>10</td>
<td>85</td>
<td>5</td>
</tr>
</tbody>
</table>

6. Written Communication

<table>
<thead>
<tr>
<th>Writing Aspects</th>
<th>% Not Meeting Expectations</th>
<th>% Meeting Expectations</th>
<th>% Exceeding Expectations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Development &amp; Organization</td>
<td>20</td>
<td>45</td>
<td>35</td>
</tr>
<tr>
<td>Completeness &amp; Conciseness</td>
<td>0</td>
<td>60</td>
<td>40</td>
</tr>
<tr>
<td>Sources &amp; References</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Spelling, Grammar, Structure, etc.</td>
<td>5</td>
<td>70</td>
<td>25</td>
</tr>
</tbody>
</table>
7. Oral Communication
   (Videoed Presentations are being evaluated)
Appendix

I. COB: Revised Ethics Rubric

II. MPAc:

A. Critical Thinking

B. Professionalism

C. Ethical Decision-Making

D. Written Communication

E. Oral Communication
## I. COB: Draft Ethics Rubric Revision

<table>
<thead>
<tr>
<th>Score</th>
<th>0 -- Unacceptable</th>
<th>1 -- Satisfactory</th>
<th>2 -- Outstanding</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recognition of Ethical/Social Responsibility Issues</td>
<td>Little or no recognition of relevant ethical issues</td>
<td>Identifies some of the relevant ethical issues</td>
<td>Identifies all relevant ethical issues</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Fails to recognize one or more of the most salient ethical issues</td>
<td>Identifies the most salient ethical issue</td>
<td>Demonstrates creativity and insight into identification of ethical issues</td>
<td></td>
</tr>
<tr>
<td>Evaluation of Options for Action</td>
<td>No stated or implied criteria or standards.</td>
<td>Implicit and/or inconsistent criteria or standards.*</td>
<td>Explicit and consistent criteria or standards.*</td>
<td></td>
</tr>
<tr>
<td></td>
<td>No recognition of options or recognizes only one reasonable option</td>
<td>Identifies reasonable alternative options</td>
<td>Identifies multiple reasonable options</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Superficial analysis of social and/or personal implications of options with little specific support</td>
<td>Competent analysis of social and personal implications of each option supported by some specific information</td>
<td>Comprehensive analysis of social and personal implications of each option using specific information</td>
<td></td>
</tr>
<tr>
<td>Decision</td>
<td>No decision or decision reflects little or no serious engagement with ethics and social responsibility</td>
<td>Decision reflects competent but not fully-developed ideas on ethics and social responsibility</td>
<td>Decision reflects well-developed ideas on ethics and social responsibility</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Not supported with persuasive arguments and evidence</td>
<td>Supported with generally persuasive arguments and some evidence</td>
<td>Supported with clear and persuasive arguments and evidence</td>
<td></td>
</tr>
<tr>
<td></td>
<td>No other options recognized</td>
<td>Acknowledges other options with some recognition of their legitimacy</td>
<td>Effectively persuades that other options are not optimal</td>
<td></td>
</tr>
</tbody>
</table>

* Criteria or Standards used to evaluate alternatives may be drawn from Ethical PEAS list of ethical guidelines and theories but not necessarily. It is not necessary that any guideline or theory by named.
What Are Ethical Guidelines and Theories?
Ethical guidelines and theories are tools and principles that can help you determine an appropriate course of action for a particular situation. Each guideline and theory has strengths and weaknesses that should be evaluated in terms of each stakeholder and the context of the problem. To use a theory, evaluate the statements provided. Some of the most widely-used ethical guidelines and theories include:  

Front Page of the Newspaper Test
- If I committed this action, I would be comfortable reading about it on the front page of a newspaper.
- I would not feel comfortable if this action was publicized in the media.
- If I committed this action, I would be willing to communicate it to my stakeholders.

End/Means Test
- In the long-term, the overall good produced by this action justifies the minimal amount of damage that results from the action in the short-term.
- Because the action was committed to achieve an ethical outcome, it's okay to cut corners to commit the action itself.
- The overall good achieved by this action does not justify how the action was committed.

The Golden Rule
- I would be willing to accept this action as a stakeholder.
- If I was the recipient of this action, I would consider it a fair outcome.
- I believe most people would find this action to be fair if they were on the receiving end.

Utilitarianism
- This action results in benefits that outweigh the costs to all stakeholders.
- This action produces the greatest good for the greatest number of people.
- This action does not result in a broad array of positive outcomes for the most stakeholders.

Professional Standards or Codes of Conduct
- This action violates published standards that guide the actions of business professionals.
- This action would likely violate a business's internal code of conduct.
- This action would be considered an accepted practice in my profession.
- This action would be accepted as a common and effective business practice in my organization.

Moral Equity
- This action was fair.
- This action was just.
- This action was acceptable to my family.
- This action was morally right.

Relativism
- This action is traditionally acceptable.
- This action is culturally acceptable.

Contractualism
- This action violates an unspoken promise.
- This action violates an unwritten contract.

---

## II. A. MPAc: Critical Thinking

### Grading Rubric for Critical Thinking Assessment

<table>
<thead>
<tr>
<th></th>
<th>Below Expectations (0)</th>
<th>Meets Expectations (1)</th>
<th>Exceeds Expectations (2)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Assimilate</strong></td>
<td>- Fails to include relevant information</td>
<td>- Includes some relevant information</td>
<td>- Includes most relevant information</td>
</tr>
<tr>
<td>(Problem and Evidence)</td>
<td>- Includes excessive irrelevant information</td>
<td>- Minimal amount of irrelevant information</td>
<td>- Does not include irrelevant information</td>
</tr>
<tr>
<td></td>
<td>- Misinterprets or mischaracterizes information</td>
<td>- Generally interprets information accurately</td>
<td>- Consistently interprets information accurately</td>
</tr>
<tr>
<td></td>
<td>- Fails to include or is confused by information from a variety of viewpoints</td>
<td>- Includes some disparate and potentially conflicting information from a variety of viewpoints</td>
<td>- Effectively includes disparate and potentially conflicting information from a variety of viewpoints</td>
</tr>
<tr>
<td></td>
<td>- Incorrectly or incompletely defines aspects of the problem</td>
<td>- Generally defines most aspects of the problem correctly</td>
<td>- Clearly and accurately defines all aspects of the problem(s)</td>
</tr>
<tr>
<td><strong>Evaluate</strong></td>
<td>- Demonstrates no or little independent/critical thought</td>
<td>- Demonstrates some independent and critical thought</td>
<td>- Demonstrates independent and critical thought</td>
</tr>
<tr>
<td>(Analysis)</td>
<td>- Is unable to or superficially uses general principles to interpret authority and create reasonable solutions and/or predictions</td>
<td>- Limited use of general principles to interpret authority and create reasonable solutions and/or predictions</td>
<td>- Effectively uses general principles to interpret authority and create reasonable solutions and/or predictions</td>
</tr>
<tr>
<td></td>
<td>- Is unable to or superficially uses specific examples to support analysis</td>
<td>- Limited use of specific examples to support analysis</td>
<td>- Effectively uses specific examples to support analysis</td>
</tr>
<tr>
<td></td>
<td>- Cannot discriminate between more or less compelling arguments and support</td>
<td>- Can discriminate between some more or less compelling arguments and support.</td>
<td>- Effectively discriminates between more or less compelling arguments and support.</td>
</tr>
<tr>
<td><strong>Conclude</strong></td>
<td>- No decision</td>
<td>- Irresolute decision</td>
<td>- Clear decision</td>
</tr>
<tr>
<td>(Solution)</td>
<td>- Decision not based on or only superficially based on sound evidence and prior evaluation</td>
<td>- Decision somewhat based on sound evidence and prior evaluation</td>
<td>- Decision clearly based on sound evidence and prior evaluation</td>
</tr>
<tr>
<td></td>
<td>- Decision not supported with relevant authority and persuasive arguments</td>
<td>- Decision somewhat supported with relevant authority and persuasive arguments</td>
<td>- Decision clearly supported with relevant authority and persuasive arguments</td>
</tr>
<tr>
<td></td>
<td>- Does not acknowledge other potential outcomes</td>
<td>- Acknowledges other potential outcomes, does not effectively persuade they are less desirable</td>
<td>- Effectively persuades that other potential outcomes are less desirable</td>
</tr>
<tr>
<td></td>
<td>- Decision based on biased information/ reasoning</td>
<td>- Decision based on general information/ reasoning</td>
<td>- Decision based on specific information/ reasoning</td>
</tr>
</tbody>
</table>

**Total:**
II. B. MPAc: Professionalism

AoL Objectives – Professionalism

Inherent in the mission of the Master of Professional Accountancy program is a commitment to building and encouraging professionalism in students. We consider professionalism to be an overarching framework for program that is observed in our students in many different activities and outcomes. Characteristics of professionalism are observed throughout the MPAc program – in written communications, oral communications, ethical decision-making, and in technical competency. With the exception of the objective of student engagement with the profession of accountancy, our professionalism objectives are integrated with and inextricable from these other objectives that we assess and measure for AoL purposes. Therefore, we consider our assessment efforts for these other objectives to sufficiently include those professionalism characteristics.

In addition to our integrated assessment of professionalism characteristics, we also assert that student attendance at an MPAc Professionalism workshop provides sufficient evidence of building and encouraging professionalism in students. Master of Professional Accountancy students attend an MPAc Professionalism Workshop at the beginning of their Fall semesters. This workshop is devoted to building and modeling characteristics of professionalism in our graduate students and includes presentations by faculty, presentations on by accounting professionals, panel discussions by accounting professionals, and interactive opportunities such as resume review and mock interviews. Students complete an evaluation form that includes a section on what they learned. We review this section for evidence of successful completion of the Workshop.

To measure and assess the objective of engagement with the profession of accountancy, we apply a rubric to a written report submitted by students after completing the MPAc Professionalism Workshop.

In summary, our approach to considering professionalism as part of our AoL is as follows:

1. We measure the following attributes of professionalism as part of our assessment process for our other MPAc program objectives
   a. Professionalism in written communication,
   b. Professionalism in oral communication,
   c. Consideration of professional requirements in making ethical decisions,
   d. Ability to provide professional services (technical competence in accounting).
2. We provide students with an MPAc Professionalism Workshop, which is evidenced by a completed evaluation form that indicates development of professional characteristics.
3. We measure the objective of engagement with the profession of accountancy by applying a rubric to a written report submitted by students after the MPAc Professionalism Workshop.
### MSU College of Business MPAc Program
#### Engagement with the Profession of Accountancy
**(Professionalism Assessment Instrument)**

<table>
<thead>
<tr>
<th></th>
<th>Does Not Meet Expectations (0)</th>
<th>Meets Expectations (1)</th>
<th>Exceeds Expectations (2)</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Expresses awareness of dimensions of accounting professional characteristics</strong></td>
<td>Little or no indication or awareness.</td>
<td>Indicates awareness of primary characteristics.</td>
<td>Indicates awareness of most characteristics.</td>
<td></td>
</tr>
<tr>
<td><strong>Identifies strengths with respect to accounting professional characteristics</strong></td>
<td>Failed to identify or poorly articulated any personal professional characteristic strength.</td>
<td>Identified and articulated with some personal reflection on a professional characteristic strength.</td>
<td>Identified and articulated with personal reflection on a professional characteristic strength and how strength could be leveraged in a professional career.</td>
<td></td>
</tr>
<tr>
<td><strong>Identifies weakness with respect to accounting professional characteristics</strong></td>
<td>Failed to identify or poorly articulated any personal professional characteristic weaknesses.</td>
<td>Identified and articulated with some personal reflection on a deficient professional characteristic.</td>
<td>Identified and articulated with some personal reflection on a deficient professional characteristic and how to either improve or compensate for weakness.</td>
<td></td>
</tr>
<tr>
<td><strong>Expresses interest in career paths and developments in the accounting profession</strong></td>
<td>Displayed no knowledge or interest in different career paths or developments in the accounting profession.</td>
<td>Displayed some interest in career paths and developments in the accounting profession.</td>
<td>Displayed considerable interest in career paths and developments in the accounting profession and how the two interact.</td>
<td></td>
</tr>
</tbody>
</table>

**Overall:**
## II. C. MPAc: Ethical Decision-Making

<table>
<thead>
<tr>
<th>MPAc Ethical Decision Making Assessment of Learning Rubric Fall 2011</th>
<th>0 – Below Expectations</th>
<th>1 – Meets Expectations</th>
<th>2 – Exceeds Expectations</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Awareness of Ethical Dilemma/Issue</td>
<td>Little or no awareness of ethical dilemmas/issues in an accounting situation</td>
<td>Identifies some of the ethical dilemmas/issues in an accounting situation</td>
<td>Identifies most or all of the ethical dilemmas/issues in an accounting situation</td>
<td></td>
</tr>
<tr>
<td>Identifies Potential Consequences of Ethical Dilemmas/Issues</td>
<td>Little or no ability to identify potential consequences of ethical dilemmas/issues, including those potentially affected</td>
<td>Identifies some potential consequences of ethical dilemmas/issues, including those potentially affected</td>
<td>Identifies most or all potential consequences of ethical dilemmas/issues, including those potentially affected</td>
<td></td>
</tr>
<tr>
<td>Identifies Appropriate Professional Code of Conduct or Ethical Decision-Making Framework*</td>
<td>Does not identify guidance from relevant professional codes of conduct to the ethical dilemma/framework, or applies guidance inappropriately</td>
<td>Identifies guidance in relevant professional codes of conduct to the ethical dilemma/framework</td>
<td>Identifies guidance in relevant ethical decision-making framework to the ethical dilemma/framework</td>
<td></td>
</tr>
<tr>
<td>Makes a Defensible Decision</td>
<td>No decision or decision reflects little or no serious consideration of ethics</td>
<td>Decision reflects competent but not fully-developed consideration of ethics</td>
<td>Decision reflects well-developed consideration of ethics</td>
<td></td>
</tr>
</tbody>
</table>

*Ethical Decision-Making Frameworks include Universalism, Relativism, Social Contract, Pareto Optimality, Cost-Benefit, Golden Rule, appeal to Moral/Ethical principle o authority: e.g. Corporate Codes of Conduct, Mission Statements, Utilitarianism, Fairness, Justice, or Rights etc.
**II. D. MPAc: Written Communication**

<table>
<thead>
<tr>
<th>WRITTEN COMMUNICATION ASSESSMENT RUBRIC</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Score</strong></td>
</tr>
<tr>
<td>0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Organization &amp; Development of Ideas</strong></th>
<th><strong>0 - Below Expectations</strong></th>
<th><strong>1 - Meet Expectations</strong></th>
<th><strong>2 – Exceeds Expectations</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>• No, or poorly communicated, introduction</td>
<td>• Introduction implies but does not clearly state thesis, purpose and/or organization of paper</td>
<td>• Clear introduction states thesis, purpose and organization of paper</td>
<td></td>
</tr>
<tr>
<td>• No clear thesis</td>
<td>• Thesis present but not fully developed</td>
<td>• Thesis clear and well-developed</td>
<td></td>
</tr>
<tr>
<td>• Little or no logical connection from one idea to the next</td>
<td>• Generally thoughtful development of position with some gaps in logic or reasoning</td>
<td>• Logical position and analysis is easy to follow</td>
<td></td>
</tr>
<tr>
<td>• Conclusion (when needed) absent or perfunctory</td>
<td>• Conclusion (when needed) briefly summarizes paper but does not tie it into a coherent whole</td>
<td>• Conclusion (when needed) is clear and comprehensive</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Completeness &amp; Conciseness</strong></th>
<th><strong>0 - Below Expectations</strong></th>
<th><strong>1 - Meet Expectations</strong></th>
<th><strong>2 – Exceeds Expectations</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>• Does not address most of the key elements of the requirements</td>
<td>• Addresses most of the key elements of the requirements</td>
<td>• Addresses all of the key elements of the requirements</td>
<td></td>
</tr>
<tr>
<td>• Broad exposition on the general subject</td>
<td>• Generally conveys points in as few words as possible, usually without scrimping on important detail or substance</td>
<td>• Conveys points in as few words as possible, without scrimping on important detail or substance</td>
<td></td>
</tr>
<tr>
<td>• Long sentences and/or unnecessarily long paragraphs</td>
<td>• Sentences are usually short with appropriate paragraph length generally used</td>
<td>• Sentences are short with appropriate paragraph length</td>
<td></td>
</tr>
<tr>
<td>• Complex wording</td>
<td>• Simple wording generally used</td>
<td>• Simple wording frequently and appropriately used</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Sources &amp; References</strong></th>
<th><strong>0 - Below Expectations</strong></th>
<th><strong>1 - Meet Expectations</strong></th>
<th><strong>2 – Exceeds Expectations</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>• Sources for facts, quotations and ideas not properly indicated</td>
<td>• Where appropriate, sources for most facts, quotations and ideas are properly indicated</td>
<td>• Where appropriate, sources for all facts, quotations and ideas are properly indicated</td>
<td></td>
</tr>
<tr>
<td>• Sources do not support the author’s points</td>
<td>• Sources generally support the author’s points</td>
<td>• Sources consistently support author’s points</td>
<td></td>
</tr>
<tr>
<td>• Too few sources used</td>
<td>• More or a greater variety of sources should be used</td>
<td>• Appropriate variety of sources</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Spelling, Punctuation, Grammar, Sentence &amp; Paragraph Structure</strong></th>
<th><strong>0 - Below Expectations</strong></th>
<th><strong>1 - Meet Expectations</strong></th>
<th><strong>2 – Exceeds Expectations</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>• Frequent errors (average ≥ 3 per page)</td>
<td>• Occasional errors (average 1 – 2 per page)</td>
<td>• Very few errors (average ≤ 1 per page)</td>
<td></td>
</tr>
<tr>
<td>• Errors interfere with communication</td>
<td>• Errors do not substantially interfere with communication</td>
<td>• Errors do not interfere with communication</td>
<td></td>
</tr>
<tr>
<td>• Sentences regularly contain grammatical errors or other problems (e.g., tone, word choice) that interfere with communication</td>
<td>• Sentences are generally grammatically correct but occasionally awkward (e.g., with respect to tone, word choice)</td>
<td>• Sentence structure makes paper easy to read</td>
<td></td>
</tr>
<tr>
<td>• Paragraphs generally lack focus</td>
<td>• Paragraphs are usually focused</td>
<td>• Paragraphs are focused and coherent</td>
<td></td>
</tr>
<tr>
<td>• Writing overly informal</td>
<td>• Writing generally professional</td>
<td>• Writing consistently professional</td>
<td></td>
</tr>
<tr>
<td>• Quotations often interrupt the flow of writing</td>
<td>• Quotations occasionally interfere with flow of writing</td>
<td>• Quotations are integrated seamlessly</td>
<td></td>
</tr>
</tbody>
</table>

| Overall |
### II. E. MPAc: Oral Communication

#### MSU College of Business MPAcc Program
Oral Communication Rubric for Formal Presentations

<table>
<thead>
<tr>
<th></th>
<th>Below Expectations (0)</th>
<th>Meets Expectations (1)</th>
<th>Exceeds Expectations (2)</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Organization &amp; Development of Ideas</strong></td>
<td>Introduction is nonexistent or does not clearly state thesis, purpose and organization.</td>
<td>Clear introduction states thesis, purpose and organization.</td>
<td>Achieves “Meets Expectations,” standard plus:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Little or no connection exists from one idea to the next, or ideas lack support.</td>
<td>Arguments and analysis are easy to follow and well supported.</td>
<td>Content of presentation is exceptionally impactful, memorable, creative, appropriately humorous or rhetorically unique.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>There is no discernible conclusion or conclusion is not clear and comprehensive.</td>
<td>Conclusion is clearly stated and comprehensive.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Responses to audience questions are evasive or incomplete.</td>
<td>Responses to audience questions are direct and complete.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Presentation Aids (visuals, audios, handouts, props)</strong></td>
<td>Presentation aids are inappropriately used, hard to follow or inaccurate.</td>
<td>Presentation aids are professional, clear, and void of distracting errors.</td>
<td>Achieves “Meets Expectations,” standard plus:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Presentation aids are primarily repetitive with speech or offer unnecessary content.</td>
<td>Presentation aids fully support speech to enable greater audience understanding.</td>
<td>Exceptionally effective use of value-added graphics, props, supplemental materials or leading edge technology.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Avoidable errors or disruptions in use of supporting technology interfere with presentation.</td>
<td>Supporting technology is effectively used.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Delivery</strong></td>
<td>Pitch of voice and/or speaking rate interfere(s) with presentation.</td>
<td>Speech is clear, of appropriate volume and of a measured pace with few verbal filler words.</td>
<td>Achieves “Meets Expectations,” standard plus:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Frequent verbal filler words</td>
<td>Vocabulary, topic, or acronyms at the appropriate level for the understanding of the intended audience.</td>
<td>Exceptionally attuned to audience mood and reactions; works hard to grab and keep audience interest.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Inappropriate vocabulary, topic, or acronyms for the intended audience.</td>
<td>Eye contact is frequent, appropriate and audience-wide.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Eye contact is infrequent, inappropriate or concentrated.</td>
<td>Reliance on notes and visuals are minimal.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Relies excessively on notes or visuals for cues.</td>
<td>Posture, position and movement are appropriate and convey reasonable confidence.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Body language or motion is distracting.</td>
<td>Time is properly managed (within 10 % of allotted time).</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Duration is excessively long or short (&lt; or &gt;10 % of allotted time).</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
MSU Departmental Assessment Update
Spring 2007

Department: Computer Science

Department Head: Dr. Michael Oudshoorn

Assessment Coordinator: Dr. Michael Oudshoorn

Date: 4-15-07

Degrees/Majors/Options Offered by Department
BS in Computer Science
Computer Science

Assessment plan – what has happened in the past year…

Over the past two years, the department has spent time clearly articulating course objectives and putting appropriate strategies in place to evaluate our progress against these objectives. First we defined our objectives for each course and the mission for the department. This was done through faculty discussion and involved input from undergraduate and graduate students by having elected student representatives on the departmental committee. Informal feedback was also solicited from the student population. An industry advisory board was established in 2004 and the industry members also provided valuable feedback on course objectives and our success against those objectives.

Student performance remains an important component of evaluating how well the courses meet their objectives. Grades themselves are not particularly relevant, but each instructor has a goal in mind when teaching a class and the extent to which that goal is reached provides one subjective data point. Many courses are prerequisites for other courses and so the extent to which students are adequately prepared to undertake later courses can be noted and provides feedback on the success of the earlier course in meeting its objective – however this feedback often lags behind the foundational course between a semester and 2 years. At the end of the 2005/06 academic year, each course instructor produced a self assessment of their courses. This self assessment covers all aspects of the course and instructors were asked to state strengths and weaknesses that they had observed in their classes during that year. These self assessments stored in the Computer Science Department and was used during the 2006 ABET Accreditation visit.

In addition, the department has a policy of collecting instructor and course feedback on each course at the end of each semester. Instructor feedback in confidential to each instructor, but course feedback is available to all faculty members. Instructor feedback is used by the instructor to improve classroom performance. Instructor feedback is maintained within the Computer Science Department and was used during the 2006 ABET accreditation visit.

An exit survey of the graduating students is conducted by Dr. Carolyn Plumb at the of each year. Feedback obtained in May 2006 is attached in Appendix C. At the annual retreat held in August 2006, Faculty will discuss the self assessment and student evaluations of each course as well as the exit survey results. The discussion will address the issues raised and revisit the course objectives and goals relative to the feedback from the instructor. This discussion represents the first opportunity that the department has had to fully evaluate the changes made to the curriculum over recent years as all of the changes to lower division classes have now been fully implemented. Preliminary examination of the feedback suggests that the changes implemented in the curriculum over the past 2-3 years has been appropriate and beneficial.

The department identified a number of stakeholders and determined strategies to solicit feedback from the stakeholders to measure our success. We have discovered some of the planned feedback mechanisms to be more successful than others and we have refined our approach as necessary in order to get back as much valuable information as possible.

Commencing in this academic year, all graduating students graduating under the 2006/07 rules or later are required to complete the ETS Major Field Test in Computer Science. This will give the students valuable feedback about where they stand nationally and what their strengths and weaknesses are. It will also provide the department with feedback about where our cohort of students stands against these national averages so that we can modify the courses as necessary in order to improve. We expect data from the Major Field Test to be available approximately 6 weeks after the end of each semester. We plan to run the Major Field Test each semester and expect that the data gathered will help the department determine its strengths and weaknesses relative to our peers.

Finally, a summary of issues and planned solutions resulting from the faculty-wide discussions and evaluation of the feedback will be presented to members of the industry advisory board. They will be given the opportunity to comment on how we are dealing with changes and also have the opportunity to provide
additional feedback. This will close the feedback loop and will have taken into consideration feedback from all stakeholders: faculty, students, graduates, and employers as well as incorporated results from a national test (Major Field Test).

We have found that employer surveys have an extremely low response rate and so we have adopted a model of using the industry advisory board as the primary employer feedback mechanism. The department is still looking for mechanisms to gather additional feedback from employers. We have found that informal discussions with employers at the bi-annual career fair has yielded some good feedback, albeit verbal. We are looking into ways to formalize this and still make the process painless for employers.

Dr. Carolyn Plumb from the Dean’s office has run an exit interview for graduating students (Details kept in the department and provided to ABET during their 2006 accreditation visit). We have gathered some useful feedback but the response rate has been relatively low. We may need to consider a required exit interview with the Department Head in order to improve the response rate.

Reaching graduates who are now 3-5 years into their career is difficult. The department is preparing to provide each graduating student with a permanent E-mail address that would allow the department to remain in contact with them over time. This will be implemented in 2007/08 and will provide us with a mechanism to stay in touch with graduates for some years after their graduation. This will permit us to gather feedback on the value of the degree and the courses they undertook after the graduates have been in industry for 3-5 years. We anticipate to get the first set of viable long term feedback on the curriculum in 2010. The feedback from graduates as they progress through their careers can be used to identify strengths and weaknesses that may not be noticed based on the immediate feedback mechanisms we have in place at the moment.

We believe that we have a sufficient variety of data available and that we are gathering the right kind of data in order to start recognizing trends in the near future.

We have restructured the first two years of the curriculum based on informal feedback from students, employers and through our own observations (especially those of new incoming faculty members that see things with a fresh perspective). Problems that were observed included:

1. Material unnecessarily duplicated in multiple courses.
2. Prerequisites not being enforced consistently.
3. Subjects being identified as prerequisites but then the material not being used or relied upon in the follow-on subject.
4. Subjects not offered frequently enough to allow students to graduate in a timely manner. This was a particular concern for transferring students and students engaged in part-time study.
5. Concerns raised by students regarding the quality of advising.

As a result of this feedback, the following changes have been made over the past 3 years:

1. CS 160 Introduction to Computer Science and CS221 Advanced Programming: now offered in Fall and Spring to better cater for transfer students, students who commence mid-year, students who need to take some remedial mathematics classes before starting CS160 Introduction to Computer Science, and students who fail the subject in Fall. This has been done to ensure that these students are able to complete the degree in the minimum timeframe.
2. CS160 Introduction to Computer Science: the mathematics requirements have been changed so that now MATH160 is a co-requisite (previously it was Math181). This was done to better reflect the level of Mathematics actually used and needed to undertake CS160 Introduction to Computer Science and to deal with the fact that we found students were entering Computer Science less well prepared mathematically than they had been in the past. Course content for CS160 Introduction to Computer Science was revised with feedback from the other Engineering Departments that have their students take this subject.
3. CS201 Program Design with C: now offered in Spring with a pre-requisite of CS160 Introduction to Computer Science and a co-requisite of MATH160. This most accurately reflects the skill set the students need to be successful and caters for one of the subject’s major clients – the Electrical
and Computer Engineering Department which requires all of its students to take CS201 Program Design with C.

4. CS215 Ethics and Social Implications of Computing: this subject was introduced in 2006 and offered in Fall with a pre-requisite of CS221 Advanced Programming in addition to a Core “W” (Writing) course and a CORE “US” (University Seminar) course. It brings all of the ethics discussions into a single course and addresses the difficulties that we were experiencing in adequately assessing students knowledge of ethics when the course.

5. CS221 Advanced Programming: offered in Spring, Fall and the first six week summer session with a pre-requisite of CS160 Introduction to Computer Science and a co-requisite of MATH181. This is a pivotal course in the curriculum and offering it on a regular basis allows students to progress through their degrees in a timely manner. It addresses the problem we identified of students sometimes being forced to sit out of Computer Science for a semester because CS221 Advanced Programming was not offered. Since we discovered that several of these students left Computer Science, we felt that it was critical to offer this subject more often.

6. CS222 Discrete Mathematics: offered in Fall and the first six week summer session with a pre-requisite of CS160 Introduction to Computer Science and a co-requisite of MATH181. Offering the class over summer was a response to student feedback that offering the course over summer would permit them to take the Computer Science subjects at a time that best suited them.

7. CS223 Data Structures and Algorithms: offered in Spring with a pre-requisite of CS221 Advanced Programming and CS222 Discrete Mathematics and a co-requisite of MATH181. The revised Math co-requisite better reflects the mathematical sophistication required to succeed in CS223 Data Structures and Algorithms, and the typical student’s progress through the Math curriculum at the time they undertake CS223 Data Structures and Algorithms. This change occurred when we discovered that several students were seeking to have prerequisites waived in order to continue progressing through the curriculum. Since the instructor uniformly approved the request to waive the prerequisite, it was determined that Math182 was more advanced than was actually required.

8. CS460/461 Senior Design Project: this subject moved to using a multidisciplinary project wherever possible. The subject also has an “R” (Research/creative activity) designation as part of the MSU Core Curriculum.

9. CS355 Programming Paradigms: This subject was added to the curriculum 2 years ago when it was identified that some material was unnecessarily covered multiple times in the curriculum (Red-black trees, for example, was covered 4 times in different courses). It was also observed that some students were graduating only having seen the object-oriented paradigm. As a result of reorganizing the material in CS221, CS223 and CS324 to remove duplications, enough free resources were identified to add CS355 Programming Paradigms to the curriculum to ensure that students are exposed to multiple approaches.

10. An advising contract has been introduced to make sure that student and faculty member meet regularly to discuss the student’s plans and their progress.

11. A prerequisite waiver form was introduced to ensure that prerequisite waivers and associated reasons were properly documented. This also facilitates curriculum discussions as it provides data about course relationships that require attention.

12. The math co-requisites across the curriculum have been simplified to better reflect the skill set needed (rather than desired by the instructor). The semesters in which subjects are offered has been rearranged to provide students with the greatest opportunity to complete the degree in minimal time, and to better cater for students entering the curriculum mid-year, or transferring into the program from another institution. Finally, additional course offerings occur in the summer to satisfy student demand. A document showing the pathway through the degree and the prerequisite structure was also produced and made available to students.

The department has only just completed these changes and we have had our first set of students complete the lower division classes after they have been updated. The feedback gathered provides insight into our success and is the focus of the Annual retreat held in August each year.
Department: Computer Science

Department Head: John Paxton

Assessment Coordinator: John Paxton

Degrees/Majors/Options Offered by Department

- BS in Computer Science
  - Professional Option
  - Interdisciplinary Option
- MS in Computer Science
- PhD in Computer Science

By June 30, 2009, we will have collected the following written information:

1. Minutes from our weekly departmental meetings
3. Minutes from our industry advisory board meeting in February 2009.
4. Course evaluation summaries for Fall Semester 2008 and Spring Semester 2009 courses.
5. The results of the Major Field Test, taken by all graduating seniors in Fall Semester 2008 and Spring Semester 2009.
6. A graduating senior survey summary, constructed by Carolyn Plumb, conducted in April 2009.
7. New! A custom designed, graduating senior exam that students took in April 2009. The exam is designed to measure how well our graduating seniors are meeting our expected program outcomes.
8. New! Portfolios from students taking the professional option capstone (CS 450, Compilers) and interdisciplinary option capstone (CS 490, Creative Activity). These portfolios will be graded in the summer of 2009 to see how well students are meeting our expected program outcomes.
9. New! Separate town meetings were conducted during Spring Semester 2009 with seniors, juniors, sophomores and first year students. Town meetings will be conducted every 3 years.
10. An alumni survey summary (15 responses) was constructed by Carolyn Plumb in January 2009. This survey is conducted every 3 years.
11. An employer survey summary (11 responses) was constructed by Carolyn Plumb in January 2009. This survey is conducted every 3 years.

The rest of this report summarizes changes that the CS faculty made to our undergraduate curriculum in AY 2009 as a result of the above information.

Major curriculum change made during AY 2009:

1. In Fall Semester 2008, we split our B.S. degree into two options: a professional option and an interdisciplinary option.
2. In Fall Semester 2008, we made our minor more flexible by removing CS 201 (Program Design with C) and CS 222 (Discrete Mathematics) as strict requirements.

Course changes made during AY 2009:

1. In Summer Semester 2008, we offered a study abroad course on the topic of Web Programming at The University of Leipzig in Germany.
2. In Fall Semester 2008, we changed CS 221, Advanced Programming, so that instead of having a co-requisite of Math 181, Calculus I, it has a pre-requisite of Math 160, Pre-calculus.
3. In Fall Semester 2008, we changed CS 223, Data Structures and Algorithms, to remove its co-requisites of Math 181, Calculus I and CS 222, Discrete Mathematics.
4. In Fall Semester 2008, we changed CS 324, Design and Analysis of Algorithms to add a pre-requisite of CS 222, Discrete Mathematics.
5. In Fall Semester 2008, we hired an industry practitioner to teach CS 351, Software Engineering I.
6. In Spring Semester 2009, we introduced the course CS 145 / ART 145, Web Design. The course is team-taught by a CS professor and a Graphic Design professor. 112 students enrolled.
7. In Spring Semester 2009, the course CS 204, Multimedia, focused on computer animation using Blender.
8. In Spring Semester 2009, we offered CS 309, Systems Administration for the first time in several years.
9. In Spring Semester 2009, we hired an industry practitioner to teach CS 451, Software Engineering II.
10. In Fall Semester 2009, we will offer CS 480, a special topics course on Human Computer Interaction and User Interface Design.
11. In Spring Semester 2010, we will offer the new course CS 140, Spinning Webs.
12. In Spring Semester 2010, we will offer the new course CS 455, Security.

Source of changes

The information that led to (and corroborates) the above changes includes

- More state-of-the-art practice is needed in our curriculum. This qualitative feedback has led to
  1. hiring industry practitioners to teach software engineering (CS 351 and CS 451)
  2. developing a security course that will be team-taught by an industry practitioner (CS 455)
  3. offering a web programming course (CS 480)
  4. offering a web design course (CS 145)
  5. offering a systems administration course (CS 309)
  6. developing a special topics course on Human Computer Interaction and User Interface Design (CS 480) that will be taught by an industry practitioner
  7. developing a course on Spinning Webs (CS 140)
Sources: *Graduating Senior Survey Summaries* (Spring 2005, Fall 2005, Fall 2007, Spring 2009), *Alumni Survey Summary* (Spring 2009), *Course Evaluation Summaries* (Fall 2007).

- A course on security is needed. This **qualitative** feedback has led to a security course, CS 455, being developed. Sources: *Graduating Senior Survey Summaries* (Spring 2005, Spring 2008, Spring 2009), *Alumni Survey Summary* (Spring 2009), *Employer Survey Summary* (Spring 2009), *Town Meeting Summary* (Spring 2009).

- Software engineering needs to be improved. In particular, the senior survey identified this weakness both **qualitatively** through comments and **quantitatively** through numeric evaluations on the question that asks seniors to assess their “skills in software methodologies and environments”. This feedback has led to the hiring of industry practitioners to teach this course. Sources: *Graduating Senior Survey Summaries* (Spring 2005, Fall 2005, Spring 2006, Fall 2007, Spring 2008), *Alumni Survey Summary* (Spring 2009), *Employer Survey Summary* (Spring 2009).

- A course on web programming is needed. This **qualitative** feedback has led to a web programming course being offered in Summer 2008. Sources: *Graduating Senior Survey Summaries* (Spring 2005, Fall 2007, Spring 2008, Spring 2009), *Alumni Survey Summary* (Spring 2009), *Town Meeting Summary* (Spring 2009).

- A course on systems administration is needed. This **qualitative** feedback has led to a systems administration course, CS 309, being offered. Sources: *Graduating Senior Survey Summaries* (Spring 2005, Spring 2008), *Alumni Survey Summary* (Spring 2009), *Employer Survey Summary* (Spring 2009).

- More flexibility is needed to allow students to take classes relevant to their prospective careers. This **qualitative** feedback led to the interdisciplinary option (and the consequent development of the capstone sequence for this option, CS 489 and CS 490) and a more flexible minor. Sources: *Graduating Senior Survey Summaries* (Spring 2005, Fall 2005, Spring 2006, Spring 2007, Spring 2008), *Alumni Survey Summary* (Spring 2009), *Employer Survey Summary* (Spring 2009), *Town Meeting Summary* (Spring 2009).

The following information, based on direct measurements, will be discussed at our upcoming retreat in August 2009 to identify possible curricular changes:

- On the graduating senior exam, question 1 identified a **quantitative** performance weakness in the area of program outcome a - an ability to apply knowledge of computing and mathematics appropriate to the discipline. Source: *Graduation Senior Exam Summary* (Spring 2009).

- On the graduating senior exam, question 2 identified a **quantitative** performance weakness in the area of program outcome b - an ability to analyze a problem, and identify and define the computing requirements appropriate to its solution. Source: *Graduation Senior Exam Summary* (Spring 2009).
• On the graduating senior exam, question 7 identified a **quantitative** performance weakness in the area of program outcome h - recognition of the need for, and an ability to engage in, continuing professional development. Source: *Graduation Senior Exam Summary* (Spring 2009).

• On the major field test, no **quantitative** performance weaknesses were identified. Source: *Major Field Test Summary* (Spring 2009).

• By the time of the retreat, portfolios will be graded and possible **quantitative** performance weaknesses identified. Source: *Capstone Portfolio Summary* (Spring 2009).
Degrees/Majors/Options Offered by Department

- B.S.
  - Professional Option
  - Interdisciplinary Option
- M.S.
- Ph.D.
Computer Science
Assessment Report – What happened in AY 2010

By August, 2010, we will have collected the following information:

1. Minutes from our weekly departmental meetings
2. Minutes from our departmental annual retreat in August 2009.
3. Minutes from our industry advisory board meeting in February 2010.
4. Course evaluation summaries for Fall Semester 2009 and Spring Semester 2010 courses.
5. The results of the Major Field Test, taken by all graduating seniors in Fall Semester 2009 and Spring Semester 2010.
7. A custom designed, graduating senior exam that graduating seniors took at the end of Fall 2009 and Spring 2010. The exam is designed to measure how well our graduating seniors are meeting our expected program outcomes.
8. Portfolios from students taking the professional option capstone (CS 450, Compilers) and interdisciplinary option capstone (CS 490, Creative Activity). These portfolios will be graded in the summer of 2010 to see how well students are meeting our expected program outcomes.

This information will be used at our August 2010 retreat to generate ideas for curricular improvements during AY 2011.

The rest of this report summarizes changes that the CS faculty made to our undergraduate curriculum in AY 2010 as a result of information that we collected during AY 2009.

Significant course enhancements in AY 2010:

1. In Fall 2009, we hired an industry practitioner (Jared Bratsky, RightNow Technologies) to teach a 3 credit special topics course, CS 480, on User Interface Design and Human Computer Interaction.
2. In AY 2009 we hired Clem Izurieta as a half-time associate research professor. With 15 years of industry experience and a Ph.D. in software engineering, Clem taught CS 351, Software Engineering I in the Fall and CS 451, Software Engineering II in the Spring.
3. In Spring 2010, we hired Michael Sutherland (MSU Libraries) to teach a 1 credit special topics course, CS 280, on web programming.
4. In Spring 2010, we offered a course on computer security, CS 455, for the first time. The course was team-taught by an industry practitioner (Gary Harkin, RightNow Technologies) and Year Back Yoo.
5. In Spring 2010, Rocky Ross piloted a 3 credit course, CS 140CS, Spinning Webs.

Source of changes
The information that led to (and corroborates) the above changes includes

- More state-of-the-art practice is needed in our curriculum.
  Sources: Graduating Senior Survey Summaries (Spring 2005, Fall 2005, Fall 2007, Spring 2009), Alumni Survey Summary (Spring 2009), Course Evaluation Summaries (Fall 2007).

- A course on security is needed. This qualitative feedback has led to a security course, CS 455, being developed. Sources: Graduating Senior Survey Summaries (Spring 2005, Spring 2008, Spring 2009), Alumni Survey Summary (Spring 2009), Employer Survey Summary (Spring 2009), Town Meeting Summary (Spring 2009).

- Software engineering needs to be improved. In particular, the senior survey identified this weakness both qualitatively through comments and quantitatively through numeric evaluations on the question that asks seniors to assess their “skills in software methodologies and environments”. This feedback has led to the hiring of industry practitioners to teach this course. Sources: Graduating Senior Survey Summaries (Spring 2005, Fall 2005, Spring 2006, Fall 2007, Spring 2008), Alumni Survey Summary (Spring 2009), Employer Survey Summary (Spring 2009).

- A course on web programming is needed. This qualitative feedback has led to a web programming course being offered in Summer 2008. Sources: Graduating Senior Survey Summaries (Spring 2005, Fall 2007, Spring 2008, Spring 2009), Alumni Survey Summary (Spring 2009), Town Meeting Summary (Spring 2009).

Assessment-based course changes in AY 2010

The following information, based on direct measurements, was discussed at our retreat in August 2009 with the following curricular changes agreed upon:

- On the graduating senior exam, question 1 identified a quantitative performance weakness in the area of program outcome a - an ability to apply knowledge of computing and mathematics appropriate to the discipline. Source: Graduation Senior Exam Summary (Spring 2009).

  Resulting change: Recurrence relations will be covered in 3-4 lectures during CS 223 and at least 1 lab should be on this topic. 3xx and 4xx courses will point out uses of recurrence relations when relevant.

- On the graduating senior exam, question 2 identified a quantitative performance weakness in the area of program outcome b - an ability to analyze a problem, and identify and define the computing requirements appropriate to its solution. This weakness was also identified by portfolio question 1. Source: Graduation Senior...
Exam Summary (Spring 2009), Capstone Portfolio (Spring 2009).

Resulting change: CS 489 will require students to develop specifications for their capstone project, CS 450 students will be allowed to use their compiler specifications. CS 221 will introduce the concepts of best, average and worst-case time complexity. CS 223 will go into greater detail on time complexity and have at least 1 lab on the topic. 3xx and 4xx will reinforce the time complexity concept when relevant.

- Portfolio questions 1 and 3 identified a **quantitative** performance weakness in the area of program outcome c – an ability to design, implement and evaluate a computer-based system, process, component, or program to meet desired need. Source: Capstone Portfolio (Spring 2009).

Resulting change: CS 489 will require students to develop specifications for their capstone project, CS 450 students will be allowed to use their compiler specifications. CS 489 will require students to identify design patterns that will be used in their project. CS 450 will point out design patterns relevant to compilers as they are encountered.

- Portfolio question 4 identified a **quantitative** performance weakness in the area of program outcome f – an ability to communicate effectively with a range of audiences. Source: Capstone Portfolio (Spring 2009).

Resulting change: CS 450 will require a technical document with its capstone project. In the future, students will be encouraged to add technical documents produced in other senior level courses as optional material.

- On the graduating senior exam, question 7 identified a **quantitative** performance weakness in the area of program outcome h – recognition of the need for, and an ability to engage in, continuing professional development. Source: Graduation Senior Exam Summary (Spring 2009).

Resulting change: CS 215 will encourage students to become more involved in professional organizations. CS 351 will reinforce this concept. The question will be revised so that students know that activities such as Engineers without Borders count.

- Portfolio question 5 identified a **quantitative** performance weakness in the area of program outcome i – an ability to use current techniques, skills, and tools necessary for computing practices. Source: Capstone Portfolio (Spring 2009).

Resulting change: CS 489 will require UML as part of the proposal. The question will be revised so that additional types of design diagrams may also be submitted.

- Portfolio question 6 identified a **quantitative** performance weakness in the area of program outcome j – an ability to apply mathematical foundations, algorithmic principles, and computer science theory in the modeling and design of computer-based systems in a way that demonstrates comprehension of the tradeoffs
involved in design choices. Source: Capstone Portfolio (Spring 2009).

Resulting change: CS 489 students will be asked to identify design trade-offs. CS 450 will discuss design trade-offs in compiler construction. The question will be reworded to allow more types of design trade-offs to be considered.

- On the major field test, no quantitative performance weaknesses were identified. Source: Major Field Test Summary (Spring 2009).
Department: Computer Science

Department Head: John Paxton

Assessment Coordinator: John Paxton

Date: July 5, 2011

Degrees/Majors/Options Offered by Department

- B.S.
  - Professional Option
  - Interdisciplinary Option
- M.S.
- Ph.D.
Computer Science

By August, 2011, we will have collected the following information:

1. Minutes from our weekly departmental meetings
2. Minutes from our departmental annual retreat in August 2010.
3. Minutes from our industry advisory board meeting in February 2011.
4. Course evaluation summaries for Fall Semester 2010 and Spring Semester 2011 courses.
5. The results of the Major Field Test, taken by graduating seniors in Fall Semester 2010 and Spring Semester 2011.
6. A graduating senior survey summary, constructed by Carolyn Plumb, conducted in April 2011.
7. A custom designed, graduating senior exam that graduating seniors took at the end of Fall 2010 and Spring 2011. The exam is designed to measure how well our graduating seniors are meeting our expected program outcomes.
8. Portfolios from students taking the professional option capstone (CSCI 468, Compilers) and interdisciplinary option capstone (CSCI 483, Interdisciplinary Project). These portfolios will be graded in the summer of 2011 to see how well students are meeting our expected program outcomes.

This information will be used at our August 2011 retreat to generate ideas for curricular improvements during AY 2012.

The rest of this report summarizes changes that the CS faculty made to our undergraduate curriculum in AY 2011 as a result of information that we collected during AY 2010.

Significant course enhancements in AY 2011:

1. In Spring 2011, our students were able to take a CSCI 491 Special Topics course on Cryptography and Cryptanalysis. The course was offered remotely through the Burns Telecommunications Center by a UM instructor, Mike Rosulek. (Source of change: #1 and #2 below.)
2. CSCI 441 and CSCI 541, Computer Graphics, were co-convened and offered during Spring 2011. (Source of change: #1 below.)
3. A new course, CSCI 447 Machine Learning: Soft Computing will be offered for the first time in Fall 2011. (Source of change: #1 below.)

Source of changes

The information that led to (and corroborates) the above changes includes
1. More state-of-the-art practice is needed in our curriculum. Sources: Graduating Senior Survey Summaries (Spring 2005, Fall 2005, Fall 2007, Spring 2009), Alumni Survey Summary (Spring 2009), Course Evaluation Summaries (Fall 2007).

2. A course on security is needed. This qualitative feedback has led to a security course, CS 455, being developed. Sources: Graduating Senior Survey Summaries (Spring 2005, Spring 2008, Spring 2009), Alumni Survey Summary (Spring 2009), Employer Survey Summary (Spring 2009), Town Meeting Summary (Spring 2009).

Assessment-based course changes in AY 2011

The following weaknesses were identified at our retreat in August 2010:

- On the graduating senior exam, question 1 identified a quantitative performance weakness in the area of program outcome a - an ability to apply knowledge of computing and mathematics appropriate to the discipline. Source: Graduation Senior Exam Summary (Spring 2010).
  
  Resulting change: Items 4 and 5 in the Appendix

- On the graduating senior exam, question 2 identified a quantitative performance weakness in the area of program outcome b - an ability to analyze a problem, and identify and define the computing requirements appropriate to its solution. Source: Graduation Senior Exam Summary (Spring 2010).
  
  Resulting change: Items 4 and 5 in the Appendix

- The Spring 2010 portfolio was completed by students in the interdisciplinary option capstone course (CSCI 483), but not in the professional option capstone course (CSCI 468). As a consequence, there was limited data (2 portfolios) to evaluate.
  
  Resulting change: In AY 2011, the compilers course will require students to submit their final project in the context of the portfolio requirements.

- Portfolio question 5 identified a quantitative performance weakness in the area of program outcome i – an ability to use current techniques, skills, and tools necessary for computing practices. Source: Capstone Portfolio (Spring 2010).
  
  Resulting change: Items 6 and 7 in the Appendix
• Portfolio question 6 identified a **quantitative** performance weakness in the area of program outcome j – an ability to apply mathematical foundations, algorithmic principles, and computer science theory in the modeling and design of computer-based systems in a way that demonstrates comprehension of the tradeoffs involved in design choices. Source: *Capstone Portfolio* (Spring 2010).

Resulting change: Throughout the curriculum, instructors will discuss design decisions when they arise so that students can better identify them in the context of their capstone projects.

Design decisions occur in contexts too numerous to collect. Performance on the relevant capstone portfolio question will continue to be monitored for improvement.

• On the major field test, no **quantitative** performance weaknesses were identified. Source: *Major Field Test Summary* (Spring 2010).

• CSCI 320, Numerical Methods needs to have more MATLAB assignments. Source: *Student and instructor feedback* (Spring 2010).

Resulting change: Item 1 in the Appendix

• CSCI 338, Theory of Computation, needs to show the relevance of the material whenever possible. Source: *Student and instructor feedback* (Spring 2010).

Resulting change: Item 2 in the Appendix

• CSCI 361, Computer Architecture needs a larger assembly project. Source: *Student and instructor feedback* (Fall 2009).

Resulting change: Item 3 in the Appendix
Appendix

Item 1 ➔ CSCI 320, Numerical Methods: there need to be more substantial MATLAB assignments. (Year Back)

To utilize Matlab more in the class, the following changes had been implemented:

1. A hand-on lab session on Matlab was given in EPS 109 at the beginning of the semester. In this lab session, students implemented the Matlab commands on the computer to appreciate the power of Matlab in solving diverse numerical computation problems.
2. Matlab was installed in the computer in class (Gaines Gall). Then the tutorial on Matlab, Chapter 2 and Chapter 3, was given using Matlab at the beginning of the semester.
3. A number of homework problems, which were required to solve using Matlab, were given.
4. Matlab solutions were demonstrated in class throughout the semester.

Item 2 ➔ CSCI 338, Computer Science Theory: show the relevance of the material whenever possible. (Binhai)

Several examples are covered for practical relevance. For example, in covering undecidability the generation of random numbers was covered; for NP-completeness, several examples in computational biology and computational geometry (like sequencing a genome from short reads and packing polygons in a box) were covered.

Item 3 ➔ CSCI 361, Computer Architecture: there should be a larger assembly project. (Year Back)

The Fall 2010 project:

In this project each team of two students built a simple programmable digital computer to help them understand the inner workings of a computer at the hardware level. The project kit contains necessary components to build a computer. There is a manual, too. The whole project consists of seven steps.

1. Timing Signal Generation
2. Program Counter and Arithmetic Unit
3. MAR, Data Register A and Data Register B
4. Random Access Memory and Instruction Decoder
5. Control Signal Generator
6. Interrupt Processing
7. Operating a Combinatorial Circuit ALU

Students were required to implement up to step 5; steps 6 and 7 were optional. The TA supervised the progress of the project throughout the semester.

Item 4 \(\rightarrow\) Time complexity and statement counts will have graded assignments in CSCI 132, CSCI 232 and CSCI 468 during the upcoming year. At the end of the year, instructors of these courses will be solicited to provide the assignments.

132 (Hunter):
A full lecture on time complexity for an O(n^2) sort was given, followed by a quiz on the topic. Another lecture was used to cover sample test questions on time complexity. Time complexity was also used in a lecture when trees were introduced. One lab emphasized time complexity and then the lab was covered in lecture. The final exam contained a time complexity question. A document that Hunter prepared with more extensive information is available upon request.

132 (Brendan):
The topic was covered in lecture. Two labs were on time complexity. The final exam contained a question on time complexity. These two labs and the final are available upon request.

232 (Binhai):
In CSCI 232, a whole lab assignment was on time complexity (including both recurrence relation solving and coding under some time complexity constraints). The assignment was lab 1 and is available on request.

For the solving of recurrence relations, we spent extra time covering the topic (right before the final exam). As a matter of fact, close to 75% of the students got it right in the final, which has never occurred before (usually it is at most 30%). The final exam question is

Q3: 5 points out of 30. Solve the following recurrence relation and prove your claim by induction:

\[
T(1)=1 \\
T(n)=4T(n/4) + 3n^2, \text{ for } n \geq 2.
\]

468 (Rocky):
A pdf available on request shows a lecture in which time complexity was discussed. It's only $O(n)$, but two other interactive lectures ask students for an approach to, say, implement a symbol table with various actions, such as insert and lookup, and then analyze and justify the time complexities of the various algorithm choices. When it's all done, it is discussed that the real time complexity of every choice is essentially constant, as the symbol table itself is of fixed size. That leads to the fact that the real time complexity has to do with the number of identifiers in the program, so the choice of a fast algorithm for lookup is important, but may not be the expected algorithm, because the constants are not large in terms of the algorithms, whereas they might be in terms of the number of identifiers that must be inserted and looked up.

Item 5 → All instructors are aware that time complexity and statement counts are difficult for our students and will incorporate them when relevant. At the end of the year, instructors of all courses will be solicited to provide example assignments.

132 (Hunter, Brendan), 232 (Binhai), 468 (Rocky): see Item 4.

446 (John S.):

I went back and reviewed all of the assignments and exams for CSCI 446, and none of them include anything that explicitly assesses determining time or space complexity. Note, however, that we do discuss complexity issues in class.

One might be able to argue that the two programming assignments require students to make certain design decisions, but these are not explicitly addressed (other than through doing things like comparing simple minimax to alpha-beta or value iteration to Q-learning).

Item 6 → UML will continue to be emphasized in the software engineering courses.

SE 322 and SE 422 (Clem): UML is taught and used by an instructor with 17 years of industry experience and a Ph.D. in software engineering.

Item 7 → Students will be reminded to design with UML in the capstone courses.

CSCI 482/483: Students were required to submit UML designs with their capstone portfolio.

CSCI 468: Students were required to submit UML designs with their capstone portfolio.
Department: Computer Science

Department Head: John Paxton

Assessment Coordinator: John Paxton

Date: August 16, 2014

Degrees/Majors/Options Offered by Department

- B.S.
  - Professional Option
  - Interdisciplinary Option
- M.S.
- Ph.D.
During the past year, the department collected the following information:

1. Course evaluation summaries for Fall Semester 2013 and Spring Semester 2014 courses.
2. A graduating senior survey summary, constructed by Carolyn Plumb, conducted in April 2014.
3. A custom designed, graduating senior exam that graduating seniors took at the end of Fall 2013 and Spring 2014. The exam is designed to measure how well our graduating seniors are meeting our expected program outcomes.
4. Portfolios from students taking the professional option capstone (CSCI 468, Compilers) and interdisciplinary option capstone (CSCI 483, Interdisciplinary Project). These portfolios provide evidence about how well students are meeting our expected program outcomes.
5. Information that shows how faculty incorporated change recommendations from a year ago into AY 2013-2014 courses.

This information was distributed to all CS faculty and staff in advance of our annual retreat on August 15, 2014. Recommendations were formulated at a retreat.

**Changes Based on Custom Exam Performance in AY 2014:**

The desired performance level on the following questions was not achieved by our Fall 2013 and Spring 2014 graduating seniors:

- Question 1 (mergesort) – This was also a weakness each year 2010 - 2013.
- Question 7 (volunteering) – This was not a weakness, but had borderline performance in 2013.

Therefore, we identify Question 1 and Question 7 as having deficient performance. At our departmental retreat on August 15, 2014, the faculty discussed these questions and decided to proceed with the following recommendations.

- Recurrence relations will have graded assignments in CSCI 232 and CSCI 246 during the upcoming year.
- All instructors are aware that recurrence relations are difficult for our students and will incorporate them when relevant in undergraduate courses.
- Students in CSCI 481 will be provided with a study sheet that lists the types of potential topics that might occur and includes practice questions.
- Volunteer opportunities will be promoted to students in courses, through e-mails and through postings on the departmental website.
At the end of the academic year, relevant instructors will be solicited to provide specific examples of how these items were addressed.

**Changes Based on Portfolio Performance in AY 2014:**

The desired performance level on the following indicators was not achieved by our Spring 2014 seniors:

- Indicator 3, Design Pattern (Professional Option Students)
- Indicator 7, Life Cycle Model (Professional Option Students)

At our departmental retreat on August 15th, the faculty as a whole discussed these results and made the following recommendations:

- **Design Pattern.** Clem Izurieta, our software engineer expert, will provide Rocky Ross, our compilers instructor, with information that Rocky can use to show students in the compiler course an explicit example of a design pattern that is utilized in the construction of a compiler. Rocky will incorporate this information into next Spring’s offering.
- **Life Cycle Model.** Clem will learn from Rocky how the compiler project is constructed and identify the life cycle model that is being used. Rocky will incorporate this information into next Spring’s offering.

Notes: Our interdisciplinary option students showed no weaknesses in their portfolios this year. The weaknesses for our professional option students were new ones – the actions we took during the past year corrected the previous year’s weaknesses.

**Other Significant Changes:**

- With partial Performance Funding support, we will remodel EPS 259 into a desirable, collaborative 24/7 student success center that complements how we remodeled EPS 254 last year. GTAs, Sonderegger recipients, upper division students and members of our AWC and ACM clubs will collectively provide 40-50 hours per week of tutoring.
- With Performance Funding, we are able to offer four key lower division courses during both fall and spring semesters this year: CSCI 107, CSCI 112, CSCI 232 and CSCI 246.
- We are monitoring DFW rates in our courses and sharing ideas with one another to help more of our students succeed. With Performance Funding, our demand generation coordinator will identify and provide better advising to students at risk. With Performance Funding, we will create materials that help us invert CSCI 132 and enable more students to succeed in that course.
- We are considering making M 221 a math elective as opposed to a math required course.
- We are considering incorporating the Python programming language into CSCI 111.
MSU Departmental Assessment Update
Spring 2007

Department: Electrical and Computer Engineering

Department Head: Jim Peterson

Assessment Coordinator: Fred Cady

Date: June 2007

Degrees/Majors/Options Offered by Department

- Bachelor of Science in Electrical Engineering
- Bachelor of Science in Computer Engineering
- Minor in Electrical Engineering
- Minor in Computer Engineering
- Master of Science in Electrical Engineering
- Doctor of Philosophy w/option in Electrical and Computer Engineering
1. Summary – Assessment 2006-07

This report documents the Electrical and Computer Engineering Department’s program improvement activities for fall 2005/Spring 2006 including its annual outcomes evaluation and third-year objectives review. This report with supporting measurement data was reviewed and discussed by ECE faculty at a faculty meeting in November 2006, at which time the assessment data were evaluated to determine whether changes, if any, were justified for any program criteria or elements of the curriculum in either Electrical Engineering (EE) or Computer Engineering (CpE).

For purposes as used herein, Educational Objectives are defined as broad statements that describe the career and professional accomplishments that the program is preparing graduates to achieve. Educational Outcomes are statements that describe what students are expected to know and be able to do by the time of graduation. These relate to the skills, knowledge, and behaviors that students acquire in their matriculation through the program.

1.1. Summary of Annual Outcomes Analysis and Conclusions

1. Using outcome indicator courses has improved the data collection by increasing the number of samples for hard-to-measure outcomes.
2. Outcome achievement levels are all above 70% and are satisfactory.
3. Program outcome trends show good results for nearly all of the 18 outcomes; however, initially there appeared to be a potential modest decline overall for 2 outcomes, and this is consistent within both the EE and CpE programs. Further investigation using detailed analysis based on measures of student performance as they progress through the programs, from freshmen to seniors, shows that as the students mature in the program, the scores of both of these two outcomes improve. Faculty resolved to watch these two outcomes in particular over the next two years. The courses contributing most to these scores were reviewed by the faculty with attention toward measuring student performance consistently from various assignments in carefully selected indicator courses. For one of these two outcomes, one additional course will be used to provide performance measures and for the other outcome, two additional courses will be used in the future to provide performance measures. This data is expected to yield additional future insight into whether there is a continuing downward trend in the assessment scores even though the absolute measurement values remain well within acceptable ranges for the present time.
4. When the alumni survey results for outcomes were reviewed by the ECE Advisory Board, concern was expressed about one relative low score for one outcome, compared with scores for the other outcomes. While the value of this one score was still acceptable, it was somewhat lower than other outcome scores, which resulted in being the focus of attention. A recommendation was made that associated classes should increase the emphasis on specified topics, without neglecting others, so that this score might improve when future assessment data are gathered.

1.2. Summary of Triennial Objectives Analysis and Conclusions

1. The alumni survey does not show any problems with graduates meeting the objectives of either the EE or CpE program.
1.3. **Summary of Triennial Curriculum Analysis and Conclusions**

Neither the annual outcomes assessment nor the triennial objectives assessment indicates any systematic problems in our undergraduate curricula for the EE or CpE programs. We feel continuous improvements are necessary, however, to keep the programs up to date and to seek ways to improve student learning throughout the curricula. The ECE Undergraduate Curriculum Committee is currently reviewing proposals to expand upper division elective offerings in various areas of faculty specialty and interest. The Committee is also considering a proposal by the College of Engineering to require a new multi-disciplinary design class [this is coupled with the recommendation from the ECE Advisory Board reported under item 4 in Section 1.1 above].

2. Annual Outcomes Analysis

2.1. **Outcomes Data Collection**

Data from measures of program Outcomes are collected at the end of each semester, based on student performance in appropriate assignments in indicator classes. In addition to information from these indicator classes, the third year alumni survey gathered information on program outcomes. This data collection each semester provides measures of level of achievement of Outcomes for both the EE and CpE programs. Data are segregated according to these two programs, eventually leading to separate evaluations for each degree program. The number of actual measurements for each outcome is also considered in order to direct attention to any outcome measures that may exhibit sensitivity simply due to a small number of measurement data.

Using indicator courses has helped us measure the outcomes more evenly by spreading the data collection over the outcomes and reducing the faculty workload. A better distribution with more data points for the difficult-to-measure objectives has been achieved.

**Faculty Recommendation**

Continue using carefully selected indicator courses for specific outcomes.

2.2. **ECE Program Outcomes Achievement Levels**

During the fall 2006, ECE faculty reviewed the cumulative outcomes scores for data collected in fall 2005 and spring 2006. An arbitrary achievement level of 70% has been adopted and the data showed that none of the scores, from either EE or CpE students, is below this level, although the scores for two of the 18 total outcomes are somewhat lower (however, by only a few percentage points) than scores for other outcomes. However, as noted earlier, all scores are in the acceptable range, which is above 70%.

**Faculty Recommendation**

Take no action; 70% trigger point is appropriate, but continue to monitor the two outcomes with lowest outcome achievement scores.
2.3. **Program Outcome Trends**

It is our opinion that trends in scores are more important indicators of potentially troublesome areas than absolute scores. Analysis of outcomes was done in spring 2003, 2004, 2005, and 2006. This growing data set allows trends to be identified, which can help focus attention on needed changes before an outcome score might eventually drop below the desired threshold level.

Further analysis of the data collected over several years allowed us to investigate selected outcome scores at each level (sophomore, junior, senior) in the curriculum. This was possible since sufficient data has been collected from multiple courses at all levels in the programs to allow trend line analysis based on level, from entry level courses through senior level courses. While some outcome scores, which are averages from multiple measures of the individual outcome, might show no upward trend over the several years for which we have collected data, and even though the absolute scores are acceptable, the trend lines as a function of course levels have shown a gradual improvement as students make progress from entry level courses through upper level courses. This suggests student learning of selected outcomes is being achieved overall in the program, although there is still room for improvement at each course level in the program. We have found a modest but definite upward trend in the targeted outcome scores from the sophomore level classes to the senior level classes.

**Conclusion**

Overall the student performance in level of achievement of outcomes in both the EE and CpE programs is satisfactory. No important downward trends are evident at this time.

**Faculty Recommendation**

Outcomes with scores lower than the overall averages should be scrutinized further over the next two years. The courses contributing to these scores should be reviewed by the faculty and efforts made in those courses to improve the level of achievement of the associated objectives, along with using methods to truly measure student performance with assignments, tests, lab experiences and exams in those courses with high content in the associated outcomes.

2.4. **2006 Alumni Survey**

Alumni and employer surveys were developed and corresponding email sent to those who’ve graduated since 2000 for whom we have addresses. The web-based 2006 alumni survey reached 180 graduates (135 EE and 45 CpE) with a 40% return from each group. A commercial surveying instrument was used.

**Outcomes Survey**

In each of the recent alumni surveys (conducted in 2000, 2003 and 2006), alumni were asked to give us information evaluating how well they achieved the outcomes. Although the method of finding a “score” for the outcomes was different in 2006 than in the two previous surveys, the results are comparable.

**Analysis**
Survey results show that alumni feel their undergraduate education prepared them well for achieving the outcomes as they entered their career after graduation. These data were discussed at the ECE Department Advisory Board meeting on September 28, 2006. Board members expressed little concern over the scores. Discussion ensued about educational objectives for an engineering degree program, with a general view emphasizing that the program needs to continue to provide students with good opportunities to learn engineering methods in preference to students receiving training on specific engineering tools that might not be beneficial to a broad range of employers. A few suggestions were made regarding increased emphasis on one or two engineering topics in appropriate upper division courses.

**Conclusion**

Overall the survey shows satisfactory achievement of outcomes by our graduates.

**Recommendation**

The best place to evaluate all outcomes is in capstone courses. Such courses should enhance the student’s experience and knowledge of engineering practices.

### 3. Triennial Objectives Analysis

Objectives are those skills that graduates should demonstrate within five years of graduation. In fall 2005 faculty and the ECE Advisory Board recommended the ECE Program Objectives be changed to more concise language. These recommendations have been reviewed by the ECE faculty and appropriate changes have been accomplished to the ECE Program Objectives.

**2006 Alumni Survey**

Objectives Survey

The latest ECE alumni survey was accomplished in 2006. This web based survey employed multiple choice questions addressing each educational Objective and also allowed for open-ended comments from the respondents. A detailed evaluation of the survey results, delineated by EE or CpE major, showed how alumni rated their achievement of program Objectives. This alumni data for each Objective was reviewed and discussed by ECE faculty during the fall 2006.

**Conclusion**

The 2006 ECE alumni survey does not indicate any problems with graduates meeting the objectives of either program.
Department: Electrical and Computer Engineering

Department Head: Rob Maher

Assessment Coordinators: Todd Kaiser, Jim Becker

Degrees/Majors/Options Offered by Department

- Bachelor of Science in Electrical Engineering
- Bachelor of Science in Computer Engineering
- Minor in Electrical Engineering
- Minor in Computer Engineering
- Master of Science in Electrical Engineering
- Doctor of Philosophy w/option in Electrical and Computer Engineering
1. **Summary**

This report documents the ECE Department’s program improvement activities for Fall 2006/Spring 2007 including its annual outcomes analysis.

1.1. **Summary of Annual Outcomes Analysis and Conclusions**

1. Using outcome indicator courses has improved the data collection by increasing the number of samples for hard-to-measure outcomes. However, more effort is needed to collect more data for outcomes $n$, $o$ and $p$.

2. Outcome achievement levels area all above 70% and are satisfactory.

3. This year, for the first time, a linear regression analysis has been calculated for each outcome for five analysis-years, 2002/2003 – 2006/2007. The EE program shows a 4% decline in performance for outcome $e$, (an ability to identify, formulate, and solve engineering problems). The CpE program shows 4% or 5% declines in outcomes $b$, (an ability to design and conduct experiments, as well as to analyze and interpret data), $e$ (An ability to identify, formulate, and solve engineering problems, and $p$ (an ability to analyze electrical and electronic systems). Offsetting the CpE student decline in $p$ is a 2% increase in their performance in $r$ (an ability to analyze and synthesize electronic devices and electrical systems).
2. Annual Outcomes Analysis

2.1. Outcomes Data Collection

Table 1 and Table 2 show where outcomes data, based on student performance in indicator classes, were collected. In addition to information from these indicator classes, the third year alumni survey gathered information on program outcomes.

<table>
<thead>
<tr>
<th>Indicator Course</th>
<th>Targeted Outcomes Evaluated</th>
<th>Actual Outcomes Evaluated</th>
</tr>
</thead>
<tbody>
<tr>
<td>EE206</td>
<td>b, p</td>
<td>a, b, p</td>
</tr>
<tr>
<td>EE207</td>
<td>b, p</td>
<td>p</td>
</tr>
<tr>
<td>EE261</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>EE308</td>
<td>a, e, k, r</td>
<td>a, b, e, k, r</td>
</tr>
<tr>
<td>EE317</td>
<td>b, g, k, p, r</td>
<td>a, g, k, p, r</td>
</tr>
<tr>
<td>EE334</td>
<td>a, b, e, i</td>
<td>a, e, i</td>
</tr>
<tr>
<td>EE355</td>
<td>b</td>
<td>a, b, e, g, k</td>
</tr>
<tr>
<td>EE367</td>
<td>o, p</td>
<td>o, p</td>
</tr>
<tr>
<td>EE371</td>
<td>c, n, q</td>
<td>c, n, o, q</td>
</tr>
<tr>
<td>EE391</td>
<td>a, b, c, d, e, f, g, h, i, j, k, l, r</td>
<td>a, b, c, d, e, f, g, h, i, j, k, l, r</td>
</tr>
<tr>
<td>EE465</td>
<td>c, n, o, q</td>
<td></td>
</tr>
<tr>
<td>EE475</td>
<td>n, q</td>
<td></td>
</tr>
<tr>
<td>EE492</td>
<td>a, c, d, e, f, g, h, i, j, k, l, r</td>
<td>a, b, c, d, e, f, g, h, i, j, k, l, r</td>
</tr>
<tr>
<td>EE495</td>
<td>f, g, h, i, j</td>
<td>f, g, h, j</td>
</tr>
</tbody>
</table>

Table 1 Courses and Outcomes
<table>
<thead>
<tr>
<th>Outcome</th>
<th>Courses Evaluating</th>
</tr>
</thead>
</table>
| a       | An ability to apply knowledge of mathematics, science, and engineering.  
EE206, EE308, EE317, EE334, EE355, EE391, EE492 |
| b       | An ability to design and conduct experiments, as well as to analyze and interpret data.  
EE206, EE317, EE334, EE355, EE391 |
| c       | An ability to design a system, component, or process to meet desired needs.  
EE371, EE391, EE465, EE492 |
| d       | An ability to function on multi-disciplinary teams.  
EE391, EE492 |
| e       | An ability to identify, formulate, and solve engineering problems.  
EE308, EE334, EE355, EE391, EE492 |
| f       | An understanding of professional and ethical responsibility.  
EE391, EE492, EE495 |
| g       | An ability to communicate effectively.  
EE355, EE317, EE367, EE465, EE391, EE492 |
| h       | The broad education necessary to understand the impact of engineering solutions in a global and societal context.  
EE391, EE492, EE495 |
| i       | A recognition of the need for, and an ability to engage in lifelong learning.  
EE334, EE391, EE492, EE495 |
| j       | A knowledge of contemporary issues.  
EE391, EE492, EE495 |
| k       | An ability to use the techniques, skills and modern engineering tools necessary for engineering practice.  
EE308, EE317, EE355, EE391, EE465, EE492 |
| l       | Knowledge of the principles of project management and design trade-offs.  
EE391, EE492 |
| m       | (Deleted F04) An appreciation of the benefits accruing from a multi-disciplinary course structure. |

**Computer Engineering Specific Outcomes**

| n       | An ability to program microcontroller/microcomputer systems using assembly and high-level languages.  
EE371, EE465, EE475 |
| o       | An ability to design digital systems using modern design tools.  
EE261, EE317, EE367, EE465, |
| p       | An ability to analyze electrical and electronic systems.  
EE206, EE317, EE367 |
| q       | An ability to implement real-time systems.  
EE371, EE465, EE475 |

**Electrical Engineering Specific Outcomes**

| r       | An ability to analyze and synthesize electronic devices and electrical systems.  
EE308, EE317, EE391, EE492 |

Table 2 Outcomes and Courses
Number of Outcome Measurements

The number of outcome measurements made in 2005/2006 and 2006/2007 are shown in Table 3 and Table 4.

**Table 3**  Frequency of Outcome Measures Spring 2006

**Table 4**  Frequency of Outcome Measures Spring 2007
Discussion:
Using indicator courses helped us measure the outcomes more evenly by spreading the data collection over the outcomes and reducing the faculty workload. However, as Table 4 in comparison to Table 3 shows, fewer outcome measurements were received from faculty this year.

Recommendation
Continue using indicator courses for specific outcomes. Faculty should be encouraged to increase data collection over all outcomes and to seek more outcome measures for n, o, and q.

2.2. ECE Program Outcomes Achievement Levels
Table 5 shows the cumulative outcomes scores for data collected in Fall 2006 and Spring 2007. An arbitrary achievement level of 70% has been adopted and we see from this table that none of the scores, for either EE or CpE students, are below this level, although outcome p (an ability to analyze electrical and electronic systems) is lower than all other outcomes. (In comparison with last year’s analysis, outcome b has improved.

![ECE Program Outcomes Fall 2006 and Spring 2007](chart.png)

**Table 5  ECE Program Outcomes**

<table>
<thead>
<tr>
<th></th>
<th>EE</th>
<th>CpE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Avg</td>
<td>88%</td>
<td>87%</td>
</tr>
<tr>
<td>SD</td>
<td>3%</td>
<td>3%</td>
</tr>
</tbody>
</table>

Recommendation
Take no action; 70% trigger point is appropriate, but collect more data and observe outcome p closely.
2.3. **Program Outcome Trends**

It is our opinion that trends in scores are more important indicators of troublesome areas than absolute scores. Analysis of outcomes was done in Spring 2003, 2004, 2005, 2006 and 2007. Table 6 shows these trends.

![Combined EE & CpE Outcome Trends](image)

**Table 6** Trends in CpE, EE and Average Outcomes

As we now have five years of collecting outcomes data we can show linear regression trend lines with a slightly better degree of confidence. For each of the outcomes in Table 6 a linear regression is shown. It is worth mentioning, however, that we have less confidence in the earlier data points because in that time we were learning how to conduct this data collection and analysis scheme. Further, as we can see in Table 6 there is a fair bit of scatter in the data.
CpE Program Outcome Trends

CpE outcome trends seem at this stage somewhat more problematic with b (an ability to design and conduct experiments, as well as to analyze and interpret data), e (an ability to identify, formulate, and solve engineering problems), i (a recognition of the need for, and an ability to engage in lifelong learning), k (an ability to use the techniques, skills and modern engineering tools necessary for engineering practice), and p(an ability to analyze electrical and electronic systems) showing downward trends.

CpE Program Discussion:

CpE student performance shows somewhat more variability with more declining outcomes than EE students. There is probably more variance in these data because the number of CpE students involved in the grading calculations is much lower than EE students (approximately 4 or 5 EE students to 1 CpE). Outcome p (an ability to analyze electrical and electronic systems) was originally chosen as an outcome for the CpE program to distinguish that program from the EE program whose equivalent outcome is r (an ability to analyze and synthesize electronic devices and electrical systems). It is interesting to compare, for both programs, the student’s performance on p and r. In each case, even though the outcomes are very similar, both program’s students fair better in outcome r. Analysis of the courses providing data for these two courses shows that outcome p receives information from EE206 and EE207, our student’s first and second, sophomore-level classes in electrical circuits (taken by students in both programs). On the other hand, outcome r does not receive evaluation information from any sophomore level class. For 2006/2007 over half of the outcome p scores are derived from EE206 and EE207 suggesting a bias toward a lower outcomes scores. Indeed, for 2006/2007 the CpE students scored at the 76% level for EE206 and EE207 as compared to 85% for the higher-level classes. EE students scored 79% and 81% respectively. This supports our argument, made last year, that our students are performing better in later classes in their career than in earlier and suggests that they actually are learning something.
EE Program Outcome Trends

We see satisfactorily rising performance except for outcome e (an ability to identify, formulate, and solve engineering problems). Outcome b (an ability to design and conduct experiments, as well as to analyze and interpret data), which we were concerned about last year and outcome k (an ability to use the techniques, skills and modern engineering tools necessary for engineering practice), show only a slight downward trend.

EE Program Discussion:

The most serious downward trend appears to be for outcome e (an ability to identify, formulate, and solve engineering problems). Although there is a fair amount of scatter in these data, each year there were a reasonable amount of data collected so our confidence in the information should be high. We recommend that those course used to provide an evaluation of outcome e (shown in Table 2) carefully consider how to improve the student scores and to implement any changes.

ECE Department Average Outcome Trends

Table 6 shows the overall linear regression trend in outcomes for EE, CpE and the average of the two. Although the EE and CpE programs are considered separately for accreditation, it seems sensible to further average the trend “scores”. Our rationale for this is that both EE and CpE students take the same classes and there is not a statistical difference in the performance of the two groups of students. Further, any change made in any course will affect both programs (except for EE355).

<table>
<thead>
<tr>
<th>Program</th>
<th>a</th>
<th>b</th>
<th>c</th>
<th>d</th>
<th>e</th>
<th>f</th>
<th>g</th>
<th>h</th>
<th>i</th>
<th>j</th>
<th>k</th>
<th>l</th>
<th>n</th>
<th>o</th>
<th>p</th>
<th>q</th>
<th>r</th>
</tr>
</thead>
<tbody>
<tr>
<td>CpE</td>
<td>+1</td>
<td>-5</td>
<td>+5</td>
<td>+1</td>
<td>-4</td>
<td>+6</td>
<td>+4</td>
<td>+4</td>
<td>-3</td>
<td>+7</td>
<td>-3</td>
<td>-2</td>
<td>+4</td>
<td>+5</td>
<td>-4</td>
<td>-1</td>
<td>+2</td>
</tr>
<tr>
<td>EE</td>
<td>+2</td>
<td>-1</td>
<td>+3</td>
<td>+1</td>
<td>-4</td>
<td>+7</td>
<td>+6</td>
<td>+7</td>
<td>0</td>
<td>+8</td>
<td>-1</td>
<td>+3</td>
<td>+1</td>
<td>-1.5</td>
<td>-1</td>
<td>-3</td>
<td>+4</td>
</tr>
<tr>
<td>Combined</td>
<td>+1.5</td>
<td>-3</td>
<td>+4</td>
<td>+1</td>
<td>-4</td>
<td>+6.5</td>
<td>+5</td>
<td>+5.5</td>
<td>-1.5</td>
<td>+7.5</td>
<td>-2</td>
<td>+0.5</td>
<td>+2.5</td>
<td>+2</td>
<td>-2.5</td>
<td>-2</td>
<td>3</td>
</tr>
</tbody>
</table>

Table 7 Outcome Trends 2002 - 2007.

Table 7 summarizes the overall trends for each of the outcomes. Declining trends for CpE for outcomes b, e, and p exceed -4% and should be watched closely next year. Declining trends for EE for outcome e is -4% and it, too, should be monitored.

Conclusion

Overall the student performance in meeting outcomes in both the EE and CpE programs is satisfactory with the caveat that b, e and p should continue to be monitored.

Recommendation

Outcomes b, e, and p should be scrutinized further over the next two years. The courses contributing to these scores should be reviewed by the faculty and efforts made in those
course to truly measure student performance with assignments, tests, lab experiences and exams with high outcome b, e and p content.
Department: Electrical and Computer Engineering

Department Head: Rob Maher

Assessment Coordinators: Todd Kaiser, Jim Becker

Degrees/Majors/Options Offered by Department

- Bachelor of Science in Electrical Engineering
- Bachelor of Science in Computer Engineering
- Minor in Electrical Engineering
- Minor in Computer Engineering
- Master of Science in Electrical Engineering
- Master of Engineering w/option in Electrical and Computer Engineering
- Doctor of Philosophy w/option in Electrical and Computer Engineering
1. **Summary**
This report documents the ECE Department’s program assessment for Fall 2010/Spring 2011 including its annual Outcomes analysis.

1.1. **Summary of Annual Outcomes Analysis**

1. We are continuing our established system of *Outcomes Indicator courses* to assess the degree to which our students are achieving our program Outcomes (ABET accreditation).

2. Our current achievement levels are above 70% for all Outcomes, which exceeds our “red flag” standard.

3. The linear regression analysis has been calculated for each Outcome using a three year increment within a nine year span: 2002, 2005, 2008, and 2011.

   For the Electrical Engineering (EE) program, a linear fit for each Outcome reveals an increasing trend for ten Outcomes, and a flat or declining trend for three Outcomes:
   - **Outcome a:** An ability to apply knowledge of mathematics, science, and engineering.
     Linear fit is flat at 80.8%
   - **Outcome e:** An ability to identify, formulate, and solve engineering problems.
     Linear fit declines 82.6% to 81.7% (-0.1% per year)
   - **Outcome r:** An ability to analyze and synthesize electronic devices and electrical systems.
     Linear fit declines 86.2% to 83.7% (-0.3% per year)

   The Computer Engineering (CpE) program linear analysis shows an increasing trend for nine Outcomes, and a flat or declining trend for seven Outcomes:
   - **Outcome a:** An ability to apply knowledge of mathematics, science, and engineering.
     Linear fit declines 85.4% to 80.6% (-0.5% per year)
   - **Outcome b:** An ability to design and conduct experiments, as well as to analyze and interpret data.
     Linear fit declines 87.7% to 78.5% (-1% per year)
   - **Outcome e:** An ability to identify, formulate, and solve engineering problems.
     Linear fit declines 88% to 84.3% (-0.4% per year)
   - **Outcome k:** An ability to use the techniques, skills and modern engineering tools necessary for engineering practice.
     Linear fit declines 89.8% to 87.8% (-0.2% per year)
   - **Outcome n:** An ability to program microcontroller/microcomputer systems using assembly and high-level languages.
     Linear fit declines 90.7% to 89.7% (-0.1% per year)
   - **Outcome p:** An ability to analyze electrical and electronic systems.
     Linear fit declines 89.4% to 80.4% (-1% per year)
   - **Outcome q:** An ability to implement real-time systems.
     Linear fit declines 91.2% to 85.8% (-0.6% per year)

1.2. **Summary Conclusion**
Our Outcomes assessment continues to show strong achievement by our students, with current achievement levels averaging 90.1% for the EE program and 88.5% for the CpE program. Nonetheless, the apparent declining achievement trends in three EE Outcomes and in seven CpE Outcomes is cause for examination. Our departmental Undergraduate Program Committee will
consult with the instructors of the relevant Outcomes indicator courses and develop an action plan to determine if the declining trend is due to a change in the specific areas assessed for the Outcome, or if there is indeed a decline in student achievement that requires a change in our curriculum and/or pedagogy.

2. Annual Outcomes Analysis

2.1. Outcomes Data Collection

The primary data collection and analysis is performed by the faculty of the Department. Each of our Program Outcomes is mapped onto our curriculum in such a way that we have a set of Outcomes Indicator courses that are used to assess achievement of each Outcome. Every semester the instructors of our Outcomes Indicator courses identify a subset of graded exam problems, homework problems, class projects, and laboratory exercises that contribute to achievement of the Outcomes assigned to that course for assessment. The average grade percentage on the subset of Outcomes-related activities is used to indicate the percentage attainment of that particular Outcome. The list of Outcomes Indicator courses is reported below.

Table 1 and Table 2 show where Outcomes data, based on student performance in indicator classes, were collected.
Table 1: Outcomes and Courses

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Courses Evaluating</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>An ability to apply knowledge of mathematics, science, and engineering. EE206, EE308, EE317, EE334, EE355, EE492</td>
</tr>
<tr>
<td>b</td>
<td>An ability to design and conduct experiments, as well as to analyze and interpret data. EE206, EE207, EE317, EE334, EE355</td>
</tr>
<tr>
<td>c</td>
<td>An ability to design a system, component, or process to meet desired needs. EE371, EE465, EE492</td>
</tr>
<tr>
<td>d</td>
<td>An ability to function on multi-disciplinary teams. ENGR 310, EE492</td>
</tr>
<tr>
<td>e</td>
<td>An ability to identify, formulate, and solve engineering problems. EE308, EE334, EE355, EE492</td>
</tr>
<tr>
<td>f</td>
<td>An understanding of professional and ethical responsibility. EE492, EE495</td>
</tr>
<tr>
<td>g</td>
<td>An ability to communicate effectively. EE355, EE317, EE465, EE492, EE495</td>
</tr>
<tr>
<td>h</td>
<td>The broad education necessary to understand the impact of engineering solutions in a global and societal context. EE492, EE495</td>
</tr>
<tr>
<td>i</td>
<td>A recognition of the need for, and an ability to engage in lifelong learning. EE334, ENGR 310, EE492, EE495</td>
</tr>
<tr>
<td>j</td>
<td>A knowledge of contemporary issues. EE492, EE495</td>
</tr>
<tr>
<td>k</td>
<td>An ability to use the techniques, skills and modern engineering tools necessary for engineering practice. EE308, EE317, EE355, EE465, EE492</td>
</tr>
<tr>
<td>l</td>
<td>Knowledge of the principles of project management and design trade-offs. ENGR 310, EE492</td>
</tr>
<tr>
<td>m</td>
<td>(Deleted F04) An appreciation of the benefits accruing from a multi-disciplinary course structure.</td>
</tr>
</tbody>
</table>

Table 1 (cont.)

**Computer Engineering Specific Outcomes**

| n | An ability to program microcontroller/microcomputer systems using assembly and high-level languages. EE371, EE465, EE475 |
| o | An ability to design digital systems using modern design tools. EE261, EE367, EE371, EE465, |
| p | An ability to analyze electrical and electronic systems. EE206, EE207, EE317, EE367 |
| q | An ability to implement real-time systems. EE371, EE465, EE475 |

**Electrical Engineering Specific Outcome**

| r | An ability to analyze and synthesize electronic devices and electrical systems. EE308, EE317, EE492 |

Table 2: Courses and Outcomes

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Course</th>
<th>Outcomes Evaluated</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>EE206</td>
<td>a, b, p</td>
</tr>
<tr>
<td></td>
<td>EE207</td>
<td>b, p</td>
</tr>
</tbody>
</table>
### Number of Outcome Measurements

The number of student instances comprising each Outcome measurements in 2010/2011 is shown in Table 3 (EE) and Table 4 (CPE).

#### Table 3: Frequency of Outcome Measures for the EE Program

<table>
<thead>
<tr>
<th>Code</th>
<th>Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>EE261</td>
<td>o</td>
</tr>
<tr>
<td>EE308</td>
<td>a, e, k, r</td>
</tr>
<tr>
<td>EE317</td>
<td>a, b, g, k, p, r</td>
</tr>
<tr>
<td>EE334</td>
<td>a, b, e, i</td>
</tr>
<tr>
<td>EE355</td>
<td>a, b, e, g, k</td>
</tr>
<tr>
<td>EE367</td>
<td>o, p</td>
</tr>
<tr>
<td>EE371</td>
<td>c, n, o, q</td>
</tr>
<tr>
<td>EE465</td>
<td>c, k, n, o, q</td>
</tr>
<tr>
<td>EE475</td>
<td>n, q</td>
</tr>
<tr>
<td>EE492</td>
<td>a, c, d, e, f, g, h, i, j, k, l, r</td>
</tr>
<tr>
<td>EE495</td>
<td>f, g, h, i, j</td>
</tr>
</tbody>
</table>

![Bar Chart](chart.png)
Table 4: Frequency of Outcome Measures for the CpE Program

<table>
<thead>
<tr>
<th>Program Outcome (CpE)</th>
<th>Number of Instances</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>45</td>
</tr>
<tr>
<td>b</td>
<td>40</td>
</tr>
<tr>
<td>c</td>
<td>35</td>
</tr>
<tr>
<td>d</td>
<td>30</td>
</tr>
<tr>
<td>e</td>
<td>25</td>
</tr>
<tr>
<td>f</td>
<td>20</td>
</tr>
<tr>
<td>g</td>
<td>15</td>
</tr>
<tr>
<td>h</td>
<td>10</td>
</tr>
<tr>
<td>i</td>
<td>5</td>
</tr>
<tr>
<td>j</td>
<td>0</td>
</tr>
<tr>
<td>k</td>
<td>0</td>
</tr>
<tr>
<td>l</td>
<td>5</td>
</tr>
<tr>
<td>m</td>
<td>10</td>
</tr>
<tr>
<td>n</td>
<td>15</td>
</tr>
<tr>
<td>o</td>
<td>20</td>
</tr>
<tr>
<td>p</td>
<td>25</td>
</tr>
<tr>
<td>q</td>
<td>30</td>
</tr>
</tbody>
</table>

Discussion:
Using indicator courses helped us measure the Outcomes more evenly by spreading the data collection over the Outcomes and reducing the faculty workload. However, several of the Outcomes, most notably Outcomes d and l, are based on relatively few student instances. The issue is that we would like to collect the Outcomes Indicator information from the required course ENGR 310, the College of Engineering course in multidisciplinary design, but it has not yet been possible to obtain information from the ENGR 310 instructors in a manner that is compatible with our other Outcomes Indicator data.

Recommendation
Continue using indicator courses for specific Outcomes, but develop a better means to collect indicator data from the multidisciplinary design course, ENGR 310. ENGR 310 is a required course in both the EE and the CpE curricula, and should be able to contribute significant and relevant information regarding Outcomes d and l, as well as Outcome i.

2.2. ECE Program Outcomes Achievement Levels
Table 5 and Table 6 show the cumulative Outcomes scores for data collected in our three-year accreditation plan cycle over a span of nine years (2002, 2005, 2008, and 2011) for the EE and the CpE programs, respectively. An arbitrary achievement level of 70% has been adopted and we see from this table that none of the scores, for either EE or CpE students, are below this level.
**Recommendation**

No “red flag” action is required; 70% trigger point is appropriate, and continue to monitor the Outcomes.

**2.3. Program Outcome Trends**

Due to the normal fluctuation in absolute Outcomes scores, we believe it is important to consider achievement trends as a way to identify declining Outcomes performance. The linear least-squares fit to the scores, indicated with solid lines in Table 5 and Table 6, provide one way to estimate the Outcomes achievement trends.
With nine years of Outcomes achievement data we are gaining some confidence in the trend interpretation, but there remains a noticeable degree of scatter and fluctuation in the data.

**EE Program Outcome Trends**

We see satisfactorily rising performance on ten of thirteen EE Outcomes, with three Outcomes showing flat or declining trends. The flat and declining Outcomes are:

- **Outcome a:** An ability to apply knowledge of mathematics, science, and engineering.
  Linear fit is flat at 80.8%
- **Outcome e:** An ability to identify, formulate, and solve engineering problems.
  Linear fit declines 82.6% to 81.7% (-0.1 % per year)
- **Outcome r:** An ability to analyze and synthesize electronic devices and electrical systems.
  Linear fit declines 86.2% to 83.7% (-0.3% per year)

**EE Program Discussion:**

Our initial examination of the data indicate that student achievement on the indicated material in EE 308 (Signals and Systems) was relatively low in 2005 and 2008, while recent changes to the course content and emphasis have brought the 2011 performance to a higher level. Since EE 308 contributes to Outcomes a, e, and r, we are confident that the improvement between 2008 and 2011 will contribute to a positive trend in our next Outcomes review.

The largest downward trend appears to be for Outcome r (an ability to analyze and synthesize electronic devices and electrical systems). The aforementioned changes in EE 308 have placed Outcome r on a positive trajectory from 2005 to the present, and we will continue to monitor and evaluate the overall trend in performance.

**CpE Program Outcome Trends**

As in recent years, the CpE Outcome trends seem to exhibit a continuing downward trend in several Outcomes. We see satisfactorily rising performance on nine of sixteen Outcomes, with seven Outcomes showing flat or declining trends. The flat and declining Outcomes are:

- **Outcome a:** An ability to apply knowledge of mathematics, science, and engineering.
  Linear fit declines 85.4% to 80.6% (-0.5% per year)
- **Outcome b:** An ability to design and conduct experiments, as well as to analyze and interpret data.
  Linear fit declines 87.7% to 78.5% (-1% per year)
- **Outcome e:** An ability to identify, formulate, and solve engineering problems.
  Linear fit declines 88% to 84.3% (-0.4% per year)
- **Outcome k:** An ability to use the techniques, skills and modern engineering tools necessary for engineering practice.
  Linear fit declines 89.8% to 87.8% (-0.2% per year)
- **Outcome n:** An ability to program microcontroller/microcomputer systems using assembly and high-level languages.
  Linear fit declines 90.7% to 89.7% (-0.1% per year)
- **Outcome p:** An ability to analyze electrical and electronic systems.
  Linear fit declines 89.4% to 80.4% (-1% per year)
Outcome q: An ability to implement real-time systems.
Linear fit declines 91.2% to 85.8% (-0.6% per year)

CpE Program Discussion:
CpE student performance shows somewhat more variability with more declining Outcomes than EE students. There is probably more variance in these data because the number of CpE students involved in the grading calculations is much lower than EE students (approximately 4 or 5 EE students to 1 CpE).

Our examination of the data also indicate that a few courses required in the CpE program, such as EE 367, EE 465 and EE 475, have been revised recently to include, for example, more hardware description language material. This change in content and emphasis may be reflected in changes in the way in which the instructor evaluates student performance and knowledge.

As with the EE Outcomes, the CpE Outcomes are also influenced by EE 308 and the changes that have been made. We will continue to monitor and evaluate the overall trend in performance, particularly the indications from EE 308.

Conclusion
Overall the student performance in meeting Outcomes in both the EE and CpE programs is satisfactory, with the caveat that the courses contributing to Outcomes a, e, r, and q, require continued monitoring.

Recommendation
Outcomes a, e, r, and q should be scrutinized further over the next several years. The courses contributing to these scores should be reviewed by the faculty and efforts made in those course to truly measure student performance with assignments, tests, lab experiences and exams with high correlation to the attributes of the assigned Outcomes.
The Department of Ecology assessment plan is not too well formulated at present. The department underwent a change of leadership during the initial period for activity and the current department head is now working to formalize a plan. It will be posted as soon as it is available. In the meantime, Dave Roberts, the current department head, reports the following:

What I am pursuing is the following

1) I recently met with the State Director of Montana Fish, Wildlife, and Parks and about a dozen senior staff members to discuss the F&WL curriculum and the performance and competitiveness of our graduates. FW&P is quite happy with the biological knowledge and mathematical/statistical skills of our students, but believes we should do more in conflict resolution and human dimensions. We have just implemented a Human Dimensions course at the graduate level, and are exploring opportunities to expand the curriculum in that area for undergraduates as well. I just spoke today to John Talbott about the possibilities of such a course and he was very enthusiastic.

2) The undergraduates in F&WL have two student sections of national professional organizations (Wildlife Society and American Fisheries Society). The officers of these organizations will meet with me next week to discuss curricular issues and student's perspectives on the program.

3) I have scheduled meeting times for interviewing graduating seniors. I don't know yet how many will show up since we haven't done this before, but I'm counting on some good feedback.

4) We implemented a department database this year that tracks graduate students pretty closely. This summer we intend to expand that to the undergraduates. We're taking your warning to heart and not promising to contact all our grads 5 years out, but we will at least be able to track how many were admitted to grad school (which is really our best indicator since the MS is the entry level degree for all our majors)
MSU Departmental Assessment Update
Spring 2007

Department: Ecology

Department Head: David W. Roberts

Assessment Coordinator: David W. Roberts

Degrees/Majors/Options Offered by Department

B.S. in Biological Sciences/Fish & Wildlife Management
B.S. in Biological Sciences/Organismal Biology
B.S. in Biological Sciences/Ecology and Evolution
B.S. in Biological Sciences/Biology Teaching
I. Introduction to the department:

The Department of Ecology offers four options to the B.S. degree: Fish & Wildlife Management, Organismal Biology, Ecology and Evolution, and Biology Teaching. The largest major, Fish & Wildlife Management, includes about 60% of our undergraduate majors. This is a professional degree program designed to prepare students for a career in fish and wildlife management with Federal or State agencies, as well as NGOs and consulting companies. As a professional program, many of the degree requirements are specified by the Office of Personnel Management, specifically OPM-486 Wildlife Biologist, and OPM-482 Fish Biologist. In addition to basic sciences courses, this major emphasizes management and communication coursework. Organismal Biology can be considered roughly equivalent to Zoology or Botany, although strict segregation by biological Kingdom is not enforced. This major has a stronger basic science focus, and generally includes more laboratory courses with less emphasis on management. There is no specific career path associated with this degree, and it is generally considered as preparation for graduate school in a biological discipline. Ecology and Evolution is somewhat similar to Organismal Biology, but generally has more emphasis on quantitative and statistical coursework to prepare students for graduate work in ecology. Biology Teaching is offered in conjunction with the College of Education, Health & Human Development. This major is designed to qualify students for a career in secondary education, and includes both rigorous science and education coursework.

II. Assessment activities update:

Assessment activities since the last update (Spring 2006) have focused primarily on examining the curriculum from both a student perspective, and a professional perspective. With respect to the Fish and Wildlife Management program, David Roberts met with a broad group of Fish and Wildlife managers from Montana Fish, Wildlife & Parks (MtFWP) to discuss the performance of MSU F&WL grads and the MtFWP’s perspective on possible curriculum changes to better prepare graduates for the changing role of fish and wildlife managers. In addition, we have completed a curriculum review with respect to OPM requirements to determine the advising and curriculum needs for our students. For all majors, we have recently implemented an exit survey for graduating seniors in all options. These students are interviewed in fairly informal group meetings, and led through a discussion of their assessment of the curriculum and the performance of the faculty. In addition, David Roberts has met with student chapter officers of the Wildlife Society and the American Fisheries Society who have queried chapter members about areas of concern or potential development in the curriculum. Issues identified by either the senior exit interview group or the student officers are specifically included in student course evaluations at the end of the semester.
MtFWP managers expressed strong approval for the biological breadth of Fish & Wildlife graduates, and for their quantitative and problem-solving skills. They expressed some concern, however, over lack of preparation in wildlife habitat, and in social sciences or “human dimension.” With respect to wildlife habitat, our position in wildlife habitat has been unfilled for several years, and we have been unable to offer the full spectrum of courses in the Fish & Wildlife option. Recently, however, Montana State University has approved a new degree option in Wildlife Habitat Ecology and Management in the Natural Resources and Rangeland Ecology degree offered by the Department of Animal and Range Science. It is not clear to us yet that such a program will meet our identified needs, as it is just beginning development. With respect to Human Dimensions, our undergraduate curriculum committee is reviewing course offerings in Economics and Political Science to see if courses exist that better meet our needs, but we have not yet implemented any changes due to the limited freedom for coursework within the OPM guidelines.

Students express general satisfaction with the curricula in the department, although they identify specific areas of potential improvement. Specifically, students would like to see additional field courses offered to augment their on-campus education. Although we offer several specific field courses, we rely on summer jobs and internships to teach students some of the necessary field skills they need. Consequently, we are currently revising the field course offerings to maximize the opportunity for fieldwork for students consistent with our limited resources to offer more courses.

Because the department is relatively young (founded in 1999) and has only had a permanent department head since summer 2004, we do not have a long history of previous assessment efforts to draw from. Consequently, we are attempting to reconstruct enrollment records to evaluate retention and success rates for our students. The entry–level degree for all our B.S. options is essentially the Master’s degree, and success for many of our students translates to admission to graduate school, as well as obtaining professional employment. We are putting in place a database of graduating seniors to track their post-graduation career and educational success, but we do not have good contact information for most of the past years graduates.
MSU Departmental Assessment Update
Spring 2007

Department: Education

Department Head: Robert Carson

Assessment Coordinator: Robert Carson

Date: Summer 2007

Degrees/Majors/Options Offered by Department

- Bachelor of Science in Elementary Education
  - Early Childhood Education Option
  - Elementary Education K-8 Option
  - Library Media K-12 Option
  - Mathematics Option
  - Reading K-12 Option
  - Science Education Option
  - Special Education Option

- Bachelor of Science in Secondary Education
  - General Science Broadfield Option
  - Social Studies Broadfield Option
  - Technology Education Broadfield Option
  - (Departmental Teaching Options)

- Bachelor of Science in Technology Education
  - Industrial Technology Option
  - Technology Education Broadfield Teaching Option
Program Assessment in the Department of Education at Montana State University is conducted through the professional review of programs at the state and national levels. Historically, the Education programs have been accredited by the National Council for Accreditation of Teacher Education (NCATE). Beginning this year we have notified NCATE that we are no longer intending to seek continuing accreditation with them, and we have joined the other national accreditation organization, the Teacher Education Accreditation Council (TEAC) instead. However, it should be noted that the basic Unit Accreditation standards are embedded in the state of Montana’s program accreditation standards, so we will respond to those anyway in the course of our state accreditation process.

Site visits for national (TEAC) and state Office of Public Instruction (OPI) accreditation are expected to occur in October 2008. Preparations are currently underway to collect and process the necessary evidence and data. Attached in the pages below are two documents. The first details the inventory of evidence and data tentatively identified for use in the Unit accreditation; the second details the tentative timeline for the preparations and site visits.

The documentation for these preparations is extensive, but these two documents provide an adequate overview.
Exhibits for (NCATE) UNIT ACCREDITATION
Based on a Draft Document

The exhibits below are critical for BOE team members review before and during the on-site visit. Please note that the quality of these exhibits will determine their degree of utility for teams. While this list covers most of the exhibits needed by teams, it is not exhaustive. Institutions may provide additional materials based on institutional context. NCATE will give Board of Examiners (BOE) teams access to the unit’s annual reports.

<table>
<thead>
<tr>
<th>NCATE’S RECOMMENDED LIST</th>
<th>MSU’s PROPOSED DOCUMENTATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>* data available but not yet compiled ** evidence/document needs to be created</td>
<td></td>
</tr>
<tr>
<td>1. (Continuing Visits) Institutional report, BOE report, and institutional rejoinder from the previous NCATE review.</td>
<td>001A NCATE Institutional Report (2001)</td>
</tr>
<tr>
<td></td>
<td>001B BOE Report (2001)</td>
</tr>
<tr>
<td></td>
<td>001C MSU Rejoinder (2001)</td>
</tr>
<tr>
<td></td>
<td>001D Annual Reports</td>
</tr>
<tr>
<td>2. (First Visits) Report from NCATE indicating that all preconditions were met.</td>
<td>002E N/A</td>
</tr>
<tr>
<td>3. Unit catalogs and other printed documents describing general education, specialty/content studies, and professional studies.</td>
<td>003F WEB SITE</td>
</tr>
<tr>
<td>4. Most recent report prepared for a state program review and the state’s findings. If the visit is being conducted jointly with the state, the state findings may not be available until the visit.</td>
<td>004G N/A</td>
</tr>
<tr>
<td>5. A copy of the unit’s notice soliciting third-party testimony.</td>
<td>005H TO DO **</td>
</tr>
<tr>
<td>6. Course syllabi for professional education courses.</td>
<td>006I SEE e-FILES (UTEC ) CD ROM?</td>
</tr>
<tr>
<td>Conceptual Framework</td>
<td></td>
</tr>
<tr>
<td>----------------------------------------------------------</td>
<td>---</td>
</tr>
<tr>
<td>1. Conceptual framework(s) documents.</td>
<td>007J Conceptual Framework</td>
</tr>
<tr>
<td>2. Table showing alignment of state, professional, and institutional standards.</td>
<td>008K Concordance Grid</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Standard 1</th>
<th></th>
</tr>
</thead>
</table>
| 1. Key assessments and scoring guides used by faculty to assess candidate learning. (Cross-reference with Standard 2 as appropriate.) | 101A EDCI 102 Rubric  
101B EDCI 320 Portfolio Rubric  
101C File Review Criteria  
101D EDEL 301 Para Rubric  
101E EDSD 301 Para Rubric  
101F EDCI 240 Multicultural Ed Course  
101G EDEL/EDSD 410 Rubrics  
101H PEPPS Evaluation (Praxis, GPA, US)  
GRADUATE:  
101I Comprehensive Exam Criteria*  
101J Action Research (EDCI 509) Criteria  
101K NPTT Internship Rubrics  
101L NPTT Portfolio Criteria |
| 2. Data tables and summaries that show how candidates have performed on key assessment over the past three years. | 102A Banner Download on Decision Points*  
102B Para Summaries*  
102B ST Summaries*  
GRADUATE:  
NPTT Data Base*  
Graduate Data Base* |
3. State licensure test scores aggregated by program area and reported over three years Title II data reported to the state for the last year **must** be available to the team.

<table>
<thead>
<tr>
<th>103A</th>
<th>PEPPS scores *</th>
</tr>
</thead>
<tbody>
<tr>
<td>103B</td>
<td>Title II data report 2007*</td>
</tr>
<tr>
<td>103C</td>
<td>Summary of licensure results*</td>
</tr>
</tbody>
</table>

4. Assessments used to determine how well candidates are meeting the outcomes identified in the unit’s conceptual framework and summaries of candidates’ performance.

<table>
<thead>
<tr>
<th>104A</th>
<th>Comprehensive Data Base of Relevant Data Points in ST and Para Rubrics [to be developed]**</th>
</tr>
</thead>
<tbody>
<tr>
<td>104B</td>
<td>Program Basics document [serves as a basis for candidate program termination].</td>
</tr>
</tbody>
</table>

GRADUATE:

| 104C | NPTT Internship Rubrics (I & II) |

5. Program reports and findings of other national accreditation associations related to the preparation of education professionals (e.g., ASHA, NASM, APA, CACREP).

| 105A | OPI Institutional Report [not available at time of data collection]. |

6. Summaries of the results of key assessments used at transition points (a) at entry to programs, (b) prior to the student teaching/internship, (c) at completion of the student teaching/internship, and (d) at program completion.

| 106A | Data Base Report on Key Transition Points (File Review; Paras; ST; PEPPS)* |

GRADUATE:

| 106B | Data Base Report on Key Transition Points (File Review; Qualifying Courses; Internships; Comprehensive Exam Portfolio)* |
| 7. Samples of candidate work (e.g., portfolios at different proficiency levels). | 107A EDCI 320 [see Joan Cook]  
107B Other Candidate Work Samples (?)**  
107C Final Portfolios 413/414*  

GRADUATE:  
107D NPTT Final Portfolios  
107E Thesis/ActionResearch/Comps samples |
|---|---|
| 8. Follow-up studies of graduates and data tables of results. | 108A 413/414 Surveys  
108B 1-3 Year Graduate Surveys (Dean’s Office)  

GRADUATE:  
108C Survey of NPTT Graduates** |
|---|---|
| 9. Employer feedback on graduates and summaries of the results. | 109A Surveys of Employers**  

GRADUATE:  
109B Survey of NPTT Employers** |
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Standard 2</strong></td>
<td>---</td>
</tr>
</tbody>
</table>
| 1. Document describing the unit’s assessment system in detail. | 201A Assessment System – Current*  
201B Assessment System (2001 Document)  

GRADUATE  
201C Assessment System – NPTT* |
<table>
<thead>
<tr>
<th>Standard 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. Samples of formative and summative assessments used to ensure candidates are ready to progress through the program and enter the profession.</td>
</tr>
<tr>
<td>202A Para Assessments</td>
</tr>
<tr>
<td>202B Sample Methods Course Assessments</td>
</tr>
<tr>
<td>202C Sample Student Teaching Assignments (w/ rubrics)</td>
</tr>
<tr>
<td><strong>GRADUATE:</strong></td>
</tr>
<tr>
<td>202D Sample Internship I &amp; II Assignments</td>
</tr>
<tr>
<td>202E Internship Rubrics NPTT</td>
</tr>
<tr>
<td>202F Internship Rubrics EdLD</td>
</tr>
<tr>
<td>3. Minutes of meetings on the development and refinement of the assessment system.</td>
</tr>
<tr>
<td>203A Faculty Meeting Agendas &amp; Results (See Files on CD ROM)</td>
</tr>
<tr>
<td>4. Unit or institutional policies for handling student complaints.</td>
</tr>
<tr>
<td>204A WEB SITE for student Grievances</td>
</tr>
<tr>
<td>5. File of student complaints and the unit’s response.</td>
</tr>
<tr>
<td>205A Hardcopy Files Available in Dean’s Office</td>
</tr>
<tr>
<td>205B Hardcopy Files Available in Director of Field Placements &amp; Certification Office</td>
</tr>
<tr>
<td>205C Hardcopy Files Available in Dept Head Office</td>
</tr>
<tr>
<td>[Due to federal privacy laws, these will be made available for review but will not otherwise be located in review materials]</td>
</tr>
<tr>
<td>6. Policies and procedures that ensure that data are regularly collected and used to make improvements.</td>
</tr>
<tr>
<td>206A Data Base Protocols*</td>
</tr>
<tr>
<td>207B File Review Protocols*</td>
</tr>
<tr>
<td>207C Graduating Seniors’ Survey Schedules*</td>
</tr>
</tbody>
</table>
1. Memos of understanding, minutes from meetings, etc. to document partnership.
   - 301A Meeting Notes – Field Supervisors
   - 301B Meeting Notes – Clemens’ Meetings w/ School Management Teams & School Staff
   - 301C Meeting Notes – Dean’s Office

2. Descriptions of the field experiences, including those for master’s programs for licensed teachers and programs for other school professionals.
   - 302A Elementary Education (102/301/413)
   - 302B Secondary Education (102/301/414)
   - GRADUATE:
     - 302C Educational Leadership Internships
     - 302D NPTT Internships
     - 302E OPI Additional Cert. Internships
     - 302F C&I M.Ed. Action Research Projects

3. Student teaching handbook.
   - 303A Student Teaching Handbook

4. Assessments and scoring rubrics/criteria used in field experiences.
   - 304A EDCI 102 Rubrics
   - 304B EDEL 301 Rubrics
   - 304C EDSD 301 Rubrics
   - GRADUATE:
     - 304D EDCI 552 NPTT Early Field Experience Rubric.

5. Internship/student teaching assessment instruments.
   - 305A EDEL 410 Student Teaching Rubrics
   - 305B EDSD 410 Student Teaching Rubrics
   - GRADUATE
     - 305C OPI Internships for Additional Endorsements
     - 305D NPTT Internships I & II
     - 305E EDCI 509 Action Research Rubric
     - 305F EDLD Internship Rubrics
6. Summary results of candidate assessments upon entering and exiting field experiences. (Cross-reference with Standard 1 as appropriate.)

306A Data Base of Field Experience Assessments [needs to be built]*

7. Completion rates for candidates in student teaching and internships by semester.

307A Data Base of Completion Rates for ST and various Internships. [needs to be built]*

8. List of criteria for the selection of school-based clinical faculty (i.e. supervising teachers, supervisors).

308A Criteria for selection of Cts
308B Criteria for selection of Uss
GRADUATE:
308C Criteria for Mentor Teachers NPTT
308D Criteria for US NPTT

9. Agendas from meetings with cooperating teachers.

309A Information Provided to CT in Handbook.
309B Agenda & Results from Field Placement meetings with School Faculty

### Standard 4

1. Curriculum components that address diversity issues. (This might be a matrix that shows diversity components in required courses.)

401A Summary Document of Diversity Issues*
401B Syllabi & Rubrics for Multicultural Education Courses

2. List of proficiencies related to diversity that candidates are expected to develop if they are not included in the IR.

402A Proficiencies Related to Diversity*
<table>
<thead>
<tr>
<th></th>
<th>Standard 5</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>3.</td>
<td>Assessment instruments and scoring guides related to diversity. (Cross-reference with Standard 1 as appropriate.)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>403A Elements of Field Placement Rubrics related to Diversity*</td>
<td></td>
</tr>
<tr>
<td></td>
<td>404B Other Assessment Instruments and Assignments Related to Diversity.**</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>Summary of candidate performance results. (Cross-reference with Standard 1 as appropriate.)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>404A Derived from specific Data Base Items from Student Teaching &amp; Internships*</td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>Demographics on diversity of faculty, candidates, and clinical sites if not included in the institutional report.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>405A Demographics Data Base*</td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>Unit policies, practices, and/or procedures that facilitate experiences with candidates from diver groups..</td>
<td></td>
</tr>
<tr>
<td></td>
<td>406A Policy Documents Related to Diversity Experiences (Candidates)*</td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td>Unit policies, practices, and/or procedures that facilitate experiences with faculty from diverse groups, including faculty in other units and P-12 school faculty.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>407B Policy Documents Related to Diversity Experiences with Faculty*</td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td>Unit policies, practices, and/or procedures that facilitate field experiences with P-12 students from diverse groups..</td>
<td></td>
</tr>
<tr>
<td></td>
<td>408A Policy Documents Related to Diversity Experiences in P-12 settings.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>408B Summary of Self Report from ST*</td>
<td></td>
</tr>
</tbody>
</table>

**Standard 5**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Summary of faculty qualifications and assignments. (See table in the appendix of program review templates for an example.)</td>
</tr>
<tr>
<td></td>
<td>501A Summary of Faculty Qualifications*</td>
</tr>
<tr>
<td>2.</td>
<td>Proof of licensing of school-based clinical faculty (e.g., cooperating teachers, internship supervisors).</td>
</tr>
<tr>
<td></td>
<td>502A Proof of CT and US Licensure*</td>
</tr>
</tbody>
</table>
| 3. Summary of instructional strategies, including the use of technology, used by faculty. | 503A Summary of Faculty Instructional Practices, Uses of Technology*  
503B Selections from Annual Reviews and P&T Documents  
503C Peer Reviews of Teaching  
503D Sample of In-Depth Assessment of Teaching |
|---|---|
| 4. Samples and summary of faculty scholarly activities. | 504A Samples of Faculty Publications  
504B Faculty Vitae |
| 5. Samples of faculty evaluation forms. | 505A Annual Review Form  
505B Peer Review of Teaching Form  
505C P&T Criteria (web link) |
| 6. Samples of faculty evaluations (usually kept in dean’s office) | 506A Annual Review Documents  
[Available only in Dept Head Office] |
<p>| 7. Summary of faculty evaluations if not included in the IR. | 507A Summary is part of Faculty Raise Information [Available only in Dept Head or Dean’s Office] |
| 8. Minutes from meetings that show collaboration with the professional community. | 508A Meeting notes from various collaboration activities (Field Placement; Research; Partnership Activities; Program Evaluation, etc)** |
| 9. Summary of projects completed by faculty in service and/or collaboration with professional community (i.e., grants, evaluations, task-forces, provision of professional development, offering courses, etc.) | 509A Summary of Service Projects** |
| 10. Summary of professional development activities in which faculty have participated if not included in the IR. | 510A Summary of Professional Development Activities** (from annual reviews?) |</p>
<table>
<thead>
<tr>
<th>11. Summary of professional development activities offered by the unit in not included in the IR.</th>
<th>511A Summary of Professional Development Symposia/Activities **</th>
</tr>
</thead>
<tbody>
<tr>
<td>12. Unit policies related to professional development.</td>
<td>512A Professional Development Policies from P&amp;T document, Annual Review  512B Funding for Professional Development  512C Purposes and Resources for Faculty, Staff, Graduate Students, etc.</td>
</tr>
</tbody>
</table>

**Standard 6**

| 1. Unit policies on recruitment and admissions of candidates. | 601A Policies on Recruitment & Admissions  
GRADUATE:  
601B Policies on Recruitment & Admissions |
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>2. Unit policies on student services such as counseling and advising</td>
<td>602A MSU Web Site on Student Services</td>
</tr>
<tr>
<td>3. Policies on governance and operations of the unit.</td>
<td>603A Policies on Governance &amp; Operations*</td>
</tr>
</tbody>
</table>
| 4. Descriptions of the unit governance structure, including organization charts. | 604A Organization Charts  
604B Description of Unit Governance [College; Department; UTEC; Programs] |
| 5. Minutes of meetings of unit governance committees. | 605A College Management Team  
605B UTEC Minutes  
605C Department Program Leaders Minutes  
605D Faculty Meeting Agenda & Results |
<p>| 6. Documents describing admission practices, academic calendars, and grading policies. | 606A MSU Web Site |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>7.</td>
<td>Unit budget, with provisions for technology.</td>
</tr>
</tbody>
</table>
|   | 607A University Budget Overview UPBAC  
   | 607B College Budget Information  
   | 607C Dept Budget Information  
   | 607D Equipment & Computer Fee Documents  
   | 607E Summary of Dept Investment in Technology (smart podiums and faculty computers and equipment)* |
| 8. | Budgets of comparable units on campus. |
|   | 608A BlueBook Information on Budgets |
| 9. | List of facilities, including computer labs and curriculum resource centers. |
|   | 609A Instructional Support Facilities* |
| 10. | Faculty workload policies. |
|   | 610A Dept Workload Policy |
| 11. | Summary of faculty workloads. |
|   | 611A Summary of Faculty Workload (from annual reviews)* |
| 12. | List of support personnel in unit. |
|   | 612A List of Support Personnel* |
| 13. | Faculty development expenditures. |
|   | 613A Budget for Faculty Development, Travel, and Resources. |
| 14. | Samples of institution or program advertising. |
|   | 614A University Web Site  
   | 614B Departmental Brochures  
<p>| 614C NPTT Web Site |</p>
<table>
<thead>
<tr>
<th>Date</th>
<th>OPI/UNIT</th>
<th>TEAC/NATIONAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>AUG 07</td>
<td>Fall Retreat: Vote on concise AConceptual Framework® document. Who will collect &amp; collate course materials (syllabi, etc); who will manage program area responses?</td>
<td>Fall Retreat: Review tentative list of evidence &amp; data. Determine what additional data/evidence are needed. Review Banner download &amp; data base features. Determine what else is required. Ask Bob Snyder to rework semester schedule download program.</td>
</tr>
<tr>
<td>SEPT 07</td>
<td>Send letter to OPI requesting Oct 08 UTEC #1: Collect course materials. [set dates; reserve rooms in SUB, etc] Begin building Bibliography. Craft surveys for grads(06-07; 02) and their employers; survey NPTT.</td>
<td>Work with TEAC to identify Aprograms®. Outline data collection and inventory what we will use. Consider writing an Inquiry Brief Proposal. Faculty need to attend TEAC workshop. Assemble Appendix E. Begin writing the Inquiry Briefs.</td>
</tr>
<tr>
<td>OCT 07</td>
<td>UTEC #2: IR sections written.</td>
<td>Bangert &amp; Palmer establish assessment plan. Identify all weaknesses that need to be addressed.</td>
</tr>
<tr>
<td>NOV 07</td>
<td>UTEC #3: Approve IR; complete it. Overview of site visit preparations.</td>
<td>Submit drafts of the Brief with checklist.</td>
</tr>
<tr>
<td>DEC 07</td>
<td></td>
<td></td>
</tr>
<tr>
<td>JAN 08</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FEB 08</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MAR 08</td>
<td></td>
<td></td>
</tr>
<tr>
<td>APR 08</td>
<td>Public announcement calling for comments B newspapers, etc.</td>
<td>Target date to submit Inquiry Brief</td>
</tr>
<tr>
<td>MAY 08</td>
<td></td>
<td></td>
</tr>
<tr>
<td>JUN 08</td>
<td></td>
<td></td>
</tr>
<tr>
<td>JUL 08</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
AUG 08  |  Aug 1: IR Due @ OPI

SEP 08  |  OPI conducts off-site review; Results sent to MSU 30 days prior. 30 days prior, Chairperson visits MSU

   |  IF INQUIRY BRIEF IS DECLARED AUDITABLE: SITE VISIT Within next few months.

OCT 08  |  Site visit lasts up to 3 days

NOV 08  |  After 30 days, MSU receives report

DEC 08  |  MSU has 30 days to send rejoinder to BPE

   |  BPE rules on the evidence

8/23/07 UTEC FILE FORMAT AND DATA COLLECTION.

I called Scott Davis today. He agreed to head up the team that will build the electronic framework (web site) for accreditation. Scott, Lydia Runkel, Bill Freese, and Joan Cook, with help from Scott=s work study student(s) will handle that job.

Scott also said he would contact ITC to set up a web based repository for course syllabi, which our UTEC partners can then upload syllabi into. We will need to establish an exact naming formula. Scott suggested these materials be sent to us as pdf documents.
MA IN ENGLISH PROGRAM REVIEW, 2006-2007

Rationale
In the spring of 2006, the MA Committee met to set goals for the 2006-2007 academic year. The committee members agreed that we had reached a point in the history of the MA program where it would be beneficial to undertake a program review in fall 2006. Stability rather than a perceived problem was our motivating factor. Our consistent enrollment levels (20 students), high graduation rates, and successful placement of our graduates suggested that the program was effective. We hoped to confirm this and also learn ways to make the program even more effective for both students and faculty.

Questionnaire Design and Distribution
The committee thought that an anonymous qualitative questionnaire might result in the most useful feedback.

The committee designed separate questionnaires for students and faculty (see Appendix A & B). For the student questionnaire, we developed questions for each major component part of the program (courses, exams, thesis), as well as general questions about the program.

For the faculty questionnaire, the committee believed that open-ended questions would result in more useful feedback, especially since not all faculty have been involved with the MA program.

The questionnaires for both students and faculty ended with a section for suggestions and recommendations.

Questionnaire Distribution
In October 2006, the committee distributed questionnaires via email to all tenure-track faculty (16), to all currently enrolled graduate students (19), and to as many graduates of the program as we were able to contact (5).

The following number of questionnaires were returned:

Students: 17
Faculty: 11

Overall, the committee was pleased with the high return level. For future reviews, we need to keep better contact information for graduates.

Results: Student Questionnaires
Overall, students reported a high rate of satisfaction with the core parts of the MA program (courses, the written exam, and the thesis or professional paper).

Students offered a number of specific recommendations for ways to strengthen aspects of the program.
Program & Community

The most frequent request was for the department to offer more formalized training on professional issues, such as learning about conference funding and applying to Ph.D. programs.

Students also expressed a desire to have opportunities to interact with faculty beyond the professors who teach the two graduate seminars offered by the department each semester.

One student questionnaire reported that a group of students had discussed forming an English graduate student organization to help formalize the mentoring process and offer students leadership opportunities.

Thesis/Professional Paper

A number of students suggested that we find ways to help students begin working on their projects before their second year.

A number of students asked that we provide additional training in graduate-level research and writing strategies.

Results: Faculty Questionnaires

In general, faculty reported a high rate of satisfaction with the MA program.

Strengths of the Program

· Flexibility
· Size (20 students)
· Theoretical foundation
· Non-traditional, integrative structure

Areas of Weakness

· Varied expectations for exams and theses/professional papers
· Varying degrees of professionalism among the students
· Uneven workload division (teaching seminars and serving on committees) among the faculty

Written Exam

This aspect of the program received the highest number of comments.

A number of faculty noted the lack of consistency in written exams and lack of clarity about expectations.

A number of faculty suggested that we might eliminate the exam requirement.

Courses

Three faculty expressed dissatisfaction with the department’s decision to eliminate a required course on pedagogy.
Thesis/professional paper

A few faculty suggested that we should encourage more students to take the professional paper option (or do a better job promoting this option).

A few faculty suggested that we develop clear guidelines for evaluating the competence of a thesis/professional paper.

**REVIEW CONCLUSIONS & GOALS**

The consistency of the feedback from student and faculty questionnaires suggest that the basic structure of the current program is effective, and we now need to work on second-generation issues, such as improving the administration of the core components of the program and developing a new component of the program that addresses students’ professional interests.

The committee felt that the formation of a graduate student association would be an effective means of addressing many of the suggestions for change from both students and faculty.

**Implementation Spring 2007**

**Graduate Student Organization**

The committee encouraged the graduate students to organize a graduate student association. During the spring 2007 semester, the Associated English Graduate Students was founded.

**Professional Issues Workshops/Increasing Faculty Involvement in the Program**

The students’ desire to have workshops on professional issues and to interact with more faculty dovetailed with faculty concerns about increasing the participation of more faculty in the program. In response to AEGS’s requests, we organized two professional issues workshops; each workshop was facilitated by two faculty members who did not teach in the program in 2006-2007.

**Proposed Implementation 2007-2008**

We would like to offer at least two workshops every semester in the future, topics to be determined by the members of AEGS (and we will prioritize choosing faculty facilitators who are not teaching in the program that academic year).

**Program Requirement Workshops**

The MA Committee will offer workshops on each major program requirement. We had already offered workshops on some requirements and it makes sense to make this systematic.

**Workshops on Graduate-Level Writing Strategies**

In fall 2007 we piloted a writing workshop using articles written by the two faculty members who were teaching seminars. The committee thought we could build upon this pilot workshop to address students’ requests for additional writing training.
Exit Interviews
The committee would like to develop an exit interview process for graduating students to be conducted by AEGS to enable us to get on-going feedback from students about the program.

Courses
The committee believes that the current structure of three required seminars is effective (510, 530, 550). Eliminating 520 as a required course has enabled us to offer 550 more frequently, which in turn increases students’ course options and also options for involving more faculty in teaching the seminars.

The committee will address faculty concerns about eliminating 520 by encouraging faculty interested in pedagogical issues to teach courses on these topics through our current course offerings (for example, 510 Critical Theory and Practice, could be taught with a focus on pedagogy; ).

The committee will encourage faculty to incorporate pedagogy-related readings and/or issues into every graduate course when possible.

In selecting courses for each academic year, the committee will seek to create a balance between courses on broad and narrow topics, and literary and theory orientation. We will rotate course assignments among faculty to involve as many people as possible in the program.

Written Exam & Thesis/Professional Paper
At the same time that the committee sent out the questionnaires, we met with the chairs of graduate committees to develop a formalized set of guidelines for the written exam, which were implemented for second-year students who took their exam at the end of fall 2007. Although the guidelines did much to address faculty concerns about lack of clarity and consistency, this improved process did not alleviate the related issue of students feeling like they do not have enough time to complete their thesis/professional paper. The improved guidelines for the written exam also did not alleviate students’ concerns about not having enough time to work on their thesis/professional paper.

The committee wishes to propose to the department at our fall 2007 retreat that we eliminate the written exam as a program requirement, effective 2008-2009.

We propose to replace the written exam with specified requirements for thesis and professional paper credits. We would like to propose to the department that, MA students begin work on their thesis/professional paper in the summer between their first and second years, and that a specified number of credits (3 for the thesis and 2 for the professional paper) are dedicated to the preliminary stages of research (developing a bibliography, writing a prospectus).

The committee believes that this program change will address faculty concerns about consistency in the quality of theses/professional papers and students’ concerns about not having enough time to work on their projects.

Future Program Review
The MA Committee will undertake a second program review in Fall 2009.
APPENDIX A: MA IN ENGLISH PROGRAM REVIEW FORM FOR GRADUATE STUDENTS

The Graduate Committee is currently reviewing the MA in English program and your feedback is vital to this process. Please re-format the form as needed to accommodate your responses.

Thank you for your time.

Sincerely,

The MA Committee

Courses
How well did the required courses prepare you in each of the areas of literary history, critical theory, pedagogy and writing?

Did you understand why the required seminars were required?

Was there enough breadth to the course offerings?

Written Exam
How did the written exam contribute to your progress in the program?

Thesis/Professional Paper
What helped you with the process of writing and defending your thesis or professional paper?

How might the process be improved?

Did you receive adequate training in graduate-level research and writing strategies?

Community
Did you feel a sense of an intellectual and professional community with your fellow students and with the faculty?

Did you have enough support from the faculty (advising, courses, meeting program requirements)?

Program
What led you to apply to the MA in English program at MSU?

Were you able to meet the program requirements and follow your own interests?

How well did we prepare you professionally (applying for Ph.D. programs, teaching positions, professional jobs, etc.)?

What are you doing with your degree/what are your future plans for your degree?
APPENDIX B:
MA IN ENGLISH PROGRAM REVIEW, FACULTY FEEDBACK

Colleagues:

The Graduate Committee would appreciate hearing your thoughts about the MA program. Please provide feedback below about the three major components of the MA program (courses, written exam, and thesis/professional paper), and answer the three open-ended questions. Please re-format the form as needed to accommodate your responses.

Thank you for your time.

The Graduate Committee

Courses

Written Exam

Thesis/Professional Paper

1. From your perspective as a faculty member, what do you see as the strengths of the MA program?

2. From your perspective as a faculty member, what do you see as the weaknesses of the MA program?

3. Are there particular changes you would like the Graduate Committee to consider making to the program?
Department: English

Department Head: Linda Karell

Assessment Coordinator: Robert Bennett

Degrees/Majors/Options Offered by Department

Master of Arts in English
Bachelor of Arts in English (Literature Option)
Bachelor of Arts in English (Teaching Option)
Primary Assessment Contact:
   Robert Bennett, Chair of Department Undergraduate Curriculum Committee
   Department of English
   994-3768, bennett@english.montana.edu

I. 2007-8 Assessment Results:

A. We conducted our annual survey of graduating seniors, gathering responses from 26 of our approximately 45 graduating seniors. On a five-point scale, responses ranged between 4.4 and 3.5 for all questions except for question number 7 ("the range of course was satisfactory"). This question received the lowest score from both students planning to attend graduate school (3.38), students not planning to attend graduate school (2.92), and all students (3.15). Complete results of student responses are given below in Appendix A, and the Assessment Questionnaire is included in Appendix B.

B. We also surveyed faculty members to gather information about our graduating seniors’ success in applying to graduate school or seeking employment in teaching or other fields. Out of approximately 45 graduating seniors, the department is aware of six undergraduate students who applied to graduate (PHD, MFA, and MA) programs, and all six students were accepted at schools such as Indiana University (MFA), Bowling Green State University (MA American Literature and Cultural Studies), the University of Glasgow (MA in Writing), Minnesota State University at Mankato (MFA), and Montana State University (MA, two students). In addition, we are also aware of one previous student (class of 2007) who secured a teaching position, and there were also two M.A. students who unsuccessfully applied to PhD programs in literature and critical theory.

II. Departmental Responses to Assessment Data:

While the department felt that the student evaluations generally demonstrated a high level of satisfaction with how well the department is meeting its degree objectives and helping students to develop the expected competencies outlined in our assessment goals, we were concerned by the lower score with respect to range of course offerings. Consequently, the department will task the undergraduate curriculum committee with performing a targeted evaluation of our curriculum and course offerings during the Fall of 2008. In light of our recent changes in faculty, the on-going evolution of the discipline, and the diversifying interests of our students, we will assess how we can best readjust our course offerings to balance faculty expertise with student interests. Our primary objective with this particular curriculum reevaluation will be to assess how we can provide students with a wider range of course offerings without significantly altering the existing degree requirements.
III. Revisions to Departmental Assessment Plan:

A) While our new strategy for administering the assessment survey significantly increased the number of students we were able to reach, we plan to make two additional adjustments for future surveys in hopes of further improving our response rate from around 50% to almost 100%.

   1) First, we will administer the survey to both the Senior Capstone (English 460) and Integrative Teaching Methods (English 461) courses to make sure that we include education majors.
   2) In addition, we will also have the professors who administer the survey keep track to make sure that every student enrolled in each course completes the survey, instead of simply handing out the survey during a single class section.

B) Our efforts to gather information about literature students going on to graduate school were quite successful, but the different timelines for education majors made it harder to gather information about students seeking employment as teachers. In the future we will collect data on education majors both in the fall and in the spring to try to develop a more accurate picture of how successful our education majors are in looking for teaching jobs.
## APPENDIX A

### RESULTS FROM 2007-8 ANNUAL STUDENT ASSESSMENT SURVEY

<table>
<thead>
<tr>
<th>Question</th>
<th>Average</th>
<th>5</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A-all</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>4.42</td>
<td>12</td>
<td>13</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2</td>
<td>4.38</td>
<td>15</td>
<td>8</td>
<td>2</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>4.22</td>
<td>11</td>
<td>12</td>
<td>3</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>4</td>
<td>4.44</td>
<td>12</td>
<td>12</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>B-teaching</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>4.37</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>4.38</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>4.37</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>4.38</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>4.38</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>4.38</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>4.38</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>4.38</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>4.38</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>C1-plans for grad school</strong></td>
<td>3.89</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>3.77</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>3.69</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>4.15</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>4.15</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>4.31</td>
<td>8</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>3.85</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>3.38</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>3.38</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>3.38</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>C2-no plans for grad school</strong></td>
<td>3.6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>3.17</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>3.75</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>4.42</td>
<td>6</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>4.42</td>
<td>6</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>4.15</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>3.08</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>3.92</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>3.5</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>C3-Average for all students</strong></td>
<td>3.75</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>3.75</td>
<td>7</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>3.75</td>
<td>7</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>3.75</td>
<td>7</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>3.75</td>
<td>7</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>3.75</td>
<td>7</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>3.75</td>
<td>7</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>3.75</td>
<td>7</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>3.75</td>
<td>7</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Please indicate your agreement with the following statements by using the numerical scale. Five (5) signifies strong agreement, while one (1) denotes the least agreement.

A. **To be answered by all English majors.**

   As a result of my experiences in the department, I feel confident in my ability to:

   1. Read critically.
      
      5  4  3  2  1

   2. Write clearly and persuasively.
      
      5  4  3  2  1

   3. Speak articulately.
      
      5  4  3  2  1

   4. Think analytically.
      
      5  4  3  2  1
B. Teaching Majors: Please indicate how well prepared you feel to teach:

1. The national literatures of the United States and Great Britain.
   5 4 3 2 1

2. Multiple literary critical approaches and theories.
   5 4 3 2 1

3. The formal use of language (i.e., academic and professional)
   5 4 3 2 1

4. The informal use of language (i.e. colloquial)
   5 4 3 2 1

5. How the study of language and literature enhances and/or helps you examine your personal life and your society
   5 4 3 2 1

6. Using a variety of teaching methodologies in your classroom.
   5 4 3 2 1

Please indicate your degree of agreement with the following statements about our curriculum

7. The sequence of courses was logical and appropriate.
   5 4 3 2 1

8. The range of courses was satisfactory.
   5 4 3 2 1

9. Over all, courses in the department were challenging.
   5 4 3 2 1

Please comment on what you see as the exceptional strengths and/or particular weaknesses of the current English curriculum.
C1: Literature Option major planning to go to graduate school: Please indicate how well prepared you feel to perform competently in graduate school in the following areas:

1. The national literatures of the United States and Great Britain.
   
   5 4 3 2 1

2. Multiple literary critical approaches and theories.
   
   5 4 3 2 1

3. The formal use of language (i.e., academic and professional)
   
   5 4 3 2 1

4. The informal use of language (i.e. colloquial)
   
   5 4 3 2 1

5. How the study of language and literature enhances and/or helps you examine your personal life and your society
   
   5 4 3 2 1

Please indicate your degree of agreement with the following statements about our curriculum

6. The sequence of courses was logical and appropriate.
   
   5 4 3 2 1

7. The range of courses was satisfactory.
   
   5 4 3 2 1

8. Over all, courses in the department were challenging.
   
   5 4 3 2 1

Please comment on what you see as the exceptional strengths and/or particular weaknesses of the current English curriculum.
C2: Literature Option majors not currently planning to pursue graduate work in English: Given your current goals, indicate how well your studies in the following areas have helped or will help you achieve them.

1. The national literatures of the United States and Great Britain.
   5 4 3 2 1

2. Multiple literary critical approaches and theories.
   5 4 3 2 1

3. The formal use of language (i.e., academic and professional)
   5 4 3 2 1

4. The informal use of language (i.e. colloquial)
   5 4 3 2 1

5. How the study of language and literature enhances and/or helps you examine your personal life and your society
   5 4 3 2 1

Please indicate your degree of agreement with the following statements about our curriculum.

6. The sequence of courses was logical and appropriate.
   5 4 3 2 1

7. The range of courses was satisfactory.
   5 4 3 2 1

8. Over all, courses in the department were challenging.
   5 4 3 2 1

Please comment on what you see as the exceptional strengths and/or particular weaknesses of the current English curriculum.
Department: English

Department Head: Linda Karell

Assessment Coordinator: Gretchen Minton

Degrees/Majors/Options Offered by Department

Master of Arts in English
Bachelor of Arts in English (Literature Option)
Bachelor of Arts in English (Teaching Option)
I. 2008-9 Assessment Results:

We conducted our annual survey of graduating seniors, gathering responses from 49 of our approximately 55 graduating seniors. On a five-point scale, the average response was 3.88, and responses ranged between 4.48 and 3.76 for all questions except for question number 7 (“the range of courses was satisfactory”). This question received the lowest score from students planning to attend graduate school (3.77), students not planning to attend graduate school (3.33), teaching majors (2.82), and all students (3.31).

With the addition of the teaching majors this year, we were also able to observe that there was a significant difference between the average scores assigned by literature majors seeking to go on to a PhD program (4.27), literature majors not seeking to pursue a graduate degree (3.95), and teaching majors (3.41). Complete results of student responses are given below in Appendix A, and the Assessment Questionnaire is included in the 2009-11 Departmental Assessment Plan (Appendix A).

II. Departmental Responses to Assessment Data:
A. Our new strategies for administering our assessment questionnaire proved very effective (increasing total responses from 26 to 49 and the response average from around 50% to near 100%), as we were able both to gather significantly more questionnaires and to survey the teaching majors in addition to the literature majors. We will continue to use this method of administering the survey.

B. The most significant new information that arose from this new method of administering the survey was that we noticed a significant difference between the average scores assigned by literature majors seeking to go on to a PhD program (4.27), literature majors not seeking to pursue a graduate degree (3.95), and teaching majors (3.41). Given the significantly lower scores given by teaching majors, this leads us to conclude that the department needs to address what we can do to improve the educational experience of our teaching majors. There are many ways in which our current curriculum reform will probably help accomplish this. For example, the lowest score in the entire survey was teaching majors’ dissatisfaction with the range of courses offered (2.82), so addressing this concern will go a long way toward improving teaching majors’ experience with the major.

C. In addition, this year’s survey reinforced the last year’s findings. While the department felt that student evaluations again demonstrated a generally high level of satisfaction with how well the department is meeting its degree objectives and helping students to develop the expected competencies outlined in our assessment goals, we are still concerned by the lower score with respect to range of course offerings. This is the second year in a row when this score (3.31) was significantly lower than the next lowest score (3.76), and the only score that seemed problematically low. As stated in last year’s assessment update, we have begun undertaking a major curriculum reform primarily to address this issue. Our current curriculum reform has been significantly shaped by this finding, and we are aggressively working to correct this shortcoming in our current curriculum.
## APPENDIX A

### RESULTS FROM 2008-9 ANNUAL STUDENT ASSESSMENT SURVEY

<table>
<thead>
<tr>
<th>Question</th>
<th>Avg.</th>
<th>5</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A-all</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>4.51</td>
<td>28</td>
<td>18</td>
<td>3</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2</td>
<td>4.37</td>
<td>24</td>
<td>20</td>
<td>4</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>3</td>
<td>4.06</td>
<td>17</td>
<td>20</td>
<td>11</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>4.41</td>
<td>25</td>
<td>19</td>
<td>5</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>B-teaching</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>3.41</td>
<td>3</td>
<td>4</td>
<td>3</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>3.82</td>
<td>3</td>
<td>4</td>
<td>3</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>3.45</td>
<td>0</td>
<td>5</td>
<td>6</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>4</td>
<td>3.00</td>
<td>2</td>
<td>0</td>
<td>6</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>5</td>
<td>3.45</td>
<td>1</td>
<td>6</td>
<td>2</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>6</td>
<td>4.36</td>
<td>6</td>
<td>4</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>7</td>
<td>3.64</td>
<td>4</td>
<td>2</td>
<td>3</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>8</td>
<td>3.00</td>
<td>2</td>
<td>7</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>2.82</td>
<td>2</td>
<td>5</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>C1-plans for grad school</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>4.10</td>
<td>11</td>
<td>13</td>
<td>6</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>4.10</td>
<td>10</td>
<td>14</td>
<td>7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>4.48</td>
<td>16</td>
<td>14</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>4.52</td>
<td>18</td>
<td>12</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>4.65</td>
<td>21</td>
<td>9</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>4.35</td>
<td>15</td>
<td>12</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>3.77</td>
<td>5</td>
<td>15</td>
<td>10</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>4.23</td>
<td>13</td>
<td>12</td>
<td>6</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>C2-no plans for grad school</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>3.86</td>
<td>6</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>3.71</td>
<td>5</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>4.14</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>4.00</td>
<td>3</td>
<td>1</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>4.43</td>
<td>3</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>4.14</td>
<td>2</td>
<td>4</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>3.33</td>
<td>2</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>4.00</td>
<td>1</td>
<td>5</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>C3-Average for all students</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>3.92</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>3.76</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>3.88</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>3.99</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>4.48</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>3.83</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>3.31</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>3.80</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
MSU Departmental Assessment Update
Spring 2010

Department: English

Department Head: Linda Karell

Assessment Coordinator: Gretchen Minton

Degrees/Majors/Options Offered by Department

Master of Arts in English
Bachelor of Arts in English (Literature Option)
Bachelor of Arts in English (Teaching Option)
2009-10 Assessment Activities:

This year the English department implemented significant changes to the undergraduate curriculum. We revised the Literature Option and the Teaching Option, cutting some classes, adding others, and re-structuring the majors (and the minors) in significant ways. In conjunction with these changes which are beginning in the 2010-12 catalog, we have had extensive discussions about how we can best implement assessment activities in order to measure the effectiveness of our program. This year’s update reflects some of the older assessment activities which we have decided to retain, but it also describes new and innovative measures that are going into effect alongside the new curriculum.

We will regularly assess our program in the following ways:

1) Student Surveys:

Survey of LIT 494 (“Seminar: Research Issues”) and ENG 461 (“Integrative Teaching Methods” students: LIT 494 and ENG 461 instructors will administer a written survey to English majors at the end of the course. This survey asks students to assess their own reading, writing, and literary analytical skills. The Undergraduate Curriculum Committee will read these surveys and summarize them for departmental discussion at the annual fall retreat; the committee will also report on the findings in the annual assessment update. We incorporated the results of previous surveys into our curricular changes and are continuing to use this data in order to measure student opinions about the efficacy of our program.

2) Student Writing:

LIT 201, “Introduction to Literary Studies”: This new course, which is a “gateway” course to the English major, is the cornerstone of our curricular revision and is being offered for the first time in the Fall of 2010. Therefore, our new assessment activities are also centered upon this course. When English majors or prospective majors submit their first essay for this course, these essays will be retained in each student’s advising file in the English Department for later comparison with writing they produce in LIT 494.

LIT 494, “Seminar: Research Issues” (senior capstone): At the end of LIT 494, English majors will submit to their instructor their best literary analytical essay produced in the course. Based on his or her past general experience teaching LIT 201 and on a sampling of his or her LIT 494 students’ papers retained from when they took LIT 201, the LIT 494 instructor then compares the LIT 494 papers with LIT 200 papers and completes the faculty assessment survey accordingly. (See 3 below).
3) Faculty Surveys:

Survey of LIT 494, “Seminar: Research Issues” (senior capstone): Each LIT 494 instructor will complete a written faculty assessment survey at the end of the course. One part of this survey asks the instructor for an overview of his or her students’ reading, writing, and literary analytical skills. Another part of this survey asks the instructor to compare his or her LIT 494 students’ skills with those of LIT 201 students. This comparison will be made based on the instructor’s past general experience teaching LIT 201 and on a sampling of his or her LIT 494 students’ papers retained from when they took LIT 201. (See 2 above.) The Undergraduate Curriculum Committee will read these surveys and summarize them for departmental discussion at the annual fall retreat and incorporate them into the annual assessment report.
MSU Departmental Assessment Update
Spring 2011

Department: English

Department Head: Linda Karell

Assessment Coordinator: Gretchen Minton

Degrees/Majors/Options Offered by Department

Master of Arts in English
Bachelor of Arts in English (Literature Option)
Bachelor of Arts in English (Teaching Option)
Bachelor of Arts in English (Writing Option)
I. 2010-11 Assessment Results:

We conducted our annual survey of graduating seniors, gathering responses from 48 of our approximately 64 graduating seniors. On a five-point scale, the overall average response was 4.03, which was a significant increase from the 2008-9 survey (3.88). The average score for all questions improved, with the exception of number 6 (“the sequence of courses was logical and appropriate”). This response will undoubtedly improve in the coming years as our significant curricular changes take effect and thus streamline the major as students progress from year to year.

During the last survey we noted a significant difference between the overall satisfaction expressed by the teaching majors and the literature majors. The satisfaction of the teaching majors has improved significantly: from 3.41 in 2008-9 to 4.07 in 2010-11. The comments from the teaching majors indicated more satisfaction with the curriculum (which was changed for this catalog year) and the faculty (which increased by one line).

On the other hand, this year we did see a slight decrease in the overall satisfaction from students who are planning on attending graduate school (from 4.27 in 2008-9 to 4.09 in 2010-11). We will be paying close attention to this number next year to see whether this is a trend or an anomaly.

With the addition of the Writing Option next year, we will be addressing a frequently articulated desire for the students to have more writing courses, and to have a major dedicated to writing. We look forward to seeing the results of this program in the coming years.

Complete results of student responses are given below in Appendix A.

II. Departmental Responses to Assessment Data:

A. The strategy of administering the assessment questionnaire in our capstone seminars continues to prove effective, with a very high percentage of graduating seniors participating. We will continue to use this method of administering the survey.

B. The written comments of the students generally praise the department, but there are still some complaints about the lack of course offerings and the sequence of courses. We have addressed both of these concerns in our curricular reforms, and we expect that the majors who began in the 2010-11 catalog year or later will be more satisfied with these issues. Although the curriculum does allow for a broader range of courses, we are not always able to provide as many of these as we would like because of chronic problems with staffing.

C. As outlined in the department assessment plan for 2009-11, we have instituted an assessment program that is based upon comparing the work of students, with one sample from our new LIT 201 gateway course, and another from the senior capstone course. We have begun collecting the essays from our 201 students, and when they reach the capstones we will begin giving faculty the survey that will measure this improvement.
### APPENDIX A

**RESULTS FROM 2010-11 ANNUAL STUDENT ASSESSMENT SURVEY**

<table>
<thead>
<tr>
<th>Question</th>
<th>Avg.</th>
<th>5</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A-all</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>4.67</td>
<td>30</td>
<td>12</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>4.60</td>
<td>35</td>
<td>8</td>
<td>4</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>4.21</td>
<td>19</td>
<td>24</td>
<td>2</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>4.63</td>
<td>33</td>
<td>12</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>B-teaching</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>3.83</td>
<td>1</td>
<td>9</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>4.33</td>
<td>5</td>
<td>6</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>4.00</td>
<td>4</td>
<td>5</td>
<td>2</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>4.33</td>
<td>6</td>
<td>4</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>4.67</td>
<td>8</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>4.50</td>
<td>7</td>
<td>4</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>3.58</td>
<td>2</td>
<td>3</td>
<td>7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>3.33</td>
<td>2</td>
<td>2</td>
<td>6</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>4.08</td>
<td>4</td>
<td>5</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>C1-plans for grad school</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>4.06</td>
<td>5</td>
<td>8</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>4.24</td>
<td>6</td>
<td>9</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>4.35</td>
<td>8</td>
<td>7</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>4.41</td>
<td>10</td>
<td>4</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>4.82</td>
<td>14</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>3.65</td>
<td>2</td>
<td>8</td>
<td>6</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>3.24</td>
<td>4</td>
<td>4</td>
<td>1</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>3.94</td>
<td>5</td>
<td>8</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>C2-no plans for grad school</strong></td>
<td>3.92</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>3.62</td>
<td>2</td>
<td>12</td>
<td>4</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>3.81</td>
<td>6</td>
<td>9</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>4.00</td>
<td>7</td>
<td>9</td>
<td>4</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>4.00</td>
<td>11</td>
<td>2</td>
<td>7</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>4.33</td>
<td>11</td>
<td>7</td>
<td>2</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>3.86</td>
<td>3</td>
<td>14</td>
<td>2</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>3.62</td>
<td>5</td>
<td>9</td>
<td>3</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>8</td>
<td>4.10</td>
<td>7</td>
<td>10</td>
<td>3</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td><strong>C3-Average for all students</strong></td>
<td>4.03</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>3.84</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>4.13</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>4.12</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>4.25</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>4.61</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>3.70</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>3.40</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>4.04</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
April 21, 2006

To: Jeff Adams, Assistant Vice Provost  
    Office of the Provost, Montana Hall

Fr: Dave Lageson, Head  
    Department of Earth Sciences

Re: Assessment Plans – Department of Earth Sciences

The tenured and tenure-track faculty members in the Department of Earth Sciences have met numerous times throughout the 2005-2006 academic year to discuss past, present and future assessment strategies. This is an evolving issue that engenders serious discussion, as some feel strongly that we should do more assessment while others think our current efforts are adequate. Collectively, however, we have decided to “ramp up” our assessment efforts to help with future curricular decisions (i.e., course and program improvements), measure the esprit de corps of our graduating students, and hopefully obtain bits of feedback information that would otherwise be lost.

Past assessment activities have been based on a document prepared in October 2004 (in the attached folder), which summarizes long-time practices in the department. In this document, we outlined learning objectives, measurement tools and plans, and expected competencies. Of these, the measurement tools/plans are the most relevant with respect to documentation for the Northwest Commission on Colleges and Universities. These include short-term assessment tools (e.g., syllabus, quizzes, exams, problem-oriented work [sometimes called “authentic assessment”], student course evaluations, annual faculty reviews, reviews by senior faculty for P&T documentation, and annual departmental curricular assessment during fall retreats. There are additional assessment strategies for graduate courses and graduate students as outlined in the 2004 document.

In addition to this fairly comprehensive assessment strategy, we are implementing the following assessment tools this spring:

1. **Yearly external review board meeting**, during which all aspects of the Department of Earth Sciences will be scrutinized by a group of highly respected geoscience leaders selected for their experience and diversity (to represent various aspects of the department – geology, geography, etc.)

2. **Exit survey** given in our senior capstone courses (GEOL 423 – Field Geology, and GEOG 405 – Geographic Thought).

I hope this information helps frame the assessment activities of the Department of Earth Sciences. Please let me know if you need further information or details. In advance, thanks for your input and guidance.
Department of Earth Sciences, MSU-Bozeman
Assessment Management Structure

Department Head – responsible for oversight of assessment activities in the department, including “teaching evaluations” for all courses (as part of faculty annual reviews), graduate surveys, exit exams, new course proposals, curricular revisions for on-line and paper catalogs, alumni activities, etc.

Executive Committee – one tenured faculty member in geography and geology, elected by the entire faculty on a yearly (AY) basis

Curriculum and Assessment Committee – A committee consisting of tenured or tenure-track faculty members who work with the department head to implement assessment activities on a yearly basis, periodically review assessment practices, and compile and interpret the results of assessment activities. The committee will periodically provide an overview of assessment results and recommendations to the faculty. For convenience, it would be good to have at least one member also on the departmental P&T committee.

External Advisory Committee – A committee consisting of alumni and distinguished non-alumni who will meet once per year to a) provide accountability for our internal assessment activities, b) provide advise and council regarding the future direction of the department, and c) be a voice of advocacy for the department throughout the year.

Student representatives – Not formally assigned at this time (spring 2006)
Pyramid of Undergraduate GEO-Cognitive Skills

Senior Level
Integrative Thinking

Junior Level
Interpretation

Sophomore
Description

Freshman
Observation, Question asking

FOUNDATIONS

Scientific Methodology
Field Geoscience
Department: Earth Sciences

Department Head: Stephan G. Custer

Assessment Coordinator: Stephan G. Custer

Date: August 16, 2008

Degrees/Majors/Options Offered by Department

Degrees:
- Bachelor of Science in Earth Sciences
- Master of Science in Earth Sciences
- Doctor of Philosophy in Earth Sciences

Options:

Undergraduate
- Geography
- Geohydrology
- Geology
- GIS/Planning
- Paleontology
- Snow Science

Graduate
No options are differentiated at the graduate level.

The following activities were performed during the 2006-2007 Academic year. Syllabi are available at http://www.homepage.montana.edu/%7Eescicrs/ . Quizzes, exams, laboratory exercises, case studies, class projects, student research are available in individual faculty offices. Summary Knapp Teaching Evaluations are in the department offices and more detailed data are in faculty offices. Written evaluations are traditionally used by the faculty to search for themes that suggest needed course changes or maintenance of teaching approaches that were successful. Department evaluations of teaching on an annual basis and promotion and tenure evaluation of teaching are available in the department offices. Grade-point-average data is available in the department office for undergraduate students. A list of student awards is available upon request in the department office. This year we had a Goldwater scholar. We continue to attract presidential scholars at the undergraduate level and have several graduate student research awards which were achieved in national competitions with more than one professional society.

In 2007 the department head performed an exit interview with undergraduate and graduate students. A summary of that exit interview is available in the department office. In addition the department underwent an external review. Part of that external review included a curriculum review which examined where various concepts and educational objectives were treated in the Department Courses. The results of that review are available in the Department Office. The faculty examined that data and the curricula and the curriculum committee made recommendations for changes in the next catalog. Those ideas will be further examined in 2007-2008.

Masters and Ph.D. research proposals are available in the Department offices as are the results of comprehensive exams and defense of thesis. Thesis titles are presented on the web at http://www.montana.edu/wwwes/programs/escitheses.htm#2000s. In 2007 the first two Ph.D. students in Earth Sciences graduated.

The student organized and student-run colloquium showcased undergraduate and graduate research again this year. A copy of the program is available in the department.

The yearly external review board meeting did not have a quorum this year but we did discuss department strengths and weaknesses with corporations who came to campus. As mentioned above an exit interview with students was conducted.
Department:  Earth Sciences

Department Head: Stephan G. Custer

Assessment Coordinator: Stephan G. Custer

Date: August 16, 2008

Degrees/Majors/Options Offered by Department

Degrees:
  Bachelor of Science in Earth Sciences
  Master of Science in Earth Sciences
  Doctor of Philosophy in Earth Sciences

Options:
  Undergraduate
    Geography
    Geohydrology
    Geology
    GIS/Planning
    Paleontology
    Snow Science
  Graduate
    No options are differentiated at the graduate level.
Earth Sciences Assessment Report of Academic Year 2007-2008

The following activities were performed during the 2007-2008 Academic year. Syllabi are available at [http://www.homepage.montana.edu/~escicrs/](http://www.homepage.montana.edu/~escicrs/).

Quizzes, exams, laboratory exercises, case studies, class projects, student research are available in individual faculty offices. Summary Knapp Teaching Evaluations are in the department offices and more detailed data are in faculty offices. Written evaluations are traditionally used by the faculty to search for themes that suggest needed course changes or maintenance of teaching approaches that were successful. Department evaluations of teaching on an annual basis and promotion and tenure evaluation of teaching are available in the department offices. Grade-point-average data is available in the department office for undergraduate students and is reviewed annually during assignment of scholarships and awards in the department. We continue to attract presidential scholars at the undergraduate level and have several graduate student research awards which were achieved in national competitions with more than one professional society. This year we had two students in the top 20 proposals out of 474 MS and 570 Ph.D. applicants respectively in the Geological Society of America Competition.

In 2008 the department head performed an exit interview with students. A summary of that exit interview is available in the department office. In response to the external review last year, a graduate representative was elected and attended all faculty meetings except those where student performance or graduate acceptances were discussed. This change provided better insight into graduate concerns and ideas regarding student perspectives and improved student participation in the operation of the department. An undergraduate student was appointed to the Dean’s student council.

Also in response to the external review as well as the development of the 2008-2010 catalog, curriculum was examined. The department reviewed the undergraduate and graduate curriculum. The hope was to improve efficiencies of course offering and make changes in the curriculum that might improve graduate course availability. A brief summary of changes is outlined in the assessment document on file in the department. University changes that allowed co-convention of courses were adopted with enthusiasm.

Masters and Ph.D. research proposals are available in the Department offices as are the results of comprehensive exams and defense of thesis. Thesis titles are presented on the web at [http://www.montana.edu/wwwes/programs/escittheses.htm#2000s](http://www.montana.edu/wwwes/programs/escittheses.htm#2000s).

The student organized and student run colloquium show-cased undergraduate and graduate research again this year. A copy of the program is available in the department.

The yearly external review board meeting did not occur this year but we did discuss department strengths and weaknesses with corporations who came to campus. The advisory council clearly needs to be identified and convened. This should not be done haphazardly and requires redoubled effort next year. As mentioned above an exit interview with students was conducted per the 2007-2009 Assessment Plan.
MSU Departmental Assessment Report
Spring 2011

Department: Earth Sciences

Department Head: Stephan G. Custer

Assessment Coordinator: Stephan G. Custer

Date: July 11, 2011

Degrees/Majors/Options Offered by Department

Degrees:
Bachelor of Science in Earth Sciences (211 students)

Options:
Undergraduate
Geography (41 students)
Geohydrology (7 students)
Geology (68 students)
GIS/Planning (27 students)
Paleontology (42 students)
Snow Science (26 students)

Minors:
Earth Science Teaching Minor
(College of Education, Health and Human Development)
Geographic Information Science Minor
Water Resources Minor (multidisciplinary)

Master of Science in Earth Sciences (34 students)
No Options
No Minors
Plan A only

Doctor of Philosophy in Earth Sciences (21 students)
No Options
No Minors

Although the Department has been actively engaged in assessment activities including an external review, annual retreats, frequent faculty meetings, collection of teaching evaluations, formation of an advisory board, student interviews and the like, it has been some time since a formal assessment report has been written. We continue to use the plan articulated in 2004 with revisions in 2006.
We plan to review that assessment plan at our 2011 retreat in September, 2011.

Course syllabi, tests, and laboratory evaluations are available on request. Some syllabi are on the web but these are more commonly now on D2L. Our teaching evaluations continue to be strong (overall effectiveness judged by the students 4.37 on a scale of 1-5 (n 25); 3.28 on a scale of 1-4 for the Department (n 26)). Problem areas were discussed during annual reviews of the faculty and staff. We have had three successful promotions (two assistant to associate and one associate to full professor.) We have a more active and vibrant research professor program since the University requested this be added to our Promotion and Tenure document. Our new Ph.D. program opened in 2004 and now has 21 Ph. D. students. Our research productivity rose from approximately $800,000 in 2007 to $6,700,000 in spring 2011. Faculty numbers have declined from 14 and one instructor in 2007 to 12 and one instructor in 2011 in response to mortgaged positions related to the initiation of the Ph.D. program. The cumulative GPA of our students for all classes in 2008 is 2.90, by their senior year this average rises to 3.02. In 2010, the undergraduate average cumulative GPA for all undergraduates was 2.89 and for seniors was 3.01.

The Department continues to evaluate and revise its curriculum both through the MSU catalog revision process every two years, and through assessment of the curricula and courses as needed. For example, we moved mineralogy to the spring so students had time to complete the prerequisite chemistry courses. During the Transferability initiative GIS professors across the state chose to use MSU’s concept matrix to assign courses to correct numbers because the matrix follows national standards. This year we worked to integrate Global Positioning Systems Courses and Remote Sensing courses from Land Resources and Environmental Sciences into our curriculum. In Snow Science we modified the curriculum to include a statistics emphasis and to match our Snow Mechanics emphasis to graduate program requirements in Engineering. We have opened a variety of new courses including oceanography as well as planetary geology, have increased graduate offerings by co-convening courses, but have also increased course offerings through new graduate courses, through special topics courses such as Montana Geology and Materials Characterization. We continue to participate in the Master of Science in Science Education program and are expanding our interaction with the Honors Program. The Department has had the honor of working with four Goldwater scholars (two in 2006 one in 2010 and one in 2011). Our Graduate students have competed well in the area of student-research-proposals-awards through professional societies and have been in the top 20 in the nation in these small grant program applications competing with hundreds of students. One Master of Science student won a Fulbright Grant (2009). These achievements demonstrate student excellence.

Individual faculty have won an American Association for the Advancement of Science, Science Prize for Online Resources in Education, an MSU Ross Award for Excellence and a Wiley Meritorious Research Creativity
Award in 2009 and a Presidential Teaching Award in 2010. These achievements demonstrate faculty excellence.

At our 2010 retreat, the Department looked back at the April 2007 External Review (on file in the Department) and the Report by the reviewers (on file in the Department). Table 1, summarizes recommendations accomplished and recommendations not accomplished. We need to redouble our efforts in the area of newsletters, alumni outreach, and continued interaction with the advisory council. During the 2010-2011 year we took stock of our declining faculty. The declines have largely been related to retirements (three) and we anticipate a retirement next year. This decline has had a significant impact on our programs. Courses have been dropped, switched to alternate years or redistributed to other faculty. Two have been geographers, one a surficial geologist who taught physical geography. We replaced one position with snow geographer. From a programmatic perspective the Department prepared proposals for three tenure-track lines in order of priority, a resource geographer, a surficial process scientist, and a hydrogeologist. Replacement priorities were unanimously supported on programmatic grounds. The Department is demonstrably committed to planning our curriculum and the future of our programs.

Table 1: A Summary of External-Review Recommendations Accomplished and Not accomplished.

<table>
<thead>
<tr>
<th>Accomplished</th>
<th>Not accomplished</th>
</tr>
</thead>
<tbody>
<tr>
<td>Integrate new technology into curriculum (GPS)</td>
<td>Integrate new technology into curriculum (Geopad)</td>
</tr>
<tr>
<td>Consider field methods for Department (rejected)</td>
<td>Competitive Graduate stipends</td>
</tr>
<tr>
<td>Decide about Earth Sciences Writing (Drop).</td>
<td>More GTA’s especially for double section (Review)</td>
</tr>
<tr>
<td>Assign writing in courses</td>
<td></td>
</tr>
<tr>
<td>Give Ph.D. Students teaching experience</td>
<td>Phase in higher GTA stipends</td>
</tr>
<tr>
<td>Provide support for Ph.D. students in third year</td>
<td></td>
</tr>
<tr>
<td>(4th Year as well is possible in open faculty</td>
<td></td>
</tr>
<tr>
<td>vote). Use TA RA mix.</td>
<td></td>
</tr>
<tr>
<td>Balanced Graduate program at 500 level (Review)</td>
<td></td>
</tr>
<tr>
<td>Hire physical Geographer Snow Scientist</td>
<td>Mitigate loss of 3 positions in Geography</td>
</tr>
<tr>
<td>New Graduate courses to support Ph.D. Program</td>
<td></td>
</tr>
<tr>
<td>Review curriculum</td>
<td>Review curriculum</td>
</tr>
<tr>
<td>Implement Geobiology Track</td>
<td>Hire Geospatial Science Person</td>
</tr>
<tr>
<td>Sustain and increase grants NSF etc.</td>
<td>Hire Resource Geographer</td>
</tr>
<tr>
<td>Increase collaboration across campus</td>
<td>(Hire Geomorphologist)</td>
</tr>
<tr>
<td></td>
<td>Look for research space off campus</td>
</tr>
<tr>
<td>Move into Gaines Hall; New and larger space.</td>
<td>Hold onto all space in Traphagen (Failed 116</td>
</tr>
<tr>
<td>Hold onto all space in Traphagen (100 101)</td>
<td>Do Alumni News letter</td>
</tr>
<tr>
<td>Start Advisory Board</td>
<td>Need a follow up on Advisory Board Meeting</td>
</tr>
</tbody>
</table>
The Department of Earth Sciences completed an extensive review of student learning outcomes at the programmatic level for all courses offered by the department as the primary assessment activity for the past year. This follows on the design, development and implementation of a fully revised curriculum for degree options in the physical sciences offered by the department (Geology, Snow Science, Palentology). This revised curriculum is now in its second year of implementation, and we conducted a formative assessment designed to determine the degree to which departmental curricular goals are being met. With the successful hire of three new geographers this past year, a parallel review effort is currently underway to review and revise the curriculum for degree options related to the social sciences (Geography, Geographic Information Science/Planning). The assessment of our undergraduate curriculum is more fully detailed in the department Assessment Plan, but the basic components are enumerated below:

- Use of a “reverse design” process (Wiggins and McTighe, 2005) to define the profile of an ideal graduate from our program, identifying what a student should know (concepts and content knowledge, scientific “habits of mind”) and be able to do (technical and other professional skills);
- Design of learning progressions in key areas to ensure that students earn mastery of key concepts and skills through multiple exposures throughout the curriculum; this also reflects the design of an integrated and coherent curriculum in which course content reflects on lessons learned in earlier courses and anticipates applications in more advanced courses;
- Application of Bloom’s Taxonomy of Cognitive Skills (Bloom 1956; updated Anderson et al., 2000) to promote development of higher-order thinking skills throughout the curriculum: a) starting with early exposure to Earth Science topics to stimulate interest and motivation to learn, and to recruit majors to the discipline, and b) to emphasize more advanced interpretation, application, analytical and synthetic reasoning skills about the Earth system for majors across the curriculum;
- Adoption of an Earth system approach, emphasizing the connections between the solid earth, oceans, weather and climate, biota and humanity; and
- Preparation of students for the workforce of the 21st Century, including disciplinary knowledge and skills, life-long professional skills, and scientific “habits of mind”.

The Department of Earth Sciences assessment plan is aligned with these learning goals. This current assessment report is the result of an intensive self-study by the
department to document the topics and skills that are emphasized in different courses across the curriculum and at different instructional levels.

The Assessment Process

We used the Matrix Approach to Curriculum Design (Savina and Macdonald), from the National Association of Geoscience Teachers Building Strong Geoscience Departments project. The approach was further described by Dallas Rhodes, Kennesaw State University (2011), and adapted and expanded for use by the Department of Earth Sciences to more closely represent departmental priorities, resources, and staffing. All regularly scheduled courses are represented in the accompanying matrix (Excel spread sheet; except for MSSE and Extended University courses). The major student learning outcomes fall into four main categories: Discipline Knowledge (concepts and content), Discipline-Specific Skills (technical skills), Earth Science Habits of Mind, and Professional Skills (communication, quantitative, information, and interpersonal). These general topics are further subdivided according to themes that are central to learning in the Earth Sciences. The selection of these sub-themes was based on national initiatives that support excellence in Earth Sciences education including the On the Cutting Edge program (NSF TUES Phase III), the InTeGrate-Interdisciplinary Teaching of Geoscience for a Sustainable Future program (NSF-STEP), the American Geosciences Institute’s Geoscience Workforce Program, the Association of American Geographers, and U.S. Department of Labor Geospatial Technology Competency Model.

All faculty in the Department of Earth Sciences contributed to this self-study. Faculty provided input about their contributions to student learning outcomes in the courses where they have primary instructional responsibility according to this rating scale: 3= this topic is central to the course goals, and is strongly emphasized throughout the course; 2= this topic is considered in this course and supports course learning goals; 1= this topic is introduced in the course but is not covered in depth; blank= topic not covered. These ratings were color coded in the matrix to present a map of the curricular landscape in the Department of Earth Sciences. This input was then re-sorted according to rubrics within the department (ERTH, GPHY, GEO), level of offering, faculty contributions to the department’s educational mission, undergraduate degree options (Geography, Geographic Information Science/Planning, Geology, Paleontology and Snow Science), and the graduate program. These sortings provide the evidence for deeper analysis of curricular strengths and points of emphasis, individual faculty contributions to student learning outcomes, and representations of the overall student experiences and faculty expectations for learning in our undergraduate and graduate degree programs. The benefit of using self-assessment data is that the survey format allowed for easy and rapid responses from all faculty. However, there are known issues associated with self-reporting, particularly with respect to calibrating responses from different faculty that may result in some distortion of the reliability of these data (Teo, 2012; note that one faculty member’s responses are clearly not valid). In some cases, the department head worked with individual faculty to
reconsider the ratings they submitted for their courses to be better aligned with departmental norms. Overall, most faculty made a good-faith effort in identifying areas of emphasis in their courses. Not shown in this matrix compilation are the specific student learning outcomes for courses, and examples of representative instructional activities, assessment methods or instruments, and metrics. This information has been archived in the department files and the student learning outcomes for each course have been (or will be) submitted to the Provost’s Office to prepare for the MSU institutional accreditation process.

In aggregate, the matrices attached to this report provide a very interesting assessment of the overall current curricular structure of the Department of Earth Sciences, and provides a road map for future revision and development. Areas of particular strength or emphasis are readily identified (red or yellow), and this matrix can be used as a “gap analysis” to identify specific areas in need of further development. This matrix is not to be viewed as a representation of workload effort for each faculty member, as many courses are taught by multiple faculty in rotation, and other courses are offered in alternate years or on demand.

Assessment Results

This assessment process has resulted in immediate benefits:

- The course matrix has provided an important baseline of the current breadth and scope of our instructional efforts across the Earth Sciences curriculum. The process has provided a forum for faculty to begin or continue conversations about the overall curriculum and how their courses contribute to the overall instructional mission. The matrix has provided a framework for the curriculum development discussions currently in progress by the geographers in our department, and has provided the context for continuing discussions among faculty involved with review and revision of our Introduction to Earth System Science course (ERTH 101) and our capstone Field Geology course (GEO 429).
- Many faculty have independently commented on the personal value they derived from this assessment exercise, as they reflected deeply on their course goals, areas of emphasis, and overall contributions to the curriculum.

The course matrix provides the evidence that describes the degree to which we have met university (MSU 2012) and department learning goals.

1. **The Department of Earth Sciences contributes to the MSU Core 2.0 Curriculum** (see tab Sorted by Level, 100 Level Courses)

The Department offers a wide array of Core 2.0 courses in the areas of Inquiry (ERTH 101, ERTH 201, GEO 105, GEO 111, GEO 140, GEO 208), Diversity (GPHY 121, GPHY 141), Contemporary Issues in Science (ERTH 102, GEO 103), and Research and Creative Experience (ERTH 212, and for majors GEO 429, GPHY 441, GPHY 484,
ERTH 450). Inquiry classes require attention to the “...methods used to discover and create the factual and theoretical knowledge of the discipline.” Earth Science inquiry courses have a demonstrated heavy emphasis on Earth Science “habits of mind” (e.g. systems thinking, spatial reasoning, and temporal reasoning), use of Earth data, and problem-solving skills. Contemporary Issues in Science courses “…examine the ways in which science contributes to the study of significant problems in the contemporary world to help individuals and society make informed decisions about these issues.” Earth Sciences CIS courses focus on the connections between the Earth system and humanity, covering topics such as natural hazards, natural resources, the cultural, historical and economic impacts, and applications to public policy and planning. Diversity courses emphasize “…understanding of and sensitivity to other cultural perspectives prepares them to function in the global community...”. Earth Sciences courses in this area have a primary focus on the cultural, historical and economic condition of humanity. Research courses “will incorporate a range of authentic experiences” and this is realized through embedded research projects within the Yellowstone Scientific Laboratory course (ERTH 212 for non-majors) and research experiences in the field and lab for majors in our degree programs. There is a strong emphasis on using Earth data in the classroom in Earth Sciences classes taught at all levels. This includes data that students collect themselves, and data ported from external databases (e.g. USGS, NOAA, EPA,...). In addition, Earth Sciences courses places a high value on communication skills (writing, oral and graphical presentations), quantitative skills, and applications of principles from sister disciplines (e.g. Biology, Physics, Chemistry), in accord with the goals of the Core 2.0 Curriculum.

2. Earth Sciences courses increasingly employ an Earth Systems approach.

The Earth system approach seeks to demonstrate the connections between the solid earth, oceans, atmosphere, biota and humanity. Inspection of discipline knowledge (concepts and content; columns E through O) demonstrates the breadth of coverage of topics in each Earth Sciences course. Almost all courses taught under the ERTH and GEO rubrics are focused on physical aspects of the Earth system, but extend this coverage to impacts on and by humanity (e.g. natural hazards and resources). Courses under the GPHY rubric mostly focus on the human aspects of geography, but also include coverage of topics related to weather, climate, hydrosphere, biosphere, and land forms, all components of the “critical zone” that supports life on Earth. The overall breadth of courses required that use an Earth System approach can best be observed in the sheet Sorted by Undergraduate Degree Option. In addition, the systems approach to instruction in the Earth Sciences is utilized throughout the curriculum with emphases on GIS (as an integrative tool for data representation), a specific focus on systems thinking, temporal and spatial reasoning. All students in the Earth Sciences degree programs share a common set of courses that contribute to an Earth System approach including Introduction to Earth System Science, Topics in Earth Science, a full year of GIS training, Weather and Climate, and Geomorphology.
3. The Department of Earth Sciences has developed an integrated curriculum with learning sequences that emphasize the development of higher order thinking skills.

   a. The sheet that represents the undergraduate degree options demonstrates the reinforcement of major themes throughout the four-year program of study. In the physical sciences, the themes of geologic time (history and evolution of Earth), composition and architecture of the solid earth, and processes that operate on the surface of the earth are addressed from multiple perspectives throughout the curriculum. This includes development of discipline specific skills (e.g. identification of rocks, minerals, fossils, structures, landforms; use of the petrographic microscope), and Earth science habits of mind. In the social sciences (Geography) degree options, human systems are revisited throughout the curriculum (social, economic, and historical perspectives), as well as technical skills (qualitative methods).

   b. Higher order thinking skills are developed across the curriculum through use of case-based studies, problem-solving activities, acquisition and use of data, critical reading of the primary literature, and formulation and testing of hypotheses. Authentic questions and problems are commonly embedded into coursework at all levels as class projects, requiring students to acquire and integrate information from numerous sources to formulate a solution to the problem.

4. The Department of Earth Sciences prepares students a) to continue with graduate studies and/or b) to join the workforce in discipline.

This is the profile of a student who successfully completes an Earth Sciences degree. Students who can

   • Understand geologic/geographic context, apply concepts and skills
   • Ask the next question
   • Know where to look for information
   • Formulate a plan to address the problem
   • Become critical producers and consumers of data
   • Integrate multiple lines of evidence
   • Communicate results; write a report, make a map, develop a GIS, and
   • Be life-long learners.

The Department of Earth Sciences offers robust degree programs that prepare students for the next steps in their professional development. Course content and technical skills are developed in all Earth Sciences courses to conform to professional standards and competencies. There is a strong emphasis across the curriculum on development of communication skills, quantitative reasoning, information technology skills, and interpersonal skills through cooperative and collaborative learning. Problem-solving has been reported as a highly valued skill in the geosciences, and class activities are routinely developed to simulate or replicate
professional practices, and in some cases, to engage authentic research activities. Results of course work commonly make direct contributions to the body of scientific knowledge, and with applications to issues of societal interest.

Next Steps

This formative assessment of student learning outcomes in the Department of Earth Sciences has provided important baseline data. Overall, the current curriculum largely addresses the primary instructional goals and mission of the department. But, there is always room for improvement. In the coming year:

- Faculty will continue to revise their individual courses, and we will continue to seek ways to better integrate all courses into a coherent curriculum; these are standard expectations for faculty development in the department.
- Focused review and revision of select parts of the curriculum will continue. These areas include: a) the overall Geography and degree program to more efficiently and effectively use our faculty resources and to continue to build a program that will best serve students in this degree option; b) ERTH 101 Earth System Science is taught by a rotation of at least 4 faculty; this is a new course that was first offered fall of 2012, and with experience gained in the first 3 offerings we will assess the successes and future development needs of this course; c) Field studies; the geographic setting of MSU provides a great opportunity to emphasize field programs in this natural laboratory, but these opportunities have not been explored in a programmatic way, including the need to revise our capstone GEO 429 Field Geology course.
- Exit Survey: we will pilot the AGI Student Exit Survey to get a better understanding of students’ experiences in our degree programs, and to help calibrate with other departments across the country.
- Assessment of Individual Courses: the department assessment plan has identified a four-year cycle of courses that have been selected to report on student learning outcomes. These courses have been selected to represent a) an introductory course each year, b) one course in each of our major emphasis areas each year (geologic time and evolution, solid earth, surface of the earth, human systems), and a GIS course each year.

This year’s formative assessment exercise has provided important information that will inform continuing course and curriculum revisions.
References Cited

American Geosciences Institute, Workforce Program [http://www.agiweb.org/workforce/]

Association of American Geographers [http://www.aag.org/]


Building Strong Geoscience Departments [http://serc.carleton.edu/departments/index.html]

InTeGrate, Interdisciplinary Teaching of Geoscience for a Sustainable Future [http://serc.carleton.edu/integrate/workshops/index.html]

Montana State University Strategic Plan, 2012 [http://www.montana.edu/strategicplan/]

On the Cutting Edge, Professional Development Program for Geoscience Faculty [http://serc.carleton.edu/NAGTWorkshops/index.html]


Introduction:

Since my appointment as department chair, we have accomplished:

Establishment of a major’s Advising Center staffed full time with faculty, staff and peer-advisers, with a plan to hire a full time advising supervisor. Some of the more relevant accomplishments / projects of the Advising office staff are:

- Assessment of student satisfaction / utilization of advising process in HHD
- Compiling and maintaining records of current majors and graduates for ongoing evaluation;
- Coordinating communication between the department chair and faculty and the majors in relationship to current courses and instructors;
- An on-going electronic newsletter to majors

In addition, we have committed substantial department resources (faculty time and money) to recruitment and retention of majors. As a result our total majors has increased from 430 to about 675 in three years.

We have also initiated extensive evaluation and review of all adjuncts by undergraduate curriculum coordinators and responded to problems with direct intervention (and sometimes elimination of) with problem instructors.

Total HHD Program Review (in progress):

We are currently in the process of a complete Program Review of all majors by faculty members. That has resulted in

- Being placed on the Board of Regent’s calendar for program review in 2008
- Identification of areas of program revisions and realignment of faculty (in progress)
- Curriculum revisions to be put forward for the new catalog in 2008 / 2010

Accreditation(s) update:

- The Food and Nutrition major was fully accredited by the American Dietetics Association.

- The Family / Consumer Science major was withdrawn at the request of Interim Dean Larry Baker due to department reorganization efforts.

- The Counseling (graduate) major’s accreditation process has been successful through the preliminary rounds.

- We anticipate preparation for NCATE accreditation for all teacher preparation programs to start in fall, 2006.
MSU Departmental Assessment Update
Spring 2007

Department: Health and Human Development

Department Head: Dr. Craig Stewart

Assessment Coordinator (s): unit coordinators: Dr. Lynn Owens and Dr. Janis Bullock

Date: 3/01/07

Degrees/Majors/Options Offered by Department

BS degree in Health and Human Development with options in:

Community health
Exercise science
   Exercise science
   Kinesiology
Family and consumer sciences
   Consumer science
   Early Childhood Education
   Family & Consumer Sciences Education/Extension
Food and Nutrition
Health Enhancement-K-12 Broadfield
Pre-Physical Therapy

BS degree in Health Promotion:
Introduction:

In the past year, we have:

Expanded our major’s Advising Center staffed full time with faculty, staff and peer-advisers and have moved forward to hire a full time advising supervisor. Some of the more relevant accomplishments / projects of the Advising office staff are:

- Assessment of student satisfaction / utilization of advising process in HHD
- Compiling and maintaining records of current majors and graduates for ongoing evaluation;
- Coordinating communication between the department chair and faculty and the majors in relationship to current courses and instructors;
- An on-going electronic newsletter to majors
- Participation in all University activities related to the recruitment and retention of students at MSU.

We have also continued the on-going evaluation and review of all adjuncts by undergraduate curriculum coordinators and responded to problems with direct intervention (and sometimes elimination of) with instructors who are having problems.

Total HHD Program Review:

Throughout the spring of 2006, the total faculty of HHD were involved in a total Program Review of all majors. Dr. Jill Thorngren chaired a series of faculty meetings in which all aspects of our curriculum were examined, evaluated and modified. That process resulted in

- The combination of two majors (Community Health and Health Promotion) being combined into one (Allied Health) and being placed on the Board of Regent’s calendar for program review in 2008

- Significant program revisions and realignment of faculty (a new hire in ‘Allied Health’ and permission to search for a new hire in Exercise Science in fall 2007);

- Curriculum revisions to be put forward for the new catalog in 2008 / 2010

- Examples of those revisions are three existing courses that have been redesigned and placed forward to the University CORE committee for inclusion as research classes.
Accreditation(s) update:

- The Counseling (graduate) major’s accreditation was successful.
- We are awaiting upper administration’s decision as to whether we will continue NCATE accreditation.
Department: Health and Human Development

Department Head: Dr. Tim Dunnagan

Assessment Coordinator: Dr. Tim Dunnagan

Degrees/Majors/Options Offered by Department

New:
Six Bachelor of Science degrees with six options. They include:

- B.S. in Community Health
- B.S. in Early Childhood Education/Child Services
- B.S. in Family and Consumer Sciences
  - Teaching Option
  - Non-teaching Option
- B.S. in Food and Nutrition
  - Dietetics Option
  - Nutrition Science Option
- B.S. in Health and Human Performance
  - Exercise Science Option
  - Kinesiology Option
- B.S. in Health Enhancement K-12

Old:
One Bachelor of Science degree in Health and Human Development with six options:

- Community Health Education
- Exercise Science
- Family and Consumer Sciences
- Food and Nutrition
- Health Enhancement K-12
- Pre-Physical Therapy

One Bachelor of Science degree in Health Promotion
Degrees/Majors/Options Offered by Department

The Bachelor of Science degrees in both Health and Human Development and Health Promotion were updated and replaced by separate Bachelor of Science degrees in the following majors and options:

- B.S. in Community Health
- B.S. in Early Childhood Education/Child Services
- B.S. in Family and Consumer Sciences
  - Nonteaching Option
  - Teaching Option
- B.S. in Food and Nutrition
  - Dietetics Option
  - Nutrition Science Option
- B.S. in Health and Human Performance
  - Exercise Science Option
  - Kinesiology Option
- B.S. in Health Enhancement K-12

 Bachelor of Science in Community Health

Graduates of the community health major are employed in entry-level positions conducting planning, administration, evaluation, research, and teaching in community health settings. The undergraduate program is concerned with improving health and well-being for all through the promotion of healthful lifestyles, healthy family functioning, community actions for health, and conditions that make it possible to live healthful lives. The program draws on public health, education, psychology, sociology, family science, and other social and behavioral sciences. Students are prepared to work in a variety of settings including family planning agencies, nonprofit agencies, state and federal health agencies, schools, and community health centers. This program stresses community involvement because community health emphasizes an interactive process in which target populations are active participants in their health, rather than passive recipients. Student involvement will take the form of class assignments, practicum, internships, and service. Students will be prepared to assess individual and community needs; plan, implement, and evaluate effective health programs; coordinate provision of services; act as a resource person; and communicate health needs, concerns and resources. Persons enrolling in this option should seriously consider earning a graduate degree in public health or some related area at some point in their career.
Bachelor of Science in Early Childhood Education and Child Services

The early childhood education and child services major emphasizes the dual focus of education and services within the context of families, educational and child service settings, communities, and society. The major focuses on early childhood education, child development, developmentally appropriate practices, early intervention with children with special needs, assessment and intervention, advocacy, program administration, and working directly with children and families in a variety of early childhood and service settings. The early childhood education and child services major provides a strong background for students seeking careers in a wide variety of settings including early childhood education, child care-related programs and businesses, early intervention with children with special needs and preschool special education settings, child services and child-focused community agencies, state or federal agencies, nonprofit settings that support children and families, and administrators of child service programs. Additionally, this program provides a distance education program to Montana Tribal Colleges and respective Head Start Programs through the Early Childhood Education Distance Partnership Program.

The early childhood education and child services major provides a strong background for admission to graduate programs in early childhood education, child development, child and family studies, social work, counseling, and other related behavioral and social science disciplines.

Bachelor of Science in Family and Consumer Sciences

The Family and Consumer Sciences (FCS) profession is dedicated to enhancing the relationships among individuals, families, communities and the environments in which they function. The family and consumer sciences profession takes leadership in improving individual, family, and community well-being; impacting the development, delivery, and evaluation of consumer goods and services; influencing the creation of policy; and shaping societal change, thereby enhancing the human condition.

Students in FCS take a common core of foundation courses in content areas based upon American Association of Family and Consumer Sciences (AAFCS) standards. In addition, students take restricted supporting courses in the program.

Nonteaching Option

The family and consumer sciences nonteaching option emphasizes the family as a dynamic social unit and examines diverse families in contemporary society. The program focuses on family behavior, strengths, and challenges using family-specific theoretical frameworks (family systems, family crisis) and research methods. Social, cultural, historical, political, and economic trends that influence family functioning and well-being are addressed. Students study a wide range of family issues including development across the lifespan, changing family structures, intergenerational relations. Additionally, human response to stress and crisis, family policies and laws, family finance and economics, work and family issues, and human service delivery and decision-making are included.
The family and consumer sciences nonteaching option provides a strong background for students seeking careers in human services, family life education, family policy, and financial counseling. However, graduate training will be necessary for students wishing to enter the counseling/therapy fields. The curriculum prepares students to work in a wide range of organizations and settings, state or federal agencies, nonprofit settings, and for admission to graduate programs in family science, family resource management, human development, social work, law, and other related behavioral and social science disciplines. Also, graduates of the program may be involved in family-owned business and work in occupations requiring knowledge of family finance including financial counseling.

Students completing the degree may apply for provisional certification as a Certified Family Life Educator. MSU's family and consumer sciences major is accredited by the National Council on Family Relations. Provisional certification is awarded at the completion of a baccalaureate degree and course work in the 11 family life substance areas. After two years' work experience, you may apply for full CFLE certification.

Teaching Option

Family and consumer sciences students learn to work through credit and not-for-credit education systems to empower individuals and families across the lifespan to manage the challenges of living and working in a diverse, global society. The unique focus is on families, work, and their interrelationships. The curriculum at MSU is in synch with the National Standards for Family and Consumer Sciences Teachers and the National Standards for Family and Consumer Sciences Students. Therefore, students choosing this option will be well qualified to seek employment in a variety of educational settings including secondary public and private schools, extension, and public and private agencies. Students completing the program successfully will qualify for a Montana teaching license in Family and Consumer Sciences grades 5-12. Students are encouraged to complete the Certified Family Life Educator and Accredited Financial Counselor designations as well as a teaching minor in a second field while attending MSU to further increase their professional opportunities.

Additionally, the family and consumer sciences major prepares undergraduate students to pursue graduate degrees in a variety of areas including family and consumer sciences, curriculum and instruction, school counseling, and adult education.

Note: The family and consumer sciences teaching option requires 128 credits.

Bachelor of Science in Food and Nutrition

The Department of Health and Human Development offers a major in the study of food and nutrition. Students who choose the nutrition science option intend to pursue a health profession or research-related career, for example, medicine, dentistry, industry, academia, etc.

Dietetics Option

The dietetics option at Montana State University-Bozeman is accredited as a Didactic Program in Dietetics by the Commission on Accreditation for Dietetics Education (CADE) of the American
Dietetic Association (ADA), a specialized accrediting body recognized by the Council on Higher Education Accreditation and the United States Department of Education, 120 Riverside Plaza, Suite 2000, Chicago, IL 60606-6995, (312) 899-0040, x. 5400. A graduate will attain a verification statement upon completing the CADE-approved dietetics program curriculum in addition to a minimum of a “C-” or better in each required program course at graduation. A graduate is then eligible to apply for an CADE-accredited supervised practice/dietetic internship or other post-baccalaureate experience. Upon completion of the post-graduate dietetic internship, students are eligible to take the national registration exam for dietitians. Once the individual has passed the exam, the individual is then a “registered dietitian.” The dietetics option has a strong foundation in food and nutrition, food service management, and science components. Registered dietitians may find employment in health care facilities; industrial, school, and university food services; community nutrition services; private practice; sales for food service or health products; and other related fields.

**Nutrition Science Option**

The nutrition science option is designed to prepare a student for admission to medical (allopathic or osteopathic), dental, or graduate school with an emphasis on nutrition and biochemistry. A student can receive a verification statement if additional didactic program in dietetics course requirements are met. Although the nutrition science option provides a strong background for most professional schools, students must contact individual schools for specific post-baccalaureate entrance requirements. Information about degree requirements can be obtained from the Health and Human Development advising office, Hosaeus PE Complex.

**Standards of Work**

Any student receiving a grade below a "C-" (2.0) in any upper division required course will need to repeat the course. Students must attain a "C-" or better in any required prerequisite course to register for upper division food and nutrition courses.

**Bachelor of Science in Health and Human Performance**

The undergraduate major in Health and Human Performance (HHP) at Montana State University is a general pre-health professional curriculum that prepares students for health-related graduate programs (e.g., physical therapy, occupational therapy, medical school, etc.), exercise science graduate programs (e.g., exercise physiology, health promotion, biomechanics), as well as entry-level occupations within the health and wellness industry. HHP majors can choose to focus their course work within one of the following curriculum options: exercise science or kinesiology. Students within the exercise science option intend to pursue a health-related graduate degree to meet their career aspirations, whereas students within the kinesiology option will pursue careers within the health and wellness industry that do not require a graduate degree.

**Exercise Science Option**

The exercise science option within the Health and Human Performance (HHP) major focuses on both clinical and performance-based understandings of human movement. The exercise science
option emphasizes a cross-disciplinary understanding of human movement through non-departmental courses in biology, anatomy and physiology, chemistry, physics, math, and statistics. These courses then serve as the foundation for mechanical (e.g., biomechanics) and nutritional perspectives within the departmental courses. The exercise science option specifically allows students to customize their junior and senior year course work as needed for later application to health-related graduate programs in physical therapy, occupational therapy, medical physician assistant, sports medicine, exercise science graduate programs (exercise physiology, health promotion, biomechanics), as well as medical school. Additional careers for exercise science students can include those within the health and fitness industry (e.g., those requiring ACSM Health-Fitness Instructors and/or Exercise Test Technologist certifications), corporate wellness programs, exercise rehabilitation programs (cardiac rehabilitation, gait laboratories, sport medicine facilities, older adult programs, etc.), as well as careers in the sport and rehabilitative medicine equipment industries. Regardless of a student’s career goals, each student’s course work will culminate in one of the following “capstone experience” courses: HDPE 465, Exercise Testing and Prescription; HDPE 489/490, Undergraduate Research; or a preapproved internship (HDPE 475/HHD476). Students must receive a grade of “C” or better in all upper division department core courses for graduation.

**Kinesiology Option**

The kinesiology option within the Health and Human Performance (HHP) major prepares graduate for careers requiring leadership in organizing, directing, and managing fitness and wellness programs in corporate and commercial settings. The overall goal of the kinesiology option is to develop basic knowledge, comprehension, and appreciation of a) historical and cultural perspectives of human movement, b) social and psychological influences of human movement, and c) physiological and biomechanical correlates of human performance. From this broad knowledge base, the program’s inherent flexibility allows students to pursue a variety of areas related to physical activity and sport. This option also prepares students for professional certifications in fitness and conditioning through professional organizations such as the American College of Sports Medicine (ACSM) and the National Strength and Conditioning Association (NSCA). Finally, each student’s course work will culminate in one of the following “capstone experience” courses: HDPE 465, Exercise Testing and Prescription; HDPE 489/490, Undergraduate Research; or a preapproved internship (HDPE 475/HHD476). Students must receive a grade of “C” or better in all upper division department core courses for graduation.

**Health Enhancement K-12 (Health and Physical Education)**

The Health Enhancement Teacher Preparation program is designed for students who want to become teachers of Health Enhancement (Health and Physical Education) in public schools. Upon completion of the degree, students are eligible for certification in teaching K-12 Health Enhancement, Physical Education, and/or Health Education in Montana and other states. Health Enhancement is a comprehensive approach to combining the traditional areas of Health Education and Physical Education. It is a contemporary curriculum where healthy lifestyles and concepts are achieved through skillful movement with an emphasis on physical fitness, healthy lifestyle management skills, and understanding of the total self (physical, intellectual, emotional, and social). In addition to the traditional approach to teaching fundamental movement, skills, games, and dance, this curriculum emphasizes the overall health of the individual as a value in
life and enhances critical thinking, decision-making and problem-solving skills of future teachers and their students. Courses within this curriculum represent a combination of content knowledge (health enhancement, health education, and physical education) along with a strong background in pedagogical content knowledge (teaching methods and curriculum). Students majoring in Health Enhancement develop a professional development portfolio based on national beginning teacher standards. The final semester consists of student teaching in two public school placements.

Student Outcomes and Assessment Update

In the past year, the Department of Health and Human Development has:
- Initiated a strategic planning process and made significant progress towards this endeavor
- Completely restructured undergraduate curriculum to better meet the needs of students and emerging occupations in health and human development
- Updated website to reflect new undergraduate curriculum
- Added several video clips to website to recruit new and transfer students
- Converted an old classroom into an updated computer lab that is handicapped accessible
- Hired two new full-time adjunct instructors to meet student growth and needs
- Significant tracking of student progress and productivity over a 5-10-year period so that we could better address student growth, trends, and needs
- Moved Advising Center into newly remodeled Hosaeus Fitness Center and reconfigured it to better meet needs of students and faculty; support was increased by approximately 25% to provide more individualized attention for students
- Dramatically increased number of class offerings across the curriculum to meet the needs of students

Total HHD Program Review

- Hired a new tenure-track faculty member in Health and Human Performance
- Initiated an external program review of our department
- Initiated the search process to fill one open faculty line
- Generated a committee structure to better address undergraduate and graduate student needs and related programming
- Initiated monthly research seminars for faculty and students
- Brought in outside consultant to help department with strategic planning process designed to more effectively address teaching, research and outreach needs
- Continue to generate significant grants and contracts through the department that are designed to enhance the well-being of Montanans and others
**Department Mission Statement**

Enriching human well-being through teaching, research and outreach. A detailed description of the department's mission, strategic planning and progress can be found through the departmental website through the following link [http://www.montana.edu/hhd/model2.htm](http://www.montana.edu/hhd/model2.htm).

**HHD Model of Well-Being**

During the past year the faculty within HHD developed a model that represents the components of human wellbeing as shown in the figure below.

![HHD Model of Well-Being](Image)

**Model Overview**

HHD conceptual model of well-being emphasizes interconnectedness. Internationally, the concept of well-being has been used to describe global health, quality of life, and overall sustainability. According to the Oxford American Dictionary, well-being refers to being healthy, comfortable, and happy, although its uses extend to people, environments, wildlife, communities, nations, and so on. Based upon our review of the research, HHD defines well-being as being composed of five distinct but overlapping domains of well-being:
Social
Social well-being indicates how individuals or groups function in relation to others in society and often refers to characteristics such as interpersonal skills, family composition and interaction, social networks and support, community dynamics, and social behavior, including lifestyle, risk-taking, and deviance.

Economic/Financial
This term refers to access to monetary and material resources such as housing, land, employment, occupation, income, and other dimensions of socioeconomic status.

Physical
By physical well-being, we refer to characteristics such as life expectancy, wellness, nutrition, disease incidence, health risk factors, maternal and child health, and access to health care.

Emotional/Spiritual
Emotional/Spiritual well-being characterizes those aspects involved with feelings, such as perception, attitudes, spirituality, intimacy, self-esteem, and mental health.

Intellectual
Intellectual well-being is the ability to process information effectively and the capability to use information in a rational way to grow and solve problems. It includes issues such as creativity, spontaneity, and openness of new ways of viewing situations.

While these five domains are distinct aspects of people’s lives, we recognize that they are integrated in a fabric of human well-being. We hold central the belief that well-being applies to families, groups, individuals, organizations, and communities.

Degrees/Majors/Options Offered by Department
The Bachelor of Science degrees are offered in the following majors. Three of the six majors also offer options within the major.

- B.S. in Community Health
- B.S. in Early Childhood Education/Child Services
- B.S. in Family and Consumer Sciences
  Non-teaching Option
  Teaching Option
- B.S. in Food and Nutrition
  Dietetics Option
  Nutrition Science Option
  Sustainable Foods Systems Option
- B.S. in Health and Human Performance
  Exercise Science Option
  Kinesiology Option
- B.S. in Health Enhancement K-12
Bachelor of Science in Community Health

Graduates of the community health major are employed in entry-level positions conducting planning, administration, evaluation, research, and teaching in community health settings. The undergraduate program is concerned with improving health and well-being for all through the promotion of healthful lifestyles, healthy family functioning, community actions for health, and conditions that make it possible to live healthful lives. The program draws on public health, education, psychology, sociology, family science, and other social and behavioral sciences. Students are prepared to work in a variety of settings including family planning agencies, nonprofit agencies, state and federal health agencies, schools, and community health centers. This program stresses community involvement because community health emphasizes an interactive process in which target populations are active participants in their health, rather than passive recipients. Student involvement will take the form of class assignments, practicum, internships, and service. Students will be prepared to assess individual and community needs; plan, implement, and evaluate effective health programs; coordinate provision of services; act as a resource person; and communicate health needs, concerns and resources. Persons enrolling in this option should seriously consider earning a graduate degree in public health or some related area at some point in their career. Students must receive a grade of "C" or better in all upper division department core courses for graduation.

Bachelor of Science in Early Childhood Education and Child Services

The early childhood education and child services major emphasizes the dual focus of education and services within the context of families, educational and child service settings, communities, and society. The major focuses on early childhood education, child development, developmentally appropriate practices, early intervention with children with special needs, assessment and intervention, advocacy, program administration, and working directly with children and families in a variety of early childhood and service settings. The early childhood education and child services major provides a strong background for students seeking careers in a wide variety of settings including early childhood education, child care-related programs and businesses, early intervention with children with special needs and preschool special education settings, child services and child-focused community agencies, state or federal agencies, nonprofit settings that support children and families, and administrators of child service programs. Additionally, this program provides a distance education program to Montana Tribal Colleges and respective Head Start Programs through the Early Childhood Education Distance Partnership Program.

The early childhood education and child services major provides a strong background for admission to graduate programs in early childhood education, child development, child and family studies, social work, counseling, and other related behavioral and social science disciplines. Students must receive a grade of "C" or better in all upper division department core courses for graduation.
Bachelor of Science in Family and Consumer Sciences

The Family and Consumer Sciences (FCS) profession is dedicated to enhancing the relationships among individuals, families, communities and the environments in which they function. The family and consumer sciences profession takes leadership in improving individual, family, and community well-being; impacting the development, delivery, and evaluation of consumer goods and services; influencing the creation of policy; and shaping societal change, thereby enhancing the human condition.

Students in FCS take a common core of foundation courses in content areas based upon American Association of Family and Consumer Sciences (AAFCS) standards. In addition, students take restricted supporting courses in the program. Students must receive a grade of "C" or better in all upper division department core courses for graduation.

Nonteaching Option

The family and consumer sciences nonteaching option emphasizes the family as a dynamic social unit and examines diverse families in contemporary society. The program focuses on family behavior, strengths, and challenges using family-specific theoretical frameworks (family systems, family crisis) and research methods. Social, cultural, historical, political, and economic trends that influence family functioning and well-being are addressed. Students study a wide range of family issues including development across the lifespan, changing family structures, intergenerational relations. Additionally, human response to stress and crisis, family policies and laws, family finance and economics, work and family issues, and human service delivery and decision-making are included.

The family and consumer sciences nonteaching option provides a strong background for students seeking careers in human services, family life education, family policy, and financial counseling. However, graduate training will be necessary for students wishing to enter the counseling/therapy fields. The curriculum prepares students to work in a wide range of organizations and settings, state or federal agencies, nonprofit settings, and for admission to graduate programs in family science, family resource management, human development, social work, law, and other related behavioral and social science disciplines. Also, graduates of the program may be involved in family-owned business and work in occupations requiring knowledge of family finance including financial counseling.

Students completing the degree may apply for provisional certification as a Certified Family Life Educator. MSU's family and consumer sciences major is accredited by the National Council on Family Relations. Provisional certification is awarded at the completion of a baccalaureate degree and course work in the 11 family life substance areas. After two years' work experience, you may apply for full CFLE certification.

Teaching Option

Family and consumer sciences students learn to work through credit and not-for-credit education systems to empower individuals and families across the lifespan to manage the challenges of living and working in a diverse, global society. The unique focus is on families, work, and their interrelationships. The curriculum at MSU is in synch with the National
Standards for Family and Consumer Sciences Teachers and the National Standards for Family and Consumer Sciences Students. Therefore, students choosing this option will be well qualified to seek employment in a variety of educational settings including secondary public and private schools, extension, and public and private agencies. Students completing the program successfully will qualify for a Montana teaching license in Family and Consumer Sciences grades 5-12. Students are encouraged to complete the Certified Family Life Educator and Accredited Financial Counselor designations as well as a teaching minor in a second field while attending MSU to further increase their professional opportunities.

Additionally, the family and consumer sciences major prepares undergraduate students to pursue graduate degrees in a variety of areas including family and consumer sciences, curriculum and instruction, school counseling, and adult education.

Note: The family and consumer sciences teaching option requires 128 credits.

**Bachelor of Science in Food and Nutrition**

The Department of Health and Human Development offers a major in the study of food and nutrition. Students who choose the nutrition science option intend to pursue a health profession or research-related career, for example, medicine, dentistry, industry, academia, etc.

*Dietetics Option*

The dietetics option at Montana State University-Bozeman is accredited as a Didactic Program in Dietetics by the Commission on Accreditation for Dietetics Education (CADE) of the American Dietetic Association (ADA), a specialized accrediting body recognized by the Council on Higher Education Accreditation and the United States Department of Education, 120 Riverside Plaza, Suite 2000, Chicago, IL 60606-6995, (312) 899-0040, x. 5400. A graduate will attain a verification statement upon completing the CADE-approved dietetics program curriculum in addition to a minimum of a “C-” or better in each required program course at graduation. A graduate is then eligible to apply for a CADE-accredited supervised practice/dietetic internship or other post-baccalaureate experience. Upon completion of the post-graduate dietetic internship, students are eligible to take the national registration exam for dietitians. Once the individual has passed the exam, the individual is then a “registered dietitian.” The dietetics option has a strong foundation in food and nutrition, food service management, and science components. Registered dietitians may find employment in health care facilities; industrial, school, and university food services; community nutrition services; private practice; sales for food service or health products; and other related fields.

*Nutrition Science Option*

The nutrition science option is designed to prepare a student for admission to medical (allopathic or osteopathic), dental, or graduate school with an emphasis on nutrition and biochemistry. A student can receive a verification statement if additional didactic program in dietetics course requirements are met. Although the nutrition science option provides a strong background for most professional schools, students must contact individual schools for specific
post-baccalaureate entrance requirements. Information about degree requirements can be obtained from the Health and Human Development advising office, Hosaeus PE Complex.

**Sustainable Food Systems Option**

The sustainable food systems option draws from both the physical and social sciences in the areas of food and nutrition, family and consumer sciences, plant sciences, environmental sciences, ecology, sociology, and political science. Emphasis in this option is on health and consumer issues related to food production and food systems. Students gain hands-on experience in culinary fundamentals and management, organic gardening, and independent research projects. Internships are designed to provide experience with food processing, food cooperative management, alternative food distribution systems, and small business operations. Having a better understanding of the interconnections among food production, food policy, food security and health, helps prepare graduates capable of addressing interdisciplinary food system problems such as obesity, food insecurity and poverty, food safety, and loss of indigenous foods, among others.

**Standards of Work**

Any student receiving a grade below a "C-" (2.0) in any upper division required course will need to repeat the course. Students must attain a "C-" or better in any required prerequisite course to register for upper division food and nutrition courses.

**Bachelor of Science in Health and Human Performance**

The undergraduate major in Health and Human Performance (HHP) at Montana State University is a general pre-health professional curriculum that prepares students for health-related graduate programs (e.g., physical therapy, occupational therapy, medical school, etc.), exercise science graduate programs (e.g., exercise physiology, health promotion, biomechanics), as well as entry-level occupations within the health and wellness industry. HHP majors can choose to focus their course work within one of the following curriculum options: exercise science or kinesiology. Students within the exercise science option intend to pursue a health-related graduate degree to meet their career aspirations, whereas students within the kinesiology option will pursue careers within the health and wellness industry that do not require a graduate degree.

**Exercise Science Option**

The exercise science option within the Health and Human Performance (HHP) major focuses on both clinical and performance-based understandings of human movement. The exercise science option emphasizes a cross-disciplinary understanding of human movement through non-departmental courses in biology, anatomy and physiology, chemistry, physics, math, and statistics. These courses then serve as the foundation for mechanical (e.g., biomechanics) and nutritional perspectives within the departmental courses. The exercise science option specifically allows students to customize their junior and senior year course work as needed for later application to health-related graduate programs in physical therapy, occupational therapy, medical physician assistant, sports medicine, exercise science graduate programs (exercise physiology, health promotion, biomechanics), as well as medical school. Additional careers for
exercise science students can include those within the health and fitness industry (e.g., those requiring ACSM Health-Fitness Instructors and/or Exercise Test Technologist certifications), corporate wellness programs, exercise rehabilitation programs (cardiac rehabilitation, gait laboratories, sport medicine facilities, older adult programs, etc.), as well as careers in the sport and rehabilitative medicine equipment industries. Regardless of a student’s career goals, each student’s course work will culminate in one of the following "capstone experience" courses: HDPE 465, Exercise Testing and Prescription; HDPE 489/490, Undergraduate Research; or a preapproved internship (HDPE 475/HHD476). Students must receive a grade of "C" or better in all upper division department core courses for graduation.

**Kinesiology Option**

The kinesiology option within the Health and Human Performance (HHP) major prepares graduate for careers requiring leadership in organizing, directing, and managing fitness and wellness programs in corporate and commercial settings. The overall goal of the kinesiology option is to develop basic knowledge, comprehension, and appreciation of a) historical and cultural perspectives of human movement, b) social and psychological influences of human movement, and c) physiological and biomechanical correlates of human performance. From this broad knowledge base, the program’s inherent flexibility allows students to pursue a variety of areas related to physical activity and sport. This option also prepares students for professional certifications in fitness and conditioning through professional organizations such as the American College of Sports Medicine (ACSM) and the National Strength and Conditioning Association (NSCA). Finally, each student’s course work will culminate in one of the following “capstone experience” courses: HDPE 465, Exercise Testing and Prescription; HDPE 489/490, Undergraduate Research; or a preapproved internship (HDPE 475/HHD476). Students must receive a grade of “C” or better in all upper division department core courses for graduation.

**Overview of the Assessment and Outcome Plan for HHD**

Health and Human Development is a large and diverse department with six majors and three graduate programs. Therefore, the assessments vary dramatically across the majors. However, during the 2009 faculty retreat a procedure for evaluating student progress and outcomes for all HHD undergraduate students was developed and agreed upon by HHD faculty. Therefore, the “department wide” assessment approach will be described in this document. Also, the assessment activities addressed through each major and graduate program will be briefly described and a web link will be provided so more detailed description can be provided of the activities within each major and graduate program.

**Department-Wide Assessment and Outcome Efforts**

The common data collected across all HHD undergraduate majors will be generated through two mechanisms. The first will be a yearly collection of survey data through the HHD Advising Center. The data collection will take place as students register for classes during the fall semester (sophomores-seniors only). Since all students need to register for classes the advising staff (supervised by Kathy Weaver) will collect the survey data (see the survey below in Appendix A). The yearly data collection effort is designed to evaluate class accessibility, curriculum quality, student knowledge, course delivery, general understanding of human well-being (departmental mission), and advising effectiveness. The
surveys will be entered into a data base so the Likert scales can be summarized using descriptive statistics. Questions are included about the students major, year in school and GPA so the data can be sorted to give more insight to faculty and college administrators, that is, major, GPA, etc.

The second survey will typically be collected through the student’s capstone experience that is offered in each major. The professor who instructs the cap stone course will distribute and collect the survey (see Appendix B) from the students. The courses used to collect this data during a student’s final year include:

- Community Health: HHD 476
- Early Childhood Development & Childhood Services: HDCF 454
- Family and Consumer Sciences: HDCF 474/EDSD 410
- Food & Nutrition: HDFN 400
- Health & Human Performance: HDPE 465
- Health Enhancement K-12: EDEL 410/EDSD 410

The questions quarry HHD seniors to identify:

- how well the curriculum has prepared them for their career/advanced degree
- quality of their communication skills
- technically proficiency
- general satisfaction with the faculty and staff in HHD
- quality of their major

The survey data will be entered into a statistical data base so the Likert scales can be summarized using descriptive statistics. The tree open ended questions will be reviewed for significant trends and themes across the department and within majors.

The findings from the two surveys will be summarized on a yearly basis. The results will be shared with the program leaders in each major and to all faculty during the monthly department meeting in the fall of each academic year.

**Assessment and Outcome Efforts within Program Majors and Graduate Programs**

Additional assessment efforts will be conducted within the majors and graduate programs in HHD. Because of specific accreditation requirements within each major, the sophistication and depth of the assessments varies dramatically. What follows is a assessment and outcome effort description of each HHD major and its graduate programs.

**Community Health**

*CHES Matrix...What Community Health Students Are Expected to Learn* - The Community Health major has incorporated an analysis of the areas and competencies that are needed for students to become Certified Health Education Specialists (CHES). The CHES certification includes 7 areas of responsibility and numerous competencies within each area as part of the CHES certification. The Community Health faculty used the CHES certification criteria and the content/experiences associated with the community health curriculum to examine the breadth and depth of the
curricula. The matrix of the HHD curriculum and the CHES certification areas of responsibility and competency for undergraduate students is shown through the following link: http://www.montana.edu/hhd/departmentdocs/assessmentoutcome/communityhealth2007competencies.pdf

Focus Groups: Each year a member of the Community Health faculty will conduct 1-2 focus groups with community health seniors to evaluate the strengths and weaknesses of the Community Health curriculum. The questions will be open ended and designed to generate a conversation between the students and the instructor. Examples of the questions include:

- When you think about the HHD Community Health major, what is the first thing that comes to mind?
- If you were visiting with a friend and they were interested in the Community Health major, what would you tell them?
- What do you like most about the Community Health major?
- What do you like least about the Community Health major?
- How could your experience in the Community Health major have been enhanced?

The faculty member will write a 1-2 page summary of the significant trends and themes that emerge from the focus group and share the findings with the community health faculty during their regular fall meetings.

Early Childhood Education and Child Services

NAEYC Matrix...What Early Childhood Education and Childhood Service (ECECS) Students Are Expected to Learn- The ECECS major has incorporated the standards and objectives of National Association for the Education of Young Children (NAEYC) into the development of their course curricula. NAEYC is the professional Organization that accredits early childhood education centers and sets the national standards for teacher preparation and academic programs. It is the flagship professional organization for early childhood education in the United States. The matrix that was generated by ECECS faculty shows how the ECECS curricula address the five standards and 19 objectives associated with student learning in this major. The entire matrix is shown through the following link: http://www.montana.edu/hhd/departmentdocs/assessmentoutcome/ECECS-NAEYCrev2evaldoc.pdf

Food and Nutrition

The food and nutrition major accrediting body requires extensive evaluation and tracking of students. All data are collected by the Dietetics Director, Melody Anacker and summarized using descriptive statistics on a yearly basis. The Food and Nutrition faculty are required to review this information yearly and report their findings to the American Dietetic Association (ADA). If deficiencies are found through their evaluations or the reviews conducted by the ADA, plans and developed and implemented to address the areas of concern. The entire HHD Dietetics program assessment plan can be found through the following link: http://www.montana.edu/hhd/departmentdocs/assessmentoutcome/DieteticsWrittenPlanforOngoingProgramAssessment.pdf

The specific surveys used to evaluate this major include:
1. **Dietetics Student Self-Evaluation Form** - This three page electronic survey is designed to measure student preparedness to dietetics profession including their level of knowledge in a variety biopsychosocial areas, communication skills, interpersonal skills, etc. The entire survey can be viewed through the following link: [http://www.montana.edu/hhd/departmentdocs/assessmentoutcome/DieteticStudentSelfEvaluationform.pdf](http://www.montana.edu/hhd/departmentdocs/assessmentoutcome/DieteticStudentSelfEvaluationform.pdf)

2. **Dietetics Student Self-Evaluation Form for Graduate School** - This three page electronic survey is designed to measure student preparedness to enter graduate school including their level of knowledge in a variety biopsychosocial areas, communication skills, interpersonal skills, etc. The entire survey can be viewed through the following link: [http://www.montana.edu/hhd/departmentdocs/assessmentoutcome/DieteticStudentSelfEvaluationformGradschool.pdf](http://www.montana.edu/hhd/departmentdocs/assessmentoutcome/DieteticStudentSelfEvaluationformGradschool.pdf)

3. **Dietetics Student Non-Internship Evaluation** - Most students in this major elect to participate in a year-long internship program which enables the student to become a Registered Dietitian (RD). However some students pursue other opportunities and this survey is used to track their progress and how well they were prepared for their current occupation. The entire survey can be viewed through the following link: [http://www.montana.edu/hhd/departmentdocs/assessmentoutcome/DieteticStudentSelfEvaluationformNon-internship.pdf](http://www.montana.edu/hhd/departmentdocs/assessmentoutcome/DieteticStudentSelfEvaluationformNon-internship.pdf)

4. **Food & Nutrition-Dietetics Exit Survey of Knowledge and Skills** - This survey is designed to evaluate student preparedness for their internship and graduate program. This information is used to supplement the data collected in the Dietetics Student Self-Evaluation Form and Dietetics Student Self-Evaluation Form for Graduate School. Also, the survey asks students about the quality of the major, how it can be improved, etc. The entire survey can be viewed through the following link: [http://www.montana.edu/hhd/departmentdocs/assessmentoutcome/ExitInterviewSurvey2009_2005-2009_.pdf](http://www.montana.edu/hhd/departmentdocs/assessmentoutcome/ExitInterviewSurvey2009_2005-2009_.pdf)

**MSU Dietetics Program Student Learning Outcomes Matrix...What Food and Nutrition Students are Expected to Learn** - To be an accredited dietetics program students need to have developed a series of interpersonal skills, gain knowledge within relevant content areas, develop technical skills related to nutrition, and develop problem solving/critical thinking skills. These outcome measures have been incorporated into a matrix that was generated by Food and Nutrition faculty to ensure students acquire these attributes during their tenure at MSU. The entire matrix is shown through the following link: [http://www.montana.edu/hhd/departmentdocs/assessmentoutcome/2004-2009DPDSStudentLearning_Outcomes_1_2_3%20table.pdf](http://www.montana.edu/hhd/departmentdocs/assessmentoutcome/2004-2009DPDSStudentLearning_Outcomes_1_2_3%20table.pdf)

**Health & Human Performance**

The faculty in Health and Human Performance have elected to use the department-wide assessment and outcome plan for their evaluation effort.

**Family and Consumer Sciences**
The Certified Family Life Educator (CFLE) Credential from the Counsel on Family Relations Matrix and the Chapter 58 State Standards... What FCS Students are Expected to Learn - The FCS curricula is based on two sets of standards. The first set of standards comes from the Council on Family Relations and has identified 11 content areas that are necessary for students to be a CFLE. The content areas include items such as human sexuality, family resource management and other related topics. The Family Consumer Science Faculty generated a matrix to show the classes that provide students with the information, knowledge and skills within the 11 content areas. The entire matrix is shown through the following link:

http://www.ncfr.org/pdf/approved_programs/Montana_State_U_Bozeman.pdf

The second set of standards is based on the Montana state law for licensure outlined in the Chapter 58 requirements and is described in the following link:

http://www.montana.edu/hhd/departmentdocs/assessmentoutcome/fcsteachingcompetencies.pdf

The content areas include items such as family development, consumer sciences and nutrition. The matrix of courses and content areas is shown in the following link:

http://www.montana.edu/hhd/departmentdocs/assessmentoutcome/58chapter.pdf

FCS Teachers PRAXIS II Exam - The PRAXIS II exam series provides assessment for teacher licensure in a variety of educational areas. The FCS examination is taken by all students in FCS teaching option during their final year at MSU. The examination tests students in eight content areas such as food and nutrition, housing and the family. The program leader (Dr. Holly Hunts) for FCS teaching tracks the pass rate of the students and keeps a running log of the results on a yearly basis. Based on the results from the student test scores, the FCS instructors meet during their regular program meetings in the fall of each year and decide if modifications need to be made to the curriculum.

Health Enhancement K-12

The National Association for Sports and Physical Education (NASPE) Matrix & the Chapter 58 Requirements... What Health Enhancement Students are Expected to Learn - The health enhancement curricula is based on two sets of standards. The first set of standards comes through NASPE who has generated guidelines for attributes that a successful physical education instructor should possess. NASPE has identified 10 NASPE physical education teacher standards. The standards include areas such as content knowledge, growth & development, diversity, management and motivation and communication. A detailed description of the standards can be found at http://www.aahperd.org/Naspe/pdf_files/standards_initial.pdf. The faculty in Health Enhancement have condensed the five standards in 6 standards and have generated a matrix to show how students will acquire the necessary information, knowledge and skills to meet the NASPE standards. The entire matrix is shown through the following link:

http://www.montana.edu/hhd/departmentdocs/assessmentoutcome/hek12napsencatematrix.pdf

The second set of standards is based on the Montana state law for licensure outlined in the Chapter 58 requirements and is described in the following link:

http://www.montana.edu/hhd/departmentdocs/assessmentoutcome/hek12MTStandardsAlignment.pdf
The content areas include items such history and philosophy of physical education and the analysis of human movement. The matrix of courses and content areas is shown in the following link:
http://www.montana.edu/hhd/departmentdocs/assessmentoutcome/58chapter.pdf

*Health Enhancement (HE) PRAXIS II Exam* - The PRAXIS II exam series provides assessment for teacher licensure in a variety of educational areas. The Physical Education and Health examination is taken by all students in HE teaching option during their final year at MSU. The examination includes a content portion that addresses 6 content areas such as fundamentals of movement, motor development and fitness/exercise science. Also, an analysis and design examination is provided to see how well physical education teacher can select activities for particular purposes, make decisions about the status and needs of students, and justify those selections and decisions. The program leader (Dr. Lynn Owens) for HE Teaching tracks the pass rate of the students and keeps a running log of the results on a yearly basis. Based on the results from the student test scores, the HE instructors meet during their regular program meetings in the fall of each year and decide if modifications need to be made to the curriculum.

**Counseling Graduate Program**

The counseling program is a graduate only program that provides clinical training for students who are interested in mental health, marriage and family and school counseling. For a more in-depth review of the program please see the HHD website at http://www.montana.edu/hhd/academicprograms08/graduate/counseling/counseling.htm. In addition to the students’ comprehensive examinations, the counseling faculty have elected to use a national counseling examination as part of the assessment and outcomes. The goal of most counselors is to become a licensed counselor. In order to become licensed in the State of Montana the students must take the National Counselor Examination for Licensure and Certification (NCE). The students will be strongly encouraged to take this examination during the spring semester of their second year in HDCO 576. The instructor will record the percentage of students who pass and fail the examination. This information will be shared with the counseling faculty each year during one of their regularly scheduled fall meetings. Based on the results faculty can decide if any modifications need to be made to the curriculum. A more detailed description of the examination is provided through the following link
http://www.montana.edu/hhd/departmentdocs/assessmentoutcome/counselingNCE.pdf

**Health Promotion & Education/Exercise and Nutrition Sciences Graduate Program**

The faculty in the Health Promotion & Education/Exercise and Nutrition Sciences Graduate Program are currently working on developing a way to track student assessment and outcomes in addition to the comprehensive examination, minimum grade of a “B” or higher in all classes and the thesis project review that is currently in place.
Appendix A
HHD Yearly Advising Center Evaluation

1. What is your major?
   - Community Health
   - Early Childhood Education and Child Services
   - Family & Consumer Sciences
   - Food & Nutrition
   - Health & Human Performance
   - Health Enhancement K-12

2. What year are you?
   - Sophomore
   - Junior Senior
   - Other

3. What is your current GPA?

Please rank how you get information related to your major in HHD (1 being the most important and 3 being least important)
- Instructors
- Advising center
- Web
- Other

Please rank how you would like to have a course delivered (1 being your first favorite delivery method and 3 being your least desirable method)
- Face-to-face classroom teaching
- Distance delivered (web based)
- Hybrid of face-to-face and distance delivery

Use the following scale to respond to the statements listed below:
1 = Strongly Disagree; 2 = Disagree; 3 = neutral; 4 = Somewhat Agree; 5 = Strongly Agree

<table>
<thead>
<tr>
<th>Statement</th>
<th>Scoring</th>
</tr>
</thead>
<tbody>
<tr>
<td>Generally speaking, I was given access to the HHD (classes in my major)</td>
<td>1  2  3  4  5</td>
</tr>
<tr>
<td>that I needed to complete my degree.</td>
<td></td>
</tr>
<tr>
<td>Generally speaking, the curriculum (courses, sequencing and other</td>
<td>1  2  3  4  5</td>
</tr>
<tr>
<td>experiences) in my major has been delivered effectively</td>
<td></td>
</tr>
<tr>
<td>The courses I have taken the past year have significantly enhanced my</td>
<td>1  2  3  4  5</td>
</tr>
<tr>
<td>knowledge within my major.</td>
<td></td>
</tr>
<tr>
<td>Overall, I would rate the academic content of HHD classes as high quality.</td>
<td>1  2  3  4  5</td>
</tr>
<tr>
<td>Through my courses in HHD I have obtained a clearer understanding of</td>
<td>1  2  3  4  5</td>
</tr>
<tr>
<td>human well-being.</td>
<td></td>
</tr>
<tr>
<td>Overall, I am very satisfied with the quality of the instructors in HHD.</td>
<td>1  2  3  4  5</td>
</tr>
<tr>
<td>The advising center in HHD has helped me effectively plan out my college</td>
<td>1  2  3  4  5</td>
</tr>
<tr>
<td>curriculum.</td>
<td></td>
</tr>
<tr>
<td>I have received guidance from HHD employees related to my career interests</td>
<td>1  2  3  4  5</td>
</tr>
<tr>
<td>and aspirations.</td>
<td></td>
</tr>
<tr>
<td>I am able to visit with my advisor when the need arises in a reasonable</td>
<td>1  2  3  4  5</td>
</tr>
<tr>
<td>period of time.</td>
<td></td>
</tr>
</tbody>
</table>
Appendix B
HHD Capstone Exit Survey

1. What is your major?
   - Community Health
   - Early Childhood Education and Child Services
   - Family & Consumer Sciences
   - Food & Nutrition
   - Health & Human Performance
   - Health Enhancement K-12

Use the following scale to respond to the statements listed below:
1 = Strongly Disagree; 2 = Disagree; 3 = neutral; 4 = Somewhat Agree; 5 = Strongly Agree

<table>
<thead>
<tr>
<th>Statement</th>
<th>Scoring</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. I believe that my curriculum has adequately prepared me to engage in</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>a career or an advanced degree.</td>
<td></td>
</tr>
<tr>
<td>3. Through my educational experiences in HHD, I believe that I can</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>communicate effectively through written communication.</td>
<td></td>
</tr>
<tr>
<td>4. Through my educational experiences in HHD, I believe that I can</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>communicate effectively through written communication.</td>
<td></td>
</tr>
<tr>
<td>5. Through my educational experiences in HHD, I believe that I have the</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>technical skills that are needed to be effective in careers that are</td>
<td></td>
</tr>
<tr>
<td>associated with my major?</td>
<td></td>
</tr>
<tr>
<td>6. Through my experience in HHD I have obtained a clearer understanding</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>of human well-being.</td>
<td></td>
</tr>
<tr>
<td>7. Overall, I am very satisfied with the quality of my educational</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>experience that was provided through HHD.</td>
<td></td>
</tr>
<tr>
<td>8. The advising center in HHD has helped me effectively plan out my</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>college curriculum.</td>
<td></td>
</tr>
<tr>
<td>9. I have received guidance related to my career interests and</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>aspirations.</td>
<td></td>
</tr>
<tr>
<td>10. My educational experience in HHD has helped me develop a strong work</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>ethic.</td>
<td></td>
</tr>
<tr>
<td>11. I am able to visit with my advisor when the need arises in a</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>reasonable period of time.</td>
<td></td>
</tr>
</tbody>
</table>

11. What motivated you to finish your degree?

12. What do you consider the strongest aspect of your major (course, faculty, experience, curriculum, etc.)? Please describe.

13. What do you consider the weakest aspect of your major (course, faculty, experience, curriculum etc.)? How do you recommend improving the situation?
Department:

Department Head: Dr. Brett L. Walker, Professor and Chair, Department of History and Philosophy

Assessment Coordinator: Dr. Brett L. Walker

Date: September 24, 2007

Degrees/Majors/Options Offered by Department

B.A. degree:
- History-History Option
- History-Teaching Option
- History-Japan Studies Option
- History-Religious Studies Option
- History-SETS (science, environment, technology, society)
- Philosophy-Philosophy Option
- Philosophy-Religious Studies Option

M.A. degree:
- History

Ph.D. degree
- History
DEPARTMENT MISSION
The Department is committed to offering undergraduates five major options in history and two in philosophy, as well as a variety of teaching and non-teaching minors. In the heart of Yellowstone country, the Department facilitates student exploration of the American west, U.S. history, environmental history, and the history of science and technology. The Department also provides a gateway to areas beyond Yellowstone country, with courses of advanced study related to South Asia, East Asia, Latin America, Europe, and the ancient world. Internships at historical societies, museums, and Yellowstone are also an important part of the educational experience. The Department contributes to the University Core curriculum by offering popular courses in Contemporary Issues in Science, Humanities, Diversity, and Research and Creative Experience. Graduate students can pursue innovative MA and PhD degrees in the history of science and technology, environmental history, and the history of Montana and the American west. In recent years, the Department has sought funding through the Department of Education, the National Science Foundation, and other sources, to fund its innovative and interdisciplinary programs. At all levels of the curriculum, the Department provides students with the tools to think rigorously, to research and thereby generate knowledge empirically, and to articulate their thoughts coherently. For these reasons, the Department’s programs are among the most sought-after majors in the College of Letters and Science and even across campus.

DEPARTMENT PROFILE
Number of faculty and staff in each category

Tenured or tenurable: 21 (9 professors; 6 associates; 6 assistants)
Endowed Chairs: Wallace Stegner Distinguished Professor of Western American Studies and Michael P. Malone Professorship
Support: 2 (classified; professional)

List of degrees and degree options:
B.A. degree: Spring 2007 majors
History-History Option 113
History-Teaching Option 78
History-Japan Studies Option 11
History-Religious Studies Option 5
History-SETS (science, environment, technology, society) 6
Philosophy-Philosophy Option 28
Philosophy-Religious Studies Option 9

M.A. degree:
History 24

Ph.D. degree
History 10

TOTAL: 284

OUTCOMES AND ASSESSMENT
The Department of History and Philosophy’s Outcomes and Assessment Committee has performed several tasks toward achieving its goals of assessing student performance in the Department. These include:
DATA GATHERED:
1. Student assessment of skills acquired.
This data is being acquired by means of Graduating Senior Surveys tailored respectively for the History and Philosophy majors offered by the department.

2. Capstone research essays.
We have collected portfolios of student research essays in order to determine whether students in capstone courses have acquired the skills we seek to teach them in the History and Philosophy majors respectively. These include capstones produced by students in the Yellowstone Internship Program.

3. Instructor assessments of capstone research essays.
We have implemented a policy of having capstone course instructors evaluate the level of skills exhibited in capstone course research essay portfolios.

4. Future plans to gather data
Not only will the Outcomes and Assessment Committee continue to gather the above-described data, we also are in the process of acquiring course passing records, evaluating internships, using the CATS process for select courses, and evaluation of history graduate student skills.

SHARING OF DATA:
1. We are in the process of implementing a policy of informing faculty of data results by means of regular reports by the Outcomes and Assessment Committee during Departmental meetings.

2. We will also have at least one dedicated meeting to discuss assessment data and respond appropriately with whatever changes are required.

ALUMNI SUCCESS
The department is currently soliciting information from alumni regarding their success after receiving a major from the department. The results have started to come in and they point to impressive placement on the part of majors from the department.

CHANGES MADE:
Currently, it is the judgment of the Outcomes and Assessment Committee that no changes have as yet been necessary. However, we are diligently and vigilantly surveying the data, and should any necessary changes arise, we will inform the appropriate institutional bodies as soon as possible.
MSU Departmental Assessment Report
Spring 2011

Department:  Immunology and Infectious Diseases

Department Head:  Mark T. Quinn

Assessment Coordinator:  Mark T. Quinn

Date:  October 12, 2011

Degrees/Majors/Options Offered by Department

Biotechnology-Animal Systems Option
Faculty present: Robert Cramer, Michele Hardy, Allen Harmsen, Mark Jutila, Benfang Lei, David Pascual, Mark Quinn, Richard Bessen, Edward Schmidt, Jovanka Voyich-Kane, Joshua Obar

Overall, students gave positive reviews of the biotechnology program on their exit interviews and Knapp ratings in 2010/2011. These are two of the primary mechanisms used for feedback. The third mechanism is internship evaluation, which is discussed below. The students continue to indicate this is the best science-based degree program at MSU because it provides them skill needed to directly enter the workforce. The graduates have been very successful in getting jobs or getting into graduate/professional schools.

Changes made to the program this year based on faculty recommendations, etc.:
- The revised DA-1 form has been implemented with new course numbering of all courses.
- BIOB 475 and 478 (previously VTMB 421 and 422) was taught by Dr. Lei this spring, and Dr. Schmidt will teach these courses next spring, each instructor alternating years.
- Internships evaluation is implemented with a weekly report now to make sure the projects are meeting the required scope.
- Dr. Joshua Obar has agreed to serve as a faculty advisor and has already advised several students.

Some major comments and suggested changes to consider are summarized below:

1. Courses
   - **Outcomes**
     - In general, Knapp ratings were positive indicating we are likely meeting student expectations and needs in the biotech courses.
     - As in past years, the students indicated the Methods courses and Internship were the most valuable.
   - **Issues**
     - No major issues were indicated.

2. Advising
   - **Outcomes**
     - Overall, the students were satisfied with advising.
   - **Issues**
     - Advisors are still adjusting to the new course numbering. The revised DA-1 form has been helpful.

3. Internship
   - **Outcomes**
• The quality of some of most of the internships was good, although there is room for improvement.
• The students again commented on the importance of a good internship experience.

Issues
• Some students are still procrastinating in submitting their paperwork for internships. The Assistant Dean has indicated the due dates for internship paperwork will not be flexible and that they will not approve the internships if they are submitted late. Due dates are November 1 for Spring and April 2 for Summer and Fall internships.
• Some students seem to be having a difficult time identifying suitable internships. LigoCyte was again not able to offer any this year.
• Many students don't take initiative in finding internships, so they are often looking for internships very late before the paperwork deadline.

Recommendations (minutes) from the faculty meeting (10/10/2011):
• Continue to identify new advisors for the Biotechnology students.
• Continue revising the DA-1 with the newer changes in course numbering and Pre-vet requirements. Pre-vet students are no longer required to take animal nutrition.
• Need to improve the exit interview process and return rate. Return rate has decreased lately.
• Need to improve selection of internship opportunities and encourage students take more initiative in finding internships. Advisors will need to advise students much earlier to start thinking about their internships.
• Need to reevaluate when the students take internships. It is not recommended that the students take internships at the same time as the methods courses.
The Department of Land Resources and Environmental Sciences (LRES) implemented our initial student outcomes assessment plan during Spring of 2004. The Plan included preparing tools for dissemination to undergraduate and graduate students to obtain feedback concerning their perceptions regarding the quality and effectiveness of our curricula, courses, instructors, and advising. These tools have been used for the past two years. We plan to reevaluate these this spring/summer to assess their utility, and to determine whether some questions might be reworked or replaced. As noted in the Plan, we created and filled a new position of Instructional Programs Coordinator. This individual is responsible for helping with many administrative aspects of our programs, and coordinates the provision of outcomes and advising assessment tools to students.

We have recently convened a faculty workgroup to reevaluate our existing outcomes assessment protocol, and to investigate whether some modifications might create a more effective system. This committee should finalize their recommendations by mid-summer. The 2004 LRES Assessment Plan stated that departmental faculty would review and discuss our outcomes program on a biennial basis. This has not yet been completed (we are now at the 2-year mark), but will be a part of our consideration of the updated Assessment Plan recommendation provided by the faculty workgroup. We have, however, discussed the outcomes process and information thus obtained at a departmental Curriculum Committee meeting, and addressed our curricula and student outcomes at a two-day faculty retreat during summer of 2005.

Additional insight into student outcomes has been gained from our annual capstone course, where students synthesize the information, skills, and tools they have obtained in their previous and concurrent disciplinary courses. By evaluating the quality of student small group sub-projects, and the processes leading to the final written and oral presentations, we are able to gain useful information as to the ‘quality’ of their learning relative to our goals and expectations. One important shortcoming of this otherwise excellent ‘practical feedback’ opportunity is that most of our own (LRES) disciplinary courses are offered at the senior level, thus students will either be taking many of these courses concurrently with the capstone experience, or will not yet have taken them. Scheduling realities unfortunately do not allow for a different relationship between the capstone and other courses (unless we bring them back for a fifth year!). We have utilized the information gained from our outcomes assessment to modify the courses required in our curricula, and to address perceived information or learning ‘deficits’ in relevant courses.

To date we have only partially undertaken collection of sample examinations, lab reports, capstone course activities and products, and other materials to assist in documenting students’ experiences in their courses. Our procedures for in-depth peer review of teaching, currently under substantive revision, will include acquisition of these materials, so will provide excellent synergy with respect to our outcomes assessment efforts.

Finally, with respect to graduate education, we have created a new faculty committee that is charged with reviewing and updating graduate program requirements and standards. The
recommendations of this committee will also inform our collective outcomes endeavors.

**Supplement**: Summarized responsibilities of the LRES Instructional Programs Coordinator position (as requested by a review team memo dated March 8, 2005):

Under supervision of the Department Head, the person in this position will coordinate and advance overall instructional efforts within the department of Land Resources and Environmental Sciences (LRES). The primary emphasis is to develop and achieve shared departmental goals to enhance the quality and effectiveness of undergraduate and graduate student educational programs, services, and experiences. The position will assist faculty with writing grant proposals in support of instructional efforts (e.g., Higher Education Challenge Grants program), will have oversight responsibility for such grants and for additional aspects of the department’s instructional program, and will prepare or help prepare educational materials for undergraduate and undergraduate students. The person will be expected to develop new programs and activities related to student recruitment and retention, and will determine how to implement such programs and activities. The person will develop relationships with new and existing clients, including potential employers, to augment existing educational efforts. The position has primary responsibility to provide and document excellent recruitment, orientation, advising, support, progress facilitation, records preparation and maintenance, and advising/outcomes assessment activities for students at the undergraduate and graduate levels. Will supervise hourly and work study employees. Will work independently and in cooperation with the LRES Department Head, Certifying Officer, Curriculum Committee, individual faculty, and with appropriate MSU offices and personnel.
Department: Land Resources and Environmental Sciences

Department Head: Jon M. Wraith

Assessment Coordinator: Cathy Zabinski

Date: November 14, 2007

Degrees/Majors/Options Offered by Department

B.S. Degrees in:
   Environmental Sciences
      Soil and Water Science Option
      Environmental Biology Option
   Land Resource Sciences
      Land Resources Analysis and Management Option
      Agroecology Option
   Land Rehabilitation

M.S. Degrees in:
   Land Resources and Environmental Sciences
   Land Rehabilitation
   Entomology (cross-departmental within College of Agriculture)

Ph.D. Degree in:
   Ecology and Environmental Sciences (cross-college)
The Department of Land Resources and Environmental Sciences (LRES) implemented our initial student outcomes assessment plan during Spring of 2004. The Plan included preparing tools for dissemination to undergraduate and graduate students to obtain feedback concerning their perceptions regarding the quality and effectiveness of our curricula, courses, instructors, and advising. These tools have been used for the past three years. Our Instructional Programs Coordinator continues to take the lead in contacting students to request that they complete our assessment instruments (outcomes, advising). Student participation remains relatively low, with about 30% of graduating seniors returning completed instruments. Graduate student participation is near 50%, because we often have a more effective ‘hammer’ to hold over them (e.g., signing off on final paperwork).

<table>
<thead>
<tr>
<th>Year</th>
<th>Undergrad</th>
<th>GRAD: Students Returned</th>
<th>Participation Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>2004</td>
<td>28</td>
<td>16; 9 returned</td>
<td>56%</td>
</tr>
<tr>
<td>2005</td>
<td>31</td>
<td>14; 6 returned</td>
<td>43%</td>
</tr>
<tr>
<td>2006</td>
<td>8</td>
<td>8; 4 returned</td>
<td>50%</td>
</tr>
</tbody>
</table>

We continue to obtain valuable insight into student learning outcomes during our annual two-semester capstone course, where students undertake research projects that require a synthesis of what they have learned (are learning) in their disciplinary courses. These projects include preparation of written summary reports and public oral presentations, helping us to further evaluate their communication competencies.

As a result of information gained through direct student feedback mechanisms, the Capstone course, and faculty observations, we continue to adjust our degree course requirements, and to develop new courses to address aspects of our curricula that we consider as comprising ‘gaps’ in (potential) student learning.

We have yet to complete substantive collection of sample examinations, lab reports, capstone course activities and products, and other materials to assist in documenting students’ experiences in their courses. This effort will be taken up with renewed effort by our Instructional Programs Coordinator and faculty committee (next paragraph). Our procedures for in-depth peer review of teaching, currently nearing completion of substantive revision by faculty committee, will include acquisition of a portion of these materials, and will directly lead to improved student learning outcomes.

The topic of Student Outcomes Assessment was discussed at length during a faculty retreat on January 16-17, 2007, which focused on departmental instructional programs (agenda attached as
As part of the retreat a faculty committee was formed to build upon our 2004 Student Outcomes Assessment Plan. The committee conducted initial work to more explicitly define competencies, skills, experiences, and expectations for each of our degree programs. The balance of this work remains to be completed, and the effort will be reinvigorated during late CY2007, including a discussion as part of the LRES faculty meeting in December.

Supplement: Agenda for LRES Faculty Retreat, January 16-17, 2007
(red font indicates Outcomes Assessment topic)

LRES Faculty Retreat
January 16-17, 2007

AGENDA

Tuesday, January 16

8:40 Introduction

Undergraduate Instructional Program

Enrollment trends and implications (handouts)
  MSU resource redistribution plan
  Recruitment and retention
    Who, how?

More effective connection with LRES student majors

LRES Curricula
  Revisions, modifications, future emphases/opportunities, etc. (DA-1 handouts)
  Non-negotiable courses per major
  Update: UM Wildland Restoration degree
  Soils minor (handout)

12:00 - 1:00 Lunch

Undergraduate Program, continued

  Capstone Fall ‘07

  Other

Graduate Program

  Updates: EES Ph.D. degree, etc.
Potential dual-listing of courses: 4XX-5XX

LRES Graduate requirements, standards, expectations, procedures

Other

In-Depth Peer Review of Teaching

Presentation (Kevin, Cathy) and Discussion (handout)

Wednesday, January 17

8:30 Introduction

Student Outcomes Assessment

Define competencies, skills, experiences, expectations for each degree program (handout)

Breakout groups by undergraduate major

Undergraduate Advising

(handout: LRES student evaluation of advising form)

12:00 - 1:00 Lunch

Research and Affiliate Faculty

Criteria and procedures for appointment, review, promotion

New Faculty Hires

Update on current/pending searches (Tim, Jon)

Spatial Analysis position

Discussion of LRES future priorities
Department: Land Resources and Environmental Sciences
Department Head: Jon Wraith
Assessment Coordinator: Cathy Zabinski
Date: June 30, 2008

Degrees/Majors/Options Offered by Department

Non-teaching Minor in Soil Science
Non-teaching Minor in Entomology (participating department)
Non-teaching Minor in Water Resources (participating department)

B.S. in Environmental Sciences
  Environmental Biology Option
  Soil and Water Sciences Option
B.S. in Land Resource Sciences
  Land Resources Analysis and Management Option
  Agroecology Option
B.S. in Land Rehabilitation

M.S. in Land Resources and Environmental Sciences
M.S. in Land Rehabilitation
M.S. in Entomology (participating department)

Ph.D. in Ecology and Environmental Sciences (cross-college)
The Department of Land Resources and Environmental Sciences (LRES) implemented our student outcomes assessment plan during Spring, 2004. The Plan included preparing tools for dissemination to undergraduate and graduate students to obtain feedback concerning their perceptions regarding the quality and effectiveness of our curricula, courses, instructors, and advising. These tools have been used for the past four years. Our Instructional Programs Coordinator (staff person) continues to take the lead in contacting students to request that they complete our assessment instruments (outcomes, advising). Student participation is a consistent constraint to our assessment process, with between 15 and 50% of graduating seniors returning completed instruments (below). Graduate student participation is greater, typically >50%, because we are able to (say we will) hold off on signing their thesis and other required paperwork.

2004
Grad: 16 students: 9 returned 56%

2005
Undergrad: 28 students; 10 returned 36%
Grad 14 students; 6 returned 43%

2006
Undergrad: 31 students; 9 returned 29%
Grad: 8 students; 4 returned 50%

2007
Undergrad: 18 students; 9 returned 50%
Grad: 13 students, 3 returned 23%

2008
Undergrad: 7 students, 1 returned 15%
Grad: 5 students, 3 returned 60%

We continually obtain useful information concerning student learning outcomes during our annual two-semester capstone course, where students undertake research projects that require a synthesis of what they have learned (and are learning concurrently) in their disciplinary courses. These projects include preparation of written summary reports and public oral presentations, helping us to further evaluate their communication abilities.

The LRES Curriculum Committee Chairperson is on sabbatical during AY2007-08, so the Curriculum Committee did not meet this year, and therefore did not address outcomes assessment. At the February 12, 2008 LRES Faculty meeting, we discussed the issue of student completion of the LRES Advising Assessment forms (see meeting agenda, below). We generally experience low participation (in terms of completing and returning the questionnaire) by student advisees, in spite of the fact that LRES Instructional Programs Coordinator Linda McDonald sends out multiple communications and this year we offered incentives for student participation. We concluded that we
should not include this metric as one of the criteria to be considered in the updated LRES RSCSP document, and further that there does not appear to be any obvious means to obtain greater participation by students, given the efforts to date. We similarly discussed the relatively low participation in student exit interviews, also without identifying a compelling solution.

As a result of information gained through direct student feedback mechanisms, the Capstone course, and faculty observations, we continue to adjust our degree course requirements, and to develop new courses to address aspects of our curricula that we consider as comprising ‘gaps’ in (potential) student learning.

The topic of Outcomes Assessment will be taken up again by the Curriculum Committee during AY08-09.
AGENDA

Information and Updates:
Recent Awards and Recognition
- Bauder: SSSA Soil Science Education Award, ASA Agronomic Extension Award
- Jones: SSSA Excellence Award for Extension Urea Pub.
- Lawrence: Chair of AmericaView
- Riveros: AGU Horton Research Award
Others to announce/remind?

Budget updates
- Instructional funds redistribution formula: -$23k to college, -$10k to LRES (base budget cut)

LRES 500 Spring semester: Sharlene Sing

New MT DNRC Restoration coordinator

LRES Newsletter – geared to alumni, friends, stakeholders
- Improved contact with former students; help in outcomes assessment, etc.
- Submit ideas, news, info, notables/achievements, etc.

Discussion:
- Student outcomes assessment
- LRES plan, mechanisms, results

Dissertation and course credits for LRES doctoral degree

New faculty positions

Graduate stipends to initiate new doctoral students

Other
- Peer review of teaching: faculty evaluation/feedback on proposal, with planned initiation Spring semester 2008

Provide JW with input on course categories, other aspects of Ecology and Environmental Sciences website (handout)

Updates/information from 12/17/07 department heads’ meeting:
- Commencement speaker ideas solicited (ASAP, to JW)
- Federal initiatives update (handouts, Tuesday newspaper story)

Electronic Proposal Clearance Forms: add comments to explain non-typical aspects (budget, IDC, etc.)

MSU cost-share policy: reminder of emailed document

(MSU/MUS?) Spatial Sciences Center (Rick Lawrence)
Department: Land Resources and Environmental Sciences

Department Head: Tracy M. Sterling

Assessment Coordinator: Cathy Zabinski

Date: August 13, 2010

Degrees/Majors/Options Offered by Department

B.S. Degrees in:
1. Environmental Sciences
   Soil and Water Science Option
   Environmental Biology Option
2. Geospatial and Environmental Analysis Option
3. Land Rehabilitation
4. Sustainable Food and Bioenergy Systems
   Agroecology Option

M.S. Degrees in:
Land Resources and Environmental Sciences
Land Rehabilitation
Entomology (cross-departmental within College of Agriculture)

Ph.D. Degree in:
Ecology and Environmental Sciences (cross-college)
The assessment of LRES majors has been overseen by the Departmental Curriculum Committee. During the 2009-10 academic year, the curriculum committee defined learning outcomes for each of our five majors (Figure 1). The most useful part of this process was the ensuing discussion regarding the content of individual classes, and faculty member’s perception of how their course fits into the overall training. The articulated list of learning outcomes is a way to put on paper the structure that we have used since the inception of LRES in designing and annually reviewing the majors. Learning outcomes were reviewed by Drs. Tara Gray and Jean Conway at NMSU in Las Cruces, NM to gain feedback on this diagram’s structure and content; comments were positive that we are on the right track.

The next step of the assessment, to be undertaken by a subset of the curriculum committee, will be to describe the learning outcomes for each of the LRES courses, and how they contribute to our list for each of our majors. This will provide a framework for all faculty in designing new courses and for making adjustments to courses that are already being taught. This structure is particularly important because we have three new faculty hires joining the department during the 2009-2010 academic year.

Data Collected

Our Instructional Programs Coordinator (Linda McDonald) continues to take the lead in providing and documenting recruitment, orientation, advising, support, progress facilitation, records maintenance, and advising/exit interview activities for students at the undergraduate and graduate levels. The department currently uses two assessment instruments: 1. Exit Interview – Undergraduates and 2. Exit Interview - Graduate student.

<table>
<thead>
<tr>
<th>Year</th>
<th>Undergraduate students</th>
<th>Graduate students</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number graduating</td>
<td>Number returned</td>
</tr>
<tr>
<td>2004</td>
<td>na</td>
<td>na</td>
</tr>
<tr>
<td>2005</td>
<td>28</td>
<td>10</td>
</tr>
<tr>
<td>2006</td>
<td>31</td>
<td>9</td>
</tr>
<tr>
<td>2007</td>
<td>18</td>
<td>9</td>
</tr>
<tr>
<td>2008</td>
<td>14</td>
<td>6</td>
</tr>
<tr>
<td>2009</td>
<td>13</td>
<td>3</td>
</tr>
<tr>
<td>2010</td>
<td>10</td>
<td>8</td>
</tr>
<tr>
<td>Average</td>
<td></td>
<td>39</td>
</tr>
</tbody>
</table>
Exit Interviews from the past 10 years were summarized so they can be reviewed by an assessment committee during the upcoming year.

Our primary method of assessment of our student majors has been by monitoring performance of our students in the LRES capstone course. The course is a 2-semester sequence, during which students work in small groups to define, develop and carry out a research program related to plant, soil and water aspects of an applied management scenario. To do this, students are required to work independently and with other students to synthesize information from across the curriculum. At the end of the second semester, students present a final report and present their results to the department and the broader MSU community. Although more qualitative than quantitative, we have used overall performance of the students in this course sequence to gauge their overall scientific training, evaluate their synthesis skills, and review their oral and written communication abilities.

The changes we have made during the 2009-2010 year to our assessment procedure is the development of the Learning Outcomes for each of the majors, and identifying the need for a separate Assessment Committee, that will formalize the approaches we have enacted over the years.

Figure 1. Learning Outcomes for each of the LRES Undergraduate Majors (attached)
Environmental Biology
Knowledge:
- general comprehension of, and an ability to integrate, the soil science sub-disciplines, various core chemistries, and biological sciences (micro and macro) towards understanding ecosystem-level ecology as it applies to managing and improving agricultural, natural, and disturbed environments.
- understand the foundational principles that govern and explain how key biological entities and their activities integrate with environmental abiological elements to influence ecosystem function in natural and disturbed environments.

Skills:
- working knowledge of standard and contemporary (e.g., molecular) approaches used to study organisms in natural or disturbed environments
- ability to apply these approaches to analyze the biology of environments, especially to design solutions to environmental problems
- ability to read scientific literature critically and develop rationale opinions about environmental biology in natural and disturbed settings
- capable of integrating diverse fundamental principles derived from core contributing disciplines towards managing and sustaining natural and agricultural

Soils and Water
- To gain understanding of the physical, chemical and biological aspects and interactions in environmental soil and water systems;
- To apply an understanding of soil and water processes to address societal and environmental needs in natural, managed and disturbed ecosystems.

General LRES Learning Outcomes
Knowledge:
- To gain a broad understanding of core areas of science important to environmental sciences (i.e., biology, chemistry, and physics);
- To gain a broad based knowledge of land resource systems, including soils, plants and aquatic systems, and ecologic interactions within and among these systems.
- To gain a perspective on how to apply environmental science-based knowledge to natural resource management issues

Skills:
- To read and interpret primary literature in environmental sciences and related areas.
- To design a research/resource project that builds on environmental science knowledge from coursework and primary literature.
- To gain a basic working knowledge of the theory and practice of data analysis and presentation in the environmental sciences, including data compilation, statistical analyses, model building, and graphical representation of data;
- To write professional-quality scientific reports, including objectives, methods, results, discussion, and references;
- To prepare and make oral presentations of scientific results to both scientific and general audiences;
- To work in multidisciplinary teams; and
- To assess the quality and source of information using critical thinking and analysis skills.

Attitudes:
- To appreciate that solving environmental problems requires interdisciplinary approaches;
- To appreciate that science-based solutions to environmental problems won’t work unless there is consideration for stakeholders;
- To appreciate that conducting and applying environmental science has ethical implications.
- To appreciate that the study of environmental biology requires a holistic approach to understanding that organisms (microscopic or macroscopic) depend on, and interact with, abiological components of their environment.

Land Rehabilitation
Knowledge:
- Increase comprehension of the interactions among microorganisms, plants, soil and water as they pertain to reclamation and restoration sciences.
- Increase comprehension of experimental design required to gain an understanding of the ecological factors determining the outcome of land rehabilitation/restoration.
- Gain an understanding of practices used to rehabilitate/restore degraded land.

Skills:
- Students will be able to apply scientific methods for assessing site conditions and monitoring responses to land subject to, or planned for rehabilitation/restoration.
- Students will be able to write scientific reports including GIS products relevant to land rehabilitation/restoration requirements.
- Students will have a working knowledge of laws, regulations and policies associated with land rehabilitation, restoration and reclamation.

Geospatial and Environmental Analysis
Knowledge:
- Underlying principles of geospatial technologies, including geographic information systems (GIS), global positioning system (GPS), and remote sensing
- Integrated landscape inventory and analytical processes
- Statistical techniques for analyzing landscape inventory attributes
- Theories of holistic thought
- Social science context for landscape management decisions

Skills:
- Application of GPS, remote sensing, and GIS to locate and measure features and their attributes on landscapes
- Set up and conduct integrated inventories of land and human resources on landscapes using geospatial tools
- Make conclusions about quantitative landscape system inputs and outputs
- Make management recommendations for landscape systems that engage natural science attributes within human dimension social and economic realities

Agroecology
Knowledge:
- To understand how food systems work from production of raw produce and commodities to processing, to distribution and to consumers.
- To understand the energy requirements and efficiencies in food systems.
- To understand principles of sustainable nutritious food production at the market garden scale and large scale farms.
- To understand how ecological principles can be applied to agricultural production.

Skills (be able to):
- Conduct life-cycle analysis on agricultural products in a food system chain from farm to consumer.
- Apply ecological principles to agricultural pest, nutrient and soil management.
- Manage a sustainable productive market garden for a CSA or other local distribution system.
MSU Departmental Assessment Update
Spring 2007

Department: Mathematical Sciences

Department Head: Dr. Ken Bowers

Assessment Coordinator: Dr. Ken Bowers

Date: 4-15-2007

Degrees/Majors/Options Offered by Department
BS in Mathematics
  • Mathematics Option
  • Applied Mathematics Option
  • Mathematics Teaching Option
  • Statistics Option
Assessment Activities

Recruitment and Retention

Data is gathered on recruitment, retention, and attrition of majors in the Department. For each option, the data includes the total number of majors in each class and the number of majors in each class the previous year. The data is provided by the Office of Planning and Analysis and is a snapshot from the fifteenth class day of fall semester. The Undergraduate Program Committee summarized the data for dissemination and the Department Head presented the data to the faculty.

Senior Survey

Data is gathered from the departmental survey attached to the Montana State University Senior Survey, which is solicited from all graduating seniors. The data is tabulated and forwarded to the Department by the Provost’s Office. The Undergraduate Program Committee summarized the data for dissemination and the Department Head presented the data to the faculty.

Assessment Results

Recruitment and Retention

The incoming freshman class for 2005-06 had 14 declared math majors and the incoming freshman class for 2006-2007 has 13 declared math majors. From 2005-06 to 2006-07 each class grew; the sophomore class of 2006-07 was 2 majors larger than the 2005-06 freshman class, the junior class of 2006-07 was 8 majors larger than the 2005-06 sophomore class, and the senior class of 2006-07 was 19 majors larger than the 2005-06 junior class. We awarded 26 B.S. degrees in 2005-06. Not counting the post-baccalaureate students which went from 6 to 4, the number of majors was nearly constant in all four options, with a total of 101 majors in 2005-06 and 99 in 2006-07. In the tables, double majors are listed in parentheses.

### 2006-07

<table>
<thead>
<tr>
<th>Class</th>
<th>Teaching</th>
<th>Math (Double Majors)</th>
<th>Applied Math</th>
<th>Stat</th>
<th>TOTALS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshman</td>
<td>6</td>
<td>4 (1 Phys)</td>
<td>1</td>
<td>1</td>
<td>13</td>
</tr>
<tr>
<td>Sophomore</td>
<td>7</td>
<td>4 (1 Phys)</td>
<td>0</td>
<td>4</td>
<td>16</td>
</tr>
<tr>
<td>Junior</td>
<td>12</td>
<td>10 (2 Phys)</td>
<td>3</td>
<td>2</td>
<td>29</td>
</tr>
<tr>
<td>Senior</td>
<td>21</td>
<td>12 (2 Phys, 1 CE, 1 CompE)</td>
<td>4</td>
<td>0</td>
<td>41</td>
</tr>
<tr>
<td>TOTALS</td>
<td>46</td>
<td>30 (8)</td>
<td>8</td>
<td>7</td>
<td>99</td>
</tr>
<tr>
<td>Post-bac</td>
<td>3</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>4</td>
</tr>
</tbody>
</table>

### 2005-06

<table>
<thead>
<tr>
<th>Class</th>
<th>Teaching</th>
<th>Math (Double Majors)</th>
<th>Applied Math</th>
<th>Stat</th>
<th>TOTALS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshman</td>
<td>5</td>
<td>6</td>
<td>0</td>
<td>3</td>
<td>14</td>
</tr>
<tr>
<td>Sophomore</td>
<td>10</td>
<td>8</td>
<td>1</td>
<td>2</td>
<td>21</td>
</tr>
<tr>
<td>Junior</td>
<td>10</td>
<td>8 (2 Eng)</td>
<td>0</td>
<td>2</td>
<td>22</td>
</tr>
<tr>
<td>Senior</td>
<td>21</td>
<td>8 (3 Phys, 2 Phys Teach)</td>
<td>4</td>
<td>2</td>
<td>44</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(1 CE, 1 CS, 1 EE, 1 IE)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TOTALS</td>
<td>46</td>
<td>30 (11)</td>
<td>5</td>
<td>9</td>
<td>101</td>
</tr>
<tr>
<td>Post-bac</td>
<td>0</td>
<td>6</td>
<td>0</td>
<td>0</td>
<td>6</td>
</tr>
<tr>
<td>Degrees granted</td>
<td>9</td>
<td>13</td>
<td>2</td>
<td>2</td>
<td>26</td>
</tr>
</tbody>
</table>
### 2004-05

<table>
<thead>
<tr>
<th>Class</th>
<th>Teaching</th>
<th>Math (Double Majors)</th>
<th>Applied Math</th>
<th>Stat</th>
<th>TOTALS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshman</td>
<td>10</td>
<td>4</td>
<td>0</td>
<td>2</td>
<td>16</td>
</tr>
<tr>
<td>Sophomore</td>
<td>4</td>
<td>8 (1 Phys, 1 ED)</td>
<td>0</td>
<td>0</td>
<td>14</td>
</tr>
<tr>
<td>Junior</td>
<td>3</td>
<td>4 (1 IE)</td>
<td>3</td>
<td>2</td>
<td>13</td>
</tr>
<tr>
<td>Senior</td>
<td>22</td>
<td>4 (1 Phys)</td>
<td>2</td>
<td>2</td>
<td>36</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(3 Phys Teach, 1 CE, 1 CS)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TOTALS</td>
<td>39</td>
<td>20 (9)</td>
<td>5</td>
<td>6</td>
<td>79</td>
</tr>
<tr>
<td>Post-bac</td>
<td>0</td>
<td>7</td>
<td>0</td>
<td>0</td>
<td>7</td>
</tr>
<tr>
<td>Degrees granted</td>
<td>13</td>
<td>7</td>
<td>2</td>
<td>0</td>
<td>22</td>
</tr>
</tbody>
</table>

The number of teaching option majors remained the same compared to last year, the number of mathematics option majors decreased by 3 since last year, the number of applied math option majors grew by 3 since last year, and the number of statistics option majors decreased by 2 since last year. The number of our majors taking a double major decreased by 3 since last year. The number of post-baccalaureate (second degree) majors was 2 less than last year.

### Senior Survey

The majority of the senior respondents identified no weaknesses in our program. One suggestion was to require more computer science courses and another was to offer a course on the use of \texttt{\LaTeX}, a math typesetting program. A third wanted the computer component of STAT 438 before other stat courses and suggested it would be logical to teach R and SAS before some other courses.

Two students felt that they needed opportunities to meet other math majors. They felt our social occasions were not effective and that a “Freshman Seminar” would promote communication among math majors.

The strengths of the department were stated by most of the responders to be the quality of the faculty, the quality of their teaching, and their willingness to help. One student commented that it is good that the math education faculty are involved with K-12 teachers. One student commented on the good selection of upper-division classes.

### Program Improvements

#### Departmental Suggestions

We continue to struggle at recruitment into the applied mathematics and statistics options. Students are very happy with these options but they are considerably smaller than the teaching and mathematics options, which continue to grow. We need to focus more emphasis on recruiting students into these options.

We continue to evaluate our curriculum annually to keep it current and provide all possible opportunities to our students. We will evaluate the inclusion of additional computer science courses in our curriculum. We should seek other avenues to bring math majors together and build a sense of community.

#### Departmental Commitment

We evaluate our curriculum each year to assess whether or not it is current. Next fall, in conjunction with plans for the 2008-10 catalog, we will study the feasibility of including additional computer science requirements. We will investigate a Freshman Seminar for math majors or a more regular social function to encourage interaction and perpetuate a cohort among our students.
Department: Mathematical Sciences

Department Head: Dr. Ken Bowers

Assessment Coordinator: Dr. Ken Bowers

Date: 4-15-2008

Degrees/Majors/Options Offered by Department

BS in Mathematics

- Mathematics Option
- Applied Mathematics Option
- Mathematics Teaching Option
- Statistics Option
Assessment Activities

Recruitment and Retention

Data is gathered on recruitment, retention, and attrition of majors in the Department. For each option, the data includes the total number of majors in each class and the number of majors in each class the previous year. The data is provided by the Office of Planning and Analysis and is a snapshot from the fifteenth class day of fall semester. The Undergraduate Program Committee summarized the data for dissemination and the Department Head presented the data to the faculty.

Senior Survey

Data is gathered from the departmental survey attached to the Montana State University Senior Survey, which is solicited from all graduating seniors. The data is tabulated and forwarded to the Department by the Provost’s Office. The Undergraduate Program Committee summarized the data for dissemination and the Department Head presented the data to the faculty.

Assessment Results

Recruitment and Retention

The incoming freshman class for 2006-07 had 13 declared math majors and the incoming freshman class for 2007-08 has 10 declared math majors. From 2006-07 to 2007-08 each class grew; the sophomore class of 2007-08 was 4 majors larger than the 2006-07 freshman class, the junior class of 2007-08 was 5 majors larger than the 2006-07 sophomore class, and the senior class of 2007-08 was 19 majors larger than the 2006-07 junior class. We awarded 24 B.S. degrees in 2007-08. Not counting the post-baccalaureate students which went from 4 to 7, the number of majors was nearly constant in all four options, with a total of 99 majors in 2006-07 and 96 in 2007-08. The Math Teaching Option decreased from 46 to 35 majors and the Applied Math Option increased from 8 to 14 majors. The Mathematics Option and the Statistics Option each increased by 1 major. In the tables, double majors are in parentheses. We also had 14 non-teaching math minors in 2007-08.

<table>
<thead>
<tr>
<th>Class</th>
<th>Teaching</th>
<th>Math (Double Majors)</th>
<th>Applied Math</th>
<th>Stat</th>
<th>TOTALS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshman</td>
<td>6</td>
<td>4 (1 Phys)</td>
<td>1</td>
<td>1</td>
<td>13</td>
</tr>
<tr>
<td>Sophomore</td>
<td>7</td>
<td>4 (1 Phys)</td>
<td>0</td>
<td>4</td>
<td>16</td>
</tr>
<tr>
<td>Junior</td>
<td>12</td>
<td>10 (2 Phys)</td>
<td>3</td>
<td>2</td>
<td>29</td>
</tr>
<tr>
<td>Senior</td>
<td>21</td>
<td>12 (2 Phys, 1 CE, 1 CompE)</td>
<td>4</td>
<td>0</td>
<td>41</td>
</tr>
<tr>
<td>TOTALS</td>
<td>46</td>
<td>30 (8)</td>
<td>8</td>
<td>7</td>
<td>99</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Class</th>
<th>Teaching</th>
<th>Math (Double Majors)</th>
<th>Applied Math</th>
<th>Stat</th>
<th>TOTALS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshman</td>
<td>6</td>
<td>4 (1 Phys)</td>
<td>1</td>
<td>1</td>
<td>13</td>
</tr>
<tr>
<td>Sophomore</td>
<td>7</td>
<td>4 (1 Phys)</td>
<td>0</td>
<td>4</td>
<td>16</td>
</tr>
<tr>
<td>Junior</td>
<td>12</td>
<td>10 (2 Phys)</td>
<td>3</td>
<td>2</td>
<td>29</td>
</tr>
<tr>
<td>Senior</td>
<td>21</td>
<td>12 (2 Phys, 1 CE, 1 CompE)</td>
<td>4</td>
<td>0</td>
<td>41</td>
</tr>
<tr>
<td>TOTALS</td>
<td>46</td>
<td>30 (8)</td>
<td>8</td>
<td>7</td>
<td>99</td>
</tr>
</tbody>
</table>

2007-08

2006-07
The number of our majors taking a double major increased dramatically from last year. In 2007-08 we had 20 double majors while in 2006-07 we had 8 double majors. These double majors were in fields as diverse as Civil Engineering, Computer Science, Education, Environmental Design, Modern Languages, Photography, and Physics. The number of post-baccalaureate (second degree) majors was 3 more than last year.

**Senior Survey**

The majority of the senior respondents identified no weaknesses in our program. One suggestion was to offer more education on classroom management (clearly a math teaching option concern). One wanted a course highlighting how mathematics was used in future careers. A third wanted classes offered more often than every other year or even more often than once each year. One senior expressed dissatisfaction with one particular teacher they had.

The strengths of the department were stated by most of the responders to be the quality of the faculty, the quality of their teaching, and their willingness to help. One student commented that the faculty are awesome, one believed that they were much more satisfied than many of their friends at other universities, and one commented on the availability of their professors.

**Program Improvements**

**Departmental Suggestions**

We continue to struggle at recruitment into the statistics option. Students are very happy with this option but it is considerably smaller than the teaching and mathematics options. We need to focus more emphasis on recruiting students into this option as well as the applied mathematics option.

We continue to evaluate our curriculum annually to keep it current and provide all possible opportunities to our students. A small faculty FTE keeps us from offering courses more often (annually instead of every other year). Several curriculum changes were implemented in the forthcoming 2008-10 catalog. We continue
to seek other avenues to bring math majors together and build a sense of community.

**Departmental Commitment**

We evaluate our curriculum each year to assess whether or not it is current. This year, being a catalog revision year, we changed several curriculum requirements and introduced new courses. Our new honors courses, MATH 234, MATH 235, and STAT 226, were all offered for the first time this year along with MATH 191 and MATH 192, which have been offered for many years. MATH 394R was upgraded to MATH 494R, STAT 410 and STAT 412 were reconstituted as a sequence, and a new course, STAT 436, was introduced. We continue to investigate a Freshman Seminar for math majors or a more regular social function to encourage interaction and perpetuate a cohort among our students.
MSU Departmental Assessment Report
Spring 2009

Department: Mathematical Sciences

Department Head: Dr. Ken Bowers

Assessment Coordinator: Dr. Ken Bowers

Date: 4-15-2009

Degrees/Majors/Options Offered by Department

BS in Mathematics

• Mathematics Option
• Applied Mathematics Option
• Mathematics Teaching Option
• Statistics Option
Assessment Activities

Recruitment and Retention

Data is gathered on recruitment, retention, and attrition of majors in the Department. For each option, the data includes the total number of majors in each class and the number of majors in each class the previous year. The data is provided by the Office of Planning and Analysis and is a snapshot from the fifteenth class day of fall semester. The Undergraduate Program Committee summarized the data for dissemination and the Department Head presented the data to the faculty.

Senior Survey

Data is gathered from the departmental survey attached to the Montana State University Senior Survey, which is solicited from all graduating seniors. The data is tabulated and forwarded to the Department by the Provost’s Office. The Undergraduate Program Committee summarized the data for dissemination and the Department Head presented the data to the faculty.

Faculty Program Assessment

Each faculty group, Mathematics, Mathematics Education, and Statistics, met to discuss student progress in their respective degree options. Using this information the faculty determined whether academic problems were due to individual weaknesses or an indication of necessary program changes.

Assessment Results

Recruitment and Retention

The incoming freshman class for 2007-08 had 10 declared math majors and the incoming freshman class for 2008-09 has 12 declared math majors. The sophomore class of 2008-09 shrunk as it was 2 majors smaller than the 2007-08 freshman class; the junior class of 2008-09 was the same size as the 2007-08 sophomore class; and the senior class of 2008-09 was 22 majors larger than the 2007-08 junior class. There were 34 graduates who completed a mathematics major in 2007-08. Not counting the number of post-baccalaureate students which went from 7 to 3, the number of majors changed considerably, with a total of 96 majors in 2007-08 and 80 in 2008-09. The Math Teaching Option increased from 35 to 36 majors and the Statistics Option decreased from 8 to 5 majors. The Applied Math Option decreased from 14 to 8 majors and the Mathematics Option decreased from 39 to 31. In the tables, double majors are in parentheses. We also had 11 Mathematics non-teaching minors and 2 Statistics non-teaching minors in 2008-09.

The number of our majors taking a double major was unchanged. In 2007-08 we had 20 double majors and in 2008-09 we had 20 double majors. These double majors were in fields as diverse as Chemical Engineering, Chemistry, Civil Engineering, Computer Science, Economics, Education, Modern Languages, Photography, and Physics. The number of post-baccalaureate (second degree) majors was 4 less than last year.
### 2008-09

<table>
<thead>
<tr>
<th>Class</th>
<th>Teaching</th>
<th>Math (Double Majors)</th>
<th>Applied Math</th>
<th>Stat</th>
<th>TOTALS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshman</td>
<td>5</td>
<td>1</td>
<td>1</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>Sophomore</td>
<td>4</td>
<td>3 (1 Phot)</td>
<td>0</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>Junior</td>
<td>6</td>
<td>4 (1 CS, 1 CE, 1 Phys, 1 Phot)</td>
<td>2</td>
<td>1</td>
<td>17</td>
</tr>
<tr>
<td>Senior</td>
<td>18 (1 CS, 1 ED)</td>
<td>4 (5 Phys, 3 CE, 1 ML, 1 Phys)</td>
<td>3 (1 Phot, 1 Chem)</td>
<td>3</td>
<td>43</td>
</tr>
<tr>
<td>TOTALS</td>
<td>33(3)</td>
<td>16(15)</td>
<td>6(2)</td>
<td>5</td>
<td>80</td>
</tr>
<tr>
<td>Post-bac</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>3</td>
</tr>
</tbody>
</table>

### 2007-08

<table>
<thead>
<tr>
<th>Class</th>
<th>Teaching</th>
<th>Math (Double Majors)</th>
<th>Applied Math</th>
<th>Stat</th>
<th>TOTALS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshman</td>
<td>2</td>
<td>5 (1 Phot)</td>
<td>1</td>
<td>1</td>
<td>10</td>
</tr>
<tr>
<td>Sophomore</td>
<td>8</td>
<td>4 (1 Phys, 1 Phot)</td>
<td>2</td>
<td>17</td>
<td></td>
</tr>
<tr>
<td>Junior</td>
<td>5</td>
<td>4 (3 Phys, 1 CS, 1 EnvDes)</td>
<td>2</td>
<td>5</td>
<td>21</td>
</tr>
<tr>
<td>Senior</td>
<td>16 (1 Phys, 1 CS, 1 ED, 1 ML)</td>
<td>12 (1 Phys, 2 CS, 1 ML, 1 CE, 1 Phot)</td>
<td>7 (2 Phys)</td>
<td>1</td>
<td>48</td>
</tr>
<tr>
<td>TOTALS</td>
<td>31(4)</td>
<td>25(14)</td>
<td>12(2)</td>
<td>8</td>
<td>96</td>
</tr>
<tr>
<td>Post-bac</td>
<td>4</td>
<td>0</td>
<td>0</td>
<td>2 (1 ML)</td>
<td>7</td>
</tr>
<tr>
<td>Major completed</td>
<td>9</td>
<td>12</td>
<td>8</td>
<td>5</td>
<td>34</td>
</tr>
</tbody>
</table>

### 2006-07

<table>
<thead>
<tr>
<th>Class</th>
<th>Teaching</th>
<th>Math (Double Majors)</th>
<th>Applied Math</th>
<th>Stat</th>
<th>TOTALS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshman</td>
<td>6</td>
<td>4 (1 Phys)</td>
<td>1</td>
<td>1</td>
<td>13</td>
</tr>
<tr>
<td>Sophomore</td>
<td>7</td>
<td>4 (1 Phys)</td>
<td>0</td>
<td>4</td>
<td>16</td>
</tr>
<tr>
<td>Junior</td>
<td>12</td>
<td>10 (2 Phys)</td>
<td>3</td>
<td>2</td>
<td>29</td>
</tr>
<tr>
<td>Senior</td>
<td>21</td>
<td>12 (2 Phys, 1 CS, 1 CompE)</td>
<td>4</td>
<td>0</td>
<td>41</td>
</tr>
<tr>
<td>TOTALS</td>
<td>46</td>
<td>30 (8)</td>
<td>8</td>
<td>7</td>
<td>99</td>
</tr>
<tr>
<td>Post-bac</td>
<td>3</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>Major completed</td>
<td>11</td>
<td>9</td>
<td>5</td>
<td>2</td>
<td>27</td>
</tr>
</tbody>
</table>

### 2005-06

<table>
<thead>
<tr>
<th>Class</th>
<th>Teaching</th>
<th>Math (Double Majors)</th>
<th>Applied Math</th>
<th>Stat</th>
<th>TOTALS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshman</td>
<td>5</td>
<td>6</td>
<td>0</td>
<td>3</td>
<td>14</td>
</tr>
<tr>
<td>Sophomore</td>
<td>10</td>
<td>8</td>
<td>1</td>
<td>2</td>
<td>21</td>
</tr>
<tr>
<td>Junior</td>
<td>10</td>
<td>8 (2 Eng)</td>
<td>0</td>
<td>2</td>
<td>22</td>
</tr>
<tr>
<td>Senior</td>
<td>21</td>
<td>8 (3 Phys, 2 Phys Teach)</td>
<td>4</td>
<td>2</td>
<td>44</td>
</tr>
<tr>
<td>TOTALS</td>
<td>46</td>
<td>30 (11)</td>
<td>5</td>
<td>9</td>
<td>101</td>
</tr>
<tr>
<td>Post-bac</td>
<td>0</td>
<td>6</td>
<td>0</td>
<td>0</td>
<td>6</td>
</tr>
<tr>
<td>Major completed</td>
<td>9</td>
<td>13</td>
<td>2</td>
<td>2</td>
<td>26</td>
</tr>
</tbody>
</table>

### 2004-05

<table>
<thead>
<tr>
<th>Class</th>
<th>Teaching</th>
<th>Math (Double Majors)</th>
<th>Applied Math</th>
<th>Stat</th>
<th>TOTALS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshman</td>
<td>10</td>
<td>4</td>
<td>0</td>
<td>2</td>
<td>16</td>
</tr>
<tr>
<td>Sophomore</td>
<td>4</td>
<td>8 (1 Phys, 1 ED)</td>
<td>0</td>
<td>0</td>
<td>14</td>
</tr>
<tr>
<td>Junior</td>
<td>3</td>
<td>4 (1 IE)</td>
<td>3</td>
<td>2</td>
<td>13</td>
</tr>
<tr>
<td>Senior</td>
<td>22</td>
<td>4 (1 Phys)</td>
<td>2</td>
<td>2</td>
<td>36</td>
</tr>
<tr>
<td>TOTALS</td>
<td>39</td>
<td>20 (9)</td>
<td>5</td>
<td>6</td>
<td>79</td>
</tr>
<tr>
<td>Post-bac</td>
<td>0</td>
<td>7</td>
<td>0</td>
<td>0</td>
<td>7</td>
</tr>
<tr>
<td>Major completed</td>
<td>13</td>
<td>7</td>
<td>2</td>
<td>0</td>
<td>22</td>
</tr>
</tbody>
</table>
Senior Survey

Apparently only 6 students responded to the The Senior Survey. We hope the administration can find some way to encourage greater participation so that this component of assessment will be more useful. We would like to hear from all, or at least almost all, graduating seniors and this was only a small fraction, far from the level required to be representative.

The respondents were each asked to identify weaknesses in our program. One suggestion was to offer more education on classroom management (clearly a Math Teaching Option concern). One wanted more technology used in the classroom. A third wanted more statistics classes required of Math Teaching Option majors. Another thought that Math Teaching Option majors were too isolated from Math Option and Applied Math Option majors. One senior expressed dissatisfaction with student/teacher conflict resolution procedures. One student was quite outspoken about perceived imbalances concerning career training versus graduate school preparation. He or she was also displeased with several of his or her faculty instructors.

The respondents were each asked to identify strengths they would like the department to maintain. Positive comments emphasized the excellent teachers and rigorous classes. Three students mentioned excellent teaching of the faculty, another commented that the program was much better than the one at their previous college, and two others commented favorably on the rigor of the mathematics program.

Faculty Program Assessment

Mathematics
The Mathematics faculty met and discussed Math Option and Applied Math Option majors.

- In three cases of otherwise good students an inability to do proofs at the required level was noted. In each case the student had not had our proof course (MATH 256). This deficiency was also noted last year at which time that course was made a requirement in both options. This problem should be remedied in the future.
- Several students were unknown to their advisors. Apparently they are able to circumvent our system of requiring them to meet with their advisor to obtain their PIN number for registration. Ways will be sought to require students to see their advisor once each semester.

Mathematics Education
The Mathematics Education faculty met and discussed Math Teaching Option majors.

- In advising students, they should be encouraged to pursue the Multiple Subject Endorsement rather than the Single Subject Endorsement since this provides them more flexibility when seeking a job.
- Students need a strong preparation in our proof course (MATH 256). Students who struggle in this course will likely struggle in later courses in this curriculum.
- Strong mathematics students may pursue the Single Subject Endorsement, especially if they desire to pursue graduate studies in the future.
- The requirement of Advanced Calculus (MATH 361) for the Single Subject Endorsement was re-affirmed. However, advisors may approve the substitution of Abstract Algebra (MATH 416) for Advanced Calculus if a spring semester course is necessary.
- The middle school mathematics methods course (EDSD 471) has been recently revised to include a significant research component and has been designated a Core 2.0 R (Research) course as a result.
- The four-course mathematics sequence taken by these majors is currently being evaluated.

Statistics
The statistics faculty met and discussed Statistics Option majors.

- A seminar will be held in the fall for all Statistics Option majors, in particular Freshmen and Sophomores. Faculty will discuss consulting projects and careers in statistics.
- Plans were made to create a new undergraduate statistical consulting course for Juniors and Seniors where students will take part in consulting projects coming out of the graduate student consulting seminar.

Program Improvements

Departmental Suggestions

We continue to struggle with low enrollment in the statistics option and this year the applied mathematics
option also has low enrollment. Students are very happy with these options but they are considerably smaller than the teaching and mathematics options. We need to focus more emphasis on recruiting students into these options.

Our faculty program assessment identified several areas in which improvements can be made. We need to focus harder on quality advising and make sure that our upper division courses are appropriate. Several curriculum changes were implemented in the 2008-10 catalog, some of which may have been detrimental to enrollments. These need to be monitored carefully. We continue to seek other avenues to bring math majors together and build a sense of community.

Departmental Commitment

We have committed to improving our various options. We have upgraded MATH 256 and now require it in all four options. Statistics and Mathematics are considering a Freshman Seminar and statistics is planning an undergraduate statistical consulting course for all upper division majors. We strive to encourage interaction and perpetuate a cohort among our students.
Department: Mathematical Sciences

Department Head: Dr. Ken Bowers

Assessment Coordinator: Dr. Ken Bowers

Date: 6-30-2010

Degrees/Majors/Options Offered by Department

BS in Mathematics

- Mathematics Option
- Applied Mathematics Option
- Mathematics Teaching Option
- Statistics Option
Assessment Activities

Recruitment and Retention

Data is gathered on recruitment, retention, and attrition of majors in the Department. For each option, the data includes the total number of majors in each class and the number of majors in each class the previous year. The data is provided by the Office of Planning and Analysis. The Undergraduate Program Committee summarized the data for dissemination and the Department Head presented the data to the faculty.

Senior Survey

Data is gathered from the departmental survey attached to the Montana State University Senior Survey, which is solicited from all graduating seniors. The data is tabulated and forwarded to the Department by the Provost’s Office. The Undergraduate Program Committee summarized the data for dissemination and the Department Head presented the data to the faculty.

Faculty Program Assessment

Each faculty group, Mathematics, Mathematics Education, and Statistics, met to discuss student progress in their respective degree options. Using this information the faculty determined whether academic problems were due to individual weaknesses or an indication of necessary program changes. The Undergraduate Program Committee summarized the input for dissemination and the Department Head presented the input to the faculty.

Assessment Results

Recruitment and Retention

The incoming freshman class for 2008-09 had 12 declared math majors and the incoming freshman class for 2009-10 has 13 declared math majors. The sophomore class of 2009-10 was 5 majors larger than the 2008-09 freshman class; the junior class of 2009-10 was 3 majors larger than the 2008-09 sophomore class; and the senior class of 2009-10 was 18 majors larger than the 2008-09 junior class. There were 24 graduates who completed a mathematics major in 2008-09 while only 13 mathematics majors were completed in 2009-10. Not counting the number of post-baccalaureate students which went from 3 to 6, the number of majors decreased from a total of 80 majors in 2008-09 to 76 majors in 2009-10. The Math Teaching Option decreased from 36 to 30 majors and the Mathematics Option decreased from 31 to 29 majors. The Applied Math Option increased from 8 to 9 majors and the Statistics Option increased from 5 to 8 majors. In the tables, double majors are in parentheses and are counted separate from other majors. We also had 14 Mathematics non-teaching minors and 1 Statistics non-teaching minor in 2009-10.

The number of our majors taking a double major has decreased significantly. In 2008-09 we had 20 double majors and in 2009-10 we had only 11 double majors. These double majors were in fields as diverse as Computer Engineering, Computer Science, Economics, Education, Photography, and Physics. The number of post-baccalaureate (second degree) majors was 3 more than last year.
### 2009-10

<table>
<thead>
<tr>
<th>Class</th>
<th>Teaching</th>
<th>Math (Double Majors)</th>
<th>Applied Math</th>
<th>Stat</th>
<th>TOTALS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshman</td>
<td>5</td>
<td>7</td>
<td>1</td>
<td>0</td>
<td>13</td>
</tr>
<tr>
<td>Sophomore</td>
<td>5</td>
<td>4 (1 Econ, 1 Comp E)</td>
<td>2</td>
<td>4</td>
<td>17</td>
</tr>
<tr>
<td>Junior</td>
<td>6</td>
<td>3 (1 Phot)</td>
<td>0</td>
<td>1</td>
<td>11</td>
</tr>
<tr>
<td>Senior</td>
<td>13 (1 ED)</td>
<td>6 (1 Phot, 4 Phys, 1 CS)</td>
<td>5 (1 Phys)</td>
<td>3</td>
<td>35</td>
</tr>
<tr>
<td><strong>TOTALS</strong></td>
<td><strong>29(1)</strong></td>
<td><strong>20(9)</strong></td>
<td><strong>8(1)</strong></td>
<td><strong>8</strong></td>
<td><strong>76</strong></td>
</tr>
<tr>
<td>Post-bac</td>
<td>3</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>6</td>
</tr>
<tr>
<td>Major completed</td>
<td>8</td>
<td>3</td>
<td>2</td>
<td>0</td>
<td>13</td>
</tr>
</tbody>
</table>

### 2008-09

<table>
<thead>
<tr>
<th>Class</th>
<th>Teaching</th>
<th>Math (Double Majors)</th>
<th>Applied Math</th>
<th>Stat</th>
<th>TOTALS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshman</td>
<td>5</td>
<td>5</td>
<td>1</td>
<td>1</td>
<td>12</td>
</tr>
<tr>
<td>Sophomore</td>
<td>4</td>
<td>3 (1 Phot)</td>
<td>0</td>
<td>0</td>
<td>8</td>
</tr>
<tr>
<td>Junior</td>
<td>6</td>
<td>4 (1 CS, 1 CE, 1 Phys, 1 Phot)</td>
<td>2</td>
<td>1</td>
<td>17</td>
</tr>
<tr>
<td>Senior</td>
<td>18 (1 CS, 1 ED)</td>
<td>4 (5 Phys, 3 CS, 1 ML, 1 Chem)</td>
<td>3 (1 Phys, 1 Chem)</td>
<td>3</td>
<td>43</td>
</tr>
<tr>
<td><strong>TOTALS</strong></td>
<td><strong>33(3)</strong></td>
<td><strong>16(15)</strong></td>
<td><strong>6(2)</strong></td>
<td><strong>5</strong></td>
<td><strong>80</strong></td>
</tr>
<tr>
<td>Post-bac</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Major completed</td>
<td>11</td>
<td>8</td>
<td>3</td>
<td>2</td>
<td>24</td>
</tr>
</tbody>
</table>

### 2007-08

<table>
<thead>
<tr>
<th>Class</th>
<th>Teaching</th>
<th>Math (Double Majors)</th>
<th>Applied Math</th>
<th>Stat</th>
<th>TOTALS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshman</td>
<td>2</td>
<td>5 (1 Phot)</td>
<td>1</td>
<td>1</td>
<td>10</td>
</tr>
<tr>
<td>Sophomore</td>
<td>8</td>
<td>4 (1 Phys, 1 Phot)</td>
<td>2</td>
<td>1</td>
<td>17</td>
</tr>
<tr>
<td>Junior</td>
<td>5</td>
<td>4 (3 Phys, 1 CS, 1 EnvDes)</td>
<td>2</td>
<td>5</td>
<td>21</td>
</tr>
<tr>
<td>Senior</td>
<td>16 (1 CS, 1 ED)</td>
<td>12 (1 Phys, 2 CS, 1 ML, 1 CE, 1 Phot)</td>
<td>7 (2 Phys)</td>
<td>1</td>
<td>48</td>
</tr>
<tr>
<td><strong>TOTALS</strong></td>
<td><strong>31(4)</strong></td>
<td><strong>25(14)</strong></td>
<td><strong>12(2)</strong></td>
<td><strong>8</strong></td>
<td><strong>96</strong></td>
</tr>
<tr>
<td>Post-bac</td>
<td>4</td>
<td>0</td>
<td>0</td>
<td>2 (1 ML)</td>
<td>7</td>
</tr>
<tr>
<td>Major completed</td>
<td>9</td>
<td>12</td>
<td>8</td>
<td>5</td>
<td>34</td>
</tr>
</tbody>
</table>

### 2006-07

<table>
<thead>
<tr>
<th>Class</th>
<th>Teaching</th>
<th>Math (Double Majors)</th>
<th>Applied Math</th>
<th>Stat</th>
<th>TOTALS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshman</td>
<td>6</td>
<td>4 (1 Phys)</td>
<td>1</td>
<td>1</td>
<td>13</td>
</tr>
<tr>
<td>Sophomore</td>
<td>7</td>
<td>4 (1 Phys)</td>
<td>0</td>
<td>4</td>
<td>16</td>
</tr>
<tr>
<td>Junior</td>
<td>12</td>
<td>10 (2 Phys)</td>
<td>3</td>
<td>2</td>
<td>29</td>
</tr>
<tr>
<td>Senior</td>
<td>21</td>
<td>12 (2 Phys, 1 CE, 1 CompE)</td>
<td>4</td>
<td>0</td>
<td>41</td>
</tr>
<tr>
<td><strong>TOTALS</strong></td>
<td><strong>46</strong></td>
<td><strong>30 (8)</strong></td>
<td><strong>8</strong></td>
<td><strong>7</strong></td>
<td><strong>99</strong></td>
</tr>
<tr>
<td>Post-bac</td>
<td>3</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>Major completed</td>
<td>11</td>
<td>9</td>
<td>5</td>
<td>2</td>
<td>27</td>
</tr>
</tbody>
</table>

### 2005-06

<table>
<thead>
<tr>
<th>Class</th>
<th>Teaching</th>
<th>Math (Double Majors)</th>
<th>Applied Math</th>
<th>Stat</th>
<th>TOTALS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshman</td>
<td>5</td>
<td>6</td>
<td>0</td>
<td>3</td>
<td>14</td>
</tr>
<tr>
<td>Sophomore</td>
<td>10</td>
<td>8</td>
<td>1</td>
<td>2</td>
<td>21</td>
</tr>
<tr>
<td>Junior</td>
<td>10</td>
<td>8 (2 Eng)</td>
<td>0</td>
<td>2</td>
<td>22</td>
</tr>
<tr>
<td>Senior</td>
<td>21</td>
<td>8 (3 Phys, 2 Phys Teach)</td>
<td>4</td>
<td>2</td>
<td>44</td>
</tr>
<tr>
<td><strong>TOTALS</strong></td>
<td><strong>46</strong></td>
<td><strong>30 (11)</strong></td>
<td><strong>5</strong></td>
<td><strong>9</strong></td>
<td><strong>101</strong></td>
</tr>
<tr>
<td>Post-bac</td>
<td>0</td>
<td>6</td>
<td>0</td>
<td>0</td>
<td>6</td>
</tr>
<tr>
<td>Major completed</td>
<td>9</td>
<td>13</td>
<td>2</td>
<td>2</td>
<td>26</td>
</tr>
</tbody>
</table>
### 2004-05

<table>
<thead>
<tr>
<th>Class</th>
<th>Teaching</th>
<th>Math (Double Majors)</th>
<th>Applied Math</th>
<th>Stat</th>
<th>TOTALS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshman</td>
<td>10</td>
<td>4</td>
<td>0</td>
<td>2</td>
<td>16</td>
</tr>
<tr>
<td>Sophomore</td>
<td>4</td>
<td>8 (1 Phys, 1 ED)</td>
<td>0</td>
<td>0</td>
<td>14</td>
</tr>
<tr>
<td>Junior</td>
<td>3</td>
<td>4 (1 IE)</td>
<td>3</td>
<td>2</td>
<td>13</td>
</tr>
<tr>
<td>Senior</td>
<td>22</td>
<td>4 (1 Phys)</td>
<td>2</td>
<td>2</td>
<td>36</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(3 Phys Teach, 1 CE, 1 CS)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TOTALS</td>
<td>39</td>
<td>20 (9)</td>
<td>5</td>
<td>6</td>
<td>79</td>
</tr>
<tr>
<td>Post-bac</td>
<td>0</td>
<td>7</td>
<td>0</td>
<td>0</td>
<td>7</td>
</tr>
<tr>
<td>Major completed</td>
<td>13</td>
<td>7</td>
<td>2</td>
<td>0</td>
<td>22</td>
</tr>
</tbody>
</table>

### Senior Survey

Only 9 of 24 graduating math majors responded to the 2008-09 Senior Survey. We hope the administration can find some way to encourage greater participation so that this component of assessment will be more useful. We would like to hear from all, or at least almost all, graduating seniors.

The respondents were each asked to identify weaknesses in our program. Multiple students suggested offering more training on classroom management (clearly a Math Teaching Option concern). They felt that their math methods courses, though excellent, were not sufficient preparation for other issues that arise during student teaching. One wanted more varied technology used in the classroom. Several wanted a greater variety of math elective courses offered and one wanted a better introduction to methods of proof. One student thought that GTAs needed to be supervised more carefully and one student wanted faculty to hold more office hours. One senior was displeased with a specific faculty instructor.

The respondents were each asked to identify strengths they would like the department to maintain. Positive comments emphasized the excellent teachers and rigorous classes. Six students mentioned excellent teaching of the faculty and two others commented favorably on the rigor of the mathematics program. Three students commented favorably on the breadth of mathematics courses offered.

### Faculty Program Assessment

#### Mathematics

The Mathematics faculty met and discussed Math Option and Applied Math Option majors.

- In only one case did an otherwise good student seem to lack the preparation necessary for our upper division courses.
- Several students were unknown to their advisors. Apparently they are able to circumvent our system of requiring them to meet with their advisor to obtain their PIN number for registration. Some of this occurs when students (double majors) have an advisor in another department. We continue to seek ways to require students to see their advisor once each semester.
- A surprising number of students in Honors Calculus are not performing at the Honors level and in several of those cases they have not met our stated prerequisite. The Honors Program will be asked to more rigorously evaluate and enforce prerequisites.
- Several students are not being advised of the various opportunities they have to pursue either a double major, dual B.S. degrees, or our four plus one B.S. plus M.S. program. More information on these choices were given to the faculty for dissemination to students.

#### Mathematics Education

The Mathematics Education faculty met and discussed Math Teaching Option majors.

- The curriculum appears to be serving well the goal of preparing students for mathematics teaching at the grade levels 5-12.
- Several student weaknesses seem to stem from students who are not fully engaged in coursework rather than from weaknesses in curriculum sequence or content.
- There were no plans made to adjust the curriculum at this time.

#### Statistics

The Statistics faculty met and discussed Statistics Option majors.
• Statistics majors seem to be progressing well. At this point there does not appear to be any negative impact due to the large number of faculty buyouts and the unfilled line of a retired statistics faculty member. Particular attention will be paid to making connections with statistics majors early in their careers and later assuring that junior level bridge courses are offered and taught by statistics faculty.

• Last year, concern was raised over a lack of connectedness within the various majors. The Undergraduate Workshop Series that was established this year has helped alleviate that and also led to the formation of a Math Club. In addition, the undergraduate statistics majors were included in the end of the year celebration, which should also assist with connections between students and faculty.

• Revisions to STAT 410/412 should lead to more success in undergraduate research ventures, for both our majors and those of other departments.

• Plans were discussed to include undergraduate statistics majors in STAT 510 (consulting), or to create a new undergraduate statistical consulting course for Juniors and Seniors, or to find resources to provide consulting experience for undergraduate statistics majors by assisting undergraduate researchers across campus in a model similar to that of the Math Learning Center or the Writing Center.

Program Improvements

Departmental Suggestions

We continue to struggle with low enrollment in the statistics option and this year the applied mathematics option also has low enrollment. Students are very happy with these options but they are considerably smaller than the teaching and mathematics options. Fortunately, the courses for these options are valuable for many students in other majors, so the necessary courses will continue to be offered.

Our faculty program assessment identified several areas in which improvements can be made. We need to focus harder on quality advising and make sure that our upper division courses are appropriate. Several curriculum changes were implemented in the new 2010-12 catalog which should benefit both our majors and those in other departments. We continue to seek other avenues to bring math majors together and build a sense of community and the new Undergraduate Workshop Series should fill that void considerably.

Departmental Commitment

We are committed to improving our various options. Statistics is investigating a means to incorporate undergraduate statistical consulting into their program. We strive to encourage interaction and perpetuate a cohort among our students. We are encouraging students to look even more closely at double majors, dual B.S. degrees, and/or a five-year program that would lead to both a B.S. and a M.S. degree.
Department: Microbiology

Department Head: Dr. Tim Ford

Assessment Coordinator: Dr. Linda Sherwood

Date: June 4, 2007

Degrees/Majors/Options Offered by Department

List here

B.S. degrees in Microbiology
  Microbiology option
  Clinical Lab Sciences option
  Environmental Health options

M.S. in Microbiology

Ph.D. in Microbiology
Assessment Update Spring 2007

Each year the department focuses on one or two elements of its assessment plan. During the 2006-2007 academic year, we focused on the exit survey of our graduating seniors. There is one element of particular note in the survey: the question about a course instituted several years ago (MB100 – Careers in Microbiology). MB100 was developed in response to several years of prior exit and post-graduation surveys indicating that many of our students were not fully aware of the many career options in microbiology until relatively late. They therefore felt they had not been able to design their curricula to maximize their success after leaving Montana State. We are now beginning to survey students who became microbiology majors after MB100 was developed, and we are beginning to assess its impact on our students.

Perhaps the most important developments of the year were two initiatives: examination of the environmental health option and a general discussion of the department’s future. The Microbiology Department has been in a period of transition as several faculty members retired or moved to other universities and new faculty joined the department. This has led to the introduction of new research areas in the department and the development of new courses. Both initiatives grew out of the department’s need to fully integrate the new areas of expertise into our curricula. Currently, these initiatives are taking the form of informal discussions among those involved in the environmental health option (environmental health initiative) and all teaching faculty (general discussion). It is expected that these discussions will lead to the development of new courses and a re-evaluation of our current assessment plan.
EXIT SURVEY
PERSONAL INFORMATION

Note: This information will be separated from your survey responses so that your anonymity can be preserved.

NAME: ____________________________________________________________

STUDENT I.D. NUMBER: ____________________________________________

SEMESTER/YEAR GRADUATING: _________________________________________

OPTION (Please circle one): MB  MLS (4+1)  MLS (3+1)
MBEH

ADDRESS WHERE YOU CAN RECEIVE MAIL IN ONE YEAR.  (Please help us by keeping this information current. Thank you.)

____________________________________________________________________

____________________________________________________________________

____________________________________________________________________

E-MAIL ADDRESS: ___________________________________________________

The Microbiology Newsletter is our way of keeping our graduates informed about the department and other graduates. If you would like to share news about yourself, either personal or professional, in a future Microbiology Newsletter, write the news in the space below. You can also share news by contacting Kari Cargill, Department of Microbiology, Montana State University, PO Box 173520, Bozeman, MT 59717-3520.
EXIT SURVEY
2006 GRADUATES

Please help us improve our program in Microbiology by answering the following questions. Thank you for your time and effort. All responses will remain confidential.

1. **Microbiology Option** (Circle One):

   MB  MLS (4+1)  MLS (3+1)  MBEH

2. **What are your plans for the next year?**

   ______ Attend a graduate school. Have you been accepted? Yes _____ No _____
   
   If yes, where:
   
   ______ Attend a professional school. Have you been accepted? Yes _____ No _____
   
   If yes, where:
   
   ______ Do an internship. Have you been accepted? Yes _____ No _____
   
   If yes, where:
   
   ______ Work in a microbiology-related position. Do you have a position? Yes _____ No _____
   
   If yes, where:
   
   ______ Work in another area. Do you have a position? Yes _____ No _____
   
   If yes, where:
   
   ______ Other, Please explain: _________________________________________________

3. **Do you plan on taking or have your taken a standardized test such as the GRE or MCAT?** (Circle one)  Yes  No

   If yes, which test(s) will you or have you taken?

4. **How well do you think your experiences in the Microbiology Department prepared you for your future education, training, and work goals?** (Circle one)

   (Very Prepared)  5  4  3  2  1 (Poorly prepared)
All comments are appreciated.¹

5. **Did you take MB100, Careers in Microbiology?** (Circle one) Yes
   No

   If yes, did it help you make a career choice? (Circle one) Yes
   No

   All comments are appreciated.

6. **Please check EACH of the activities in which you have participated as you completed your Microbiology degree:**

   ___ Attended Microbiology Department seminar presented by MSU faculty or graduate students.
   ___ Attended Microbiology Department seminar presented by an outside speaker.
   ___ Attended a seminar sponsored by another department.
   ___ Attended a professional science or research society meeting (ASM, etc.)
   ___ Presented a paper at professional science or research society meeting.
   ___ Worked on a collaborative science project that received a single grade for the group.
   ___ Participated in an internship or work-study program.
   ___ Assisted a faculty member in doing research.
   ___ Presented a science seminar in a class or other venue OTHER THAN MB400.
   ___ Prepared oral presentations using computer presentation programs (e.g., PowerPoint).
   ___ Used computer programs (e.g., statistics, spreadsheets) other than word processing and presentation programs to complete course work.
   ___ Used internet resources to complete course work.
   ___ Used computer-assisted graphics for microbiology projects.
   ___ Used scientific equipment not found in basic microbiology course laboratories.
   ___ Composed an original scientific research paper to describe field or laboratory research data that you collected and analyzed.
   ___ Used electronic or print databases to search the scientific literature.
   ___ Read two articles independently (not assigned) from scientific journals in the last three months.

7. **What advice would you give to students just entering the Microbiology Department?**

   ___________________________________________________________
Department: Microbiology

Department Head: Dr. Michael Franklin

Assessment Coordinator: Dr. Linda Sherwood

Date: July 14, 2008

Degrees/Majors/Options Offered by Department

B.S. – Microbiology
  Microbiology Option
  Environmental Health Option
  Medical Laboratory Science Option

M.S. – Microbiology

Ph.D. - Microbiology
ASSESSMENT ACTIVITIES – 2008

In May 2007, an informal faculty meeting was held to reconsider the Microbiology Department’s Student Outcomes. During that discussion it became very clear that the faculty felt that the most beneficial experience our students can have is the undergraduate research experience. Because the undergraduate research experience has the potential to address several of our student outcomes, the Curriculum Subcommittee of the Undergraduate Curriculum Committee decided to do a pre-assessment on the subject. The goal of the project was to gain information about the faculty’s view of the undergraduate research experience and to learn more about what that experience looked like and how it might vary from one faculty member to the next.

The pre-assessment began during the fall semester of 2007 with a focus group consisting of tenure-track faculty, research faculty, and lab personnel who often mentor undergraduate students. The information gathered from the focus group was used to develop a survey which was completed by tenure-track and research faculty who have now or have had in the past undergraduate students doing research in their labs. The results of the survey were shared with members of the department during a faculty meeting held January 2008.

During the faculty meeting it was decided that the department’s current approach to undergraduate research was consistent with the goals we have outlined in our Department’s Assessment Plan. However, it was also felt that the pre-assessment should be expanded to obtain information from students who have completed one of more semesters of undergraduate research. This facet of our pre-assessment will be carried out during the 2008-2009 academic year.
The Department of Microbiology has been in a state of flux for the last several years and the assessment committee has deviated from the 2004 assessment plan over that period. The flux has been due to gains and losses of faculty members. Furthermore in 2008, the Montana Medical Laboratory Science (MMLS) Training Program welcomed its first class of students, under the direction of Barbara Hudson. Since the MMLS program is seeking accreditation, the assessment committee chose this as its assessment activity for the year.

To that end, the first year of the program was assessed using numerous activities and surveys. These included focus groups where students discussed their experiences with the program, exit interviews, evaluation of instruction by both students and other instructors in the program, and site visits to clinical laboratories where students did their internships. In addition, participating hospitals completed surveys evaluating both the program and its students.

The collected data were part of a self-study package that has been submitted to the National Accrediting Agency for Clinical Laboratory Science (NAACLS), which is the professional society that oversees accreditation of clinical laboratory science training programs. The data was also used to make improvements in instruction and in the program in preparation for the 2009 entering class. Finally, much of the data will be shared with the department at its annual retreat in August 2009.
Department: Microbiology

Department Head: Dr. Matt Fields

Head of the Undergraduate Committee: Dr. Sandra Halonen
Undergraduate Committee Members: Drs. Al Jesaitis, Mike Franklin, Barbara Hudson and Kari Cargill

Assessment Contacts:
Dr. Sandra Halonen, Head of the Undergraduate Curriculum Committee
Associate Professor, Department of Microbiology; shalonen@montana.edu
Degree Objectives for the Microbiology Major

Microbiology is a diverse discipline with strong basic and applied aspects. Its basic aspects are concerned with understanding the life processes exhibited by microorganisms and with understanding how microbes evolved to carry out these processes. The basic aspects are also concerned with the interaction of microbes with other organisms, both microorganisms and macroorganisms, and with how these interactions impact the ecosystems where microbes are found and how pathogenic microorganisms interact with the immune system of the host. The applied aspects of microbiology include medical microbiology, environmental microbiology, and industrial microbiology/biotechnology. All three applied aspects involve controlling the activities of microbes for the purpose of improving the human condition.

Professional microbiologists are found in academic, private, and governmental institutions working as scientists and/or as educators. Some enter the profession with the baccalaureate degree, working as clinical laboratory scientists, technicians, and sanitarians. Others enter after obtaining further training in graduate or professional schools. In addition, an undergraduate degree in microbiology provides an excellent foundation for those interested in becoming physicians, dentists, employees of firms providing support services or products to professional microbiologists, and consultants or advisors to businesses and governmental agencies.

There are four major curriculum options within the microbiology major (General Microbiology, Medical Laboratory Science, Environmental Health and Biotechnology: Microbial systems); all four options provide the experiences and knowledge needed for most of the career options described above. The Department also offers a Premedical Curriculum (under the general Microbiology option) and a minor in Microbiology. In addition, the Montana Medical Laboratory Science (MMLS) Professional Program is housed in the Department of Microbiology. It is our aim to enable students to succeed in their chosen career path by supporting them in the following ways:

- Providing information and guidance regarding career opportunities in microbiology and related professions.
- Providing broad coverage of the discipline.
- Providing experiences that enable students to reach the competencies outlined below.
Assessment Plan
An assessment plan has been prepared which is in accordance with the Degree Objectives for the Microbiology Major. The Assessment Plan consists of: 1). establishment of Learning Objectives and identification of courses that satisfy the Learning Outcomes, 2). a method of assessment of these Learning Objectives, 3). a plan for implementation of this assessment and 4). Data collection and Analysis. The details of each of these components of the Assessment Plan are given below.

1. Learning Objectives (= Competencies)
Learning Outcomes have been defined and courses that satisfy each of these learning outcomes have been identified as listed below in Sections A and B respectively.

   A). Learning Outcomes:
   Learning Objective 1: Define, describe and use the fundamental terms and concepts of modern microbiology as evidenced by the ability to present, discuss and answer questions about a scientific article in the field of microbiology.
   Learning Objective 2: Design an experiment to test a hypothesis or fundamental concept in microbiology
   Learning Objective 3: Perform basic microbiological lab techniques
   Learning Objective 4: Access and analyze bioinformatics data
   Learning Objective 5: Verbally communicate about fundamental and modern microbiological concepts.
   Learning Objective 6: Communicate in a written form about fundamental and modern microbiological concepts

   B). Courses\(^1\) which satisfy the identified Learning Outcomes:
   Learning Outcome 1: BIOM 360; BIOM 494
   Learning Outcome 2: BIOM 455
   Learning Outcome 3: BIOM 360; BIOM 432
   Learning Outcome 4: BIOM 450; BIOB 428
   Learning Outcome 5: BIOM 494; BIOM 450; BIOM 497
   Learning Outcome 6: BIOM 450; BIOH 405; BIOM 435, BIOB 410

\(^1\)Course Titles corresponding to Course numbers:
BIOM 360 – General Microbiology
BIOH 405 – Hematology
BIOB 410 – Immunology
BIOM 410 – Microbial Genetics
BIOB 428 – Molecular Evolution
BIOM 432 – Medical Bacteriology Lab
BIOM 435 – Virology
BIOM 450- Microbial Physiology
BIOM 455 – Research Methods in Microbiology
BIOM 494 – Seminar, Capstone
BIOM 497 – Educational Methods (Teaching)
2. Method of Assessment

A form has been created to assess student performance of these learning objectives in the different courses. On this assessment form, the Learning Objectives are given along with a scoring rubric to assess performance level of each Learning Objective. A threshold has been defined, such that if student performance falls below this threshold, some faculty action will be taken to improve the program. We intend to have other members from the Department, as well as faculty from other Departments where appropriate, participate in these Assessments. An example of the Assessment form is given below.

Microbiology Assessment Form

Scoring Rubric

Course: ____________________________  Semester _______________________

Evaluator: __________________________

Dept. of Evaluator ______________________

Type of Learning Activities(s) Assessed:

i.e. written examination, written assignment, in class activities (role play, class discussion, presentations), out of class activities (projects)

Learning Objective Assessed (i.e. answer 1-6 below) ______________________

Learning Objective Assessed: Evaluate all that apply

<table>
<thead>
<tr>
<th>Learning Objective</th>
<th>Performance Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Students will demonstrate use of knowledge of the fundamental terms &amp; concepts of microbiology to present, discuss and answer questions about a scientific article in the field of microbiology</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>2. Design an experiment to test a hypothesis or microbiological concept</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>3. Perform basic microbiological lab techniques</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>4. Access &amp; analyze bioinformatics data or large datasets</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>5. Verbally communicate about fundamental &amp; modern microbiological concepts</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>6. Communicate in written form about fundamental &amp; modern microbiological concepts</td>
<td>1 2 3 4 5</td>
</tr>
</tbody>
</table>

1 = Not Done

*2 = Performed but with poor execution – threshold level (see note below)

3 = Adequate Performance; Met Expectations

4 = Performance Well Executed; Exceeds Expectation

5 = Performance Excellent; Exceeds Expectations Plus

* threshold level: if student performance falls below this threshold faculty action will be taken to improve the program.
3. Implementation of Assessment of Learning Outcomes: Proposed Plan

Assessment of the Learning Outcomes will be implemented according to the following schedule:

<table>
<thead>
<tr>
<th>Learning Outcomes</th>
<th>2011-12</th>
<th>2012-13</th>
<th>2013-14</th>
<th>2014-15</th>
<th>Target course(s) for Assessment Data†</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Use knowledge of the fundamental terms &amp; concepts of microbiology</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td>BIOM 494(F/S)</td>
</tr>
<tr>
<td>2. Design an experiment to test a hypothesis or microbiological concept</td>
<td></td>
<td>x</td>
<td></td>
<td></td>
<td>BIOM 455(S)</td>
</tr>
<tr>
<td>3. Perform basic microbiological lab techniques</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
<td>BIOM 360(F/S) BIOM 432(S)</td>
</tr>
<tr>
<td>4. Access &amp; analyze bioinformatic data or large datasets</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
<td>BIOM 450 (F)</td>
</tr>
<tr>
<td>5. Verbally communicate about fundamental and modern microbiological concepts</td>
<td></td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>BIOM 450(F) BIOM 494 (F/S) BIOM 497 (F)</td>
</tr>
<tr>
<td>6. Communicate in written form about fundamental &amp; modern microbiological concepts</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
<td>BIOM 405 (F) BIOM 410 (F) BIOM 435(F) BIOM 490 (F)</td>
</tr>
</tbody>
</table>

† courses designated as offered in the Fall Semester (F), Spring Semester (S) or Fall and Spring (F/S) semesters.

4. Data, Collection, Analysis and Use:
Assessments were begun in the Spring 2012. The Seminar Capstone Course (BIOM 494) was assessed collecting data on approximately 25% of the students (=4/12). Results of the preliminary assessment were used in developing and fine-tuning this current plan. Assessments of courses with larger students numbers (30-40 students) are planned for the Fall 2012 semester. These collective assessment data will be collated and analyzed at the end of the Fall semester. Analysis of subsequent assessment forms will then be conducted at the end of each semester. The Undergraduate Committee will review analysis of the assessment and the results will be shared with the full Department during regularly scheduled Departmental Meetings.
Part II: Assessment Report: Academic Year 2012/13

A brief summary of assessment efforts in academic year (AY) 2012/2013 is included in Section A below. A summary of the department Assessment outcomes is listed in Table 1. In addition assessments from the Montana Medical Laboratory Science (MMLS) Professional Program has been included in our assessment efforts as this program is housed in the Microbiology Department and a significant number of undergraduates (about 80) in the department are in the Medical Laboratory Science option (curriculum). Some will enter the MMLS program (10-16/year) while others will seek clinical training elsewhere. The MMLS has multiple methods for evaluation including program, instructor and student evaluations. Results of these assessments are included in Section B below.

A. Assessment Efforts for Microbiology Department in AY 2012/2013: Assessment data were planned to be collected for General Microbiology (BIOM 360), Microbial Physiology (BIOM 450) and Research Methods in Microbiology (BIOM 455). However given BIOM 455 was revised and the revised version offered for the first time in 2012/2013, it was decided to delay assessment of this course until AY 2014/2015. Result of assessment of BIOM 360 and BIOM 455 are summarized below.

1. General Microbiology (BIOM 360) - Assessment exercises are currently incorporated into BIOM 360 and hence these embedded assessments are being used for Assessment. Collection and analysis of this data is in process. BIOM 360 is taught in Fall and Spring Semesters, and data is being collected from both semesters, with approximately 50 student assessments anticipated.

2. Research Methods in Microbiology (BIOM 455) - Assessments were collected in Fall 2012. Three Microbiology Faculty assessed this course. Several problems were encountered in the Assessment of BIOM 450. Specifically, faculty members were inconsistent in their evaluations in the detail they provided regarding their evaluation and the criterion they used in the determination of Performance Level. Hence changes to the evaluation forms were suggested and are planned for AY 2013/2014, as noted in Section 5 below.

Table 1 - Assessment Summary (AY 2011-2013)

<table>
<thead>
<tr>
<th>Academic Year</th>
<th>Course Assessed</th>
<th>Number of Students Assessed</th>
<th>Percentage of Students in Course Assessed</th>
<th>Outcome of Assessment¹</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011-2012</td>
<td>Seminar, Capstone (BIOM 494)</td>
<td>4</td>
<td>25%</td>
<td>Met Expectations (Avg. Score = 4.2)</td>
</tr>
<tr>
<td>2012-2013</td>
<td>Microbial Physiology</td>
<td>12</td>
<td>10%</td>
<td>Met Expectations (Avg. Score = 3.8)</td>
</tr>
<tr>
<td></td>
<td>General Microbiology (BIOM 360)</td>
<td>~50   (anticipated)</td>
<td>10%</td>
<td>Assessments In Process</td>
</tr>
</tbody>
</table>

¹Assessment of students Performance Level was determined on a scale of 1-5, with 5 = Excellent Performance and 2 = Performed with poor execution and defined as the threshold level, as defined on the Evaluation Form. The average score was determined and an Assessment Outcome determined to fall into one of the three following categories as follows: Meet Expectations (score of 3-4); Below Threshold (score of ≤ 2) or Exceeded Expectations (score of 4-5).
B. Assessments from the MMLS Program
The Montana Medical Laboratory Science Professional Program has multiple methods for evaluation and improvement. The methods for evaluation include program evaluation; instructor evaluation, especially during the summer semester; and student evaluations by faculty in the summer and supervisors and education coordinators during the clinical rotations. The following table lists the type of evaluation being done in each category, by whom and how often it is done.

<table>
<thead>
<tr>
<th>By Whom</th>
<th>Type</th>
<th>How often</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Program Evaluation:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Students</td>
<td>1. Focus group</td>
<td>2008-2009 only</td>
</tr>
<tr>
<td>Students</td>
<td>2. Exit Interviews</td>
<td>end of summer</td>
</tr>
<tr>
<td>Students</td>
<td>3. Clinical rotations/</td>
<td>end of training</td>
</tr>
<tr>
<td></td>
<td>Training program</td>
<td></td>
</tr>
<tr>
<td>Clinical affiliates:</td>
<td>4. Evaluation form</td>
<td>end of spring</td>
</tr>
<tr>
<td>Ed. Coordinator/ Lab. Manager</td>
<td>5. Site visit interview</td>
<td>fall &amp; spring</td>
</tr>
<tr>
<td>Lab. Manager</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rural rotation affiliates</td>
<td>6. Evaluation form</td>
<td>end of rotation</td>
</tr>
<tr>
<td>National exams</td>
<td>ASCP-BOC exams</td>
<td>after training completed</td>
</tr>
<tr>
<td>Employers</td>
<td>informal/formal survey</td>
<td>2013</td>
</tr>
<tr>
<td>Faculty</td>
<td>Retreat</td>
<td>fall</td>
</tr>
<tr>
<td>Advisory committee</td>
<td>meeting</td>
<td>fall or spring</td>
</tr>
<tr>
<td><strong>Instructor Evaluation:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Students</td>
<td>7. MMLS evaluation form</td>
<td>end of summer course</td>
</tr>
<tr>
<td>Students</td>
<td>8. MSU evaluation form</td>
<td>end of summer course</td>
</tr>
<tr>
<td>Peer evaluation by</td>
<td>Observations of</td>
<td>once during summer</td>
</tr>
<tr>
<td>Director or others</td>
<td>instruction &amp; activities</td>
<td></td>
</tr>
<tr>
<td>Self Evaluation</td>
<td>Reflections &amp; changes</td>
<td>end of summer course</td>
</tr>
<tr>
<td><strong>Student Evaluation:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MMLS faculty</td>
<td>Exams/ activities/</td>
<td>end of each course in</td>
</tr>
<tr>
<td></td>
<td>performance</td>
<td>summer, fall &amp; spring</td>
</tr>
<tr>
<td>Supervisor in each clinical</td>
<td>9. Performance &amp;</td>
<td>after each rotation</td>
</tr>
<tr>
<td>rotation supervisors</td>
<td>affective assessments</td>
<td></td>
</tr>
<tr>
<td>Rural rotation supervisors</td>
<td>10. Assessment form</td>
<td>after rural rotation</td>
</tr>
<tr>
<td>MMLS faculty</td>
<td>11. Site visits</td>
<td>fall and spring</td>
</tr>
<tr>
<td>Education Coordinator</td>
<td>12. Evaluation form</td>
<td>end of training</td>
</tr>
<tr>
<td>MMLS faculty</td>
<td>Final comp. exam</td>
<td>end of training</td>
</tr>
<tr>
<td>MMLS faculty</td>
<td>ASCP-BOC exam</td>
<td>end of training</td>
</tr>
</tbody>
</table>

The program has forms that were developed and used to obtain the preliminary information for improvement in the second year of the program and they have been used in subsequent years to determine if additional changes would be beneficial. The faculty has had five retreats that are conducted in the fall. At each retreat we have assessed the previous summer teaching cycle for curriculum content and changes; reviewed our admission criteria; reviewed academic policies and procedures; reviewed our fall and spring curriculum; and planned our goals and strategies for the upcoming year. Any relevant programmatic issues are discussed as well as program improvements based on what we learned from our assessments. We believe this retreat to be important for our program and it will continue every year.
As part of instructor evaluations, each of the faculty was observed during their didactic teaching and laboratory activities during the summer. The Director made observations of each instructor’s teaching methods and provided any positive feedback and helpful hints for improvement. Each faculty member also does a self evaluation at the end of their course to reflect on what worked and what needs improvement. At our third retreat each faculty member decided to try one new active learning strategy and determine its effectiveness. The students were asked about the strategy during their exit interview at the end of the summer and this information was shared with each faculty member during our subsequent retreat. Each faculty will either keep the strategy, improve on it or abandon it for another strategy. We will continue to develop these strategies in years to come.

An advisor meeting was held in the spring of 2011. The MMLS faculty and education coordinators from several clinical sites, members from the other allied health groups, lab managers, faculty advisors from each university, physician and a cooperate member reviewed our program progress and gave us advise about future program improvements. Site visits to the hospital affiliates are conducted by MMLS faculty twice a year to meet with the education coordinator and/or laboratory manager and students to assess student progress and potential problems. This is also an opportunity to listen to clinical supervisors and laboratory managers to learn about our program. As part of our continued evaluation of the program, a survey will be developed to help us learn what the employers, especially those who have our graduates for several years, think about our program and give us feedback for improvements. So far we have had only an informal survey of lab managers and all of them like our students and have hired them for continued employment in multiple types of positions.

Outcome Measures
Table 1 is a summary of the Board of Certification (BOC) results from four classes who have completed the program. This exam is a national exam that students must pass in order to become licensed as a professional MLS. People must be nationally certified to work in Montana.
labs and anywhere in the nation. We had 12 students in 2009 who passed this national certifying exam, 15 students who passed their BOC exam in 2010 and 14 out of 15 students who passed the BOC in 2011. The 15th person took an alternative registry exam and passed (American Medical Technology). In 2012 all 15 passed the BOC exam. The total overall mean score for each area of examination is 80 to 150 points higher than the passing mark for the exam which is 400. Table 1 shows our overall mean score for the program has increased each year of the program and is currently 548 or 30-40 points higher than the national mean scores. Table 1 also includes scores in each of the four years by discipline. The four disciplines of greatest interest are blood banking (immunohematology), chemistry, hematology and microbiology. Many of the disciplines have up and down results while clinical microbiology has had a slight downward trend but still higher than the national average. All disciplines show a significantly higher rate than the minimum score of 400 to pass the exam. This data overall reflects our commitment to improved quality instruction in our summer program and quality curriculum delivered electronically to our students while in their clinical rotations.

Figure 1 is a graph showing the MMLS training program as compared to the other University based programs and the national mean score. The four years of the program are illustrated. Data from Table 1 and the graph show that we have had a continuing increase in the total mean score of the program over that last four years. Total scores increased from 523 in 2009 to 548 in 2012, a 4.5% increase. When compared to other university based programs we have continually had a mean score of ~40 points greater than other university programs. The same results can be seen with national mean scores as our students on average score ~40 points higher than other students in the nation. We believe our recruitment of the best and brightest students from three universities in the state.

During the students last week of training and before they receive a certification of graduation from our program, we administer a comprehensive exam. It is a 200 point exam with
components from each of the disciplines and is modeled after the BOC (20% microbiology, 20% chemistry, etc). A passing score of 70% must be obtained. Over the past three years five students out of the 57 we have trained have failed certain sections of the exam. After one week they could retake the sections they failed and all five passed.

Review of Graduation and Placement Rates

Table 2 is a summary of the graduation and placement rates for students in the Montana Medical Laboratory Science Training Program. It includes students from the first four years of our program – 2008 to 2012. All students have graduated from one of the three universities who affiliate with the program – Montana State University, University of Montana and Montana state University – Billings. It also shows that all 57 of our students completed the training program after 12 months. 56 students took the Board of Certification exam (ASCP exam in 2009) and one student took the AMT exam. All 57 have passed their exams, although 5 had to take it twice. Montana has a licensure law and therefore, in order to work as an MLS in a clinical lab, students must secure a national certification through the BOC or AMT exam before they can be licensed to work in a clinical lab.

All students have obtained employment soon after they completed their exam. They are working throughout Montana in hospital labs and clinics. They were well sought after when their training was completed and many were employed in the lab where they trained. Some are working evening and night shifts as well. The students who sought employment out of state are working in many different states across the US. We have kept in contact with all but two students who have moved several times and all like their jobs and seem to be doing well as witnessed by conversations with their employers. After two years of working, two students are seeking a further education and plan on attending medical school. Our program has as its mission to educate students to work in all types of clinical facilities in Montana. Since we are a rural state, this means rural facilities which currently have an acute shortage of personnel. We have 10 of the 57 employed in rural communities in Montana. Another part of our program assessment will be to contact these students and their employers to provide us information about their training in our program.

The results from this analysis show that we are training our students well as we have excellent pass rates and employment rates of our students. We will always seek ways to improve but a 100% pass rate of the BOC or AMT exam and 100% employment indicates our training program has had success in its first three years of existence.

Table 2

<table>
<thead>
<tr>
<th>Year of Program</th>
<th>2008-2009</th>
<th>2009-2010</th>
<th>2010-2011</th>
<th>2011-2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class size</td>
<td>12</td>
<td>15</td>
<td>15</td>
<td>15</td>
</tr>
<tr>
<td>Number Graduating From University</td>
<td>12</td>
<td>15</td>
<td>15</td>
<td>15</td>
</tr>
<tr>
<td>Number Completing Program</td>
<td>12</td>
<td>15</td>
<td>15</td>
<td>15</td>
</tr>
<tr>
<td>Number Passing ASCP-BOC Exam or AMT exam</td>
<td>12</td>
<td>15</td>
<td>15</td>
<td>15</td>
</tr>
<tr>
<td>Placement – First Job</td>
<td>11 in state</td>
<td>12 in state</td>
<td>10 in state</td>
<td>13 in state</td>
</tr>
<tr>
<td></td>
<td>1 out of state</td>
<td>3 out of state</td>
<td>5 out of state</td>
<td>2 out of state</td>
</tr>
</tbody>
</table>
C. Modifications to Assessment Plan for AY 2013/1014:
As a result of these experiences the committee determined the following changes be made to the Department Assessment Plan:

1. A more detailed assessment form is needed in order to collect more meaningful assessment data and provide a finer degree of resolution of assessment of our Program.
2. Faculty conducting assessments need to be given more instruction and more information about the assignment they are assessing.
3. A larger number of student assessments need to be gathered to provide better data. This will be accomplished in part by using embedded course assessments. The Undergraduate Committee plans to work with individual faculty to help facilitate this process.

D. Assessment Plans for AY 2013-2013:

1. The Undergraduate Committee will complete analysis of the embedded assessments from BIOM 360 during the Fall Semester 2013.
2. Modifications to the Assessment forms will be done early in the Fall Semester (September) and these modified Assessment forms used for Courses scheduled for assessment in AY 2013/2014.
3. Assessments on the following courses will be collected:
   - General Microbiology (BIOM 360) – Fall & Spring Semesters (2nd year of assessment)
     Institution of yearly assessment of course
   - Microbial Physiology (BIOM 450) – Fall Semester (2nd Assessment of Course)
   - Seminar, Capstone (BIOM 494) – Fall & Spring Semesters (2nd year of assessment)
     Institution of yearly assessment of course
   - Educational Methods (BIOM 497) – Fall Semester (1st Assessment of Course)
   - Virology (BIOM 435) – Fall Semester (1st Assessment of Course)
MSU Departmental Assessment Update
Spring 2007
Industrial Engineering Program

Department: Mechanical and Industrial Engineering

Department Head: Dr. Chris Jenkins, P.E.

Assessment Coordinator: Dr. Joseph Stanislao, P.E.
Industrial Engineering Program Coordinator

Date:

Degrees/Majors/Options Offered by Department

Degrees:
BS in Industrial Engineering
MS in Industrial Engineering
BS in Mechanical Engineering
MS in Mechanical Engineering
BS in Mechanical Engineering Technology
Ph.D. in Industrial Engineering
Ph.D. in Mechanical Engineering
Ph.D. in Engineering Mechanics
Please note that this is a continuation of the report filed during summer 2006. The Industrial Engineering Program assessment activities scheduled and completed during the AY 06-07 included the following:

- Assessment Plan Review
- Departmental Industrial Advisory Board (IAB)
- College of Engineering EAC and Engineering 2020
- Curriculum Changes
- Common Writing Expectations
- WTI Partnership Opportunity
- Employer Survey
- Student Exit Interviews
- FE Exam
- Alumni Survey
- Capstone Project Review
- Course Reviews

These assessment activities are summarized on the following pages.

**Assessment Plan Review**

- Plan was reviewed at retreat. We decided that highest priorities for 06-07 would be the Alumni Survey and the Senior Capstone Projects. Other assessment activities would continue. We must remember that we are trying to prepare students for academic careers as well as industrial careers.
- Specific plans and assignments for AY 06-07 activities were made.
- Plan was implemented immediately.

**Departmental Industrial Advisory Board (IAB)**

IE Program faculty met with the IAB on 9/27—28/06. The IAB congratulated the Mechanical and Industrial Engineering Dept. for their increased budget for research and development, for receiving the Top Tier ranking as a Research Institution from Carnegie while maintaining the undergraduate focus, for our outreach to Native Americans, and for working with two-year colleges to facilitate students transferring to MSU for a four-year degree in engineering. Their recommendations were:

- Encourage internships. Allow participation in longer programs, e.g., 6 months rather than 3 months. This is being explored.
- Incorporate more lean design and manufacturing throughout the curriculum. This is being done.
• Incorporate more plant tours. (This has begun.)
• Implement 3P Approach in Capstone Projects. (This appeals to students going into industry.)
• Expose students to real-world ethics, such as export controls, cross cultural differences, etc. (This is incorporated into several of our classes: I&ME 300, 325, 425, 434 and other advanced classes.)
• Continue to develop and implement Multi-D programs. (Dr. Sobek continues to lead this.)
• Faculty should explore corporate fellowship programs.
• Continue to protect quality of undergraduate education. (This is always a priority in our program.)
• Continue strategic planning for pending faculty retirements. (This continues. The WTI Partnership is one step in this planning.)

College of Engineering EAC and Engineering 2020
The attributes of Engineering 2020 and recommendations for adapting engineering education were presented. The EAC focused on technical foundation, lifelong learning, multidisciplinary awareness, diversity and cultural sensitivity, innovation and creativity, business sense, people skills, and real-world problem solving. The EAC recommendations are:
1. Continue dedication to engineering fundamentals.
2. Continue integration of learning theory into MSU engineering instruction.
3. Make an effort to obtain funds for research in learning in the engineering environment.
4. Develop implementation plan for Multi-D and tackle at least one of the elements of the multi-disciplinary cross-curriculum plan.
5. Continue efforts to make alliances with foreign universities.
6. Make increasing number of students doing internships a priority.
7. Continue to recruit a diverse faculty.
8. Nurture creativity in students and in small group pedagogy. (This is a challenge since there is a requirement for a certain enrollment to offer a course, but small group pedagogy does help nurture creativity. We currently do this with small group help sessions and sharing sessions.)
9. Increase undergraduate research opportunities for students.
10. Talk with School of Business regarding engineering participation in their Center for Entrepreneurship.
11. Have more speakers from industry.
12. Incorporate more breadth into coursework and relate to broader issues.
The Industrial Engineering Program Objectives I, II, III, IV, V, VI, and VII address these recommendations. Our expected Outcomes 1, 2, 3, 4, and 5 also relate to these.

Their Recommendations for adapting Engineering Education are:
(a) In addition to producing engineers who have been taught the advances in core knowledge and are capable of defining and solving problems in the short term, institutions must teach students how to be lifelong learners.
(b) Introduce interdisciplinary learning in the undergraduate curriculum.
(c) Work with two-year engineering programs in Montana.
(d) Encourage domestic students to obtain the M.S. and/or Ph.D. degrees.
(e) Participate in efforts to improve public understanding of engineering and efforts to improve math, science, and engineering education at the K—12 level.
As stated above, the Industrial Engineering Objectives and Outcomes guide us toward fulfilling these recommendations. Many of these recommendations duplicate those of the departmental IAB.

**Curriculum Changes**
On 1/24/07, the IE Faculty decided on these changes for the 2008—2010 catalog.
- Change ME 115 to ME 117.
- Make ME 117 prerequisite to I&ME 313 for IE majors.
  - ME 117 is a co-requisite to ME 116.
- Make ME 116 prerequisite to I&ME 442.
- Remove ME 116 co-requisite from I&ME 271.
- With small graduate enrollments, limit number of graduate courses offered each semester and perhaps create a new focus area.
- 2/02/07 Dr. Ed Mooney revised IE flowsheet to agree with curriculum changes related to ME 117 replacing ME 115, and the prerequisite and corequisite changes concerning this.

**Common Writing Expectations**
On 11/30/06, in response to the Industrial Advisory Board’s feedback that some interviewed students said they were confused about what good technical writing is, we decided to work on a common writing expectations writing guide for the students to use. Dr. Ed Mooney shared an excellent white paper on formal technical writing, a checklist he uses for I&ME 422 reports, and a handout on proofreader’s marks. Dr. Cole gives students a style template to use in I&ME 442. Creative writing style is not what our students need for technical writing. Document what is good technical writing. What are the key technical writing competencies? How should we build these in students? We should require students to do more reading. How are we measuring writing outcomes? This maps with IE Objective II and expected Outcome 4.

**WTI Partnership Opportunity**
On 10/12/06, all of the IE Program Faculty agreed that we want to work with WTI and hire a person in the human factors area. WTI will commit their 80% funding level for a minimum of 3 years. The new hire will be evaluated at third year review. This new faculty hire will teach one or more undergraduate courses within the IE Program. The Search Committee will be chaired by an IE Faculty member other than the Dean with equal representation on the committee from the IE Program and from WTI. Dr. Durward Sobek is the Chair of the Search Committee. Other members of the Search Committee are:
- Dr. Michael Kelly (WTI)
- Mr. Pat McGowen (WTI)
- Dr. Joe Stanislao (IE)
- Ms Allison Westergard (IE Student)

The committee has worked very hard and four candidates will be making campus visits to MSU within the next few weeks.

May 1, 2007 Candidates made campus visits and interviewed for the position. Separately, the Search Committee and the IE faculty evaluated candidates and made recommendations to the department administration.
Employer Survey
On February 14, 2007, we were reminded that this is to be done every third fall, starting with F02. It should be done Fall 07. The Employer Survey, which was done via telephone, is being revised so that it can be sent out via the Web in a Survey Monkey format. This is a joint effort and should be ready by Fall 07.

Student Exit Interviews
The two procedures and tools developed and tested in the last two years are being used. Dr. Stanislao interviews students changing majors from IE to other programs. Dr. Schillings and Dr. Cole are using an oral non-threatening questionnaire to interview graduating seniors. Results of the Spring 07 exit interviews will be presented and discussed during Fall 07. Changes from student input in last year’s exit interviews have been incorporated into the respective classes.

FE Exam
On 11/02/06, Dr. Mike Cole reported scores and test score placement for MSU. IE graduates were analyzed for weak areas in student preparation. The MSU engineering students ranked higher than the national averages in most areas including computers, ethics, engineering economy, modeling/computation, industrial management, manufacturing/production systems, facilities/logistics, HF/methods, and quality. The area of engineering probability and statistics was only slightly below the national average (-0.01). This was only seen in the AM portion of the exam. The PM portion of the exam is specifically related to Industrial Engineering. Starting with Fall 05, the IE specific part of the exam was changed from the previous categories used for questions. This makes it difficult to compare these results to those of previous years.

In all instances, except Fall 06, related to topics covered, MSU averages were within one standard deviation of the national averages. Overall, MSU students ranked above national averages as is shown in the table entitled “FE Exam Data for MSU Students” below.

<table>
<thead>
<tr>
<th>Exam Date</th>
<th>Number Passed: IE Students</th>
<th>Number Failed: IE Students</th>
<th>MSU Pass Rate</th>
<th>National Pass Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spring 06</td>
<td>6</td>
<td>1</td>
<td>86%</td>
<td>70%</td>
</tr>
<tr>
<td>Fall 06</td>
<td>0</td>
<td>1</td>
<td>0%</td>
<td>73%</td>
</tr>
<tr>
<td>Spring 07</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Alumni Survey
9/07/06 Dr. Gary Chen presented summary of Alumni Survey results from Spring 05. There was good support for Objective I in that 85% were employed in IE or management jobs. Professional society membership of 35% was better than the nationwide scores of 10%. Gary will revise survey questions for administering via Survey Monkey over the Internet. A question will be included asking alumni about internship opportunities for current students.
12/07/06  Dr. Chen distributed draft of new survey and asked for input feedback by 1/15/07. Survey will be put in Survey Monkey format and sent out during Spring Semester 07.

02/01/07  Gary distributed updated IE Alumni Survey for approval before changing it to Survey Monkey format. The survey will be sent out as soon as changed to this format.

02/14/07  Alumni Survey, 2nd Draft, was discussed and reviewed. Gary will work with Carol Anderson and Carolyn Plumm to have survey on-line via Survey Monkey in March/April. Survey population is Alumni from 1995—2004. Someone will e-mail alumni to ask them to participate. Paul will encourage reluctant alums. All responses should be in by April 30, 07. Dr. Chen will analyze and summarize results with help as needed/desired. Results will be presented at fall retreat.

**Capstone Project Review**

9/21/06  In keeping with the plan proposed last year to have a three-pronged review of the projects looking at sponsor satisfaction, faculty review of last year’s reports, and IAB review of some reports from last year, Dr. Mike Cole sent copies of a few capstone projects, clean copies of his evaluation sheet, and a set of instructions used for the IAB via Terry. The IAB was asked to evaluate reports for quality of engineering work and written communication.

10/26/06  Dr. Cole presented one-page summary reviews of each of the Spring 06 Senior Design Capstone projects for faculty review.

Strengths: There was a wide variety of projects, some “brought in” by students.

Weaknesses: (1) Some reports did not do a good job synthesizing I&ME courses.

(2) Grammar and style were often weak.

Dr. Cole’s plans for improving I&ME 444:

1. “Coach” the students more (per IAB comments).
2. Develop an “IE technical content” checklist for student use.
3. Revise grading sheet and distribute it to students early in the semester.
4. Require students to give more frequent technical presentations to class.
5. Ensure that students justify their use or non-use of the IE toolbox (time study, BOM, ergonomics, etc.) per comment by IAB.
6. For projects with at least two very strong students, apply less bureaucratic oversight and more “coaching.”

Dr. Chen plans to require better reporting of project management, e.g., “who did what.”

In an effort to improve students’ writing skills, the faculty is working on an “IE Technical Content Guide” for students. This was described above.

**Course Reviews**

During Fall 06 and Spring 07, the following courses were reviewed:

I&ME 454  “Engineering Probability and Statistics II” presented by Dr. Paul Schillings
I&ME 444R  “Senior Design Project” presented by Dr. Mike Cole
I&ME 313  “Work Design & Analysis” presented by Dr. Durward Sobek
I&ME 471  “Computer Integrated Manufacturing” presented by Dr. Gary Chen
I&ME 364  “Principles of Operations Research I” by Dr. Schillings and Dr. Mooney
I&ME 422 “Introduction to Simulation” by Dr. Ed Mooney. Scheduled for 3/28/07.

1. **I&ME 454 “Engineering Probability and Statistics II”** 10/19/06
   Dr. Schillings presented this course review. Dr. Paul Schillings prepared and distributed four handouts related to syllabus, course review, exam preparation, course activities, and teams and term projects. Paul is incorporating some calculator training in I&ME 354 lab to help students who do not know how to use their calculators. He observes that students do not want to read to learn; they want the instructor to explain. This course is more application oriented and focuses problems on engineering applications and has fewer proofs than the statistics courses from the Math Department. Many graduate students need to take 454 before I&ME 554, “Application & Design of Industrial Experiments.” Dr. Schillings and Dr. Mooney have worked together to improve the sequencing of information and methods covered in I&ME 264, 364, and 454 so that students can transfer knowledge more easily from one course to the other. Suggestion for improving course was to post class handouts on the web.

2. **I&ME 444R “Senior Design Project”**
   **I&ME 445R “Independent I&ME Senior Design”** 10/26/06
   Projects were presented by Dr. Mike Cole and covered a wide variety of industrial engineering applications. Dr. Cole reported that some student reports did not do a good job of synthesizing I&ME courses and that grammar and style were often weak. Other faculty members who had supervised some of these senior design projects assisted in the discussion. Plans for improving were to:
   a. “Coach” the students more.
   b. Develop an “IE Technical Content” checklist or paper for student use.
   c. Revise grading sheet and distribute it early in the term.
   d. Require students to give more frequent technical presentations to class.
   It is important that the faculty be consistent in writing requirements.

3. **I&ME 313 “Work Design and Analysis”** 11/16/06
   This course review was presented by Dr. Durward Sobek who passed out a packet of materials related to the course. He reviewed the role of I&ME 313 in meeting IE Program outcomes. The course has a strong technical writing emphasis. Lab structure requires “field work” and two formal reports and meets every other week. Tools/concepts are demonstrated via hands-on activities in lab. Rewrites of lab reports are incorporated. The same textbook by Groover will be used in I&ME 142 and 313. I&ME 313 will have greater emphasis on ergonomics and work measurement, since 142 covers much of the process charting and diagramming that were covered in 313 (before 142 was). Suggestions to improve I&ME 313 were to:
   a. Require explanations on T/F questions on exams and other written assignments.
   b. Require students to summarize their improvements/changes on lab report rewrites.
4. **I&ME 471 “Computer Integrated Manufacturing”** 02/07/07

Dr. Gary Chen explained the syllabus and the course review he had sent to the IE Faculty via e-mail and additional course material passed out at the meeting. Additional material included sample graded lab reports, sample graded “literature review” reports, and the 2006 final exam. ME 255 and I&ME 471 differ in that students in ME 255 use CAD output, while students in I&ME 471 create CAD/CAM output. ME 255’s coverage of nontraditional manufacturing may be a place to build an interface between the two courses. I&ME 471 has different prerequisites for different majors: IE students must have completed I&ME 271 while ME/MET students must have completed ME 255. The purpose of I&ME 471 course is to introduce students to modern manufacturing systems with a focus on use of computers for integrating various functions and resources in manufacturing automation. Units covered or introduced are CIM, CAD, CAPP, CAM, and CE. Students write five lab reports as a team. The goal for student lab reports is to effectively communicate the process of designing and manufacturing a part. Objectives and program outcomes were added. This course addresses Outcomes 1, 2, 4, and 5. The course is a professional elective for IE majors.

5. **I&ME 364 “Principles of Operations Research I”** 03/07/07

This course review was presented by Dr. Paul Schillings and Dr. Ed Mooney. Paul distributed a packet of pre-2006 I&ME 364 materials, which provided a historical view of the pre-I&ME 264 era. Ed distributed a packet of information on I&ME 264, a new course which pre-requisites into I&ME 364. I&ME 264 covers some of the topics previously discussed only in 364. I&ME 264 and 364 use the same textbook (currently Winston). Both courses are required courses and provide breadth (and increasing depth in 364). Still more depth is provided in the elective course, I&ME 464. Ed distributed copies of material from the 364 website, including the syllabus and a sample exam. He noted that almost every student is now following the 264—364 sequence. Related to optimization software, Ed has the students use Lingo. He said they gain some exposure to C++ and MySQL. Students are not required to do a project in 364.

6. **I&ME 422 “Introduction to Simulation”** 03/28/07

Dr. Ed Mooney provided and discussed a packet comprised of the following:
1. web site live demo, 1 syllabus, Exams 1 and 2 from Fall 2006, and an example of a student final report. Ed said that 2 weeks is the usual lead-time allowed for homework assignments and that the concurrent lectures, labs, and web info reinforce homework assignments. He also stated that homework complexity and grading strictness (including technical writing requirements) increase as the semester progresses. Ed noted that I&ME students are better prepared for the modeling component than the programming component, but that CS students were oppositely prepared. Ed said that I&ME students who have taken I&ME 264 are better prepared than those under the old curriculum. In general, he emphasizes to students that modeling, programming, and writing are incremental in nature; students should not expect to create a final perfect answer the first
time they attack a problem. Ed clarified the IE usage of the terms: stochastic, deterministic, dynamic, and static. When asked whether C++ and the SIMPL library are required and whether Arena is an option, Ed replied that C++ is required, and that Arena is not an option. He stated that requiring C++ ensures the students gain a solid foundation in simulation. Ed said that he might include some coverage of Arena in the future but that a course built around Arena would not satisfy either I&ME or CS requirements. Mike mentioned that Arena might be a valuable addition to I&ME 442. When asked whether simulation had to be taught using C++, Ed said no, but to model more complex “real world” problems, knowledge of C++ is often very useful to augment the simulation software’s programmed functions. Ed discussed the SIMPL object model to illustrate how general purpose it is. Mike asked whether I&ME 442 should pre-requisite into I&ME 444. Ed and Durward replied that doing so would make the I&ME program too inflexible. Durward noted that it is a challenge to teach both a high-level systems view (modeling) and a low-level detailed view (C++ program implementation) in one course.

7. I&ME 434 “Project and Engineering Management” 04/25/07
Dr. Joe Stanislao presented a review of I&ME 434. The presentation included the following exhibits: syllabus (Fall 2006), case problems 1—4, syllabus additions (2007), ABET Course Review, sample exams, and course textbook and related textbooks. Joe stated that he has taught I&ME 434 for 10+ years. At the beginning and end of the semester, he reads the course objectives (from syllabus) to the class and asks whether the objectives have been met during the semester. Student input and suggestions are encouraged and noted for future planning. Early in the semester, Joe emphasizes to the students that I&ME 434 is a prerequisite to I&ME 444 (Senior Design Project) and that they will use project management in I&ME 444. Joe said that I&ME 434 has three components or phases:
   a. Information on managing a project (qualitative, conceptual)
   b. Relevant tools and techniques (quantitative)
   c. Information and economic analysis on implementing a plan
Joe stated that students earn the lowest grade on the qualitative phase, although he has tried many different ways to teach that material. Joe discussed the four case problems and explained that he gets cases from the Harvard website and from various textbooks and other publications. Case problems are changed each year. When he first taught the course, he included a required project, but recently decided that the case problems are more efficient related to students’ time and more effective in teaching principles. Joe discussed the textbook—Badiru & Pulat—used in I&ME 434. This is the only textbook he has found that presents project management from a quantitative, engineering perspective. Several competing texts are aimed at business students. Many are written around a specific software package. Joe prefers to teach the project management fundamentals rather than how to use a particular software package. The second phase of 434 covers quantitative project management tools such as PERT, CPM, scheduling algorithms, etc. He said that students do well in this part of the course. The third phase of the course includes economic analysis, such as amortization. Joe discussed the “Syllabus Additions (2007)” handout, which should help the course meet university and
other requirements. In the faculty discussion following the presentation, Joe noted that Civil Engineering students used to take I&ME 434 but they now take a CET course, which would not meet the needs of I&ME students. Mike noted some challenges encountered by students in I&ME 444: defining a scope, list of tasks, and precedence relationships.

Recommendations of IE Faculty:
(1) Cover Work Breakdown Structures and Analysis more extensively.
(2) Give students more written feedback on their case study reports.
(3) Mike (instructor of I&ME 444) will meet with Joe to ensure continuity between I&ME 434 and 444.
The Mechanical Engineering Technology Program assessment activities scheduled during the AY 06 – 07 included the following:

- M&IE Department Industrial Advisory Board (IAB) meeting
- College of Engineering (COE) Industrial Advisory Board (IAB) meeting
- Alumni Surveys
- Employer Surveys
- Student Interviews
- FE Exam
- Faculty Discussions
- Placement
- Capstone Review
- ABET Reviews

What follows is a brief summary of those activities.

**Assessment Tool: M&IE Department Industrial Advisory Board (IAB)**

<table>
<thead>
<tr>
<th>Dates</th>
<th>Data Collection Method</th>
<th>Implementation Responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>9/28/06</td>
<td>Scheduled Meetings and Meeting Summary Notes</td>
<td>MET Faculty</td>
</tr>
</tbody>
</table>

MET faculty met with the IAB in September of 2006 and faculty members presented a MET AY 2005/2006 summary report. The purpose of this meeting was to share information and to discuss issues within the MET program. Information shared and subsequent discussion resulted in the following approvals and recommendations.

- The IAB members approved the MET outcomes and objectives as presented.
- The IAB members approved the MET CI plan as presented.
- The IAB members agreed to support the MET curriculum plan through:
  - Hosting faculty members in industry
  - Providing industry case – study material
  - Developing mentors for students
  - Providing lab development support

Results will be reviewed and discussed at the Fall 2007 faculty retreat.

**Assessment Tool: College of Engineering (COE) Industrial Advisory Board (IAB)**

<table>
<thead>
<tr>
<th>Dates</th>
<th>Data Collection Method</th>
<th>Implementation Responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>April 2007</td>
<td>Scheduled Meetings and Meeting Summary Notes</td>
<td>MET Faculty</td>
</tr>
</tbody>
</table>

The COE IAB met in April of 2007. Discussion did not directly relate to the MET program, and thus did not result in any input.
The minutes from this meeting will be reviewed by faculty in the Fall 2007 faculty retreat.

**Assessment Tool: Alumni Surveys**

<table>
<thead>
<tr>
<th>Dates</th>
<th>Data Collection Method</th>
<th>Implementation Responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>April 2006</td>
<td>Internet-based Survey Tool</td>
<td>MET Faculty</td>
</tr>
<tr>
<td></td>
<td>(Survey Monkey)</td>
<td></td>
</tr>
</tbody>
</table>

Alumni Survey data was reviewed and results assessed. This data directly contributed to decisions made regarding curriculum revision, and degree that the program is meeting stated objectives. Results can be reviewed in the alumni survey notebook in the MET Program Coordinators office.

**Assessment Tool: Employer Surveys**

<table>
<thead>
<tr>
<th>Dates</th>
<th>Data Collection Method</th>
<th>Implementation Responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>July 2007</td>
<td>Internet-based Survey Tool</td>
<td>MET Faculty</td>
</tr>
<tr>
<td></td>
<td>(Survey Monkey)</td>
<td></td>
</tr>
</tbody>
</table>

Employer surveys were rescheduled to summer 2007. Data will be collected and reviewed during fall semester of 2007.

**Assessment Tool: Student Interviews**

<table>
<thead>
<tr>
<th>Dates</th>
<th>Data Collection Method</th>
<th>Implementation Responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spring 2007</td>
<td>Discussions with students</td>
<td>MET Faculty</td>
</tr>
</tbody>
</table>

Every year the MET faculty survey senior students completing the senior capstone course and junior students completing their machine design course in MET. They are asked to provide input utilized to assess the MET outcomes, objectives, and the capstone experience. In addition, they are given an opportunity to provide input on the MET program in general. The comments are collected and reviewed by faculty members at the annual retreat in August, where the input is evaluated. Input from Spring of 2006 contributed to all curriculum and course changes made during this year. Especially notable was implementation of “mini design / build” projects in the MET 456 course. These projects were designed to mimic real-world product development projects, and required design, build, and inspection of a flashlight. What made this unique and much more beneficial, was the fact that each group was responsible for the following:

1. Design of a flashlight
2. Review of a second groups flashlight design
3. Build of third groups flashlight design
4. Inspection of a fourth groups flashlight design
5. Availability to answer questions on their own design.

Benefits included improvements in design and project resolution, as well as communication ability of each individual involved.

Results from Spring 2007 will be reviewed and discussed at the Fall 2007 faculty retreat.
Assessment Tool: FE Exam

<table>
<thead>
<tr>
<th>Dates</th>
<th>Data Collection Method</th>
<th>Implementation Responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall 2005</td>
<td>National Results Summary</td>
<td>MET Faculty</td>
</tr>
<tr>
<td>Spring 2006</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The MET students are required to sit for the Fundamentals of Engineering (FE) exam during their senior year. Although this is not a test designed for a MET student, it does provide an indication of how well the students actually meet the outcomes of the program. The MET faculty has set a pass rate of 75% as a goal. Results for the Fall 2005 and Spring 2006 exams have been extremely difficult to obtain from the state exam board. The data that has been obtained shows an extremely low pass rate. Based on this data, the MET faculty recommends that all students take the general (vs. mechanical) exam and to pay extremely close attention when marking discipline on the test. Hopefully, better data will be available in the future. The MET faculty will continue to assess results as they become available.

Assessment Tool: Faculty Discussions

<table>
<thead>
<tr>
<th>Dates</th>
<th>Data Collection Method</th>
<th>Implementation Responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>As required</td>
<td>Meeting minutes</td>
<td>MET Faculty</td>
</tr>
<tr>
<td>throughout</td>
<td>Action Item Assignments</td>
<td></td>
</tr>
<tr>
<td>AY</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Mechanical engineering technology faculty met 26 times throughout the 2006 – 2007 academic year to discuss current issues within the program, as well as to provide status of action items in work. Specific decisions and actions are documented in the Faculty Meeting Notebook. This notebook resides in the MET Program Coordinators office (203 Roberts Hall).

Assessment Tool: Placement

<table>
<thead>
<tr>
<th>Dates</th>
<th>Data Collection Method</th>
<th>Implementation Responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spring 2007</td>
<td>Student Employment Info.</td>
<td>MET Faculty</td>
</tr>
<tr>
<td>Fall 2006</td>
<td>Annual Career Fair</td>
<td></td>
</tr>
</tbody>
</table>

Students are asked to voluntarily supply employment information upon acceptance of a position. If they have not accepted a position prior to graduation, they are encouraged to supply that information to the department in the future. Also, faculty members are continuously investigating opportunities for students through industry contacts as well as through the annual career fairs at MSU. The data collected provides guidance on the most available opportunities for our graduates and potentially provides direction to the faculty when making curricular decisions. The table below provides summary data related to placement.

<table>
<thead>
<tr>
<th>Year</th>
<th>Placement %</th>
<th>Average Salary</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006/2007</td>
<td>88</td>
<td>$51,500 / yr.</td>
</tr>
</tbody>
</table>

Results will be reviewed and discussed at the Fall 2007 faculty retreat.
**Assessment Tool: Capstone Review**

<table>
<thead>
<tr>
<th>Dates</th>
<th>Data Collection Method</th>
<th>Implementation Responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall 2006</td>
<td>Presentation Evaluation Survey</td>
<td>MET Faculty</td>
</tr>
<tr>
<td>Spring 2007</td>
<td>Project Review Surveys</td>
<td></td>
</tr>
</tbody>
</table>

MET students give formal capstone presentations at the end of the Fall semester to present their final designs. These presentations are attended by faculty, students, and project sponsors. All presentations are evaluated and the data is collected for review by the course instructor as well as the MET faculty. Results are discussed in the MET faculty meetings and support the curriculum review committee when assessing changes. Also, the results of this assessment tool have contributed to better communication of roles and responsibilities of faculty advisors and student team members. Results will be reviewed and discussed at the Fall 2007 faculty retreat.

**Assessment Tool: ABET Reviews**

<table>
<thead>
<tr>
<th>Dates</th>
<th>Data Collection Method</th>
<th>Implementation Responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>As required</td>
<td>Official Notice from ABET</td>
<td>MET Faculty</td>
</tr>
</tbody>
</table>

To maintain currency, the MET faculty curriculum committee annually reviews the applicable ABET criteria related to the program. No specific changes have resulted from direct ABET input during this assessment period.

**Additional Programmatic Items Requiring Assessment and Review**

<table>
<thead>
<tr>
<th>Item</th>
<th>Reviewed by</th>
<th>Review Date</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Educational Objectives</td>
<td>Faculty</td>
<td>Summer 06</td>
<td>Objectives approved as written. No changes recommended.</td>
</tr>
<tr>
<td></td>
<td>Students</td>
<td>Spring 06</td>
<td></td>
</tr>
<tr>
<td></td>
<td>IAB</td>
<td>Fall 06</td>
<td></td>
</tr>
<tr>
<td>Educational Outcomes</td>
<td>Faculty</td>
<td>Summer 06</td>
<td>Outcomes approved as written. No changes recommended.</td>
</tr>
<tr>
<td></td>
<td>Students</td>
<td>Spring 06</td>
<td></td>
</tr>
<tr>
<td></td>
<td>IAB</td>
<td>Fall 06</td>
<td></td>
</tr>
<tr>
<td>MET Facilities Review</td>
<td>Faculty</td>
<td>Summer 06</td>
<td>Meets expectations. Will continue to review and monitor.</td>
</tr>
<tr>
<td></td>
<td>IAB</td>
<td>Fall 06</td>
<td></td>
</tr>
<tr>
<td>Curriculum Review</td>
<td>Faculty</td>
<td>AY 2006/2007</td>
<td>Changes recommended and incorporated into 2006-2008 catalog. Revisions for 2008-2010 catalog are currently being developed and implemented</td>
</tr>
<tr>
<td>MET CI Plan Review</td>
<td>Faculty</td>
<td>Summer 06</td>
<td>Minor updates recommended and incorporated.</td>
</tr>
<tr>
<td>MET Faculty Development Plans</td>
<td>Faculty</td>
<td>Summer 06</td>
<td>Meets expectations. Faculty will continue to review and update as required.</td>
</tr>
</tbody>
</table>
Assessment Documentation

In support of this yearly assessment activity, the MET faculty group has established and maintains a set of Assessment and Informational Notebooks. The analysis, feedback, and any subsequent changes made to the MET program are summarized in these program assessment notebooks. These notebooks are updated yearly and reside in the MET Program Coordinators office (Roberts Hall 203).

AY 2006/2007 Accomplishments

- The M&IE Industrial Advisory Board approved the MET outcomes and objectives as presented.
- The M&IE Industrial Advisory Board approved the MET Continuous Improvement Plan as presented.
- The MET program hired a new tenure track faculty member, thus bolstering long-term viability of the program.
- The MET program completed assessment of the MET Alumni Survey data.
- A MET employer survey tool was developed and will be implemented Fall 2007.
- The MET capstone course professor communicated clear capstone course expectation for MET capstone students and faculty supervisors, thus improving communication to all involved parties.
- The MET faculty implemented phase I of the MET curriculum revision:
  - Taught MET 119 – MET Graphical Communication
  - Reduced MET 325 – Heat Transfer from 4 cr. To 3 cr.
  - Removed ME 117 and ME 118 from the program
  - Restructured MET 315 – Welding course
  - Restructured ME 324 to be more relevant to MET program and be taught by an MET professor
- Maintained interdisciplinary MET/ME senior capstone projects where appropriate
- Implemented “mini design / build projects” in MET 456
- Implemented a “rube Goldberg” design competition in MET 104 / 401
- The MET faculty established implementation plans for Phase II of the MET curriculum revision:
  - Delete Math 160 requirement from program
  - Reduce MET 119 from 3 cr. to 2 cr.
  - Reduce MET 201 from 2 cr. to 1 cr.
  - Add MET 211 – Graphics for Design
  - Revise MET 417 and rename to MET 420
  - Delete MET 455 and replace with MET 466
  - Add lab component to ME 448
  - Offer MET 460 - Advanced Measurements and Instrumentation
- The MET faculty Modified / Updated the MET Professional Electives Policy.
- The MET faculty updated the equivalencies / transfer policy
- The MET students and faculty advisors participated in professional societies (ASME, SAE, ASHRAE) and professional society competitions:
  - ASME North American Pacific District Student Professional Development Conference at University of Idaho (April 2007)
    - 1st Place - Micro-Baha Car Competition
- 2nd Place - National Design Competition
- 1st Place Ingersoll Rand Competition
- 1st Place – Student Kilometer Award
  - ASHRAE Student HVAC Design Competition – Montana Section
    - 12 MET students participated
  - ASME Human Powered Vehicle Competition at San Jose State University
    - 5th place out of 24 teams
  - SAE Mini-Baha Competition
- The MET faculty updated MET Faculty Development Plans.

In addition, a “Faculty Meetings Notebook” is maintained to summarize all faculty meeting business and can be reviewed in the MET Program Coordinators office.
Department: Mechanical & Industrial Engineering

Department Head: Chris H. Jenkins

Assessment Coordinator: Ruhul Amin (ME), Kevin Cook (MET), Joe Stanislao (IE)

Date: Spring 2008

Degrees/Majors/Options Offered by Department
B.S. Industrial Engineering
B.S. Mechanical Engineering
B.S. Mechanical Engineering Technology
Industrial Engineering Program Assessment Plan Update AY 07-08

The subsequent pages represent a summary document of assessments made during the last year from April 2007 through April 2008. These document the “check” and “act” of our assessment strategy. This summary is presented as an MS WORD document as requested. A more detailed EXCEL spreadsheet includes more chronological information.

The data are presented in the following order:
- Department IAB Program Review
- Alumni Survey
- Employer Survey
- Student Exit Interviews
- FE Exam
- Placement
- Capstone Project Review
- Multidisciplinary Courses and Awareness
- IE Review Team Visit
- Course Reviews
- Other

Department IAB Program Review
Faculty of the M&IE Department met with the Industrial Advisory Board on October 4-5, 2007. During and following these meetings the IAB complimented achievements by the faculty. Among these commendations were the following:

1. Congratulations on receiving Top Tech ranking as a Research Institution while maintaining a strong undergraduate focus.

2. Kudos for contributing to the budget with R&D funding.

3. Congrats to Doug Cairn on receiving the Lysle Woods $500,000 Professorship bequest, which he is using to develop an Aerospace minor + research from UAV.

4. Kudos to the IE faculty for maintaining undergraduate course offerings with 3 professors short.

5. Congratulations on the continued high passing rate on the FE exam that exceeds national average.

6. Kudos on your outreach to women.
Recommendations made by the IAB:

1. Continue to participate in internship programs. Continue encouraging undergraduate internships including tours and study missions to employers.

2. Immediately open the search to backfill skills and expertise lost with Schillings and Chen. What is the timeline for backfilling the ABET required skills into the IE Program?

3. Understand what factors contribute to increased enrollment in MET and decreased enrollment in ME and IE.

4. Understand what factors contribute to the decline in graduate student enrollment.

5. Encourage faculty to explore corporate fellowship and study missions and exposure to industry.

6. Continue efforts on Multi-D.

7. Make sure Dept. funds based on”credit hours” are allocated to the proper discipline specific faculty team.

8. Continue to improve labs and equipment. Review equipment list with IAB.

9. Notify IAB after COE creates a priorities list as part of larger capital campaign efforts.

10. Continue Outreach efforts. Increase recruiting at MT high schools.

11. Require IE Senior Design Projects to be presented at the Design Fair.

12. Continue outreach to Native Americans.

13. Do not delete from curriculums the basic fundamental engineering courses, such as Engineering Economy, needed for graduates to function and be successful in industry.

14. Change the focus in I&ME 422 to the craft and art of simulation rather than a programming language like C++.

15. Continue giving students exposure to Ethics.

16. Investigate the possibility of allowing IEs to take ME 256 or 257 (lab for ME 255) as an elective.

The faculty in the department has used these recommendations to continue quality improvement in the various programs.
Alumni Survey
The Alumni Survey questionnaire was revised and tested by the IE Faculty under the leadership of Dr. Gary Chen. This survey had been conducted via telephone previously. With the assistance of Dr. Carolyn Plumb the survey was converted to Survey Monkey format and was sent out during Spring Semester 2007. The results were analyzed and reported by Dr. Chen during the summer before his departure in August 07. Overall, results indicated that alumni were pleased with their industrial engineering education at MSU. One respondent expressed regrets that he had not had more process engineering experience before graduation. Some responded that on-the-job work had helped them to appreciate some of the courses they had not expected to use once they were graduated. This probably indicates maturity.

Employer Survey
The survey questionnaire for employers of our alums was developed, revised, tested on faculty, and then converted to Survey Monkey by Dr. Joe Stanislao with the assistance of Dr. Plumb. The survey was sent out via the Internet to 26 employers of IE graduates. Some of these employers had hired more than one of our graduates. The response rate on the survey was better than 55%. When employers compared our graduates to those from other schools, our graduates advanced as quickly or more quickly, wrote and spoke as well or better, performed as well or better on teams, were as able to view problems from multiple points of view, managed relations with other employees as well or better, and were able to handle ethical issues successfully on their own. Our graduates technical expertise and ability to make effective management decisions are on a par or better than their peers. Nearly 70% of the respondents noted that MSU IE graduates had saved money for their company. Most IE graduates are involved in professional development at some level, and large proportions are involved in community service. The four most frequently mentioned strengths were Lean Management, Manufacturing, Engineering Data Analysis, Engineering Communication, and Honesty. Employers offered suggestions for improvement, including more project management training and considerations of the global economy.

Student Exit Interviews
Exit interviews were conducted during the Fall 07 and Spring 08. Student suggestions for improving the program were evaluated and implemented where feasible.

FE Exam
The MSU students continue to rank higher than the national average on the FE Exam. The results for this past year are listed below. During the Fall 07 AM Subject part of the exam, our students ranked lowest in Strength of Materials. In the PM part (IE part) of the exam our students ranked lowest in Facilities and Logistics.
<table>
<thead>
<tr>
<th>Date</th>
<th>Number of MSU IE Students Taking Exam</th>
<th>Number of MSU IE Students Passing Exam</th>
<th>Number of MSU IE Students Failing Exam</th>
<th>Pass Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spring 2007</td>
<td>11</td>
<td>9</td>
<td>2</td>
<td>82%</td>
</tr>
<tr>
<td>Fall 2007</td>
<td>4</td>
<td>4</td>
<td>0</td>
<td>100%</td>
</tr>
<tr>
<td>Spring 2008</td>
<td></td>
<td></td>
<td></td>
<td>93%</td>
</tr>
</tbody>
</table>

**Placement**
There were not enough IE graduates to fill the demand at the end of the Spring 2008 semester. All graduates who wanted employment were placed.

**Capstone Project Review**
Dr. Mike Cole and Dr. Durward Sobek worked jointly on this.

**Multidisciplinary Courses and Awareness**
Durward Sobek spearheaded development of the pilot design course, ENGR 310. Dr. Sobek has worked tirelessly to direct and develop the Multi-D program. He developed one excellent course which is offered as an ENGR course available to any students who have interest and the prerequisite college experience and is now trying to continue developing additional courses.

**IE Review Team Visit**
During the past two years the IE Program faculty, the M&IE Dept. Head, and the Dean have worked very hard to develop the charge for the External Review Team (ERT), make plans for the visit, gather all of the program data requested, plan the itinerary for the visit, host the team, respond to their evaluation, write an acceptable strategic plan, and continue with all of their other responsibilities.

**Course Reviews**
We continued the review of our courses and applied our Plan-Do-Check-Act system. The courses reviewed were:

<table>
<thead>
<tr>
<th>Date:</th>
<th>Course:</th>
<th>Presenter:</th>
</tr>
</thead>
<tbody>
<tr>
<td>3/28/2007</td>
<td>I&amp;ME 422 “Introduction to Simulation”</td>
<td>Dr. Ed Mooney</td>
</tr>
<tr>
<td>3/25/2007</td>
<td>I&amp;ME 434 “Project and Engineering Management”</td>
<td>Dr. Joe Stanislao</td>
</tr>
<tr>
<td>1/23/2008</td>
<td>I&amp;ME 373 “Production Inventory Cost Analysis”</td>
<td>Dr. Dan Hammond</td>
</tr>
<tr>
<td>2/6/2008</td>
<td>I&amp;ME 425 “Entrepreneurship and Economic Feasibility”</td>
<td>Dr. Joe Stanislao</td>
</tr>
<tr>
<td>2/13/2008</td>
<td>I&amp;ME 271 “Microcomputers in Industry”</td>
<td>Dr. Durward Sobek</td>
</tr>
<tr>
<td>2/27/2008</td>
<td>I&amp;ME 413 “Ergonomics &amp; Safety I”</td>
<td>Dr. Frank Marchak</td>
</tr>
</tbody>
</table>
Other
Staffing Events composed a major part of the other activities during the 07-08 academic year.

- The Search Committee for the WTI-IE hire completed interviews and candidate visits. Two people with joint appointments were hired to work in WTI and M&IE with approximately 20% of their time devoted to the IE Program. One began January 2008, and the other came starting Fall Semester 2008.

- The Search Committee for visiting professors to help teach some of the required courses taught by Dr. Schillings, Dr. Chen, and Dr. Cole was very busy during the spring and summer 2008. One visiting professor, Dr. Jaewoo Chung has been hired.

Respectfully submitted,
Dr. Joseph Stanislao, P.E., Coordinator of Industrial Engineering Program
The Mechanical Engineering Program assessment activities scheduled during the AY 07-08 included the following:

- Dept IAB Input
- College EAC Input
- Student Interviews
- FE Exam
- Placement
- Course Reviews

What follows is a brief summary of those activities.

**Department Industrial Advisory Board Input**

The M&IE Industrial Advisory Board met in October 2007. Several comments from the IAB with specific relevance to the ME program included:

- Good M&IE Dept. overall strategic view
- Congratulations for MSU’s Carnegie 1 status
- Congratulations for Lysle Wood Professorship
- Progress made on IAB recommendations
- Pleased to see continued course review, student and alumni surveys
- Continue efforts for on Multi-D course like ENGR 310
- Congratulations for high placement in the SAE and HPV contests
- Understand the reason of ME enrollment decrease in undergraduate and graduate programs
- Consider using SAE Formula car as a recruiting tool
- Concerned about deleting engineering economy from the ME curriculum.
- ME 315 needs to be investigated to meet student needs

A complete summary of IAB input may be found in the ME assessment notebook. Results were be discussed and reviewed at the Fall 2008 retreat.

**College Engineering Advisory Council Input**

None to report

**Student Interviews**

During the last two weeks of the Spring 2008 semester, a total of 25 graduating seniors were interviewed in ten groups by either Ruhul Amin, Ahsan Mian, or Chris Jenkins. A set of questionnaire developed in consultation with the ME Faculty were used. The
questions were designed to map the seven ME Educational Outcomes. There were additional questions to gather information in some other areas. Results were reviewed and discussed at the Fall 2008 retreat. A complete summary of student interview may be found in the ME assessment notebook.

**FE Exams**

FE exams were taken in Fall 2007 and Spring 2008. The largest number of ME students took the “general topics” portion of the exam. In that category, the results are as follows:

<table>
<thead>
<tr>
<th>Exam Date</th>
<th>Number Passed</th>
<th>Number Failed</th>
<th>Pass Rate</th>
<th>National Pass Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall 2007</td>
<td>23</td>
<td>3</td>
<td>88 %</td>
<td>78 %</td>
</tr>
<tr>
<td>Spring 2008</td>
<td>28</td>
<td>10</td>
<td>74 %</td>
<td>83 %</td>
</tr>
</tbody>
</table>

A total of 10 students took the discipline specific part of the FE exam in Fall 2007 and Spring 2008 with a passing rate of 100%. Results were reviewed and discussed at the Fall 2008 retreat.

**Placement**

During 2007-2008 academic year 75 students graduated from the ME program. We contacted all of them for their placement status. 58 students responded. Among the responded graduates 95% are either working or attending graduate school. The breakdown is given below.

- Working – 50
- Graduate school – 5
- Taking time off/looking for job – 3

**Course Reviews Summary**

During the Fall 2007 and Spring 2008 semesters, 8 ME courses were reviewed: ME 430, ME 342, ME 404/405, ME 326, ME 445, ME 251, and ME 461. A previously developed “course review plan” was followed for each review. A summary of the review outcomes including follow-up items is contained in the ME program assessment notebook. This year we plan to review the professional elective and non-ME courses.
## Current Assessment Plan Timetable (updated 8/26/08)

<table>
<thead>
<tr>
<th>Assessment Tool</th>
<th>Frequency</th>
<th>Past Occurrences</th>
<th>Next Occurrence</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dept. IAB Input</td>
<td>Annual</td>
<td>Fall '05, '06, 07</td>
<td>Fall 2008</td>
<td>Chris</td>
</tr>
<tr>
<td>College EAC Input</td>
<td>Annual</td>
<td>Spring '06, '07, 08</td>
<td>Spring 2009</td>
<td>Chris</td>
</tr>
<tr>
<td>Alumni Surveys</td>
<td>Every other year</td>
<td>Spring '05, '07</td>
<td>Spring 2009</td>
<td>Ruhul to coordinate</td>
</tr>
<tr>
<td>Employer Surveys</td>
<td>Every 3rd year</td>
<td>Spring, 2006</td>
<td>Spring 2009</td>
<td>Ruhul to coordinate</td>
</tr>
<tr>
<td>Student Interviews</td>
<td>Annual</td>
<td>Spring '06, '07, 08</td>
<td>Spring 2009</td>
<td>Ruhul/Chris</td>
</tr>
<tr>
<td>FE Exam</td>
<td>Annually, spring and fall</td>
<td>S'06, F'06, S '07, F07, S08</td>
<td>Fall, 2008</td>
<td>Ruhul/Alan</td>
</tr>
<tr>
<td>a-k Surveys</td>
<td>each semester</td>
<td>Spring, 2004</td>
<td>--</td>
<td>Discontinued</td>
</tr>
<tr>
<td>Faculty Discussions</td>
<td>As needed</td>
<td>Spring '06, Fall '06, S07, F08</td>
<td>Spring 2009</td>
<td></td>
</tr>
<tr>
<td>Placement</td>
<td>Annually, summers</td>
<td>Summer '06, '07, 08</td>
<td>Summer 2009</td>
<td>Carol</td>
</tr>
<tr>
<td>Capstone Project Sponsor Review</td>
<td>Annually, Spring</td>
<td>Spring '07, 08</td>
<td>Spring 2009</td>
<td>Vic</td>
</tr>
<tr>
<td>Review Educational Objectives</td>
<td>Annually, Fall</td>
<td>Fall '05, '06, 07</td>
<td>Fall 2008</td>
<td>Faculty meeting</td>
</tr>
<tr>
<td>Review Outcomes</td>
<td>Annually, Fall</td>
<td>Fall '05, '06, 07</td>
<td>Fall 2008</td>
<td>Faculty meeting</td>
</tr>
<tr>
<td>Facilities Review</td>
<td>Annually, Fall</td>
<td>Fall '05, '06, 07</td>
<td>Fall 2008</td>
<td>At IAB</td>
</tr>
<tr>
<td>Curriculum Review</td>
<td>As needed, but annually at a minimum</td>
<td>Fall '05, '06, 07</td>
<td>Fall 2008</td>
<td></td>
</tr>
<tr>
<td>Formal Course Review</td>
<td>1/3 of courses reviewed each year</td>
<td>Spring '06, F'06, S'07, F07, S08</td>
<td>Fall 2008</td>
<td>Faculty meeting</td>
</tr>
</tbody>
</table>
The Mechanical Engineering Technology Program assessment activities scheduled during the AY 07 – 08 included the following:

- M&IE Department Industrial Advisory Board (IAB) meeting
- Employer Surveys
- Student Interviews
- FE Exam
- Faculty Discussions
- Placement
- Capstone Review

What follows is a brief summary of those activities.

| Assessment Tool: M&IE Department Industrial Advisory Board (IAB) |
|---|---|---|
| Dates | Data Collection Method | Implementation Responsibility |
| 10/04/07 | Scheduled Meetings and Meeting Summary Notes | MET Faculty |
| 10/05/07 | |

MET faculty met with the IAB in September of 2006 and faculty members presented a MET AY 2006/2007 summary report. The purpose of this meeting was to share information and to discuss issues within the MET program. Information shared and subsequent discussion resulted in many commendations, approvals and recommendations. Summary of notable recommendations and approvals:

- Due to increased enrollment in MET, the IAB members recommend that an additional new MET faculty member be hired.
- The IAB members approved the MET outcomes and objectives as presented.
- The IAB members approved the MET CI plan as presented.
- The IAB members reviewed and approved results of the recent Alumni Survey.
- The IAB members reviewed student exit interview data and provided comments.
- The IAB reviewed FE exam data and recommended looking at ways to encourage MET students to take this exam more seriously.
- The IAB members were impressed with the high graduate placement rate and the diversity of the companies hiring MET students.
- The IAB members reviewed and approved the MET information pamphlets with the recommendation that the Engineering vs. Engineering Technology information be updated to reflect how industry perceives the difference.
- The IAB members approved curriculum changes.
- The IAB members agreed to support the MET curriculum plan through:
  - Hosting faculty members in industry
- Providing industry case – study material
- Developing mentors for students
- Providing lab development support

Complete results of these meetings are summarized in the MET Faculty Meeting Minutes Notebook (maintained in the MET Program Coordinators office – RH 203). MET faculty reviewed results throughout the year. Current status and planning for the AY 2007/2008 meeting will take place at the Fall 2008 faculty retreat.

**Assessment Tool: Employer Surveys**

<table>
<thead>
<tr>
<th>Dates</th>
<th>Data Collection Method</th>
<th>Implementation Responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>July 2008</td>
<td>Internet-based Survey Tool (Survey Monkey)</td>
<td>MET Faculty</td>
</tr>
</tbody>
</table>

Employer surveys were rescheduled to summer 2008. Data will be collected and reviewed during fall semester of 2008.

**Assessment Tool: Student Interviews**

<table>
<thead>
<tr>
<th>Dates</th>
<th>Data Collection Method</th>
<th>Implementation Responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spring 2008</td>
<td>Discussions with students</td>
<td>MET Faculty</td>
</tr>
</tbody>
</table>

At the end of spring semester 2008, 19 students were interviewed in order to assess their perspective of the MET program. Specifically, the MET outcomes were assessed, and student perception quantified. This assessment is summarized below:

**OUTCOME #1: Fundamentals**

*Demonstrate* math, basic science and engineering science skills necessary for proficiency in MET careers.

Average of all students = 4.05 / 5.0

(5.0 being excellent)

**OUTCOME #2: Fundamentals**

*Demonstrate* an ability to integrate basic theoretical, experimental, computer and manufacturing knowledge and experience to produce practical, effective and innovative solutions to problems.

Average of all students = 3.8 / 5.0

(5.0 being excellent)

**OUTCOME #3: Design**

*Demonstrate* the ability to apply the engineering design process to solve open-ended problems while integrating knowledge and experience from various disciplines.

Average of all students = 4.46 / 5.0

(5.0 being excellent)

**OUTCOME #4: Problem Recognition**

Understand and coordinate interrelationships necessary for successful design-to-build processes, and develop and apply successful problem solving processes.

Average of all students = 4.8 / 5.0

(5.0 being excellent)

**OUTCOME #5: Project Management**

*Demonstrate* an ability to successfully lead an integrated design team to completion.

Average of all students = 4.4 / 5.0

(5.0 being excellent)

**OUTCOME #6: Communication**

Develop written, oral, and technical skills to effectively communicate with individuals having a broad range of backgrounds and experience.

Average of all students = 4.46 / 5.0

(5.0 being excellent)

**OUTCOME #7: Professional and Ethical Responsibility**

Consider the actual or potential immediate, short-term and long-
term impacts of professional activities, including social, political, economic, and environmental impacts. (5.0 being excellent)

Complete results of these meetings are summarized in the MET Senior Student Interviews Notebook (maintained in the MET Program Coordinators office – RH 203). Results will be reviewed at the Fall 2008 faculty retreat.

**Assessment Tool: FE Exam**

<table>
<thead>
<tr>
<th>Dates</th>
<th>Data Collection Method</th>
<th>Change Implementation Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spring 2007</td>
<td>National Results Summary</td>
<td>MET Faculty Discussions</td>
</tr>
<tr>
<td>Fall 2007</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The MET students are required to sit for the Fundamentals of Engineering (FE) exam during their senior year. Although this is not a test designed for MET’s, it does provide some indication of how well the students actually meet the outcomes of the program. The MET faculty has set a pass rate of 75% as a goal. Results for the April 2007 and October 2007 exam sittings are summarized below:

<table>
<thead>
<tr>
<th>Date</th>
<th># Taking Exam</th>
<th># passing</th>
<th>MSU Pass Rate</th>
<th>National Pass Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spring 2007</td>
<td>13</td>
<td>6</td>
<td>46%</td>
<td>42%</td>
</tr>
<tr>
<td>Fall 2007</td>
<td>5</td>
<td>3</td>
<td>60%</td>
<td>40%</td>
</tr>
</tbody>
</table>

No changes to the curriculum will be made as a result of the FE Exam results. The MET faculty will continue to assess results as they become available.

NOTE: The MET faculty voted to not consider the FE as a strong indicator of how well MET student meet the program outcomes. This test is written for ME programs, not MET programs. A move to develop an engineering technology version of this test is starting to gain some momentum nationally, and we would work to support that. In the meantime, we still want our MET’s to sit for the exam and to take it seriously. We have begun discussion on how to better help these students succeed in this exam. We will continue to develop strategies.

Strategy ideas:

- MET specific help sessions
- Implementation of FE type problems into course work
- Development of a 1 credit “FE Exam Prep” course

**Assessment Tool: Faculty Discussions**

<table>
<thead>
<tr>
<th>Dates</th>
<th>Data Collection Method</th>
<th>Implementation Responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>As required</td>
<td>Meeting minutes</td>
<td>MET Faculty</td>
</tr>
</tbody>
</table>
Mechanical engineering technology faculty met 23 times throughout the 2007 – 2008 academic year to discuss current issues within the program, as well as to provide status of action items in work. Specific decisions and actions are documented in the Faculty Meeting Notebook. This notebook resides in the MET Program Coordinators office (203 Roberts Hall).

**Assessment Tool: Placement**

<table>
<thead>
<tr>
<th>Dates</th>
<th>Data Collection Method</th>
<th>Implementation Responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spring 2008</td>
<td>Student Employment Info.</td>
<td>MET Faculty</td>
</tr>
<tr>
<td>Fall 2007</td>
<td>Annual Career Fair</td>
<td></td>
</tr>
</tbody>
</table>

Students are asked to voluntarily supply employment information upon acceptance of a position. If they have not accepted a position prior to graduation, they are encouraged to supply that information to the department in the future. Also, faculty members are continuously investigating opportunities for students through industry contacts as well as through the annual career fairs at MSU. The data collected provides guidance on the most available opportunities for our graduates and potentially provides direction to the faculty when making curricular decisions. Opportunities are plentiful for graduates, and those that pursued employment were very successful in finding positions. The table below provides current summary data related to placement. This will be updated as results become available.

<table>
<thead>
<tr>
<th>Year</th>
<th>Placement %</th>
<th>Average Salary</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007/2008</td>
<td>80</td>
<td>N/A</td>
</tr>
</tbody>
</table>

Results will be reviewed and discussed at the Fall 2008 faculty retreat.

**Assessment Tool: Capstone Review**

<table>
<thead>
<tr>
<th>Dates</th>
<th>Data Collection Method</th>
<th>Implementation Responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall 2007</td>
<td>Presentation Evaluation Survey</td>
<td>MET Faculty</td>
</tr>
<tr>
<td>Spring 2008</td>
<td>Project Review Surveys</td>
<td></td>
</tr>
</tbody>
</table>

MET students give formal capstone presentations at the end of the Fall semester to present their final designs. These presentations are attended by faculty, students, and project sponsors. All presentations are evaluated and the data is collected for review by the course instructor as well as the MET faculty. Results are discussed in the MET faculty meetings and support the curriculum review committee when assessing changes. Also, the results of this assessment tool have contributed to better communication of roles and responsibilities of faculty advisors and student team members. Results will be reviewed and discussed at the Fall 2008 faculty retreat.
### Additional Programmatic Items Requiring Assessment and Review

<table>
<thead>
<tr>
<th>Item</th>
<th>Reviewed by</th>
<th>Review Date</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Educational Objectives</td>
<td>Faculty IAB</td>
<td>Summer 07</td>
<td>Objectives approved as written. No changes recommended.</td>
</tr>
<tr>
<td></td>
<td>Faculty IAB</td>
<td>Fall 07</td>
<td></td>
</tr>
<tr>
<td>Educational Outcomes</td>
<td>Faculty Students</td>
<td>Summer 07</td>
<td>Outcomes approved as written. Students met all outcomes. No</td>
</tr>
<tr>
<td></td>
<td>Students IAB</td>
<td>Spring 08</td>
<td>changes recommended.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Fall 07</td>
<td></td>
</tr>
<tr>
<td>MET Facilities Review</td>
<td>Faculty IAB</td>
<td>Summer 07</td>
<td>Meets expectations. Will continue to review and monitor.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Fall 07</td>
<td></td>
</tr>
<tr>
<td>Curriculum Review</td>
<td>Faculty</td>
<td>AY 2007/2008</td>
<td>Recommendations generated from the MET curriculum improve</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ment activity are being implemented.</td>
</tr>
<tr>
<td>MET CI Plan Review</td>
<td>Faculty</td>
<td>Summer 07</td>
<td>Minor updates recommended and incorporated.</td>
</tr>
<tr>
<td>MET Faculty Development Plans</td>
<td>Faculty Department Head</td>
<td>Summer 07</td>
<td>Meets expectations. Faculty will continue to review and update as required.</td>
</tr>
</tbody>
</table>

### Assessment Documentation

In support of this yearly assessment activity, the MET faculty group has established and maintains a set of Assessment and Informational Notebooks. The analysis, feedback, and any subsequent changes made to the MET program are summarized in these program assessment notebooks. These notebooks are updated yearly and reside in the MET Program Coordinators office (Roberts Hall 203).

### AY 2008/2008 Accomplishments

- The MET Continuous Improvement Plan was reviewed and updated.
- The M&IE Industrial Advisory Board approved the MET outcomes and objectives as presented.
- The M&IE Industrial Advisory Board approved the MET Continuous Improvement Plan as presented.
- A MET employer survey tool was developed and will be implemented Fall 2008.
- The MET faculty implemented phase II of the MET curriculum revision:
  - Taught MET 211 – Graphics for Design
  - Taught MET 480 – CNC & CAM Tech. (will become MET 420)
  - Taught MET 480 – Advanced Instrumentation and Test
  - Taught revised MET 449 – Design for Manufacturing and Tooling
Taught MET 466 – Thermal Processes Lab
Cross-listed ME 448 and MET 449
Cross-listed ME 454 and MET 454
Cross-listed MET 430 and ME 435

- Maintained interdisciplinary MET/ME senior capstone projects where appropriate
- The MET faculty established implementation plans for Phase III of the MET curriculum revision:
  - Add MET 303 – CAE Tools in Mechanical Design
  - Offer MET 480 - Alternative Energy Tech.
  - Implement ENGR 310 – Intro. to Engineering Design as a required course
- The MET faculty Modified / Updated the MET Professional Electives Policy.
- The MET faculty updated the equivalencies / transfer policy
- The MET faculty implemented a “Project-Based Senior Year” policy.
- The MET students and faculty advisors participated in professional societies (ASME, SAE, ASHRAE) and professional society competitions:
  - ASME North American Pacific District Student Professional Development Conference at Tacoma Community College (April 2008)
    - 1st Place - Micro-Baha Car Competition
    - 1st Place – Student Kilometer Award
  - ASHRAE Student HVAC Design Competition – Montana Section
    - 15 MET students participated
  - ASME Human Powered Vehicle Competition at University of Nevada - Reno
    - 7th place out of 20 teams
  - SAE Formula One Competition (June 2007)
    - 24th place out of 80 teams
- The MET faculty updated MET Faculty Development Plans.

In addition, a “Faculty Meetings Notebook” is maintained to summarize all faculty meeting business and can be reviewed in the MET Program Coordinators office.
Department: Modern Languages and Literatures

Department Head: Doctor Bridget Kevane

Assessment Coordinator: Doctor John Patrick Thompson

Date: 06/12/2007

Degrees/Majors/Options Offered by Department
List here

Japanese, French, German, and Spanish
Assessment Update
Modern Languages and Literatures
Spring 2007

John Thompson (Spanish professor), Assessment Coordinator

At the latter part of the Spring Semester of 2007, graduating majors and minors of Japanese, French, German, and Spanish filled out an exit questionnaire. In this document I provide an assessment of the feedback we received on these questionnaires. In advance, I will note that none of the language coordinators, including myself, feel that any changes need to be made to our assessment policy.

Japanese:

The Japan Studies program graduated 7 students in the major option this year. We received 2 questionnaire responses. Both rated their experiences in the Japan Studies program quite highly, but two issues in particular stand out: one requested higher level language courses in Japanese, and another, in response to the questions "What would you have changed about your education in Modern Languages, responded "I wish I had more support from the Department."

As a possible solution to the first request for higher level language courses in Japanese, Japan Studies eventually hopes to offer a fourth-year advanced reading course focusing on news, literary, and cultural materials in the target language. This goal cannot be met without additional staffing however, and since the major is still new, student demand for such a course is not high yet. Professor Marylin Bolles believes that within the next 5 years, the numbers of students ready for such a course will be substantial enough to merit its development.

As for the comment "I wish I had more support from the Department," Professor Bolles can only make a guess as to the specific meaning. She thinks the faculty is available as possible for advising. If the student is speaking of financial support, a departmental goal of finding scholarship funds might help. Dept. Chair Kevane spoke of forming a department committee to seek more grant money; this committee could possibly expand its role into researching student funding sources.

Both students responded that they learned much from the language and culture courses. Japan Studies continues to work toward standardizing and improving our language program, in addition to offering more courses such as those taught by a new faculty member in anthropology hired this year. In addition, a capstone seminar course was offered for the first time in spring 2007.

French:

This year one student fill out the questionnaire. This student majored in French and
Finance. The student noted that the French curriculum enabled him/her "to completely meet my objectives" and that "the program is excellent and met all my expectations." The student did not make suggestions for improvement as he/she was clearly satisfied with the French curriculum. Professor Ada Giusti, therefore, is satisfied with this feedback and does not plan on making any changes to the French curriculum.

German:

Professor Patricia Simpson reported that the questionnaires for German indicate a high level of satisfaction with the program. According to the students responses (sixteen questionnaires will filled out), they have for the most part obtained their goals and agree that they have achieved the learning outcomes of the program. Several students suggested including History 362 as part of an overall German Studies major. This course will be incorporated into the requirements of the new curriculum, which will go into effect in Fall, 2008.

Spanish:

Nine students filled out the questionnaires while we had 22 graduating majors. The students expressed between moderate and high satisfaction of their general learning experience. Several students wrote that the writing courses helped them the most and others commented on their experiences abroad as having advanced their Spanish skills the most. Seven of the students believe they have substantially improved their proficiency in Spanish, while two think that they have “somewhat” improved their proficiency.

The biggest complaint expressed by the students was the oversized classes that made in class communication very difficult. Indeed, when asked if they had progressed in the four skills of speaking, listening, reading, and writing, most students said they did not progress in speaking. Three students claimed that their writing did not improve.

Most students said that they acquired substantial knowledge of culture/literature in the Spanish program, and enjoyed learning the history transmitted through the literature. Two students mentioned that they would have liked to learn more about current events in Spain and Latin America. One of my projects as Spanish coordinator is to create a new course that deals with current political and social events in Spain and Latin America. My goal is that this course be offered in the Fall of 2008.
Degrees/Majors/Options Offered by Department

Japanese, French, German, and Spanish

At the end of the Spring Semester of 2009 I distributed our “Questionnaire for Majors and Minors in the Modern Languages Department” to the coordinators of the four different languages. In this document I provide an assessment of the feedback we received on these questionnaires.

FRENCH: The French program graduated 3 students in the option this year. We received 2 questionnaire responses. Both respondents praised the department and its faculty members. As strong points they listed conversations and discussion in the target language as well as availability of professors. A student who had spent a semester in France felt that there should have been more work in grammar. This student may not have taken much grammar in his/her program in Aix-en-Provence. Both said that they had substantially improved their proficiency in the French program and pointed to the importance of study abroad (the other student had spent a year on our Junior Year Abroad program in Montpellier. As the Montpellier student said, “…it was one of the defining moments of my life up to this point.” One said that s/he “enjoyed the appreciation {she} gained for literature” and “discovering a new cultural has always been a pleasure for me.” The other underscored the chance to “experience the culture and see the place I read about both in Europe and Africa.”

Final comments including the following: “I had a great time studying here. Anyone who wants to discover the pleasures of learning should come to the language department!”

GERMAN: The German program graduated 5 students in the option this year. We received one completed questionnaire. This student praised the program and pointed to “Good professors, classes, nice and small, personal.” One suggestion was that “More classes taught strictly in German language.” This student also emphasized his/her substantial improvement in proficiency in the program and underscored his/her “great
experience!” abroad. S/he added that “…should be required for all language students.” Suggestions included more “culture, history, more linguistics courses all in German.” His/ her closing remark was “Great dept.! Great staff/professors!”

**JAPANESE:** No questionnaires were returned. We have a minor in Japan Studies and a Japan Studies option.

**SPANISH:** The Spanish program graduated 18 students this year. No questionnaires were returned.

**GENERAL REMARKS:** It is clear that, based on the responses the programs in French and German are doing very well. On the other hand, the lack of response in Spanish is troubling, although it is true that the Senior survey sent out by M.S.U. every year has a low return rate as well. The department will address how to do a better job of encouraging and increasing returns when we meet for our annual retreat in August of 2009. Such review by the faculty is called for every two years in our “Assessment Policy” document.
Department: Modern Languages

Department Head: Bridget Kevane

Assessment Coordinator: Christopher P. Pinet

Date: 5-25-2010

Degrees/Majors/Options Offered by Department

Bachelors Degree in Modern Languages with options in:
- French & Francophone Studies
- French Teaching K-12
- German Studies
- German Teaching K-12
- Japan Studies (in conjunction with the Department of History & Philosophy)
- Hispanic Studies
- Spanish Teaching K-12
- Commerce (with options in French, German and Spanish)

Teaching minors in:
- French K-12
- German K-12
- Spanish K-12

Non-teaching minors in:
- French & Francophone Studies
- German Studies
- Hispanic Studies
- Japan Studies (in conjunction with the Department of History & Philosophy)
- Latin America and Latino Studies (in conjunction with the Department of History & Philosophy)
ANNUAL ASSESSMENT REPORT FOR MODERN LANGUAGES & LITERATURE

A total of 22 exit questionnaires for senior majors and minors in the Department of Modern Languages and Literature were distributed by and then turned in to the departmental secretary, Tracy Knudson, for the 2009-2010 academic year. 11 questionnaires were returned for Spanish, 7 for French, one for German, and 3 for Japanese. For Spanish these included 8 for non-teaching majors and 3 teaching majors. In French the figures were 6 non-teaching majors and one minor. One non-teaching major in German responded. Two questionnaires were turned by students in the Japanese Studies Option and one by a minor in Japanese. These response rates seem normal for the four languages, although German usually has more responses. This is probably cyclical.

For Spanish the comments were generally very positive and ranged from “satisfactorily” to “It enabled me to meet the objectives completely in terms of general objectives.” “To a great extent” was the most frequent response (see questionnaire for specific questions.) 7 of the 11 students in Spanish had spent time in a Spanish-speaking country. This reflects good advising from the Spanish section as the department moves to encourage as many students as possible to spend time studying abroad.

Among the strong points of the Spanish program students listed learning about Hispanic history and language, having teachers with different accents, the varied backgrounds of the teachers, the teaching of culture, the teaching of grammar and writing (2), studying abroad, and reading.

In response to the question “What would you have changed about your Education in Modern Languages? What recommendations would you make for improving the program in which you earned your major or minor?” students recommended more speaking practice for students (3). This recommendation is something that the Spanish section might want to discuss. Other suggestions included smaller classes, that there were too many foreign films shown, that teachers should teach more outside the textbook, that all students should study abroad (and that there should be more opportunities to “study and learn Spanish from the perspective of Spain as well as Latin America”). One student felt that there should be an entire course devoted to Spanish linguistics. Adjuncts Sally Sanchez and Veronica Moreno were singled out for their fine teaching by one student, and several students referred to the strong Spanish faculty.

For French comments were generally very positive and ranged from “to a certain extent” to “It enabled me to meet my objectives completely. It should be noted that an earlier version of the questionnaire (not the revised version submitted in December of 2009) was handed out for French (only one revised questionnaire was handed out). Among the
strong points in the French program listed by students were writing, reading, and literature (4) courses. They also cited small class sizes, many opportunities for discussion (3), the course on contemporary France, the Montpellier Junior Year Abroad Program, study abroad generally, the phonetics courses, grammar courses, and the history course.

Recommendations for improvement included adding self-guided portions to the program, “a little more” of contemporary culture in France and other francophone countries, more speaking classes, more work in advanced grammar, and more art and music in the history course. One student praised all of the faculty members in French and several mentioned the importance of study abroad. One student singled out Tracy Knudson for her help in filling out forms and negotiating the major.

The one German student cited good professors and smaller classes that were personalized. This student wanted more culture, history, and linguistics courses taught completely in German. S/he said “Great department.”

The three students (one a minor) in the Japanese Studies Option gave responses on meeting objectives that ranged from “To a certain extent” to “It enabled me to meet my objectives completely.” Overall the responses were very positive. Strong points listed included study in Japan (2) and the broad scope of the program, and fine content courses.

Recommendations for improvement included (by implication) changing the RANJI workbooks (hard to memorize), teaching more informal and conversational Japanese; more review of material leading to better integration of Japanese grammar, a little faster pace, and better preparation for the move to the third-year language class (especially for those not able to go to Japan.)

Each section will review the comments from the questionnaires and decide what matters should be addressed in individual courses and whether or not modifications of their curricula are warranted. In carrying out the review they will consult earlier assessment reports to see whether or not there are trends in the comments.

Respectfully submitted by

Chris Pinet, Ph.D.
Chair of Assessment Committee: 2009-2009, 2009-2010
The MLL Assessment Committee, a committee of the whole Department, met on May 6, 2013, to measure the reading proficiency of second-year students in French, German and Spanish. We assessed learning outcomes as defined by the Intermediate High category of the ACTFL Proficiency Guidelines which defines proficiency goals.

### Learning Outcomes

At the Intermediate High sublevel, readers are able to understand fully and with ease short, non-complex texts that convey basic information and deal with personal and social topics to which the reader brings personal interest or knowledge. These readers are also able to understand some connected texts featuring description and narration although there will be occasional gaps in understanding due to a limited knowledge of the vocabulary, structures, and writing conventions of the language.

### Targeted Courses

<table>
<thead>
<tr>
<th>Targeted Courses</th>
<th>Learning Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>French 220D</td>
<td>French 220D</td>
</tr>
<tr>
<td>German 220D</td>
<td>German 220D</td>
</tr>
<tr>
<td>Spanish 220D</td>
<td>Spanish 220D</td>
</tr>
</tbody>
</table>

### A. French 220D: French Language and Culture

**Procedure:** There were thirty-one students enrolled in this class. Students were asked to read a 700 word article published in the literary journal *La Quinzaine littéraire*. The article begins by explaining that six francophone writers were interviewed about their use of the French language. The interviewer asks the following two questions: Why do you use French? Because you chose to use it or because it was imposed on you via institutional reasons, teaching, or social pressure? Then come the responses of the six authors, each from a different Francophone country (two from Congo, Haiti, Quebec, Algeria, Morocco). The students are asked first to “summarize in one or two sentences the gist of what each author says.” Then the students are asked, “In what way do the Francophone writers contribute to the development of the evolution of the French language?” The students are given six lines for their responses.

**Results:** Twenty-seven students met the expectations outlined in the ACTFL learning outcomes for reading ability on the intermediate-high sublevel and five did not.
B. German 220D: German Language and Culture

Procedure: Students were asked to read a short and non-complex information text on "Austrians Abroad". They were then given three comprehension questions asking about specific details from the source text in order to test students' level of understanding of written language (ACTFL intermediate-high sublevel). Students had to respond in full sentences identifying the relevant information from the initial text.

Results: Out of 23 students 21 met the expectations outlined in the ACTFL learning outcomes for reading ability on the intermediate-high sublevel.

C. Spanish 220D: Spanish Language and Culture

Procedure: Students were expected to read Isabel Allende's novel La ciudad de las bestias. They were tested with fifteen questions: ten “specific” questions covered student comprehension of the reading at the level of characters and plot. Five “open and theoretical questions” tested students’ ability to generate more in-depth observations about important themes, motifs and stylistic elements of the text.

Results: Each faculty member read forty-nine exams. Of the forty-nine exams reviewed, forty-five met the ACTFL criteria for reading proficiency at the intermediate-high sublevel. On the whole the faculty were satisfied with the ability of these students to comprehend the text in question and utilize vocabulary relevant to such an exercise.
MSU Departmental Assessment Update
Spring 2007

Department: Media and Theatre Arts

Department Head: Dr. Walter Metz

Assessment Coordinator: Dr. Walter Metz

Degrees/Majors/Options Offered by Department

Major: Media and Theatre Arts

Students choose one of two options:
Motion Picture/Video/Theatre Option
Photography Option

Master of Fine Arts in Science and Natural History Filmmaking
Assessment Update
Department of Media and Theatre Arts
February 11, 2008
Prepared by: Dr. Walter C. Metz, Department Head

The MTA Department
The Department of Media and Theatre Arts offers one undergraduate degree, a B.A. in Media and Theatre Arts and one graduate degree, an M.F.A. in Science and Natural History Filmmaking. Our undergraduate program has two options, one in Motion Picture/Video/Theatre and the other in Photography. The department’s academic programs and its faculty’s research interests include fiction and documentary film production, photography, film studies, theatre production, and video and television production, and science and natural filmmaking.

Assessment Activities Update

Program Assessment
As outlined in the MTA Assessment Plan document of 2008, the department uses 4 mechanisms for evaluating the programs: the graduating student survey, the alumni advisory council, formal, department-wide curriculum review, and individual course assessment.

A. The Graduating Student Survey
As of February 2008, I have collected 41 graduating student surveys, 17 in Photography and 24 in MPVT. The general results of the survey in Photography is that most students like the quality of instruction (avg. = 4.1 out of 5). The lowest scores are consistently about preparation for careers in the field (avg. for question #16 = 2.9 out of 5). The Photo option has addressed this by adding a professional perspectives class, taught this year by Kelly Gorham, an MSU grad and professional news photographer. Of course, the results of this excellent class will not show up in the graduating class for at least another year. On the MPVT side, the quality of instruction is also quite high (avg. 4.2 out of 5). The comments are mostly positive. “I loved this school and thought they did the best with what they had. Learned tons. It’s been a real pleasure” is representative. Conversely, some exit instruments demonstrated frustration with student vs. faculty expectations: “Certain teachers were outstanding, certain teachers were uninspiring and promoted the wrong ideas about film. Promoting cheap and easy films which stifling inspiring and difficult films is absurd.”

B. The Alumni Advisory Council
The Alumni Advisory Council meeting in Bozeman will take place on March 1, 2008. In addition, MTA Department Head Walter Metz and College of Arts and Architecture development director Dinah Schuster met with the MFA alumni in Washington, DC in January 2008. At that meeting, Metz presented the proposed revisions to the MFA curriculum, which were heartily endorsed by the alumni. Two particular curriculum changes, the addition of an introductory filmmaking course and a course in which faculty discuss their own filmmaking work, were enthusiastically greeted by the alumni.
C. Curriculum Review
The MTA Department met to discuss its curriculum as an entire faculty three times in Fall 2007. We also met for a day long retreat in January 2008. These discussions initiated a large-scale curriculum review for both the MPVT and MFA areas. These reviews were initiated by the University’s MTA Program Review of Fall 2007 as well as a large-scale student survey of the graduate curriculum. The result of these meetings was a charge to the Department’s Curriculum Committee to propose changes, on which the faculty would vote by the end of the Spring 2008 semester. The curricular changes are now in the hands of Dr. Dennis Aig, the chair of the Curriculum Committee and the Film Options Administrator of the MTA Department.

D. Individual Course Assessment
Beyond the Knapp form student evaluation process and the review of same by the Department Advisory Committee for the purposes of annual review, the Department’s main review of its coursework is a capstone review process as outlined in the assessment plan. In Spring 2007, we began this work in earnest for MTA 472/474, the capstone course for the MPVT Option. Appendix B is the form on which all MTA faculty write their comments to students about their film projects. Appendix C is the notes I took of that meeting, in which faculty present their formal critique of student work. Later during finals week, the faculty met to discuss the student work in MTA 472/474, and I directed the conversation toward implications on our curriculum. All members of the faculty, tenure-track and adjuncts, attended that meeting, held on April 30, 2007. The results of the meeting are described here:

Faculty perceptions of the strengths of the program:
- Student selection of topics is improving, steering away from “stupid” topics involving gratuitous violence. A general sophistication of student artwork has been seen to be growing over the past few years.
- The general level of acting in the films is improving.
- A number of the films have been made by people who should in earnest call themselves filmmakers.
- There is an increasing attention on story.
- The films balance craft and content well.
- The general quality of cinematography is quite high.
- The workshopping model had improved the quality of the films considerably.

Faculty perceptions of the weaknesses of the program:
- There is still student resistance to criticism, and sometimes an unwillingness to change.
- The round robin screenings of student work in progress should come earlier in the semester.
- Would it be possible to force students to shoot their films earlier, in order to encourage more polishing of their work late in the semester?
- Prior workshopping of the scripts, perhaps the semester before, is in order so that their work is ready earlier in the final semester.
• Some students hide in the group project model, passing through their capstone course without truly learning to be responsible for an entire sector of the project.
Appendix A
Graduating Student Survey

Available From Department Upon Request
## Appendix B
Capstone Project Evaluation Form

### MTA 472 Project Evaluation/Critique Form  
*Spring Semester 2007*

<table>
<thead>
<tr>
<th>Role</th>
<th>Information</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Student Name(s):</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Project Title:</strong></td>
<td></td>
</tr>
</tbody>
</table>

Please fill in the names of each student’s respective production responsibility and briefly critique the indicated production contribution:

**SCRIPT**  
Comment:  
Scriptwriter(s):  

**PRODUCTION**  
Comments:  
Producer(s):  

**DIRECTION**  
Comments:  
Director(s):  

**CINEMATOGRAPHY**  
Comments:  
Cinematographer(s):  

**EDITING**  
Comments:  
Editor(s):  

**SOUND RECORDING AND/OR DESIGN**  
Student(s):  
Comments (Then Over)
### PRODUCTION DESIGN

**Designer(s):**

**Comments**

### ACTING

**Actor(s):**

**Comments**

### ANIMATION/SFX

**Students**

**Comments**

**Other** **(Specify)**

**Student(s)**

**Comments**

### OVERALL PROJECT EVALUATION

**Please circle appropriate letter grade.**

<table>
<thead>
<tr>
<th>Grade</th>
<th>Quality</th>
<th>Grade Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Excellent</td>
<td>4.0</td>
</tr>
<tr>
<td>A-</td>
<td></td>
<td>3.7</td>
</tr>
<tr>
<td>B+</td>
<td></td>
<td>3.3</td>
</tr>
<tr>
<td>B</td>
<td>Good</td>
<td>3.0</td>
</tr>
<tr>
<td>B-</td>
<td></td>
<td>2.7</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Grade</th>
<th>Quality</th>
<th>Grade Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>C+</td>
<td></td>
<td>2.3</td>
</tr>
<tr>
<td>C</td>
<td></td>
<td>2.0</td>
</tr>
<tr>
<td>C-</td>
<td></td>
<td>1.7</td>
</tr>
<tr>
<td>D+</td>
<td></td>
<td>1.3</td>
</tr>
<tr>
<td>D</td>
<td>Passing</td>
<td>1.0</td>
</tr>
<tr>
<td>F</td>
<td>Failing</td>
<td>0</td>
</tr>
</tbody>
</table>

**Signature**
Appendix C
Department of Media and Theatre Arts
Spring 2007
Assessment of Capstone Course
MTA 472/474 (Senior Production)

1. Happy Endings
Description: In female voice-over, a woman who works at a movie theatre dreams of films in which the other movie theatre ticket taker guy will fall in love with her. At the end, he does. Animations of melodrama: train on tracks.

- Lots of improvement since round-robin. Cartoony special effects stuff. Weak performances hidden from round-robin. Sit a second longer on the wide shot in the theatre.
- The sound design was just great; wonderful music choices. Cinematography of the boxing scene was especially good. Editing: needs to be tightened just a bit. Impressive parodies of other film styles: well executed.
- They are working on clearing music rights in order to submit the film to festivals.
- What did you learn from this? That not everyone can see the movie that is in my head. The group experience. I need to learn how to delegate to the team.
- Is there anything you would do differently? I would have gotten an assistant producer. Tests of animation before we shot. Needed a second AC.

2. The Opposite of Love
Description: A bored housewife is an actress. She acts a scene from a morbid, violent play. We think she’s going to murder her husband with a letter opener; she just leaves him.

- Engaging sense of pathos. Fantastic job of jumping between real world and stage world.
- Flat, cutting from unhappy to happy at beginning of film, not nuanced. Better is the shift to theatre world. The handheld camerawork at end was heavy handed.
- One of my biggest problems is the jarring break from the opening of the film and the theatrical world.
- The film is well shot, particularly the second half. The lighting is flat at the beginning as well.
- The theatrical set was distracting. Expressionist buildings in the background. I wanted her to be in a better production. That was distracting.
- Naturalness to the real world. The theatre underscores this difference.
- Less voice-over. Thicken the sound design. A few strategic sound edits. More complex sound design would be warranted.
- Shot in a French way. The close-ups. In the theatre, more traditional? The sound is only sometimes consistent with the image track.
3. Chicago Jazz
Description: A documentary about the Chicago jazz scene.

- The stuff shot in the clubs is really cool stuff. Visually, it goes beyond the normal shots of a club. We really get the grit of the clubs. I want more music. There’s too much talk. The cutting around the photographs is too clever: I don’t need that to get involved in the music.
- I felt like I was inside the club. The grain of the film shows how hard it is to shoot in the lighting conditions in the club: I applaud your risk taking. I also like the use of close-ups. The sound mix needs much more work.
- The sound mix needs to be started over. I like the innovative, jazzy use of the stills. You dipped into the time lapse of the city well one too many times. The lower third typography stuff I hated. Some problems with the color correction. Narrative focus: is this an overview, is this about the north side/south side conflict?
- You don’t articulate anything in the film. I want to know what avant-garde jazz is. The film needs a lot more focus.

4. Life Without Parole
Description: A woman doctor lost her daughter to a rapist. He gets out of prison. She stalks him. He repeats his crime. She cuts off his arms and legs. She becomes a serial vigilante.

- It’s emotionally engaging. Inconsistencies: the pacing of the courtroom does not fit with the rest of the film. Performances vary from person to person.
- What was it like working with your daughter? She got hit by the car. She was tied up in the basement.
- Disagreement over the function of the end credits: vigilantism endorsed?

5. Al’s Meats
Description: Al, a beleaguered butcher, slaughters his abusive wife as pork.

- What if we see the wedding ring in the package of pork. Incredibly empty soundtrack until the murder.
- Muzac was nice. Can we hear music from another room? Hacking sounds were effective. It was a little heavy-handed in terms of the lighting. It looks better later with green and red mixed.
- The lighting was flat. Needs more highlight to shadow. Just all one contrast. Then, we got too much contrast: the cut to the outdoors blew out the image. The indoor from edge to edge and top and bottom is flat.
- The table top photography was wonderful: show this care in the rest of the film.
- Script weakness: one dimensional, tips its hand one minute into the film.

6. A Bright Room Called Day
Description: Live theatrical performance of full Tony Kushner play.
What did you learn from the project? Dealing with a large cast really limits you. A small acting pool means that you have to make decisions on necessity and not quality. Better to do a show with a smaller cast to focus on the actors more.

What would you do differently under these conditions? To engage the cast in more stage business.

What made you pick this project? The period.

Updating? Kushner encourages such updating. The hurricane Katrina setting.

Did you read Kushner’s various versions? How do you assess your own writing? I thought it was workable. It served its purpose. It was not a massive change.

Stale blocking. Just standing at the front of the stage. Some good performances. Wanted to see more of what was happening on the other side of the walls.

Voice over and play with sound was needed because we couldn’t read the captions on the stage because they were too small. The blocking was too linear because of the simplicity of the set.

It is incredibly difficult to direct a full show. You are as passionate about the play as the film students are about their films.

7. Odd Ends
Description: A writer rewrites the ending of a damsel, a monk, and a funeral director. They go off in search of a box; there they find a green rubber duck that whisks them back to their story. They live on in the story.

What did each character want out of searching for the box? The monk is in the wrong profession: he is gambling. The damsel is looking for love: she gets a divorce.

Central section was really funny when everyone was running. The film is two separate things, book-ended by the writer sections. I think the film should pick one or the other.

I admire you working on the idea to tweak and make it better. It didn’t lose the wacky sense of humor.

What does the group say from the cabin? That was unclear. She trips out of the courthouse. At the end, the story is different now: she walks with confidence. An extremely clever idea for a script, but I shouldn’t have to work so hard to understand it.

8. Captain Duke Masters Space Adventures
Description: A 3D Star Trek parody about a galaxy in which rock music has been banned. The film ends with a music video.

I didn’t get the film. It seems like junior high school humor.

What genres did you look to? Rock and roll fan films: Wayne’s World. Parody is tough because you have to master both humor and the original genre. This didn’t pull me in.

What was the experience you wanted when you first came up with the idea? High blood pressure.

9. Memory Lane: Nick Van Atta
Description: Experimental film about an elderly man in a barren landscape.

- I stopped trying to make sense of it and enjoyed it.
- The shifts in the music track rip me away from contact with the beautiful images.
- You need a line of a sound element that continues across the segments of the film. The transition from the black and white gritty to the color is great, but don’t go back to the black and white.
- All of the production elements (lighting, grainy cinematography) were so “delicious.” I ended up with far more questions rather than answers; this causes me to not want to like it because I feel as if I have missed something profound. One mood to make the sound consistent would have helped. The music was not a clue: it threw me off.
- The soft focus and the use of silhouettes was exquisite.
- The film is a great example of artistic collaboration. I enjoyed the film a lot: it spoke volumes to me. I understand the old man: the film is a visual explanation of his existence. The film felt coherent: loneliness, alienation, etc.

10. Tollway
Description: a tollbooth worker fights with his boss, and talks with the DOT workers. The DOT workers turn out to be the police who arrest the boss.

- Get rid of the car park sign; it takes out out of the mood.
- Some moments pull me out of the film, telegraphing dialogue especially.
- The one-legged payoff doesn’t quite work: Script problems.

11. The Big Blind
Description: A man cons his poker buddies into starting a casino, only to rat them out to the cops.

- This is a lot tighter version than at the round robin. Some shots are better designed than others. I’d like to see you get into the casino solution a little faster. I’d like to see it build to the bust a little slower.
- You need to tweak the scene when the bad guy brings the master’s student on as a card dealer.
- The characters at the poker table at the beginning are too thin. Their motivations are stereotypical and weak. This project doesn’t need a 2 minute preamble.
- Discussion about cutting the number of poker players from 4 to 3.

12. Daughter of the Dagon
Description: A geeky girl who owns a comics store obsesses over meeting her favorite video game star.

- The acting is uneven, some overacted and underacted. Johnny seems bland: he needs to demonstrate charisma. Shayna overacts here and there.
- Improved since the round robin. The lack of camera coverage of the fight sequence is made up for. Johnny’s scene with the kiss is a real problem: that’s the big moment in
the film. Genre: is this an action film or a love story? It’s an action comedy. The comedy needs to be tightened up.

- Less shaky camera until the fight scene, please.
- Uneven. Some moments suck everything down. The technical problems with the sound ruin the ending of the film.

13. Others Remain the Same: Lincoln Solem-Sevier and Brian Oestreich
Description: A stalker obsesses about a woman from high school.

- I love the film. It’s really well acted. The script is written so the actors can act subtextually. I was drawn to them and hated them at the same time. The production values are fabulous. Slow the credits down.
- The point of view is much clearer now than from round robin.
- The pacing is great. Exquisite. There are no dead moments. The opening of the film: her diving into the pool is wonderful.
- The film moves very well.
- Good choice of music.
- You worked well to find the 10 minute film here.
- There are other shots to put back into the film: macaroni and cheese boiling over. He’s going to do scuba diving with kids.
- Use the production sound at the pool: it works fine.
MSU Departmental Assessment Plan 2007-2009

Department: Music

Department Head: Johan Jonsson (Alan Leech, Acting Department Head, Spring 2008 only)

Assessment Coordinator: Johan Jonsson

Degrees/Majors/Options Offered by Department

Bachelor of Music Education (BME)
Bachelor of Arts in Music (BA)
Bachelor of Arts in Music Technology (BA MTEC)
Student Outcomes Assessment Report, Fall 2007

Department of Music  
Montana State University  

Music, Music Education, and Music Technology  

This report on use of our assessment plan is a summary of expected student competencies and proposed faculty activities for assessing these three undergraduate degree programs. Please refer to the last posted plan, 2006. For information beyond this report, please contact the department.

Assessment Contact  

Name: Johan Jonsson, Department Head (Alan Leech, Acting Department Head, Spr.2008)  
Phone: 406-994-4641  
E-mail: jjonsson@montana.edu  
Web: www.montana.edu/music  

Assessment activities  

Discipline-Specific Knowledge  

Music concentration competencies include the mastery of performance skills in one major performance area, which is assessed by the applied faculty in applied lessons, weekly performance seminars and student recitals, formal recitals and concerts. Each student musician must provide evidence of achieving a level of mastery by performing for a jury of faculty each semester. Ensembles in which student musicians participate offer public performances that are open to constructive criticism from students, faculty, and the public. Students exhibit growth in aural perception skills, sight-singing and the understanding of temporal relationships through the course sequence in aural skills. Understanding of notation and perception of structure is developed throughout their study in the department beginning with the music theory sequence, and concluding with Form and Analysis. All of these forms of assessment are taken into account by the faculty, and discussed with students at various points in their student career. Particularly the sophomore review is a full review of each student’s progress, needs, and successes.

The development of composition and improvisation skills are a part of several courses, and specific study in each is available to the students. The necessary study of historical and stylistic musical concepts found in the western musical canon is studied in Music History, while the approaches and use of music in non-western cultures is studied in World Music. Advising sessions with students attempt to discuss with students their progress, needs and successes in each of these areas.
Education courses are the focus of the BME students, and we try to keep abreast of their progress there. Specific courses in the Music Department are designed to additionally augment their knowledge in musical areas, such as playing and teaching techniques for all standard instruments encountered in the public schools, and rehearsal methods and techniques for bands, orchestras and choruses in school situations. Faculty assess each student’s knowledge and abilities before they are allowed to student teach.

The specialized courses in the area of Music Technology are very new in our program, and are practically being developed as they are being presented. Faculty in this area follow their plan for presentation while keeping close track of each student’s progress, needs and successes, particularly in respect to the gate at the end of the Freshman year, which allows only a certain number of students to pass on in the program.

**Communication Skills**

Although music is primarily a form of non-verbal communication, students must be able to present the results of their work not only musically, but also orally and in written form. Examinations, research projects and portfolios are required in many classes, with content and style being evaluated by faculty. All students in the three music curriculum options must satisfy basic University core requirements in writing and speaking, as well.

BME students must also not only communicate with their students in the classroom, but must have the oral skill to impart knowledge during rehearsals and classes. They are evaluated in terms of their interpersonal and communicative skills because of the importance of these skills in teaching. Not only the sounds of music are non-verbal, but the gestures in conducting must communicate information to groups of musicians. Conducting gestures are evaluated by the instructors in conducting classes and laboratories. In methods classes, emphasis is placed on communicating information in both one-on-one and ensemble teaching situations, with students being critiqued on their use of language and their ability to give clear, succinct instructions. In addition Music Education field experience classes and student teaching experiences put the students in situations that both help the students become more comfortable in teaching as well as providing opportunities for cooperating and supervising faculty to offer evaluations in interpersonal skills and communication effectiveness.

**Problem-Solving Skills**

By combining their skills in and knowledge of performance, analysis, and music history, students are expected to have the ability to work independently to solve a variety of musical problems, allowing for more accurate and musically expressive performances.

Students in all options must be able to demonstrate problem-solving skills in musical performance, and the communication with an audience that a soloist must present. Students are encouraged to perform regularly in performance seminars, student recitals and occasionally in full recital (or lecture-recital) presentations. Constant evaluation is made by applied music faculty to ensure a high degree of musicianship and performance quality.
BME majors also use their knowledge of teaching strategies and pedagogical methodologies to solve problems while teaching in university laboratory settings and field placements in public schools. They must demonstrate the synthesis of all competencies. Evaluations are offered on an ongoing basis by the cooperating teaching and periodically by the supervisor of student teaching. Evaluations include knowledge of subject matter, interpersonal and communication skills, problem solving, decision making, conducting, rehearsal techniques, classroom organization, lesson planning and teaching personality.

BA MTEC majors use their knowledge and skills to design sounds and compose high-quality music for electronic and acoustic media, with a particular focus on visual media and interdisciplinary collaboration. Students must be able to learn to teach themselves new technologies as they appear, following the rapidly changing roles of the commercial recording studio, broadcast media, the internet, and digital media. Faculty in Music Technology are constantly evaluating and giving feedback to students in this program.

**Assessment Results**

**Discipline-Specific Knowledge**

Students who complete the theory sequence demonstrate a comprehensive knowledge of musical notation and language, aural perception, and an understanding of the material of music including melody, harmony, rhythm, form, etc.

Students in conducting develop a comprehensive knowledge of score reading, conducting gestures, and rehearsal techniques, to enable them to guide choral and instrumental ensembles.

Students in applied music develop the ability to perform as soloists and as members of small and large ensembles at a high artistic level. They can make decisions while performing to avoid disaster even if a minor aberration in their presentation should appear.

Students in methods courses in elementary music and secondary choral and instrumental music develop knowledge to select and adapt music from a variety of sources to meet the needs and proficiencies of school performing ensembles in classroom situations.

All graduating students successfully complete a piano proficiency exam following requisite keyboard coursework. BME majors also complete Guitar in Class or a proficiency test in guitar.

Students in music history and world music courses develop a knowledge and appreciation of past and present world musical cultures, as well as knowledge of the historical relationship of music to other performing and visual arts, and incorporate this knowledge in their teaching.
We are coming to the end of the first year for the first group of Music Technology students, which will use the criteria established to test who will be able to continue in the program. These students begin as pre-majors and must apply to be accepted into the major through a gate process, after successfully completing the first sequence of music theory, aural and keyboard skills, performance, and music technology coursework. Successful completion is defined as a grade of C or better in all music courses. Following acceptance through the gate, BA MTEC students undergo the sophomore review process along with BA and BME students. This is a new assessment point in our program and will help to determine if the gate’s requirements need to be reviewed.

The comprehensive sophomore review has assessed that all music students can synthesize and apply sufficient discipline-specific knowledge to enter upper division courses. The faculty feels that this is an important step in ensuring success in graduation and beyond. This review is conducted by the Department Head, in a meeting with the student and the student’s advisor.

All course grades are reviewed and plans are made for continuing coursework or retaking coursework to maintain minimum grade requirements. The Department’s policy of not accepting grades lower than C in music concentration courses, or allowing such grades to be accepted as prerequisite for student teaching, insures that competencies are maintained.

**Communication Skills**

Although students are required to satisfy basic University core requirements in writing and speaking, as a general rule, faculty would like to see ongoing improvement in students’ written work. Verbal communications skills and written communications skills are average for students in our department.

**Problem-Solving Skills**

For students in the Bachelor of Music Education curriculum, ongoing problem-solving skills take place in front of a classroom. A high student placement rate in teaching positions round the state and region, demonstrates successful acquisition of the skills of music. Graduates of this department are among the most respected teachers in Montana, which is testimony to the success of the program.

Through the Music Technology curriculum, Bachelor of Arts students should achieve the same competency and problem-solving skills as our other students, bringing them to an appropriate level in music performance, music theory, and aural and keyboard skills. In music technology, students gain problem-solving experience in music software management, recording, and live sound. They also gain experience in compositional problem-solving: composing music to given specifications and communicating with other artists in the interdisciplinary collaboration process, all essential skills for the modern composer working in collaborative media. We are in the process of finding the best processes for assessing this aspect of the program.
Program Improvements

From feedback we have assembled from current students, graduates, our accreditation organization (NASM), and outside constituencies such as our Department External Advisory Committee, and peer consultants, we are undertaking to respond to perceived needs in addressing portions of our curricula.

University-Level Suggestions
The percussion faculty line is to be restored to full-time, tenure-track status which will ensure that both percussion majors in the department as well as future teachers in the BME program will benefit from a specialist in the area. This position also is seen as a necessary aid to the Director of Bands as an assistant instructor of the marching band, and athletic bands. The person hired for this position will also be responsible for some of the basic support courses for the entire department in music theory, ear training, and/or keyboard harmony.

A new position will be hired, not yet tenure-track, in the field of Music Technology to enable the teaching of all the courses we must offer to flesh out a viable program. The Director of Music Technology has basically been working a double job attempting to cover all necessary classes, advising, and management of the program’s facilities.

Department-Level Suggestions
The Department of Music is a fully accredited member of the National Association of Schools of Music (NASM), the agency responsible for the accreditation of music curricula in higher education. As such, the Department undergoes rigorous accreditation review every ten years, most recently in Spring 2003. Yearly reports are also submitted to maintain accreditation. Based on NASM recommendations, the Department has developed Introduction to Recording and Computer Applications (MUS 220) to be required of all BME majors. As space permits, music majors are encouraged to take Introduction to Digital Music (MUS 115); thus far BA and BME majors have excelled in this course.

The Student Advisory Committee has been revitalized, since it had fallen into a lapsed state a couple of years ago due to student disinterest. This will again allow the best input route for students within the programs to the Department Head and the Faculty. Music students are represented by the Student Advisory Committee, which meets with the Department Head every other week to discuss issues of importance to both parties. The students in this committee are elected by their peers, one representative from each of the three degree options in the department.

Beginning in Fall of 2007 student teachers meet with the music education faculty during EDSD 413 Professional Issues to discuss the student teaching experience. Of particular importance is the discussion concerning the Department’s curriculum and the student
teacher’s impression of how that curriculum met their classroom needs. These students also complete an anonymous exit survey to gather specific data about the preparation for student teaching. This data is shared with the faculty for consideration of program adjustment and is being considered during the undertaking of a Curriculum Review committee during the Spring of 2008.

The BA MTEC curriculum has been developed over the past four years, and courses began in the fall of 2006 for the first prospective majors. Students have been directly involved in the curriculum planning process: helping to choose equipment, providing course evaluations, and meeting individually with the Director of Music Technology for advising and to discuss their individual progress, goals, and needs. As the first two cohorts of BA MTEC majors continue through the curriculum, the Director of Music Technology maintains ongoing communication with each of them to ensure that the program meets their needs. The Department Head also meets individually with all students as part of the Sophomore Review process.

The young BA MTEC program has passed the review by NASM in November of 2007, and has joined our other two degree options as a fully accredited program. NASM recommendations were implemented in the BA MTEC curriculum. Specifically, the standards for admission past the gate were clarified with respect to music performance, and the balance of music, music technology, and general electives were adjusted to ensure that the BA MTEC degree meets NASM standards for a major in music technology within a liberal arts degree. In future years, the BA MTEC curriculum will phase in a senior internship program, which will be designed cooperatively with the local music and audio industries. We intend to give students the best possible contacts and professional experience, and to maintain ongoing communication with local industry to ensure that the MTEC curriculum provides the highest-quality preparation for this experience.

**One-Year Department Commitments**

A Curriculum Review committee during the Spring of 2008 is looking at all three of our degree options in detail, but with particular emphasis on the Music Education curriculum. Among other particulars, we wish to review the teaching of our instrumental techniques courses that are designed for future teachers. Input has identified varying teaching presentations, styles, and results. Also we will look at possible reorganization of some of the coursework, investigating whether some courses might be combined, or perhaps taught every other year for more efficiency.

We pledge to improve communication both internally between students and faculty with a renewed commitment to effective teaching and advising; and externally with music educators in Montana schools by offering to act as resources to service needs of those educators.

We intend to take into consideration the external feedback from our alumni survey as we embark on our extensive curriculum review. We also wish to make more use of the input
from our External Advisory Committee which includes respected educators at the local state and national level. We have included the Supervisor of Music of the Bozeman Public Schools as a member of our curriculum review committee.

We wish to continue to provide the very best in quality performance ensembles and also to work toward recruiting outstanding music students to all of our music curricula.

**Five-Year Department Commitments**

We want to increase the visibility of our Music Department around the State with student ensemble tours. Recruitment of new students for the University as well as the department will result. Utilization of faculty soloists, etc. with these ensembles also puts the faculty into the spotlight for the state and many music students are particularly enticed to a school because of an appealing teacher in their specific field.

We would like to continue and perhaps expand summer youth programs which create new opportunities for prospective students to meet and work with Music Department faculty.

We need to find more and better ways to identify, recruit and retain the finest student musicians Montana and the region has to offer.

We must investigate new lines for faculty within the department. Two needs are presently apparent: a full-time guitar position will soon be necessary because of the large number of guitar students coming to MSU; and a jazz program director position is necessary, since our jazz program is presently headed by the same faculty who heads the orchestra program (this person would be irreplaceable should he decide to leave this unprecedented-combination position).

Although we have less control over our physical plant, we are busting at the seams and we must investigate additional teaching and rehearsal space, preferably very near by Howard Hall.
Program Assessment

Feedback from Current Students
Music students have easy access to the music faculty. Music students are represented through the Student Advisory Committee, which meets with the Department Head at least bi-weekly to discuss issues of importance to both parties. This committee was established by Interim Department Head Alan Leech in Spring of 2008 in response to student request. Since there are representatives from each of the three degree options, all music major students in the department have quick access to the music faculty through this committee.

Due to the nature of Applied Music, many students feel very comfortable confiding in their instrumental or voice instructor about departmental issues. This allows for more immediate feedback to faculty from the students in addition to the SAC.

Moreover, each music student will meet with the Department Head as part of the sophomore review process, during which time the student may discuss program strengths and weaknesses. In response to faculty discussions, this sophomore review has been moved to take place during the first semester of the sophomore year. We found that waiting for the second semester was not as advantageous. Students who are having
obvious difficulty in the music core classes (written music theory, ear training skills, and keyboard class) will most likely not be able to advance further if they were unable to successfully meet the requirements the first time around. The department head is better able to discuss with students the likelihood that they will or will not be successful in music. It is better to help students realize that they could be more successful in another field before they invest too much time in music.

Student teachers now meet with the music education faculty during EDSD 413 Professional Issues to discuss the student teaching experience. Of particular importance is the discussion concerning the Department’s curriculum and the student teacher’s impression of how that curriculum met their classroom needs. These students also complete an anonymous exit survey to gather specific data about the preparation for student teaching. This data is shared with the faculty for consideration of program adjustment. Most recently we learned from a couple of our graduating seniors that they felt less well prepared in 20th Century music or in Jazz, since they did not feel as capable in answering questions in their PRAXIS exam for future Music Educators. We took action almost immediately and instituted a new course which is incorporated into the BME (and other two curriculae) to teach much more in those two areas: Mus 321, Music History III, 20th Century and Jazz.

The BA MTEC curriculum has been developed over the past four years, and courses began in the fall of 2006 for the first prospective majors. Students have been directly involved in the curriculum planning process: helping to choose equipment, providing course evaluations, and meeting individually with the Director of Music Technology for advising and to discuss their individual progress, goals, and needs. As the first two cohorts of BA MTEC majors continue through the curriculum, the Director of Music Technology maintains ongoing communication with each of them to ensure that the program meets their needs. The Department Head also meets individually with all BA MTEC students as part of the Sophomore Review process, mentioned above.

**Feedback from Outside Constituencies**

The Department of Music is a fully accredited member of the National Association of Schools of Music (NASM), the agency responsible for the accreditation of music curricula in higher education. As such, the Department undergoes rigorous accreditation review every ten years, most recently in Spring 2003. Yearly reports are also submitted to maintain accreditation. Based on NASM recommendations, the Department has developed Introduction to Recording and Computer Applications (MUS 220) to be required of all BME majors. As space permits, music majors are encouraged to take Introduction to Digital Music (MUS 115); thus far BA and BME majors have excelled in this course.

Additionally, the Department curriculum has regularly passed review by both the Montana Office of Public Instruction (OPI) and the National Council for Accreditation in Teacher Education (NCATE).

The Department developed discipline-specific survey administered to all graduates. This
survey has not been circulated since Fall 2003 when it was used to inform the strategic planning process for the Department in Spring 2004. This survey should be again circulated in Spring 2010.

The Department regularly receives feedback regarding the curriculum from cooperating teachers and administrators who accept our student teachers. A new survey for cooperating teachers is being implemented for use in Spring 2010. This along with the student teacher survey data will be shared with faculty at the end of the semester for consideration with regard to the BME music curriculum. Moreover, the needs and expectations of professional organizations, such as the Montana Music Educators’ Association, influence our curriculum as well.

Particularly for the students in Music Education and in the Bachelor of Arts in Music, we had discussions in several faculty meetings that indicated we were less happy with the abilities of our students to rehearse and conduct large ensembles (orchestras, bands, choruses). We decided to attempt to create more possibilities for the students to have “podium time”. The Curriculum Revision Committee devised two courses that would work in tandem with our more advanced Conducting classes: a Conducting Practicum for the conducting students and a set of lab ensembles (one choral and one instrumental). The music students have wanted courses to help them with conducting skills and willingly sign up for the lab ensembles, often playing instruments that are not their major for practice, and the conductors have podium time rehearsing and conducting these ensembles for experience. Guidance by faculty make the situations very desirable ones. We are currently assessing the success of this new addition.

NASM recommendations have been implemented in the BA MTEC curriculum. Specifically, the standards for admission past the gate were clarified with respect to music performance, and the balance of music, music technology, and general electives were adjusted to ensure that the BA MTEC degree meets NASM standards for a major in music technology within a liberal arts degree. In future years, the BA MTEC curriculum will phase in a senior internship program, which will be designed cooperatively with the local music and audio industries. We intend to give students the best possible contacts and professional experience, and to maintain ongoing communication with local industry to ensure that the MTEC curriculum provides the highest-quality preparation for this experience.

**Evaluation of Teaching**
All faculty members are required to distribute student evaluation forms in all classes at the end of the semester. The summary data is returned to the faculty member and reported as part of the annual review process. This information is discussed with faculty during the annual review meeting. Guidelines for an In-Depth Assessment of Teaching for promotion and tenure review have been approved by the Department of Music.

**Curriculum Review and Assessment Application**
Curricular review is an ongoing process in the Department. The Curriculum Committee meets regularly to discuss the Department’s curriculum, and brings suggestions for
curricular revision to the faculty for consideration and adoption. Our faculty meeting minutes demonstrate regular discussions of assessments and outcomes. We have instituted a Curriculum Revision Committee as necessary to facilitate larger changes in our curriculum, as we did over the last two years to work on specific identified problems. We are pleased with the comprehensive curriculum review that has just been completed Spring 2009 and resulted in several improvements to the BME program.

Curriculum development and review of Music Technology-specific changes within the departmental curriculum are accomplished jointly by the Department Head, Director of Music Technology, and head of the Curriculum Committee.

All assessment activities are used by the Department to improve the curriculum and to ensure that the curriculum provides BME graduates with the skills necessary for success in public school music teaching. Particularly the changes to the newly revised BME curriculum referred to above have resulted in the past year.

Assessment activities related to the BA MTEC curriculum ensure that Music Technology classes address the changing environment of the music industry, providing students with the range of skills and experience they need to forge their own pathways in this constantly changing field. All students must be able to manage to cope with any and all new equipment and musical approaches that they encounter in the future. Constant change in the field necessitates constant redesigning of our BA MTEC courses to help students develop their problem solving skills.
Department: MUSIC

Department Head: Alan Leech

Assessment Coordinator: Alan Leech

Degrees/Majors/Options Offered by Department:
Bachelor of Arts in Music
Bachelor of Arts in Music Technology
Bachelor of Music Education
Also, a non-teaching minor is offered by the Department of Music to non-music majors.

Program Assessment

Feedback from Current Students
Music students have easy access to the music faculty. Music students are represented through the Student Advisory Committee, which meets with the Department Head at least bi-weekly to discuss issues of importance to both parties. This committee was established by Interim Department Head Alan Leech in Spring of 2008 in response to student request. Since there are representatives from each of the three degree options, all music major students in the department have quick access to the music faculty through this committee.

Due to the nature of Applied Music, many students feel very comfortable confiding in their instrumental or voice instructor about departmental issues. This allows for more immediate feedback to faculty from the students in addition to the SAC.

Moreover, each music student will meet with the Department Head as part of the sophomore review process, during which time the student may discuss program strengths and weaknesses. In response to faculty discussions, this sophomore review has been moved to take place during the first semester of the sophomore year. We found that waiting for the second semester was not as advantageous. Students who are having
obvious difficulty in the music core classes (written music theory, ear training skills, and keyboard class) will most likely not be able to advance further if they were unable to successfully meet the requirements the first time around. The department head is better able to discuss with students the likelihood that they will or will not be successful in music. It is better to help students realize that they could be more successful in another field before they invest too much time in music.

Student teachers now meet with the music education faculty during EDSD 413 Professional Issues to discuss the student teaching experience. Of particular importance is the discussion concerning the Department’s curriculum and the student teacher’s impression of how that curriculum met their classroom needs. These students also complete an anonymous exit survey to gather specific data about the preparation for student teaching. This data is shared with the faculty for consideration of program adjustment. Most recently we learned from a couple of our graduating seniors that they felt less well prepared in 20th Century music or in Jazz, since they did not feel as capable in answering questions in their PRAXIS exam for future Music Educators. We took action almost immediately and instituted a new course which is incorporated into the BME (and other two curriculae) to teach much more in those two areas: Mus 321, Music History III, 20th Century and Jazz.

The BA MTEC curriculum has been developed over the past four years, and courses began in the fall of 2006 for the first prospective majors. Students have been directly involved in the curriculum planning process: helping to choose equipment, providing course evaluations, and meeting individually with the Director of Music Technology for advising and to discuss their individual progress, goals, and needs. As the first two cohorts of BA MTEC majors continue through the curriculum, the Director of Music Technology maintains ongoing communication with each of them to ensure that the program meets their needs. The Department Head also meets individually with all BA MTEC students as part of the Sophomore Review process, mentioned above.

**Feedback from Outside Constituencies**

The Department of Music is a fully accredited member of the National Association of Schools of Music (NASM), the agency responsible for the accreditation of music curricula in higher education. As such, the Department undergoes rigorous accreditation review every ten years, most recently in Spring 2003. Yearly reports are also submitted to maintain accreditation. Based on NASM recommendations, the Department has developed Introduction to Recording and Computer Applications (MUS 220) to be required of all BME majors. As space permits, music majors are encouraged to take Introduction to Digital Music (MUS 115); thus far BA and BME majors have excelled in this course.

Additionally, the Department curriculum has regularly passed review by both the Montana Office of Public Instruction (OPI) and the National Council for Accreditation in Teacher Education (NCATE).

The Department developed discipline-specific survey administered to all graduates. This
survey has not been circulated since Fall 2003 when it was used to inform the strategic planning process for the Department in Spring 2004. This survey should be again circulated in Spring 2010.

The Department regularly receives feedback regarding the curriculum from cooperating teachers and administrators who accept our student teachers. A new survey for cooperating teachers is being implemented for use in Spring 2010. This along with the student teacher survey data will be shared with faculty at the end of the semester for consideration with regard to the BME music curriculum. Moreover, the needs and expectations of professional organizations, such as the Montana Music Educators’ Association, influence our curriculum as well.

Particularly for the students in Music Education and in the Bachelor of Arts in Music, we had discussions in several faculty meetings that indicated we were less happy with the abilities of our students to rehearse and conduct large ensembles (orchestras, bands, choruses). We decided to attempt to create more possibilities for the students to have “podium time”. The Curriculum Revision Committee devised two courses that would work in tandem with our more advanced Conducting classes: a Conducting Practicum for the conducting students and a set of lab ensembles (one choral and one instrumental). The music students have wanted courses to help them with conducting skills and willingly sign up for the lab ensembles, often playing instruments that are not their major for practice, and the conductors have podium time rehearsing and conducting these ensembles for experience. Guidance by faculty make the situations very desirable ones. We are currently assessing the success of this new addition.

NASM recommendations have been implemented in the BA MTEC curriculum. Specifically, the standards for admission past the gate were clarified with respect to music performance, and the balance of music, music technology, and general electives were adjusted to ensure that the BA MTEC degree meets NASM standards for a major in music technology within a liberal arts degree. In future years, the BA MTEC curriculum will phase in a senior internship program, which will be designed cooperatively with the local music and audio industries. We intend to give students the best possible contacts and professional experience, and to maintain ongoing communication with local industry to ensure that the MTEC curriculum provides the highest-quality preparation for this experience.

**Evaluation of Teaching**
All faculty members are required to distribute student evaluation forms in all classes at the end of the semester. The summary data is returned to the faculty member and reported as part of the annual review process. This information is discussed with faculty during the annual review meeting. Guidelines for an In-Depth Assessment of Teaching for promotion and tenure review have been approved by the Department of Music.

**Curriculum Review and Assessment Application**
Curricular review is an ongoing process in the Department. The Curriculum Committee meets regularly to discuss the Department’s curriculum, and brings suggestions for
curricular revision to the faculty for consideration and adoption. Our faculty meeting minutes demonstrate regular discussions of assessments and outcomes. We have instituted a Curriculum Revision Committee as necessary to facilitate larger changes in our curriculum, as we did over the last two years to work on specific identified problems. We are pleased with the comprehensive curriculum review that has just been completed Spring 2009 and resulted in several improvements to the BME program.

Curriculum development and review of Music Technology-specific changes within the departmental curriculum are accomplished jointly by the Department Head, Director of Music Technology, and head of the Curriculum Committee.

All assessment activities are used by the Department to improve the curriculum and to ensure that the curriculum provides BME graduates with the skills necessary for success in public school music teaching. Particularly the changes to the newly revised BME curriculum referred to above have resulted in the past year.

Assessment activities related to the BA MTEC curriculum ensure that Music Technology classes address the changing environment of the music industry, providing students with the range of skills and experience they need to forge their own pathways in this constantly changing field. All students must be able to manage to cope with any and all new equipment and musical approaches that they encounter in the future. Constant change in the field necessitates constant redesigning of our BA MTEC courses to help students develop their problem solving skills.
MSU Departmental Assessment Report
Spring 2010

Department: Music

Department Head: Alan Leech

Assessment Coordinator: Alan Leech

Date: 1 September 2010

Degrees/Majors/Options Offered by Department
Bachelor of Arts in Music
Bachelor of Arts in Music Technology
Bachelor of Music Education
Also, a non-teaching minor in music is offered to non-music majors

Description of Department
The same assessment plan is not used for all of our departmental curriculae. The BA in Music is not followed as closely as the other two degrees, since it is not a “professional” degree, but a liberal arts degree. The BA in Music Technology is a unique program in the U.S. and we are currently building the program. Our first graduates are just now matriculating, and this is the time we have chosen for looking closely at that program. The BME students are held to fairly rigid demands by the oversight of Montana State accreditation/certification as they graduate and become public school teachers; we constantly are reviewing our teaching of those students in order to assess their performance and qualifications regarding certification.

Assessment Management Structure
Data collection for assessment of individual classes has been placed on the shoulders of each faculty member in relation to their own individual courses. Interpretation after collection of presented data is reviewed by Dept. Head and Music Dept. Curriculum Committee. Any actions deemed necessary are taken by faculty if changes should be made to courses or coursework, and by the curriculum committee and the faculty as a whole in cases where changes in curriculum have a more global need.

We have always presented and discussed curriculum issues to the faculty as a whole once some determination has been made by the Curriculum Committee. We have always found that it was easier to work from suggestions than to start new processes from scratch with
a committee “of the whole.” Four Music Faculty meetings this past year have been given over to the topic of assessment and our responses to identifiable problems.

**Assessment Process: Measures of Student Learning**
Our department is just entering a new approach to consideration of assessment as a tool to help improve our classes and program. We are starting with improvement of all individual class syllabi to include both clear learning outcomes and linking specific methods of assessment to learning objectives in an appropriate fashion. We would like to better reflect solid assessment techniques in our grading of students, and use those assessments to help guide our review of how we are doing.

**Assessment Process: Methods and Methodologies**
We have in the past two years completed a close look at our Bachelor of Music Education program in relation to student performance levels and needed competencies.

We attempted to correlate competencies required by state education certification organizations and performance of our students on the PRAXIS exams. We also utilized student interviews and feedback from employers of our recent graduates. Our assessment of student performance during their student teaching experience served as not only a capstone for the students, but also gave our supervisors a very good idea of exactly what the students were capable of accomplishing.

We have reviewed particular barriers that we have placed at various levels, such as proficiency tests of piano and guitar skills, and performance levels in Aural Perception and Written Theory courses. These proficiencies along with a Sophomore Review conducted by the Department Head have helped to identify problem spots for some students, although it also allows us to show the capable students that they are progressing in an expected fashion.

This past year, we took it upon ourselves to make a detailed investigation into our Music Technology Program, since we are just graduating our very first students in this program. We undertook a look at personal assessments made by the seniors in the program, utilized the information gained from the Senior Project/Capstone Course, and interviewed employers who had taken our students on in an Internship capacity.

For the Sophomore Review, which is conducted with music majors in all three of our degree options, input is gained from all appropriate faculty and a personal interview is conducted with each student. This procedure is undertaken in the first semester of each student’s sophomore year.

**Assessment Process: Analysis and Action**
We have managed to do fairly well in communicating with our students about the assessment of their individual progress in all options, but we do not have a very good method of keeping such information on hand for more comprehensive analysis. We are using the Sophomore Review as a method of “trend checking” for help in analysis of our overall progress toward graduating competent students.
The program review of our Music Technology program this year was fairly extensive and the first ever conducted of this new program, as stated above. The Music Tech faculty paid particular attention to the list of competencies that had been assembled to determine what to teach when within our program, and made certain that all competencies were being approached in appropriate classes and in an appropriate order. This detailed look took place with a committee of all faculty involved in this program (5 faculty members in our own department and in other departments).

The Music Tech program review has resulted in several changes in approach for a couple of classes: more careful attention to detail that is more likely to be retained by the students. We are also redistributing some of the topics across the courses in order to better cover and teach particular areas.

**Evaluation of Assessment Report**

The Music Department has become increasingly more active in collecting data and using that data in assessing the success of our three programs. We also review the success of our “outreach” to non-music majors across the campus. Society does depend on the arts for commentary, enjoyment/entertainment, and conscience. Without supporters of the arts in society, everyone is at a disadvantage, therefore our work with non-majors contributes toward future arts supporters and appreciation of the arts.

By encouraging all faculty to rewrite their syllabi to reflect realistic and understandable outcomes, and to indicate what appropriate assessment techniques will be used to determine student progress. And by discussing assessment in general faculty meetings, we assure everyone’s participation and understanding in the assessment process.

We have successfully managed to apply assessment of outcomes to identify problems as they have been identified within our degree programs. Particularly the BME and BA in Music Tech programs have been carefully looked at with respect to expected outcomes and assessments of how well student capabilities matched up.

The utilization of our Student Advisory Committee, elected by the students in each of the three options yearly, has also proven to be helpful in immediate answering of student concerns.

We hope to continue to improve in the area of outcomes assessment, since we have managed to make positive steps toward better utilization of assessment techniques. We have not made much use of outside feedback outside of matching our program to Teacher Education Certification standards. It is most likely time to mount another graduate survey.
Annual Assessment Report

Academic Year: 2013-14

Department: Montana State University School of Music

Program(s): Bachelor of Arts in Music

Bachelor of Arts in Music Technology

Bachelor of Music Education

1. What Was Done

A complete revision of the three assessment plans was carried out, after the committee found that the plans in place were much too onerous to implement without a dedicated faculty or staff member assigned to the task. The new plans are attached and faculty members have been assigned to carry out the assessment activities and a full report will be submitted December 15, 2015.

2. What Data were collected

Written reports from performance juries were collected from over 75% of majors in all three degree programs and they will be scored according to the rubrics in the separate degree plans and included in the aforementioned report.

Sample assignments from the senior capstone course were collected and will be scored according to the rubrics in the separate degree plans and included in the aforementioned report.
Department: Native American Studies

Department Head: Walter C. Fleming

Assessment Coordinator: Walter C. Fleming

Degrees/Majors/Options Offered by Department

Masters of Arts in Native American Studies
Annual Update of Assessment Activities

The following information represents new activities or procedures with respect to the departmental assessment plan.

The Department of Native American Studies has transitioned from using the Aleamoni form to the Knapp form effective Fall Semester 2007. The Department Head reviews the student evaluations in preparation for the annual reviews and discusses with the faculty member the results of the review.

It is the intent of the Department to begin to explore procedures for the assessment of student evaluations to take advantage of longitudinal analysis of the data afforded by the Aleamoni review process.

The Department recognizes the need for currency in updating the Student Outcomes Assessment Guide and related documents and intends to do so following an intensive external review to be conducted by the World Indigenous Nations Higher Education Consortium. This review is scheduled for the Summer of 2008 and will include a site visit during Fall Semester 2008. We anticipate some input to our assessment procedures based on recommendation from the accreditation team.
Current Assessment

Department Profile:

Faculty: Including the chair, the Department of Native American Studies (NAS) currently has four tenure/tenurable faculty members. We have recently (Fall 2008) hired two new faculty members at the Assistant level.

Other Personnel: Montana State University’s Native American Studies Department is quite pleased to house one of several Endowed Chairs in Native American Studies among colleges and universities in North America. O

Staff: The Department has one Professional Position – the Counselor Advisor/Counselor for Native students. This position advises Native students of which there are over 300 attending MSU. There are two classified support employees.

Degrees and Degree Options: NAS offers a non-teaching minor in Native American Studies and a Master of Arts degree, also in Native American Studies. We currently have approximately 45 undergraduate minor candidates and 8 master candidates.

Number of Graduate Students: MSU’s Master of Arts in Native American Studies is one of only a handful of such degree programs in the United States and Canada and is the only such program in the Pacific Northwest. Currently, we have 8 master students and an additional 5 applications pending. Ironic, perhaps, is that we generate more applications and requests for information from outside the United States. We are currently exploring Web-based instructional delivery opportunities to, hopefully, meet such demand.

Academic Emphasis: Coursework in Native American Studies focuses on the culture and history of Native peoples of the Americas, with specific coursework in Native Literature, Religion, Philosophy, and Education. In keeping with the mandate of the State of Montana’s “Indian Education for All” requirement, NAS courses in Montana Native history and culture are required of all Elementary Education majors.

As is appropriate, NAS’s academic mission includes participation in the Core Curriculum. Demand is high for NAS core courses that fulfill requirements in the Diversity category of the Core. NAS core courses are among the most requested courses and typically fill quickly. The Introduction to Native American Studies course (NAS 100) is taught by Graduate Teaching Assistants and we typically teach four sections per semester.

Areas of Emphasis in Research/Scholarly Activity: The NAS faculty’s research interests include the Tribal College Movement, Montana Native Culture and History, Tribal and Community Development, Pedagogy in Native American Studies and Native American Education.
Grant Activity: Our recent grant activity is primarily limited to individual faculty initiatives in support of their research agendas. But, one thing of note, the Office of Sponsored Programs strongly suggests that Native American Studies be consulted on any grant originating at MSU that involves Native students, communities, reservations or tribes.

Mission Statement:

Native American Studies was established to provide and advance quality education for and about American Indians of Montana, the region and the nation. In fulfilling this mission, the Department is committed to meet the changing needs of Montana’s Indian tribes and all Montana citizens through excellence in teaching, research, and service. In its academic program, the Department provides concentrated study through a minor and a Master of Arts degree in Native American Studies. Students in any major can also gain a multicultural perspective through NAS offerings in the University’s core curriculum. The Department, through its research and other creative efforts, actively pursues interdisciplinary scholarship in the field of Native American Studies.

Of Special Note: One of the challenges that is unique to Native American Studies is that we are charged with providing services to Native students, regardless of their academic home. NAS provides tutorial assistance, short-term loans and counseling services to a large number of the nearly 300 Native students on campus.

In support of this responsibility, Native American Studies has taken a leadership role in two major campaigns, vis; an $ 8 million capital campaign to build a Native American Student Center and a joint scholarship campaign to raise $ 2 million. The Department Head of Native American Studies has been charged by past deans to devote a significant portion of his energies to fundraising.
The College of Nursing’s Master Evaluation Plan is Policy A-9 (found on the college’s website at: www.montana.edu/nursing/facstaff/policies.htm). It is based on the Commission on Collegiate Nursing Education (CCNE) Standards for Accreditation of Baccalaureate and Graduate Nursing Programs and is currently being revised based on the new CCNE standards that went into effect in January 2006. The new CCNE standards are based on the Essentials of Baccalaureate Education for Professional Nursing Practice (AACN, 1998). The College of Nursing’s Undergraduate Academic Affairs Committee (UAAC) is mapping the new undergraduate curriculum using a grid based on the “Essentials” document to make sure that the BSN program includes a liberal education, professional values (including altruism, autonomy, human dignity, integrity and social justice), core competencies (including critical thinking, communication, assessment and technical skills), core knowledge (including Health Promotion, Risk Reduction, and Disease Prevention; Illness and Disease Management; Information and Health Care Technologies; Ethics; Human Diversity; Global Health Care; and Health Care Systems and Policy), and role development (including provider, designer, manager, and coordinator of care as well as being a member of the profession).

The new curriculum has now been fully implemented. The first students to complete it just graduated in Spring 2006. Each semester, as new courses were offered, UAAC sent out new course evaluation forms to both faculty and students to provide input on the new courses. This was done for every nursing course in the new curriculum. Based on these evaluations, some adjustments were made in courses where changes were recommended. In some cases, the courses were re-evaluated when they were taught a second time with changes implemented. All of the evaluations for sophomore and junior courses have been summarized. The evaluations for the senior courses will be summarized by UAAC in Fall 2006. The “Essentials” grid has been completed through the forms that faculty filled out the last two years. That document will be reviewed by UAAC during the 2006-07 AY.

**Current Undergraduate Program Assessment Tools:**

- EBI surveys of graduating seniors, alums, and employers;
- ATI exams for baccalaureate competencies of the graduating seniors;
- NCLEX-RN pass rates; and
- Others

The reviewing of undergraduate program assessment data that is collected in the College of Nursing is the responsibility of the Undergraduate Academic Affairs Committees (UAAC). Educational Benchmarking Incorporated (EBI) began offering nursing programs around the country an exit survey. The College of Nursing began utilizing this tool during the 2001-02 AY and has continued collecting and reviewing that data up to the present time. EBI provides three surveys for the undergraduate program: one is a paper and pencil exit survey that all of the graduating seniors take on each campus. Eleven factors are surveyed: Quality of Nursing Instruction, Work and Class Size, Course Lecture and Interaction, Facilities and Administration, Classmates, Professional Values, Core Competencies, Technical Skills, Core Knowledge, Role Development, and Overall Satisfaction with the Program. We receive overall scores for the
MSU nursing program, comparisons with six peer institutions of our choice, comparisons with all schools in the same Carnegie classification as MSU, and comparisons with all schools that participated around the country. The EBI exit survey also has 10 additional questions that relate specifically to the MSU terminal objectives for the BSN program.

The second is an electronic survey that our alums for the past two years will take in May 2006 for the first time. The third is an electronic survey that the employers of the alums will take. EBI began offering the electronic alum/employer surveys in 2005 which require the e-mail addresses of the alums. Those have been collected and submitted to EBI and the surveys will be administered this May for the first time. Alums from both the 2003-04 and the 2004-05 AY graduating classes will be surveyed. They in turn will submit the e-mail addresses for their employers who will also be surveyed.

When it was determined that the National League for Nursing (NLN) Comprehensive Baccalaureate Achievement Test was outdated, the college selected the Assessment Technologies Institute (ATI) exam to replace it. ATI provides a 3 hour 180 question exam which tests students in the areas of core knowledge and skills in the major clinical areas of Medical-Surgical, Maternal-Newborn, Care of Children, Mental Health, Community Health, and Leadership in Nursing. These paper and pencil exams are taken by graduating seniors on each campus. The students receive individual scores and the college receives composite scores for each campus group, for the entire program, and comparisons with other similar programs around the country (eg national scores). These are reported as mean scores and percentile ranks. ATI also provides “outcomes” scores related to cognitive areas, critical thinking, therapeutic nursing interventions, communications skills, and the nursing process. There is also some predictive value reported in relation to the probability of students passing NCLEX-RN. ATI has been used from Spring 2005 – Spring 2006.

NCLEX-RN pass rates are monitored quarterly and annually in a couple of ways: the official scores are received from the State Board of Nursing (SBN) and detailed NCLEX-RN reports are currently being obtained from Pearson Vue. We expect to see graduates scores at or, preferably, above the national average each reporting period.

Finally, all of the graduating seniors take a gerontology final examination so that we may review how well the graduates of the new curriculum with integrated gerontology content compare in terms of their gerontology knowledge with those who graduated in the old curriculum with a specific course in gerontology. A faculty member with expertise in gerontology is collecting this data from the last three cohorts of graduating seniors in the old curriculum and from the first three cohorts of graduating seniors in the new curriculum. By the end of Spring 2007, she will have all of the data and be ready to analyze it and provide a final report to UAAC. In the meantime, the ATI examination does have some data regarding gerontology content as well, so we will be able to see how well the College of Nursing study compares with what is learned from the data collected through the nationally standardized ATI exams.

UAAC reviews the data from each of the above exams, surveys and pass rates during regularly scheduled committee meetings each year. The review is documented in the UAAC minutes and, if needed, recommendations for changes are made. Because the college has just completed a
transition to the new curriculum, not many recommendations have been made recently. As part of the transition from the old to the new curriculum, UAAC has also asked faculty and students to fill out “new course” evaluation forms each year (new sophomore and junior courses are complete and senior courses will be complete in the fall). The UAAC chair has been summarizing the data and included that information in the Annual Report for UAAC.

The college also monitors the reports of the University Career Services each year in terms of how many of the nursing graduates stay in Montana and how many leave the state, what percent are employed in nursing, and other data related to employment, such as starting salaries for new graduates. One trend that we have noticed is that more students appear to be leaving the state after graduation. Also, the 2004 graduates were earning higher salaries in their first positions after graduation than any other graduates of the University, including those from Engineering.

Attached to this report are tables with summary data that have been collected by the college and reviewed by UAAC. UAAC has not made any recommendations for changes based on any of the data at this time. The reasons for no recommendations at this time are as follows:

**EBI** – Though data have been collected from 2002-2006, we only have the reports for 2002-2005 at this time. Each time the survey has been given, the 6 peer institutions have been changed and each year there have been new participating schools which has increased the number of comparisons with schools in the same Carnegie classification as well as all of the participating schools. Until this Spring, all of the data had been collected on students who had completed the old curriculum and the graduating seniors varied by the campuses where they had been educated. That fact has implications for EBI results since we do not get campus by campus results, but only overall program results. It appears that we need to have a few semesters/years of consistent data with students who graduate in the new curriculum before we base any changes on the data. We need to consistently be compared to the same 6 peer institutions as well.

**ATI** – Though data have been collected and summarized for the past three semesters (Spring 2005-Spring 2006), an old version (1.0) was inadvertently sent, administered to the students, and scored in Fall 2005 before it was discovered that it was the old (outdated) version of the test. During both Spring 2005 and 2006, the new version (2.0) was administered. Also, different campuses had graduating seniors who were taking these tests each of the 3 semesters, so there is no consistent data for reviewing trends. Billings and Missoula students took version 2.0 in Spring 2005; Billings, Great Falls, Kalispell, and Missoula students took version 1.0 in Fall 2005; and Billings, Bozeman, Great Falls, and Missoula students took version 2.0 in Spring 2006. Because of these factors and the fact that the Spring 2005 and Fall 2005 graduating seniors were completing the old curriculum, while the Spring 2006 graduating seniors were completing the new curriculum, there just were no commonalities upon which to make comparisons or see trends. However, it is believed that the individual scores were helpful to the students in preparing them to take the NCLEX-RN exam upon graduation.

**NCLEX-RN pass rates** – Though pass rates on NCLEX-RN have been obtained for years, the State Board of Nursing (SBON) has varied in the process of providing that data to the schools. We generally get some kind of quarterly and annual rates (sometimes based on a calendar year and sometimes on an academic or fiscal year) and sometimes we get the jurisdiction and national
pass rates as well, but not always. Sometimes we get information on graduates who apply for licensure out-of-state, but not consistently. Within the past year or so, we have subscribed to NCLEX-RN reports from Pearson Vue and they provide additional analyses on the various sections of the NCLEX-RN test plan blueprint so that we may not only see how our graduates did but how they compared with other programs around the country and how they did on specific topics covered by the NCLEX-RN exam, such as the Nursing Process, for example. MSU-Bozeman pass rates continue to meet or exceed jurisdiction and national pass rates. The most recent reports indicated a 97% pass rate for the last quarter of 2005 and the first quarter of 2006. Again, no recommendations for change have been based on these reports.

UAAC has reviewed most data and will continue to review the data next year as the new curriculum continues and the college begins to have a stable assessment plan with consistent measurements semester after semester. It is just too early in the new curriculum to make major recommendations for change at this time.
<table>
<thead>
<tr>
<th>Semester and Campus</th>
<th>Group Specialty Scores</th>
<th>Composite Group Score</th>
<th>Group Mean</th>
<th>Group Percentile Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>National</td>
<td>Program</td>
<td>National</td>
</tr>
<tr>
<td>Spring 2005 Billings</td>
<td>Group Composite Scores Medical-Surgical – 71.0%</td>
<td>72.0%</td>
<td>66.8%</td>
<td>66.8%</td>
</tr>
<tr>
<td>(32 students)</td>
<td>Maternal-Newborn – 66.7%</td>
<td></td>
<td>64.5%</td>
<td>64.3%</td>
</tr>
<tr>
<td></td>
<td>Care of Children – 60.8%</td>
<td></td>
<td>53.4%</td>
<td>54.6%</td>
</tr>
<tr>
<td></td>
<td>Mental Health – 86.6%</td>
<td></td>
<td>78.6%</td>
<td>78.7%</td>
</tr>
<tr>
<td></td>
<td>Community Health – 79.5%</td>
<td></td>
<td>75.7%</td>
<td>78.1%</td>
</tr>
<tr>
<td></td>
<td>Leadership – 79.5%</td>
<td></td>
<td>77.1%</td>
<td>76.9%</td>
</tr>
<tr>
<td>Spring 2005 Missoula</td>
<td>Group Composite Scores Medical-Surgical – 71.4%</td>
<td>71.2%</td>
<td>66.8%</td>
<td>66.8%</td>
</tr>
<tr>
<td>(21 students)</td>
<td>Maternal-Newborn – 63.8%</td>
<td></td>
<td>64.5%</td>
<td>64.3%</td>
</tr>
<tr>
<td></td>
<td>Care of Children – 55.0%</td>
<td></td>
<td>53.4%</td>
<td>54.6%</td>
</tr>
<tr>
<td></td>
<td>Mental Health – 85.2%</td>
<td></td>
<td>78.6%</td>
<td>78.7%</td>
</tr>
<tr>
<td></td>
<td>Community Health – 75.7%</td>
<td></td>
<td>75.7%</td>
<td>78.1%</td>
</tr>
<tr>
<td></td>
<td>Leadership – 83.5%</td>
<td></td>
<td>77.1%</td>
<td>76.9%</td>
</tr>
<tr>
<td>Fall 2005 Billings</td>
<td>Group Composite Scores Medical-Surgical – 63.6%</td>
<td>63.0%</td>
<td>61.6%</td>
<td>60.8%</td>
</tr>
<tr>
<td>(38 students)</td>
<td>Maternal-Newborn – 64.1%</td>
<td></td>
<td>59.5%</td>
<td>59.2%</td>
</tr>
<tr>
<td></td>
<td>Care of Children – 60.4%</td>
<td></td>
<td>59.4%</td>
<td>58.5%</td>
</tr>
<tr>
<td></td>
<td>Mental Health – 69.5%</td>
<td></td>
<td>65.6%</td>
<td>65.0%</td>
</tr>
<tr>
<td></td>
<td>Community Health – 50.0%</td>
<td></td>
<td>50.5%</td>
<td>51.8%</td>
</tr>
<tr>
<td></td>
<td>Leadership – 58.0%</td>
<td></td>
<td>59.5%</td>
<td>60.3%</td>
</tr>
<tr>
<td>Fall 2005 Great Falls</td>
<td>Group Composite Scores Medical-Surgical – 63.3%</td>
<td>61.9%</td>
<td>61.6%</td>
<td>60.8%</td>
</tr>
<tr>
<td>(32 students)</td>
<td>Maternal-Newborn – 58.6%</td>
<td></td>
<td>59.5%</td>
<td>59.2%</td>
</tr>
<tr>
<td></td>
<td>Care of Children – 59.2%</td>
<td></td>
<td>59.4%</td>
<td>58.5%</td>
</tr>
<tr>
<td></td>
<td>Mental Health – 68.4%</td>
<td></td>
<td>65.6%</td>
<td>65.0%</td>
</tr>
<tr>
<td></td>
<td>Community Health – 59.4%</td>
<td></td>
<td>50.5%</td>
<td>51.8%</td>
</tr>
<tr>
<td></td>
<td>Leadership – 57.2%</td>
<td></td>
<td>59.5%</td>
<td>60.3%</td>
</tr>
<tr>
<td>Fall 2005 Kalispell</td>
<td>Group Composite Scores Medical-Surgical – 66.9%</td>
<td>64.6%</td>
<td>61.6%</td>
<td>60.8%</td>
</tr>
<tr>
<td>(6 students)</td>
<td>Maternal-Newborn – 63.8%</td>
<td></td>
<td>59.5%</td>
<td>59.2%</td>
</tr>
<tr>
<td></td>
<td>Care of Children – 59.6%</td>
<td></td>
<td>59.4%</td>
<td>58.5%</td>
</tr>
<tr>
<td></td>
<td>Mental Health – 69.2%</td>
<td></td>
<td>65.6%</td>
<td>65.0%</td>
</tr>
<tr>
<td></td>
<td>Community Health – 61.1%</td>
<td></td>
<td>50.5%</td>
<td>51.8%</td>
</tr>
<tr>
<td></td>
<td>Leadership – 59.8%</td>
<td></td>
<td>59.5%</td>
<td>60.3%</td>
</tr>
<tr>
<td>Semester</td>
<td>Location</td>
<td>Version</td>
<td>Group Composite Scores</td>
<td>66.0%</td>
</tr>
<tr>
<td>----------</td>
<td>----------</td>
<td>---------</td>
<td>------------------------</td>
<td>-------</td>
</tr>
<tr>
<td>Fall 2005</td>
<td>Missoula</td>
<td>1.0</td>
<td>Medical-Surgical – 65.8%</td>
<td>62.8%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Maternal-Newborn – 69.6%</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Care of Children – 60.7%</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Mental Health – 73.4%</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Community Health – 65.2%</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Leadership – 63.9%</td>
<td></td>
</tr>
<tr>
<td>Spring 2006</td>
<td>Billings</td>
<td>2.0</td>
<td>Medical-Surgical – 66.3%</td>
<td>67.5%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Maternal-Newborn – 61.5%</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Care of Children - 57.1%</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Mental Health – 82.6%</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Community Health – 74.7%</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Leadership – 75.2%</td>
<td></td>
</tr>
<tr>
<td>Spring 2006</td>
<td>Bozeman</td>
<td>2.0</td>
<td>Medical-Surgical – 72.1%</td>
<td>72.1%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Maternal-Newborn – 64.6%</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Care of Children – 59.3%</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Mental Health – 83.2%</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Community Health – 84.1%</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Leadership – 82.5%</td>
<td></td>
</tr>
<tr>
<td>Spring 2006</td>
<td>Great Falls</td>
<td>2.0</td>
<td>Medical-Surgical – 71.6%</td>
<td>71.3%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Maternal-Newborn – 59.7%</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Care of Children – 58.0%</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Mental Health – 82.3%</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Community Health – 83.0%</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Leadership – 84.8%</td>
<td></td>
</tr>
<tr>
<td>Spring 2006</td>
<td>Missoula</td>
<td>2.0</td>
<td>Medical-Surgical – 69.2%</td>
<td>69.9%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Maternal-Newborn – 64.3%</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Care of Children – 54.5%</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Mental Health – 84.0%</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Community Health – 81.7%</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Leadership – 80.0%</td>
<td></td>
</tr>
</tbody>
</table>
MSU Departmental Assessment Update
Spring 2007

Department: College of Nursing

Department Head: NA

Assessment Coordinator: A. Gretchen McNeely, Associate Dean

Date: May 2007

Degrees/Majors/Options Offered by Department

BSN: Nursing Major
MN: Family Nurse Practitioner (FNP) Option;
    Clinical Nurse Specialist (CNS) Option,
    Clinical Nurse Leader (CNL) Option,
    Certificate in Nursing Education
Spring 2007 report for the 2006-07AY

Major: Nursing
Assessment Contact: A. Gretchen McNeely, DNSc, RN
Associate Dean and Associate Professor
Phone: (406) 994-3783
E-mail: gmcneely@montana.edu

Assessment Management Structure:

See College of Nursing Master Evaluation Plan (MEP) on the College of Nursing website at: http://www.montana.edu/nursing/facstaff/policies.htm Policy A-9 (revised Fall 2006). This policy clearly outlines the data to be gathered and by whom, as well as action to be taken in terms of reviewing the data and taking appropriate action based on the analysis of the data by the various committees that are charged with these responsibilities.

Degree Objectives:

Undergraduate program objectives for the BSN students upon completion of the program are as follows:

1. Utilize a foundation of community-based nursing to provide client-centered health care.
2. Synthesize theoretical and empirical knowledge from nursing, the sciences, the arts and the humanities to practice safe and effective professional nursing.
3. Apply principles of critical thinking in professional decision making.
4. Evaluate the applicability of research findings in evidence-based nursing practice.
5. Utilize evidence-based clinical judgments to assist clients with the promotion, maintenance and restoration of health; prevention of disease and death with dignity.
6. Incorporate professional values of altruism, autonomy, human dignity, integrity and social justice and value-based behaviors into nursing practice.
7. Employ legal and ethical principles in the practice of professional nursing.
8. Assume responsibility for career development and participation in life-long learning.
9. Utilize effective communication in professional relationships with clients in order to influence health and healing over time.
10. Utilize progressive technology and information systems to support nursing practice and deliver client care.
11. Collaborate with communities to design, implement, and evaluate population-based approaches to care.
12. Provide culturally sensitive direct and indirect care for clients across a variety of settings.
13. Participate as a member of the nursing profession.

Expected Competencies:
The Commission on Collegiate Nursing Education (CCNE), the national accrediting organization that accredits the BSN program, requires that the college utilize *The Essentials of Baccalaureate Education for Professional Nursing Education* (American Association of Colleges of Nursing, 1998) as a national standard for baccalaureate competencies. The expected core competencies of the BSN graduates include discipline specific core knowledge in the following areas:

- Health Promotion, Risk Reduction, and Disease Prevention
- Illness and Disease Management
- Information and Health Care Technologies
- Ethics
- Human Diversity
- Global Health Care
- Health Care Systems and Policy

In addition, the core competencies include critical thinking, communication, assessment and technical skills.

**Discipline specific knowledge/core knowledge:**

Discipline specific knowledge/core knowledge had been tested since 1998 by means of the National League for Nursing (NLN) Baccalaureate Achievement Test, a nationally standardized 148 item examination which was developed and normed on approximately 1100 baccalaureate nursing students across the nation. This comprehensive examination evaluates student’s knowledge in several areas: client’s health status, including risk factors, knowledge deficits, maturational or situational crises, altered physiological functioning, dysfunctional patterns of behavior, and leadership and research processes.

The College discontinued the use of the NLN Baccalaureate Achievement Test in 2004, believing that the test was outdated, and began utilizing the Assessment Technologies Institute (ATI) survey for discipline specific knowledge/core knowledge. Data has been collected since Spring 2005 from graduating seniors on all campuses. These data have been reviewed by the college’s Undergraduate Academic Affairs Committee (UAAC) at various times. The committee is planning to review the data collected during Spring 2007 during the Fall 2007 semester. (See Appendix A for Summary of ATI data collected from Spring 2005 through Spring 2007.)

No curricular recommendations have been formulated to date based on a review of the ATI surveys for the following reasons:

- The College of Nursing curriculum was revised and the first group of graduating seniors in the new curriculum was Spring 2006. That data could not be compared to the Fall or Spring 2005 data as those graduates completed the old curriculum.
- ATI sent us the new survey (Version 2.0) in Spring 2005, but sent us the old survey (Version 1.0) by mistake in Fall 2005. Therefore, even though both groups of students were educated in the old curriculum, they took different versions of the survey. Since then, the students have all completed Version 2.0 and graduated in the new curriculum.
We have consistently had graduates from the Billings and Missoula campuses every semester, but we didn’t start to have graduates from GF in both Fall and Spring semesters until the 2005-06 AY; half of them in the old curriculum and half of them in the new curriculum. We have had graduates from Kalispell in only Fall 2005 (old curriculum) and Fall 2006 (new curriculum), and graduates from Bozeman in only Spring 2006 and Spring 2007, all in the new curriculum.

In Spring 2007, ATI began to provide the data in a new format. For example, they no longer provide composite scores with national and program comparisons for: Critical Thinking, Therapeutic Nursing Interventions, Nursing Process, or NCLEX-RN Blueprint.

Eventually, we will have several years of consistent data that can be compared. In the meantime, comparison of the Version 2.0 group mean scores for Fall 2006 graduates by campus were: Billings (72.6%), Great Falls (70.7%), Kalispell (74.0%), and Missoula (71.1%) and Spring 2007 graduates by campus were: Billings (71.0%), Bozeman (73.6%), Great Falls (68.4%), and Missoula (72.4%). These scores can be compared with the national mean score (70.2%) for all programs in the US that educate students for licensure as Registered Nurses and with the program mean score (69.9%) for all Baccalaureate nursing programs in the US.

Critical thinking/problem-solving skills:

The college utilized the California Critical Thinking Test for many years by administering it to the sophomore nursing students enrolled in their first nursing course and then administering it again as the students were completing the senior year. The data were analyzed and found to be inconclusive in terms of measuring the improvement of critical thinking skills from the sophomore through the senior year and the college discontinued the use of this measurement in 1998. However, the ATI surveys that are currently administered do have a critical thinking component to them. The Critical Thinking scores for graduates for Fall 2006 were as follows:

<table>
<thead>
<tr>
<th>Campus</th>
<th>Interpretation</th>
<th>Analysis</th>
<th>Evaluation</th>
<th>Inference</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Billings</td>
<td>71.9%</td>
<td>77.4%</td>
<td>77.7%</td>
<td>61.5%</td>
<td>45.1%</td>
</tr>
<tr>
<td>Great Falls</td>
<td>69.0%</td>
<td>75.7%</td>
<td>75.3%</td>
<td>64.3%</td>
<td>47.1%</td>
</tr>
<tr>
<td>Kalispell</td>
<td>74.3%</td>
<td>77.1%</td>
<td>80.5%</td>
<td>63.7%</td>
<td>45.7%</td>
</tr>
<tr>
<td>Missoula</td>
<td>69.4%</td>
<td>77.6%</td>
<td>77.1%</td>
<td>58.2%</td>
<td>45.2%</td>
</tr>
</tbody>
</table>

There were no Bozeman graduates during Fall 2006. The range of scores on the five subscales for all campuses were: Interpretation (69.0-71.9%); Analysis (75.7-77.6%); Evaluation (75.3-80.5%); Inference (58.2-64.3%); and Explanation 45.1-47.1%). No national scores were provided for comparison.

The Critical Thinking scores for graduates in Spring 2007 were as follows:

<table>
<thead>
<tr>
<th>Campus</th>
<th>Interpretation</th>
<th>Analysis</th>
<th>Evaluation</th>
<th>Inference</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Billings</td>
<td>69.6%</td>
<td>76.0%</td>
<td>77.8%</td>
<td>59.2%</td>
<td>51.7%</td>
</tr>
</tbody>
</table>
There were no Kalispell graduates during Spring 2007. The range of scores on the five subscales for all campuses were: **Interpretation** (67.0 – 70.9%); **Analysis** (72.7 – 81.7%); **Evaluation** (74.8 – 78.6%); **Inference** (57.0 – 62.6%); and **Explanation** (47.3 – 51.7%). No national or program scores were provided for comparison.

As a part of critical thinking, a student’s ability to identify problems and recommend solutions specific to nursing care of clients (e.g., therapeutic nursing interventions) is evaluated by written nursing care plans. In addition, the ATI surveys include **Therapeutic Nursing Interventions** scores. For the Fall 2006 graduates, those scores were: **Billings** (72.0%); **Great Falls** (70.9%); **Kalispell** (76.5%); and **Missoula** (71.5%). National (71.3%) and Program (70.7%) scores were provided for comparison.

For the Spring 2007 graduates, those scores were: **Billings** (70.5%); **Bozeman** (74.7%); **Great Falls** (69.5%); and **Missoula** (70.2%). The range of scores was 69.5 – 74.7%. No national or program scores were provided for comparison.

Finally, a student is expected to implement the Nursing Process during the assigned clinical experience. The nursing process is dynamic problem solving. In the classroom, data from written examinations, oral presentations, and participation in group discussions are used to evaluate ability to analyze a client care situation and answer related questions. A student’s ability to analyze is also assessed through a student’s written and/or oral critique of research articles. ATI also provides data on the Nursing Process in five sub-scales. The **Nursing Process** scores for the Fall 2006 graduates were:

<table>
<thead>
<tr>
<th>Campus</th>
<th>Assessment</th>
<th>Diagnosis</th>
<th>Planning</th>
<th>Implementation</th>
<th>Evaluation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Billings</td>
<td>71.4%</td>
<td>77.4%</td>
<td>72.8%</td>
<td>70.5%</td>
<td>83.5%</td>
</tr>
<tr>
<td>Great Falls</td>
<td>72.0%</td>
<td>74.3%</td>
<td>69.8%</td>
<td>68.9%</td>
<td>77.6%</td>
</tr>
<tr>
<td>Kalispell</td>
<td>73.4%</td>
<td>74.3%</td>
<td>72.9%</td>
<td>73.5%</td>
<td>81.6%</td>
</tr>
<tr>
<td>Missoula</td>
<td>69.4%</td>
<td>69.6%</td>
<td>73.9%</td>
<td>69.6%</td>
<td>77.6%</td>
</tr>
</tbody>
</table>

There were no Bozeman graduates in Fall 2006. The range of scores on the five sub-scales for all campuses were: **Assessment** (69.4-73.4%); **Diagnosis** (69.6-77.4%); **Planning** (69.8-73.9%); **Implementation** (68.9-73.5%); and **Evaluation** (77.6-83.5%). No national scores were provided for comparisons.

The **Nursing Process** scores for the graduates in Spring 2007 were:

<table>
<thead>
<tr>
<th>Campus</th>
<th>Assessment</th>
<th>Diagnosis</th>
<th>Planning</th>
<th>Implementation</th>
<th>Evaluation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Billings</td>
<td>69.4%</td>
<td>75.6%</td>
<td>71.9%</td>
<td>69.3%</td>
<td>78.8%</td>
</tr>
<tr>
<td></td>
<td>Assessment</td>
<td>Diagnosis</td>
<td>Planning</td>
<td>Implementation</td>
<td>Evaluation</td>
</tr>
<tr>
<td>----------</td>
<td>------------</td>
<td>-----------</td>
<td>----------</td>
<td>----------------</td>
<td>------------</td>
</tr>
<tr>
<td>Bozeman</td>
<td>72.2%</td>
<td>71.3%</td>
<td>74.8%</td>
<td>73.0%</td>
<td>78.6%</td>
</tr>
<tr>
<td>Great Falls</td>
<td>66.7%</td>
<td>68.2%</td>
<td>70.3%</td>
<td>66.2%</td>
<td>80.7%</td>
</tr>
<tr>
<td>Missoula</td>
<td>71.1%</td>
<td>72.7%</td>
<td>74.0%</td>
<td>70.5%</td>
<td>78.9%</td>
</tr>
</tbody>
</table>

There were no Kalispell graduates in Spring 2007. The range of scores on the five sub-scales for all campuses were: **Assessment** (66.7 – 72.2%); **Diagnosis** (68.2 – 75.6%); **Planning** (70.3 – 74.8%); **Implementation** (66.2 – 73.0%); and **Evaluation** (78.6 -80.7%). No national scores were provided for comparisons.

**Communication skills:**

Oral communication skills are evaluated in the classroom during individual and/or group presentations. In clinical settings, oral communication is evaluated by monitoring conversations with clients, staff, and other students as well as with instructors. Students are expected to analyze communication by identifying and interpreting varied communication styles and to critique their own communication skills. Recording on the client record, a legal document, is an essential written communication activity in nursing care.

To successfully meet the curricular expectations for both written and oral communication skills in both the classroom and clinical settings, students must communicate at a satisfactory level as evaluated by the instructor over the semester. The instructor gathers data through scholarly papers, projects, examinations, and individual and group presentations. The ATI surveys that are currently administered also have a communication component to them. A comparison of group **Communication** scores from each campus with graduating seniors during **Fall 2006** revealed the following: **Billings** (77.3%); **Great Falls** (75.4%); **Kalispell** (77.1%); and **Missoula** (75.8%). The range of scores was 75.4-77.3%. The national (75.5%) and program (75.4%) scores were provided for comparison.

A comparison of group **Communication** scores from each campus with graduating seniors during **Spring 2007** revealed the following: **Billings** (74.9%); **Bozeman** (76.9%); **Great Falls** (73.2%); and **Missoula** (77.9%). The range of scores was 73.2 – 77.9%. No national comparisons were provided.

**Assessment skills:**

Various assessment skills are evaluated throughout the curriculum. Assessment is gathering information about the health status of the patient, analyzing and synthesizing those data, making judgments about nursing interventions based on the findings and evaluating patient care outcomes (the nursing process). These skills are evaluated in N239 and N223 in the sophomore level nursing courses and continuing through upper division nursing courses. The ATI surveys that are currently administered also include therapeutic nursing interventions and the nursing process components (see those scores above).

Assessment also includes understanding the family, community, or population and utilizing data from organizations and systems in planning and delivering care. These types of assessments are evaluated in the family courses (N348 and N349), the community courses (N377 and N477) and
in N418 as well as the care management courses (N345 and N445).

Technical skills:

Technical skills are evaluated throughout the curriculum as well. As students move through the various clinical nursing courses, they are taught and they practice the technical skills in the college laboratory as well as in the clinical laboratories. Faculty and preceptors supervise the clinical experiences of the students as they progress from the sophomore through the senior level courses and in each course, the students must demonstrate that they can perform the technical skills that are required before they move on to the next course. Clinical components of nursing courses are graded as pass or fail. Therefore, any clinical course that students have passed required that they successfully demonstrated the ability to perform the technical skills for that course.

Technical skills are also included in the Educational Benchmarking, Inc (EBI) survey that is administered to the graduating seniors each semester. An annual report that lumps both fall and spring graduates from all five of the college’s campus sites is provided with the following 11 major assessment areas:

1. Quality of Nursing Instruction
2. Work and Class Size
3. Course Lecture and Interaction
4. Facilities and Administration
5. Classmates
6. Professional Values
7. Core Competencies
8. Technical Skills
9. Core Knowledge
10. Role Development
11. Overall Satisfaction w/Program

In addition to having a mean score for the MSU-Bozeman College of Nursing each year, based on a scale of 1-7 with 1 being very poor and 7 being excellent, the college is also compared to 6 peer institutions that have been selected by the college Dean, all participating schools, and all schools that are in the same Carnegie Classification as MSU-Bozeman. The college currently has four years of data from the EBI surveys (2002-2006). For the 2006 report, the students at MSU scored Technical Skills at 5.94 compared with 5.99 at the Select Six schools, 5.93 at the Carnegie Classification schools, and 5.93 at all participating schools (see table below for Technical Skills scores for all years and Appendix B for a summary of all EBI results from 2002-2006). We will not receive EBI scores for 2007 until late in Summer 2007.

<table>
<thead>
<tr>
<th>Year/ # of students</th>
<th>MSU grads</th>
<th>Select 6 grads</th>
<th>Carnegie grads</th>
<th>All grads</th>
</tr>
</thead>
<tbody>
<tr>
<td>2002/N=79</td>
<td>6.10</td>
<td>5.79</td>
<td>5.83</td>
<td>5.88</td>
</tr>
<tr>
<td>2003/N=105</td>
<td>6.0</td>
<td>5.9</td>
<td>5.91</td>
<td>5.92</td>
</tr>
<tr>
<td>2004/N=114</td>
<td>6.07</td>
<td>5.71</td>
<td>5.92</td>
<td>5.91</td>
</tr>
</tbody>
</table>
### Additional Goals:

**BSN program:**

The College of Nursing monitors pass rates on the national licensure examination for registered nurses (NCLEX-RN) on a quarterly and annual basis. The goal is for the College of Nursing to maintain a pass rate that exceeds the state and national pass rate annually. The attached table (Appendix C) includes the annual college, state, and national pass rates from 1995-2006. The ATI surveys also include scores which are predictive in nature in terms of the ability of the graduates to successfully pass the NCLEX-RN licensure exam. She scores are provided for 8 content areas:

**Fall 2006 and Spring 2007 scores on NCLEX-RN Blueprint**

<table>
<thead>
<tr>
<th>Content Areas</th>
<th>Billings</th>
<th>Bozeman</th>
<th>Great Falls</th>
<th>Kalispell</th>
<th>Missoula</th>
</tr>
</thead>
<tbody>
<tr>
<td>Management of Care</td>
<td>78.2% S</td>
<td>82.8% S</td>
<td>76.9% S</td>
<td>81.1% F</td>
<td>82.5% S</td>
</tr>
<tr>
<td></td>
<td>81.8% F</td>
<td>83.0% F</td>
<td>81.1% F</td>
<td>80.9% F</td>
<td>80.9% F</td>
</tr>
<tr>
<td>Safety and Infection Control</td>
<td>82.8% S</td>
<td>84.8% S</td>
<td>79.8% S</td>
<td>79.5% F</td>
<td>77.8% S</td>
</tr>
<tr>
<td></td>
<td>83.0% F</td>
<td>86.6% F</td>
<td>86.6% F</td>
<td>78.3% F</td>
<td>78.3% F</td>
</tr>
<tr>
<td>Health Promotion and Maintenance</td>
<td>63.6% S</td>
<td>68.5% S</td>
<td>58.8% S</td>
<td>66.7% F</td>
<td>70.1% S</td>
</tr>
<tr>
<td></td>
<td>66.8% F</td>
<td>65.3% F</td>
<td>65.3% F</td>
<td>63.4% F</td>
<td>63.4% F</td>
</tr>
<tr>
<td>Psychosocial Integrity</td>
<td>83.1% S</td>
<td>91.3% S</td>
<td>84.1% S</td>
<td>82.9% F</td>
<td>86.1% S</td>
</tr>
<tr>
<td></td>
<td>84.9% F</td>
<td>85.0% F</td>
<td>85.0% F</td>
<td>86.1% F</td>
<td>86.1% F</td>
</tr>
<tr>
<td>Basic Care and Comfort</td>
<td>65.8% S</td>
<td>68.4% S</td>
<td>62.3% S</td>
<td>65.1% F</td>
<td>63.1% S</td>
</tr>
<tr>
<td></td>
<td>68.4% F</td>
<td>69.7% F</td>
<td>69.7% F</td>
<td>68.3% F</td>
<td>68.3% F</td>
</tr>
<tr>
<td>Pharmacological &amp; Parenteral Therapies</td>
<td>62.5% S</td>
<td>64.4% S</td>
<td>62.0% S</td>
<td>62.9% F</td>
<td>64.2% S</td>
</tr>
<tr>
<td></td>
<td>62.1% F</td>
<td>65.4% F</td>
<td>65.4% F</td>
<td>62.2% F</td>
<td>62.2% F</td>
</tr>
<tr>
<td>Reduction of Risk Potential</td>
<td>66.3% S</td>
<td>68.8% S</td>
<td>62.7% S</td>
<td>64.0% F</td>
<td>67.7% S</td>
</tr>
<tr>
<td></td>
<td>68.9% F</td>
<td>70.9% F</td>
<td>70.9% F</td>
<td>66.4% F</td>
<td>66.4% F</td>
</tr>
<tr>
<td>Physiological Adaptation</td>
<td>70.0% S</td>
<td>66.6% S</td>
<td>65.5% S</td>
<td>67.5% F</td>
<td>68.3% S</td>
</tr>
<tr>
<td></td>
<td>69.8% F</td>
<td>75.9% F</td>
<td>75.9% F</td>
<td>68.1% F</td>
<td>68.1% F</td>
</tr>
</tbody>
</table>

The prediction scale for passing NCLEX-RN is as follows:

- A score of 75% or better (98% probability of passing)
- A score of 74-75% (97% probability of passing)
- A score of 72-73% (96% probability of passing)
- A score of 70-71% (93% probability of passing)
- A score of 68-69% (89% probability of passing)
- A score of 66-67% (81% probability of passing)
- A score of 64-65% (71% probability of passing)
- A score of 62-63% (60% probability of passing)
Additionally, the College of Nursing monitors the ability of the BSN graduates to find employment as registered nurses and, as much as possible, retain these graduates in the state. The MSU Career Services Office surveys graduates of the University each year to determine whether or not the graduates have found employment in their discipline as well as what their salaries are and whether or not they are employed in Montana or out-of-state. The data from the 2003-2005 graduates of the BSN program are found in Appendix D. The goal is for all BSN graduates to find employment as registered nurses unless they are not seeking employment or are enrolled in graduate education. An additional goal is to retain a large percentage of BSN graduates in Montana - typically, about 70-75% are employed in Montana following graduation and licensure as registered nurses. The results of the 2006 survey are not yet available.

Finally, the College of Nursing is interested in the level of satisfaction with the BSN program and uses the Educational Benchmarking, Inc. (EBI) Survey to determine satisfaction. In addition, the survey gathers data on professional values, core competencies, technical skills, core knowledge, and role development. The last ten questions on the EBI survey also ask students how well they feel they have met each of the terminal objectives of the program (listed on page one of this report). Additionally, the College of Nursing receives results from the EBI Survey that compares the MSU graduates with graduates of the other participating nursing schools across the nation. The EBI data is reviewed each year by the Undergraduate Academic Affairs Committee (UAAC), but no recommendations have been made based on those data to date. See Appendix B for EBI Summary from 2002-2006.

During Summer 2006, EBI surveyed graduates/alums of the program from Fall 2003/Spring 2004 and Fall 2004/Spring 2005 via the web. In turn, the alums were asked to provide an e-mail address for their employers so that they could also respond to an Employer Survey. The Alumni and Employer surveys were completed during June 2006 and the college received a report from EBI with this data as compared to Alumni and Employers at the peer nursing programs. The results were: 323 e-mail addresses were provided for the alums. Of those, 283 were verified (40 failed verification), and 34 verified e-mails failed delivery. Only 70 alums responded (24.7%). Of the 70 who responded, only 7 submitted employer e-mails and only 6 were verified. Of those 6, only 2 employers responded (33.3%) which did not provide enough data to be analyzed.

The alumni surveys analyzed 15 factors on a 1-7 scale with 1 being the lowest and 7 being the highest score:

1. Nursing Program Promoted Successful Career
2. School Activities Contributed to Success
3. Importance of Patient Relationships and Care
4. Enhanced Patient Relationships and Care
5. Importance of Problem Solving
6. Enhanced Problem Solving
7. Importance of Community Health Care
8. Enhanced Community Health Care
9. Importance of Professional Relationships
10. Enhanced Professional Relationships
11. Importance of Professional Skills
12. Enhanced Professional Skills  
13. Importance of Management Skills  
14. Enhanced Management Skills  
15. Overall Program Effectiveness

<table>
<thead>
<tr>
<th>Factor</th>
<th>MSU grads</th>
<th>Select 6 grads</th>
<th>Carnegie grads</th>
<th>All grads</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>5.84</td>
<td>5.65</td>
<td>5.43</td>
<td>5.62</td>
</tr>
<tr>
<td>2</td>
<td>4.37</td>
<td>4.62</td>
<td>4.76</td>
<td>4.52</td>
</tr>
<tr>
<td>3</td>
<td>6.49</td>
<td>6.53</td>
<td>6.53</td>
<td>6.46</td>
</tr>
<tr>
<td>4</td>
<td>5.36</td>
<td>5.72</td>
<td>5.62</td>
<td>5.67</td>
</tr>
<tr>
<td>5</td>
<td>6.15</td>
<td>6.30</td>
<td>6.42</td>
<td>6.20</td>
</tr>
<tr>
<td>6</td>
<td>5.60</td>
<td>5.74</td>
<td>5.66</td>
<td>5.74</td>
</tr>
<tr>
<td>7</td>
<td>5.74</td>
<td>5.99</td>
<td>6.08</td>
<td>5.88</td>
</tr>
<tr>
<td>8</td>
<td>4.83</td>
<td>5.45</td>
<td>5.69</td>
<td>5.40</td>
</tr>
<tr>
<td>9</td>
<td>6.40</td>
<td>6.39</td>
<td>6.42</td>
<td>6.33</td>
</tr>
<tr>
<td>10</td>
<td>5.10</td>
<td>5.55</td>
<td>5.49</td>
<td>5.44</td>
</tr>
<tr>
<td>11</td>
<td>6.33</td>
<td>6.44</td>
<td>6.44</td>
<td>6.35</td>
</tr>
<tr>
<td>12</td>
<td>5.50</td>
<td>5.71</td>
<td>5.64</td>
<td>5.68</td>
</tr>
<tr>
<td>13</td>
<td>5.51</td>
<td>5.67</td>
<td>5.96</td>
<td>5.55</td>
</tr>
<tr>
<td>14</td>
<td>4.86</td>
<td>5.29</td>
<td>5.52</td>
<td>5.19</td>
</tr>
<tr>
<td>15</td>
<td>5.22</td>
<td>5.47</td>
<td>4.92</td>
<td>5.32</td>
</tr>
</tbody>
</table>

Plan for Gathering and Summarizing Data:

Each semester the College of Nursing gathers objective data on graduating seniors in the BSN program to: 1) determine achievement of competencies required for BSN graduates; 2) determine achievement of additional goals; and 3) determine satisfaction with the BSN program. The tools used for collecting these data are: 1) The Assessment Technologies Institute Survey (Spring 2005-Spring 2007); 2) NCLEX-RN pass rates; 3) Career Services reports; and 4) the EBI Survey of graduating seniors (Fall 2002-Spring 2007; as well as 5) The EBI Survey of Alumni and Employers (Summer 2006). When the results of these instruments are received each semester, they are summarized and sent to the College of Nursing Undergraduate Academic Affairs Committee (UAAC) for review, discussion, and recommendations to the faculty. UAAC also receives copies of recommendations, if any, from the State Board of Nursing Annual Reports, and recommendations, if any, from the Commission on Collegiate Nursing Education (CCNE), the national accrediting organization for the BSN program.

Plan for Utilizing Data:

The College of Nursing Undergraduate Academic Affairs Committee (UAAC) reviews all of the evaluative data that is collected each year, and recommends to the faculty any changes that are deemed necessary to improve the BSN program. UAAC minutes contain the documentation of the review and discussion as well as motions related to proposed changes. The motions go forward to the General Faculty Meetings for faculty discussion and vote. Those results are also
documented in the minutes of the GFM. During Fall 2006 and Spring 2007, UAAC reviewed/discussed evaluation/outcomes data during the following meetings: 9/18/06; 10/2/06; 10/16/06 and 4/2/07. No recommendations were forwarded to the faculty for discussion or vote.
<table>
<thead>
<tr>
<th>Semester and Campus</th>
<th>Group Specialty Scores</th>
<th>Composite Group Score (Campus Score)</th>
<th>Group Mean (National – all RN programs; Program – all BSN programs)</th>
<th>Group Percentile Rank (National – all RN programs; Program – all BSN programs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spring 2005 Billings (32 students)</td>
<td><strong>Group Composite Scores</strong>&lt;br&gt;Medical-Surgical – 71.0%&lt;br&gt;Maternal-Newborn – 66.7%&lt;br&gt;Care of Children – 60.8%&lt;br&gt;Mental Health – 86.6%&lt;br&gt;Community Health – 79.5%&lt;br&gt;Leadership – 79.5%</td>
<td>72.0% (Billings Campus Group Score – average of all individual student scores on the Billings Campus)</td>
<td>68.5% 68.7% 64.5% 53.4% 78.6% 75.7% 77.1%</td>
<td>84 84 68 99 95 84 74</td>
</tr>
<tr>
<td><strong>Version 2.0</strong>&lt;br&gt;Old Curriculum</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spring 2005 Missoula (21 students)</td>
<td><strong>Group Composite Scores</strong>&lt;br&gt;Medical-Surgical – 71.4%&lt;br&gt;Maternal-Newborn – 63.8%&lt;br&gt;Care of Children – 55.0%&lt;br&gt;Mental Health – 85.2%&lt;br&gt;Community Health – 75.7%&lt;br&gt;Leadership – 83.5%</td>
<td>71.2% (Missoula Campus Group Score – average of all individual student scores on the Missoula Campus)</td>
<td>68.5% 68.7% 64.5% 53.4% 78.6% 75.7% 77.1%</td>
<td>84 84 53 63 89 47 95</td>
</tr>
<tr>
<td><strong>Version 2.0</strong>&lt;br&gt;Old Curriculum</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fall 2005 Billings (38 students)</td>
<td><strong>Group Composite Scores</strong>&lt;br&gt;Medical-Surgical – 63.6%&lt;br&gt;Maternal-Newborn – 64.1%&lt;br&gt;Care of Children – 60.4%&lt;br&gt;Mental Health – 69.5%&lt;br&gt;Community Health – 50.0%&lt;br&gt;Leadership – 58.0%</td>
<td>63.0% (Billings Campus Group Score – average of all individual student scores on the Billings Campus)</td>
<td>61.6% 62.6% 59.5% 59.4% 65.6% 50.5% 59.5%</td>
<td>67 54 85 61 79 48 34</td>
</tr>
<tr>
<td><strong>Version 1.0</strong>&lt;br&gt;Old Curriculum</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fall 2005 Great Falls (32 students)</td>
<td><strong>Group Composite Scores</strong>&lt;br&gt;Medical-Surgical – 63.3%&lt;br&gt;Maternal-Newborn – 58.6%&lt;br&gt;Care of Children – 59.2%&lt;br&gt;Mental Health – 68.4%&lt;br&gt;Community Health – 59.4%&lt;br&gt;Leadership – 57.2%</td>
<td>61.9% (Great Falls Campus Group Score – average of all individual student scores on the Great Falls Campus)</td>
<td>61.6% 62.8% 59.5% 59.4% 65.6% 50.5% 59.5%</td>
<td>51 41 47 73 91 24 17</td>
</tr>
<tr>
<td><strong>Version 1.0</strong>&lt;br&gt;Old Curriculum</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fall 2005 Kalispell (6 students)</td>
<td><strong>Group Composite Scores</strong>&lt;br&gt;Medical-Surgical – 66.9%&lt;br&gt;Maternal-Newborn – 63.8%&lt;br&gt;Care of Children – 59.6%</td>
<td>64.6% (Kalispell Campus Group Score – average of all individual student scores on the Kalispell Campus)</td>
<td>61.6% 62.8% 59.5% 59.4%</td>
<td>87 90 83 51</td>
</tr>
<tr>
<td>Fall 2005 Missoula</td>
<td>Group Composite Scores</td>
<td>66.0% (Missoula Campus Group Score – average of all individual student scores on the Missoula Campus)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------------------</td>
<td>--------------------------------------------------------------------------------------------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(22 students)</td>
<td>Medical-Surgical – 65.8%</td>
<td>61.6%</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Maternal-Newborn – 69.6%</td>
<td>62.8%</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Care of Children – 60.7%</td>
<td>59.5%</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mental Health – 73.4%</td>
<td>59.4%</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Community Health – 65.2%</td>
<td>65.6%</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Leadership – 63.9%</td>
<td>50.5%</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>65.0%</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>60.3%</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>77</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>80</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>91</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>43</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spring 2006 Billings</td>
<td>Group Composite Scores</td>
<td>67.5% (Billings Campus Group Score – average of all individual student scores on the Billings Campus)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(40 students)</td>
<td>Medical-Surgical – 66.3%</td>
<td>68.5%</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Maternal-Newborn – 61.5%</td>
<td>68.7%</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Care of Children - 57.1%</td>
<td>64.5%</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mental Health – 82.6%</td>
<td>53.4%</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Community Health – 74.7%</td>
<td>78.6%</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Leadership – 75.2%</td>
<td>75.7%</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>77.1%</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>68.4%</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>37</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>38</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spring 2006 Bozeman</td>
<td>Group Composite Scores</td>
<td>72.1% (Bozeman Campus Group Score – average of all individual student scores on the Bozeman Campus)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(14 students)</td>
<td>Medical-Surgical – 72.1%</td>
<td>68.5%</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Maternal-Newborn – 64.6%</td>
<td>68.7%</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Care of Children - 59.3%</td>
<td>64.5%</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mental Health – 83.2%</td>
<td>53.4%</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Community Health – 84.1%</td>
<td>78.6%</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Leadership – 82.5%</td>
<td>75.7%</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>77.1%</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>68.4%</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>84</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>88</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spring 2006 Great Falls</td>
<td>Group Composite Scores</td>
<td>71.3% (Great Falls Campus Group Score – average of all individual student scores on the Great Falls Campus)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(15 students)</td>
<td>Medical-Surgical – 71.6%</td>
<td>68.5%</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Maternal-Newborn – 59.7%</td>
<td>68.7%</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Care of Children – 58.0%</td>
<td>64.5%</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mental Health – 82.3%</td>
<td>53.4%</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Community Health – 83.0%</td>
<td>78.6%</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Leadership – 84.8%</td>
<td>75.7%</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>77.1%</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>68.4%</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>84</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>88</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spring 2006 Missoula</td>
<td>Group Composite Scores</td>
<td>69.9% (Missoula Campus Group Score – average of all individual student scores on the Missoula Campus)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(20 students)</td>
<td>Medical-Surgical – 69.2%</td>
<td>68.5%</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Maternal-Newborn – 64.3%</td>
<td>68.7%</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Care of Children – 54.5%</td>
<td>64.5%</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mental Health – 84.0%</td>
<td>53.4%</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Community Health – 81.7%</td>
<td>78.6%</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Leadership – 80.0%</td>
<td>75.7%</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>77.1%</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>68.4%</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>79</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>88</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fall 2006 Billings</td>
<td>Group Composite Scores</td>
<td>72.6% (Billings Campus Group Score – average of all individual student scores)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(35 students)</td>
<td>Medical-Surgical – 72.6%</td>
<td>70.2%</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Maternal-Newborn – 68.3%</td>
<td>70.3%</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>69.9%</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>74</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>77</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>88</td>
<td></td>
<td></td>
</tr>
<tr>
<td>New Curriculum</td>
<td>Group Composite Scores</td>
<td>Fall 2006 Great Falls (14 students)</td>
<td>Fall 2006 Kalispell (7 students)</td>
<td>Fall 2006 Missoula (23 students)</td>
</tr>
<tr>
<td>--------------------------------------</td>
<td>----------------------------------------------------------------------------------------</td>
<td>------------------------------------</td>
<td>----------------------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td>Medical-Surgical – 71.0%</td>
<td>70.7% (Great Falls Campus Group Score – average of all individual student scores on the Great Falls Campus)</td>
<td>70.2% (Kalispell Campus Group Score – average of all individual student scores on the Kalispell Campus)</td>
<td>71.1% (Missoula Campus Group Score – average of all individual student scores on the Missoula Campus)</td>
</tr>
<tr>
<td></td>
<td>Maternal-Newborn – 61.4%</td>
<td>64.3%</td>
<td>70.2%</td>
<td>70.0%</td>
</tr>
<tr>
<td></td>
<td>Care of Children – 57.1%</td>
<td>57.0%</td>
<td>64.3%</td>
<td>64.3%</td>
</tr>
<tr>
<td></td>
<td>Mental Health – 83.9%</td>
<td>82.7%</td>
<td>57.0%</td>
<td>57.0%</td>
</tr>
<tr>
<td></td>
<td>Community Health – 81.3%</td>
<td>75.2%</td>
<td>82.7%</td>
<td>82.7%</td>
</tr>
<tr>
<td></td>
<td>Leadership – 81.9%</td>
<td>77.0%</td>
<td>75.2%</td>
<td>75.2%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>57.0%</td>
<td>57.0%</td>
<td>57.0%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>65.6%</td>
<td>76.5%</td>
<td>82.5%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>72</td>
<td>49</td>
<td>95</td>
</tr>
<tr>
<td></td>
<td></td>
<td>72</td>
<td>62</td>
<td>92</td>
</tr>
<tr>
<td></td>
<td></td>
<td>57.0%</td>
<td>57.0%</td>
<td>57.0%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>83.9%</td>
<td>83.9%</td>
<td>83.9%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>70.0%</td>
<td>70.0%</td>
<td>70.0%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>61.4%</td>
<td>61.4%</td>
<td>61.4%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>57.1%</td>
<td>57.1%</td>
<td>57.1%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>62.7%</td>
<td>62.7%</td>
<td>62.7%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>77.0%</td>
<td>77.0%</td>
<td>77.0%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>83.6%</td>
<td>83.6%</td>
<td>83.6%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>75.4%</td>
<td>75.4%</td>
<td>75.4%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>87.3%</td>
<td>87.3%</td>
<td>87.3%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>76.6%</td>
<td>76.6%</td>
<td>76.6%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>76.1%</td>
<td>76.1%</td>
<td>76.1%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>76.5%</td>
<td>76.5%</td>
<td>76.5%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>71.9%</td>
<td>71.9%</td>
<td>71.9%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>75.2%</td>
<td>75.2%</td>
<td>75.2%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>76.6%</td>
<td>76.6%</td>
<td>76.6%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>82.5%</td>
<td>82.5%</td>
<td>82.5%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>76.1%</td>
<td>76.1%</td>
<td>76.1%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>83.7%</td>
<td>83.7%</td>
<td>83.7%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>70.9%</td>
<td>70.9%</td>
<td>70.9%</td>
</tr>
<tr>
<td>Version 2.0 New Curriculum</td>
<td>Maternal-Newborn – 57.1%</td>
<td>Care of Children – 57.6%</td>
<td>Mental Health – 84.7%</td>
<td>Community Health – 77.1%</td>
</tr>
<tr>
<td>---------------------------</td>
<td>---------------------------</td>
<td>---------------------------</td>
<td>------------------------</td>
<td>------------------------</td>
</tr>
<tr>
<td>all individual student scores on the Great Falls Campus</td>
<td>64.3%</td>
<td>57.0%</td>
<td>82.7%</td>
<td>75.2%</td>
</tr>
<tr>
<td>Group Composite Scores</td>
<td>63.9%</td>
<td>56.5%</td>
<td>82.5%</td>
<td>76.1%</td>
</tr>
<tr>
<td>Version 2.0 New Curriculum</td>
<td>Group Composite Scores</td>
<td>Medical-Surgical – 70.5%</td>
<td>Maternal-Newborn – 69.3%</td>
<td>Care of Children – 58.0%</td>
</tr>
<tr>
<td>72.1% (Missoula Campus Group Score – average of all individual student scores on the Missoula Campus)</td>
<td>70.2%</td>
<td>70.3%</td>
<td>64.3%</td>
<td>57.0%</td>
</tr>
<tr>
<td></td>
<td>69.9%</td>
<td>70.0%</td>
<td>63.9%</td>
<td>56.5%</td>
</tr>
</tbody>
</table>
| | 68 | 42 | 83 | 51 | 69 | 95 | 93 | 68 | 50 | 83 | 51 | 75 | 92 | 93
## Appendix B
Educational Benchmarking Incorporated (EBI) Survey of BSN graduating seniors (2002-2006)

<table>
<thead>
<tr>
<th>Year/N</th>
<th>11 Factors Surveyed</th>
<th>MSU-Bozeman Factor Average (based on scale of 1-7 with 1 being very poor and 7 being excellent)</th>
<th>Select 6 Schools</th>
<th>Carnegie Class</th>
<th>All Schools</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>MSU Rank w/ Select 6 Peer Schools</td>
<td>Factor Average</td>
<td>MSU Rank out of schools in the Class</td>
<td>Factor Average</td>
</tr>
<tr>
<td>2002 (N=79)</td>
<td>Quality of Nursing Instruction</td>
<td>5.0</td>
<td>4.75</td>
<td>2/7</td>
<td>4.86</td>
</tr>
<tr>
<td></td>
<td>Work and Class Size</td>
<td>4.96</td>
<td>4.98</td>
<td>5/7</td>
<td>5.02</td>
</tr>
<tr>
<td></td>
<td>Course Lecture and Interaction</td>
<td>5.13</td>
<td>5.11</td>
<td>6/7</td>
<td>5.17</td>
</tr>
<tr>
<td></td>
<td>Facilities and Administration</td>
<td>4.27</td>
<td>4.58</td>
<td>6/7</td>
<td>4.77</td>
</tr>
<tr>
<td></td>
<td>Classmates</td>
<td>5.44</td>
<td>5.46</td>
<td>5/7</td>
<td>5.36</td>
</tr>
<tr>
<td></td>
<td>Professional Values</td>
<td>6.26</td>
<td>6.17</td>
<td>2/7</td>
<td>6.04</td>
</tr>
<tr>
<td></td>
<td>Core Competencies</td>
<td>5.72</td>
<td>5.73</td>
<td>4/7</td>
<td>5.69</td>
</tr>
<tr>
<td></td>
<td>Technical Skills</td>
<td>6.10</td>
<td>5.79</td>
<td>2/7</td>
<td>5.83</td>
</tr>
<tr>
<td></td>
<td>Core Knowledge</td>
<td>5.63</td>
<td>5.42</td>
<td>4/7</td>
<td>5.5</td>
</tr>
<tr>
<td></td>
<td>Role Development</td>
<td>5.84</td>
<td>5.62</td>
<td>3/7</td>
<td>5.6</td>
</tr>
<tr>
<td></td>
<td>Overall Satisfaction w/ Program</td>
<td>4.9</td>
<td>4.5</td>
<td>3/7</td>
<td>4.53</td>
</tr>
<tr>
<td>2003 (N=105)</td>
<td>Quality of Nursing Instruction</td>
<td>4.79</td>
<td>4.87</td>
<td>5/7</td>
<td>4.67</td>
</tr>
<tr>
<td></td>
<td>Work and Class Size</td>
<td>4.77</td>
<td>5.09</td>
<td>6/7</td>
<td>4.98</td>
</tr>
<tr>
<td></td>
<td>Course Lecture and Interaction</td>
<td>5.13</td>
<td>5.26</td>
<td>5/7</td>
<td>4.98</td>
</tr>
<tr>
<td></td>
<td>Facilities and Administration</td>
<td>4.04</td>
<td>4.76</td>
<td>7/7</td>
<td>4.65</td>
</tr>
<tr>
<td></td>
<td>Classmates</td>
<td>5.39</td>
<td>5.47</td>
<td>5/7</td>
<td>5.24</td>
</tr>
<tr>
<td></td>
<td>Professional Values</td>
<td>6.10</td>
<td>6.13</td>
<td>4/7</td>
<td>5.97</td>
</tr>
<tr>
<td></td>
<td>Core Competencies</td>
<td>5.68</td>
<td>5.77</td>
<td>4/7</td>
<td>5.59</td>
</tr>
<tr>
<td></td>
<td>Technical Skills</td>
<td>6.0</td>
<td>5.90</td>
<td>2/7</td>
<td>5.91</td>
</tr>
<tr>
<td></td>
<td>Core Knowledge</td>
<td>5.3</td>
<td>5.46</td>
<td>4/7</td>
<td>5.34</td>
</tr>
<tr>
<td></td>
<td>Role Development</td>
<td>5.63</td>
<td>5.63</td>
<td>4/7</td>
<td>5.53</td>
</tr>
<tr>
<td></td>
<td>Overall Satisfaction w/ Program</td>
<td>4.64</td>
<td>4.68</td>
<td>4/7</td>
<td>4.37</td>
</tr>
<tr>
<td>2004 (N=114)</td>
<td>Quality of Nursing Instruction</td>
<td>5.04</td>
<td>4.85</td>
<td>3/7</td>
<td>4.82</td>
</tr>
<tr>
<td></td>
<td>Work and Class Size</td>
<td>4.98</td>
<td>4.98</td>
<td>4/7</td>
<td>5.00</td>
</tr>
<tr>
<td></td>
<td>Course Lecture and Interaction</td>
<td>5.16</td>
<td>5.20</td>
<td>3/7</td>
<td>5.21</td>
</tr>
<tr>
<td></td>
<td>Facilities and Administration</td>
<td>4.36</td>
<td>4.60</td>
<td>7/7</td>
<td>4.74</td>
</tr>
<tr>
<td></td>
<td>Classmates</td>
<td>5.34</td>
<td>5.36</td>
<td>3/7</td>
<td>5.37</td>
</tr>
<tr>
<td></td>
<td>Professional Values</td>
<td>6.12</td>
<td>6.04</td>
<td>5/7</td>
<td>6.04</td>
</tr>
<tr>
<td>2005 (N=116)</td>
<td>Quality of Nursing Instruction</td>
<td>Work and Class Size</td>
<td>Course Lecture and Interaction</td>
<td>Facilities and Administration</td>
<td>Classmates</td>
</tr>
<tr>
<td>--------------</td>
<td>--------------------------------</td>
<td>---------------------</td>
<td>-------------------------------</td>
<td>-------------------------------</td>
<td>------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.83</td>
<td>5.05</td>
<td>4/7</td>
<td>4.71</td>
<td>11/19</td>
<td>4.91</td>
</tr>
<tr>
<td>4.66</td>
<td>4.96</td>
<td>7/7</td>
<td>4.96</td>
<td>16/19</td>
<td>5.08</td>
</tr>
<tr>
<td>5.14</td>
<td>5.36</td>
<td>5/7</td>
<td>5.17</td>
<td>12/19</td>
<td>5.36</td>
</tr>
<tr>
<td>4.22</td>
<td>4.96</td>
<td>7/7</td>
<td>4.60</td>
<td>19/19</td>
<td>4.79</td>
</tr>
<tr>
<td>5.32</td>
<td>5.40</td>
<td>4/7</td>
<td>5.36</td>
<td>14/19</td>
<td>5.46</td>
</tr>
<tr>
<td>6.19</td>
<td>6.17</td>
<td>4/7</td>
<td>6.04</td>
<td>9/19</td>
<td>6.11</td>
</tr>
<tr>
<td>5.70</td>
<td>5.82</td>
<td>4/7</td>
<td>5.65</td>
<td>10/19</td>
<td>5.78</td>
</tr>
<tr>
<td>6.08</td>
<td>5.93</td>
<td>3/7</td>
<td>5.81</td>
<td>6/19</td>
<td>5.88</td>
</tr>
<tr>
<td>5.37</td>
<td>5.58</td>
<td>6/7</td>
<td>5.35</td>
<td>11/19</td>
<td>5.54</td>
</tr>
<tr>
<td>5.64</td>
<td>5.70</td>
<td>5/7</td>
<td>5.51</td>
<td>9/19</td>
<td>5.67</td>
</tr>
<tr>
<td>4.63</td>
<td>4.96</td>
<td>6/7</td>
<td>4.46</td>
<td>9/19</td>
<td>4.71</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.89</td>
<td>5.03</td>
<td>5/7</td>
<td>4.91</td>
<td>12/18</td>
<td>4.96</td>
</tr>
<tr>
<td>4.79</td>
<td>5.09</td>
<td>5/7</td>
<td>5.09</td>
<td>15/18</td>
<td>5.16</td>
</tr>
<tr>
<td>5.22</td>
<td>5.39</td>
<td>5/7</td>
<td>5.37</td>
<td>14/18</td>
<td>5.41</td>
</tr>
<tr>
<td>4.25</td>
<td>4.99</td>
<td>7/7</td>
<td>4.82</td>
<td>16/18</td>
<td>4.83</td>
</tr>
<tr>
<td>5.26</td>
<td>5.59</td>
<td>6/7</td>
<td>5.40</td>
<td>11/18</td>
<td>5.49</td>
</tr>
<tr>
<td>6.12</td>
<td>6.18</td>
<td>5/7</td>
<td>6.09</td>
<td>11/18</td>
<td>6.15</td>
</tr>
<tr>
<td>5.69</td>
<td>5.89</td>
<td>6/7</td>
<td>5.74</td>
<td>12/18</td>
<td>5.82</td>
</tr>
<tr>
<td>5.94</td>
<td>5.99</td>
<td>4/7</td>
<td>5.93</td>
<td>12/18</td>
<td>5.93</td>
</tr>
<tr>
<td>5.57</td>
<td>5.58</td>
<td>4/7</td>
<td>5.49</td>
<td>7/18</td>
<td>5.57</td>
</tr>
<tr>
<td>5.62</td>
<td>5.75</td>
<td>6/7</td>
<td>5.65</td>
<td>12/18</td>
<td>5.72</td>
</tr>
<tr>
<td>4.58</td>
<td>4.92</td>
<td>5/7</td>
<td>4.68</td>
<td>12/18</td>
<td>4.77</td>
</tr>
</tbody>
</table>
Appendix C
PERFORMANCE OF MSU-BOXEMAN STUDENTS ON NATIONAL LICENSING EXAMINATIONS (NCLEX-RN) FROM 1995 - 2006

Performance of first time candidates on the NCLEX-RN from 1995-2006

<table>
<thead>
<tr>
<th>Year</th>
<th># of Candidates</th>
<th>% Passed MSU</th>
<th>% Passed Montana</th>
<th>% Passed National</th>
</tr>
</thead>
<tbody>
<tr>
<td>1995</td>
<td>115</td>
<td>94.78</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1996</td>
<td>104</td>
<td>94.23</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1997</td>
<td>100</td>
<td>90.0</td>
<td>86.4</td>
<td>87.8</td>
</tr>
<tr>
<td>1998</td>
<td>107</td>
<td>97.2</td>
<td>90.6</td>
<td>85.0</td>
</tr>
<tr>
<td>1999</td>
<td>114</td>
<td>95.6</td>
<td>87.2</td>
<td>84.8</td>
</tr>
<tr>
<td>2000</td>
<td>103</td>
<td>94.2</td>
<td>86.9</td>
<td>83.8</td>
</tr>
<tr>
<td>2001</td>
<td>117</td>
<td>95.2</td>
<td>87.9</td>
<td>85.5</td>
</tr>
<tr>
<td>2002</td>
<td>104</td>
<td>93.3</td>
<td>89.3</td>
<td>86.3</td>
</tr>
<tr>
<td>2003</td>
<td>145</td>
<td>87.59</td>
<td>84.64</td>
<td>81.58</td>
</tr>
<tr>
<td>2004</td>
<td>151</td>
<td>93.38</td>
<td>87.97</td>
<td>85.26</td>
</tr>
<tr>
<td>2005</td>
<td>163</td>
<td>87.12</td>
<td>88.89</td>
<td>86.25</td>
</tr>
<tr>
<td>2006</td>
<td>192</td>
<td>93.23</td>
<td>85.01</td>
<td>88.11</td>
</tr>
<tr>
<td>2007</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Appendix D
Montana State University-Bozeman Career Services Employment and Salary Surveys (College of Nursing) 2003-2005

<table>
<thead>
<tr>
<th>Year</th>
<th>Total Graduates</th>
<th>Respondents</th>
<th>Employed in Field</th>
<th>Unemployed</th>
<th>Continuing Education and Employed</th>
<th>Continuing Education and Unemployed</th>
<th>In-state vrs Out-of-state Employment</th>
<th>Salary</th>
<th># reporting salary</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2005</td>
<td>139</td>
<td>92 (66%)</td>
<td>82 (90%)</td>
<td>3 (3%)</td>
<td>2 (2%)</td>
<td></td>
<td>72% MT 28% Out-of-state Employment</td>
<td>$42,008</td>
<td>82/92</td>
</tr>
<tr>
<td>2004</td>
<td>125</td>
<td>84/125 (67%)</td>
<td>64/84 (76%) FT</td>
<td>1 (1%)</td>
<td>0</td>
<td>4 (5%)</td>
<td>71% MT 29% Out-of-state Employment</td>
<td>$42,023</td>
<td>59/84</td>
</tr>
<tr>
<td>2003</td>
<td>119</td>
<td>71/119 (60%)</td>
<td>63/71 (89%)</td>
<td>2 (3%)</td>
<td>0</td>
<td>0</td>
<td>76% MT 24% Out-of-state Employment</td>
<td>$37,200</td>
<td>55/71</td>
</tr>
</tbody>
</table>
Assessment Plan for the College of Nursing  
Spring 2009 Report

**Major:** Nursing  
**Assessment Contact:** A. Gretchen McNeely, DNSc, RN  
Associate Dean for Undergraduate Programs/Associate Professor  
Phone: (406) 994-3783  
E-mail: gmcneely@montana.edu

**Assessment Management Structure:**

See College of Nursing Master Evaluation Plan (MEP) on the College of Nursing website at: [http://www.montana.edu/nursing/facstaff/policies.htm](http://www.montana.edu/nursing/facstaff/policies.htm). Policy A-9 (revised Fall 2006 & is currently under additional revision due to changes in the CCNE Standards effective January 2010) outlines the data to be gathered and by whom, as well as action to be taken in terms of reviewing the data and making recommendations based on the analysis of the data by the various individuals/committees that are charged with these responsibilities.

**Degree Objectives:**

Undergraduate program objectives for the BSN students upon completion of the program are as follows:

1. Utilize a foundation of community-based nursing to provide client-centered health care.
2. Synthesize theoretical and empirical knowledge from nursing, the sciences, the arts and the humanities to practice safe and effective professional nursing.
3. Apply principles of critical thinking in professional decision making.
4. Evaluate the applicability of research findings in evidence-based nursing practice.
5. Utilize evidence-based clinical judgments to assist clients with the promotion, maintenance and restoration of health; prevention of disease and death with dignity.
6. Incorporate professional values of altruism, autonomy, human dignity, integrity and social justice and value-based behaviors into nursing practice.
7. Employ legal and ethical principles in the practice of professional nursing.
8. Assume responsibility for career development and participation in life-long learning.
9. Utilize effective communication in professional relationships with clients in order to influence health and healing over time.
10. Utilize progressive technology and information systems to support nursing practice and deliver client care.
11. Collaborate with communities to design, implement, and evaluate population-based approaches to care.
12. Provide culturally sensitive direct and indirect care for clients across a variety of settings.
13. Participate as a member of the nursing profession.
**Expected Competencies:**

The Commission on Collegiate Nursing Education (CCNE), the national accrediting organization that accredits the BSN program, requires that the college utilize *The Essentials of Baccalaureate Education for Professional Nursing Practice* (American Association of Colleges of Nursing, 2008) as a national standard for baccalaureate competencies. The expected competencies of the BSN graduates include discipline specific core knowledge in the following areas:

- Liberal Education for Baccalaureate Generalist Nursing Practice
- Basic Organizational and Systems Leadership for Quality Care and Patient Safety
- Scholarship for Evidence-Based Practice
- Information Management and Application of Patient Care Technology
- Healthcare Policy, Finance, and Regulatory Environments
- Interprofessional Communication and Collaboration for Improving Patient Health Outcomes
- Clinical Prevention and Population Health
- Professionalism and Professional Values
- Baccalaureate Generalist Nursing Practice

**Discipline specific knowledge/core knowledge:**

Discipline specific knowledge/core knowledge had been tested since Spring 2005 by means of the Assessment Technologies Institute (ATI) Comprehensive Predictor survey taken by graduating seniors on all campuses. These data have been reviewed by the college’s Undergraduate Academic Affairs Committee (UAAC) at various times (usually annually). (See Appendix A for Summary of ATI data collected from Spring 2005 through Spring 2009.)

No curricular recommendations have been formulated to date based on a review of the ATI surveys for the following reasons:

- The College of Nursing curriculum was revised and the first group of graduating seniors in the new curriculum was Spring 2006. That data could not be compared to the Fall or Spring 2005 data as those graduates completed the old curriculum.
- ATI sent us the new survey (Version 2.0) in Spring 2005, but sent us the old survey (Version 1.0) by mistake in Fall 2005. Therefore, even though both groups of students were educated in the old curriculum, they took different versions of the survey. Beginning in Fall 2008, the students have all completed the new Predictor 2007 Test A and graduated in the new curriculum.
- We have consistently had graduates from the Billings and Missoula campuses every semester, but we didn’t start to have graduates from GF in both Fall and Spring semesters until the 2005-06 AY; half of them in the old curriculum and half of them in the new curriculum. We have had graduates from Kalispell in only Fall 2005 (old curriculum) and Fall 2006-Fall 2008 (new curriculum), and graduates from Bozeman in only Spring 2006-Spring 2009, all in the new curriculum.
- ATI began to provide the data in different formats. The format for the past two semesters of the 2008-09 AY has remained the same.
At the present time, we have consistent data utilizing the Predictor 2007 Test A for Fall 2008 and Spring 2009 for Billings, Great Falls and Missoula. We have one semester of data for Kalispell (Fall 2008) and Bozeman (Spring 2009). The Table in Appendix A shows the mean scores for each campus compared with both the national scores for all students and the scores for all BSN students. Scores among the five MSU campuses can also be compared. During the Spring 2009 Course Group meetings, faculty began to review the ATI results that were specific to pharmacology and both junior and senior level medical-surgical nursing content in an effort to determine content that is being taught across all campuses in those specialty areas which are so critical to NCLEX-RN content.

**Thinking skills:**

The ATI surveys that are currently administered, also have a thinking skills component to them. **Thinking Skills** are tested in two areas: 1) **Foundational Thinking Skills** are defined as the ability to recall and comprehend information and concepts foundational to quality nursing practice; and 2) **Clinical Judgment/Critical Thinking Skills** are defined as the ability to use critical thinking skills (interpretation, analysis, evaluation, inference, and explanation) to make a clinical judgment regarding a posed clinical problem and includes cognitive abilities of application and analysis. The **Thinking Skills** scores for graduates from Fall 2008 and Spring 2009 were as follows:

<table>
<thead>
<tr>
<th>Thinking Skills Test</th>
<th>Billings</th>
<th>Bozeman</th>
<th>Great Falls</th>
<th>Kalispell</th>
<th>Missoula</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foundational Thinking</td>
<td>F’08 68.8%</td>
<td>Sp’09 71.9%</td>
<td>F’08 68.5%</td>
<td>Sp’09 69.1%</td>
<td>F’08 76.9%</td>
</tr>
<tr>
<td>Critical Thinking</td>
<td>F’08 68.6%</td>
<td>Sp’09 69.8%</td>
<td>F’08 68.6%</td>
<td>Sp’09 65.2%</td>
<td>F’08 72.5%</td>
</tr>
</tbody>
</table>

There were no Bozeman graduates during Fall 2008 and no Kalispell graduates during Spring 2009. The range of scores for all campuses were: **Foundational Thinking** (68.5-73.4%) and **Critical Thinking** (65.2-73.7%). No national scores were provided for comparison.

As a part of critical thinking, a student’s ability to identify problems and recommend solutions specific to nursing care of clients (e.g. therapeutic nursing interventions) is also evaluated by written nursing care plans in all clinical nursing courses.

Students are expected to implement the **Nursing Process** during assigned clinical experiences. The nursing process is dynamic problem solving. In the classroom, data from written examinations, oral presentations, and participation in group discussions are used to evaluate ability to analyze a client care situation and answer related questions. A student’s ability to analyze is also assessed through a student’s written and/or oral critique of research articles. ATI also provides data on the Nursing Process in five sub-scales. The **Nursing Process** scores for the Fall 2008 graduates were:
There were no Bozeman graduates in Fall 2008. The range of scores on the five sub-scales for all campuses were: Assessment (63.3-72.7%); Analysis/Diagnosis (61.9-69.0%); Planning (67.2-75.6%); Implementation (71.9-74.2%); and Evaluation (71.1-79.7%). No national scores were provided for comparisons.

The Nursing Process scores for the graduates in Spring 2009 were:

<table>
<thead>
<tr>
<th>Campus</th>
<th>Assessment</th>
<th>Analysis/Diagnosis</th>
<th>Planning</th>
<th>Implementation</th>
<th>Evaluation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Billings</td>
<td>67.5%</td>
<td>64.4%</td>
<td>69.3%</td>
<td>73.5%</td>
<td>73.9%</td>
</tr>
<tr>
<td>Bozeman</td>
<td>74.6%</td>
<td>68.3%</td>
<td>73.8%</td>
<td>75.5%</td>
<td>74.0%</td>
</tr>
<tr>
<td>Great Falls</td>
<td>63.3%</td>
<td>57.2%</td>
<td>65.0%</td>
<td>70.8%</td>
<td>70.6%</td>
</tr>
<tr>
<td>Missoula</td>
<td>61.7%</td>
<td>64.9%</td>
<td>75.2%</td>
<td>71.3%</td>
<td>73.6%</td>
</tr>
</tbody>
</table>

There were no Kalispell graduates in Spring 2009. The range of scores on the five sub-scales for all campuses were: Assessment (61.7-74.6%); Analysis/Diagnosis (57.2-68.3%); Planning (65.0-75.2%); Implementation (70.8-75.5%); and Evaluation (70.6-73.9%). No national scores were provided for comparisons.

Communication skills:

Oral communication skills are evaluated in the classroom during individual and/or group presentations. In clinical settings, oral communication is evaluated by monitoring conversations with clients, staff, and other students as well as with instructors. Students are expected to analyze communication by identifying and interpreting varied communication styles and to critique their own communication skills. Recording on the client record, a legal document, is an essential written communication activity in nursing care.

To successfully meet the curricular expectations for both written and oral communication skills in both the classroom and clinical settings, students must communicate at a satisfactory level as evaluated by the instructor over the semester. The instructor gathers data through scholarly papers, projects, examinations, and individual and group presentations.

Clinical skills:

Various clinical skills are evaluated throughout the curriculum. These include assessment skills. Assessment is gathering information about the health status of the patient, analyzing and
In addition to the Nursing Process scores, the ATI surveys that are currently administered, also include scores related to establishing priorities and the sequencing of care to clients. **Priority setting** is defined as the ability to demonstrate nursing judgment in making decisions about priority responses to a client problem.

<table>
<thead>
<tr>
<th>Test</th>
<th>Billings</th>
<th>Bozeman</th>
<th>Great Falls</th>
<th>Kalispell</th>
<th>Missoula</th>
</tr>
</thead>
<tbody>
<tr>
<td>Priority Setting</td>
<td>F’08 69.5%</td>
<td>Sp’09 72.3%</td>
<td>F’08 71.0%</td>
<td>Sp’09 76.7%</td>
<td>F’08 71.3%</td>
</tr>
</tbody>
</table>

The range of scores for this test for Fall 2008 was 69.5-71.3%; for Spring 2009, the range was 68.2-76.7%. No national scores were provided for comparisons.

Other clinical skills are technical skills which are evaluated throughout the curriculum as well. As students move through the various clinical nursing courses, they are taught and they practice the technical skills in the college laboratory as well as in the clinical laboratories. Faculty and preceptors supervise the clinical experiences of the students as they progress from the sophomore through the senior level courses and in each course, the students must demonstrate that they can perform the technical skills that are required before they move on to the next course. Clinical components of nursing courses are graded as pass or fail. Therefore, any clinical course that students have passed required that they successfully demonstrated the ability to perform the technical skills for that course.

Technical skills are included in the Educational Benchmarking Inc. (EBI) survey that is administered to the graduating seniors each semester. An annual report that lumps both fall and spring graduates from all five of the college’s campus sites is provided with the following 11 major assessment areas:

- Quality of Nursing Instruction
- Work and Class Size
- Course Lecture and Interaction
- Facilities and Administration
- Classmates
- Professional Values
- Core Competencies
- **Technical Skills**
- Core Knowledge
- Role Development
- Overall Satisfaction w/ Program
In addition to having a mean score for the MSU-Bozeman College of Nursing each year, based on a scale of 1-7 with 1 being very poor and 7 being excellent, the college is also compared to 6 peer institutions that have been selected by the college Dean, all participating schools, and all schools that are in the same Carnegie Classification as MSU-Bozeman. The college currently has six years of data from the EBI surveys (2002-2008). For the 2008 report, the students at MSU scored **Technical Skills** at 6.18 (the highest score on this area for the past 7 years) compared with 6.04 at the Select Six schools, 5.95 at the Carnegie Classification schools, and 5.98 at all participating schools. We will not receive EBI scores for 2009 until late in Summer 2009. In addition, the Executive Council of the College of Nursing has acted upon the recommendation of the Undergraduate Academic Affairs Committee to discontinue the use of the EBI surveys after this year as they are expensive and do not provide useful data to the college that is cost-effective.

<table>
<thead>
<tr>
<th>Year</th>
<th>MSU grads</th>
<th>Select 6 grads</th>
<th>Carnegie grads</th>
<th>All grads</th>
</tr>
</thead>
<tbody>
<tr>
<td>2002</td>
<td>6.10</td>
<td>5.79</td>
<td>5.83</td>
<td>5.88</td>
</tr>
<tr>
<td>2003</td>
<td>6.0</td>
<td>5.9</td>
<td>5.91</td>
<td>5.92</td>
</tr>
<tr>
<td>2004</td>
<td>6.07</td>
<td>5.71</td>
<td>5.92</td>
<td>5.91</td>
</tr>
<tr>
<td>2005</td>
<td>6.08</td>
<td>5.93</td>
<td>5.81</td>
<td>5.88</td>
</tr>
<tr>
<td>2006</td>
<td>5.94</td>
<td>5.99</td>
<td>5.93</td>
<td>5.93</td>
</tr>
<tr>
<td>2007</td>
<td>6.14</td>
<td>5.99</td>
<td>5.89</td>
<td>5.96</td>
</tr>
<tr>
<td>2008</td>
<td>6.18</td>
<td>6.04</td>
<td>5.95</td>
<td>5.98</td>
</tr>
</tbody>
</table>

The ATI test also provides scores for clinical topics including **Adult Medical-Surgical Nursing**, **Nursing Care of Children**, and **Maternal Newborn Nursing**. These scores for all campuses in Fall 2008 and Spring 2009 are included in the following table:

<table>
<thead>
<tr>
<th>Clinical Topics</th>
<th>Billings</th>
<th>Bozeman</th>
<th>Great Falls</th>
<th>Kalispell</th>
<th>Missoula</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adult Med-Surg Nrsng</td>
<td>F’08 66.4%</td>
<td>Sp’09 67.3%</td>
<td>F’08 70.8%</td>
<td>F’08 61.7%</td>
<td>Sp’09 59.7%</td>
</tr>
<tr>
<td>Nursing of Children</td>
<td>F’08 62.7%</td>
<td>Sp’09 68.9%</td>
<td>F’08 69.9%</td>
<td>F’08 69.3%</td>
<td>Sp’09 63.0%</td>
</tr>
<tr>
<td>Maternal Newborn Nursing</td>
<td>F’08 76.8%</td>
<td>Sp’09 72.5%</td>
<td>F’08 83.8%</td>
<td>F’08 78.1%</td>
<td>Sp’09 76.7%</td>
</tr>
</tbody>
</table>

The range of scores for **Adult Medical-Surgical Nursing** is 61.7-70.8%; **Nursing of Children** is 62.7-69.9%; and **Maternal Newborn Nursing** is 72.5-83.8%. No national scores were provided for comparisons.
Additional Goals:

BSN program:

The College of Nursing monitors pass rates on the national licensure examination for registered nurses (NCLEX-RN) on a quarterly, twice a year, and annual basis. The goal is for the College of Nursing to maintain a pass rate that exceeds the state and national pass rate annually. This past year, the Undergraduate Academic Affairs Committee recommended a “benchmark” of 90% on an annual basis beginning in the 2009-2010 AY. The attached table (Appendix B) includes the college, state and national pass rates from 1995-2008.

Additionally, the College of Nursing monitors the ability of the BSN graduates to find employment as registered nurses and, as much as possible, retain these graduates in the state. The MSU Career Services Office surveys graduates of the University each year to determine whether or not the graduates have found employment in their discipline as well as what their salaries are and whether or not they are employed in Montana or out-of-state. The data from the graduates of the BSN program from 2003-2008 are found in Appendix C. The goal is for all BSN graduates to find employment as registered nurses unless they are not seeking employment or are enrolled in graduate education. An additional goal is to retain a large percentage of BSN graduates in Montana - typically, about 70-75% are employed in Montana following graduation and licensure as registered nurses.

Finally, the College of Nursing is interested in the level of satisfaction with the BSN program and uses the Educational Benchmarking, Inc. (EBI) Survey to determine satisfaction. In addition, the survey gathers data on professional values, core competencies, technical skills, core knowledge, and role development. The last ten questions on the EBI survey also ask students how well they feel they have met each of the terminal objectives of the program. Additionally, the College of Nursing receives results from the EBI Survey that compares the MSU graduates with graduates of the other participating nursing schools across the nation. The EBI data is reviewed each year by the Undergraduate Academic Affairs Committee (UAAC), and in Spring 2009, they recommended to the Executive Council that the EBI testing be discontinued due to the high cost and limited useful data.

During Summer 2006, the college surveyed graduates/alums of the program from Fall 2003/Spring 2004 and Fall 2004/Spring 2005 via the web. In turn, the alums were asked to provide an e-mail address for their employers so that they could also respond to an Employer Survey. The Alumni and Employer surveys are done through EBI and the college received a report from EBI with this data as compared to Alumni and Employers at the peer nursing programs. The response rate for the Employer survey was so low that no data could be analyzed.

The University also conducts an annual Senior Survey which includes some specific questions related to the nursing major. Data from those surveys are provided to the Dean of the College of Nursing during the summer/fall following data collection in the previous academic year. Data are currently available for the years 2006, 2007, and 2008. Those survey data are also reviewed by the UAAC and the results are also shared with the Campus Directors.

Plan for Gathering and Summarizing Data:
Each semester the College of Nursing gathers data on graduating seniors in the BSN program to:
1) determine achievement of competencies required for BSN graduates; 2) determine satisfaction with the BSN program; and 3) determine how likely the individual students are to pass NCLEX-RN. The tools used for collecting this data are: 1) Assessment Technologies Institute (Spring 2005-Spring 2009); 2) The EBI Survey of graduating seniors (Fall 2002-Spring 2009); and 3) The EBI Survey of Alumni and Employers (Summer 2006). When the results of these instruments were received, they were summarized and sent to the College of Nursing Undergraduate Academic Affairs Committee (UAAC) for review, analysis, and recommendations to the faculty. UAAC also receives copies of NCLEX-RN pass rates, results of the MSU Career Services Survey, recommendations, if any, from the State Board of Nursing Annual Reports, and recommendations, if any, from the Commission on Collegiate Nursing Education (CCNE), the national accrediting organization for the BSN program. The College of Nursing hosted an on-site visit in October 2008 for both the State Board of Nursing and CCNE and received confirmation of 10 more years of continuing accreditation from both bodies.

**Plan for Utilizing Data:**

The College of Nursing Undergraduate Academic Affairs Committee (UAAC) reviews and analyses all of the evaluative data that is collected each year, and recommends to the faculty any changes that are deemed necessary to improve the BSN program. UAAC minutes contain the documentation of the review and analysis as well as motions, if any, related to proposed changes. The motions go forward to the College’s Executive Council (EC) and/or the General Faculty Meetings (GFM) for discussion and vote. Those results are also documented in the minutes of the EC and GFM.
Department: College of Nursing

Department Head: NA

Assessment Coordinator: A. Gretchen McNeely, Associate Dean for Undergraduate Programs

Date: May 2008

Degrees/Majors/Options Offered by Department

BSN: Nursing Major
Spring 2008 report for the 2007-08AY

Major: Nursing
Assessment Contact: A. Gretchen McNeely, DNSc, RN
Associate Dean for Undergraduate Programs and
Associate Professor
Phone: (406) 994-3783
E-mail: gmcneely@montana.edu

Assessment Management Structure:

See College of Nursing Master Evaluation Plan (MEP) on the College of Nursing website at: http://www.montana.edu/nursing/facstaff/policies.htm Policy A-9 (revised Fall 2006). This policy clearly outlines the data to be gathered and by whom, as well as action to be taken in terms of reviewing the data and taking appropriate action based on the analysis of the data by the various committees that are charged with these responsibilities.

Degree Objectives:

Undergraduate program objectives for the BSN students upon completion of the program are as follows:

1. Utilize a foundation of community-based nursing to provide client-centered health care.
2. Synthesize theoretical and empirical knowledge from nursing, the sciences, the arts and the humanities to practice safe and effective professional nursing.
3. Apply principles of critical thinking in professional decision making.
4. Evaluate the applicability of research findings in evidence-based nursing practice.
5. Utilize evidence-based clinical judgments to assist clients with the promotion, maintenance and restoration of health; prevention of disease and death with dignity.
6. Incorporate professional values of altruism, autonomy, human dignity, integrity and social justice and value-based behaviors into nursing practice.
7. Employ legal and ethical principles in the practice of professional nursing.
8. Assume responsibility for career development and participation in life-long learning.
9. Utilize effective communication in professional relationships with clients in order to influence health and healing over time.
10. Utilize progressive technology and information systems to support nursing practice and deliver client care.
11. Collaborate with communities to design, implement, and evaluate population-based approaches to care.
12. Provide culturally sensitive direct and indirect care for clients across a variety of settings.
13. Participate as a member of the nursing profession.
Expected Competencies:

The Commission on Collegiate Nursing Education (CCNE), the national accrediting organization that accredits the BSN program, requires that the college utilize *The Essentials of Baccalaureate Education for Professional Nursing Education* (American Association of Colleges of Nursing, 1998) as a national standard for baccalaureate competencies. The expected core competencies of the BSN graduates include discipline specific core knowledge in the following areas:

- Health Promotion, Risk Reduction, and Disease Prevention
- Illness and Disease Management
- Information and Health Care Technologies
- Ethics
- Human Diversity
- Global Health Care
- Health Care Systems and Policy

In addition, the core competencies include critical thinking, communication, assessment and technical skills.

Discipline specific knowledge/core knowledge:

Discipline specific knowledge/core knowledge had been tested since 1998 by means of the National League for Nursing (NLN) Baccalaureate Achievement Test, a nationally standardized 148 item examination which was developed and normed on approximately 1100 baccalaureate nursing students across the nation. This comprehensive examination evaluated student’s knowledge in several areas: client’s health status, including risk factors, knowledge deficits, maturational or situational crises, altered physiological functioning, dysfunctional patterns of behavior, and leadership and research processes.

The College discontinued the use of the NLN Baccalaureate Achievement Test in Fall 2004 and began utilizing the Assessment Technologies Institute (ATI) survey for discipline specific knowledge/core knowledge. ATI data has been collected since Spring 2005 from graduating seniors on all campuses. These data have been reviewed by the college’s Undergraduate Academic Affairs Committee (UAAC) at various times. The committee is planning to review the data collected during the 2007-2008 AY during the Fall 2008 semester. (See Appendix A for Summary of ATI data collected from Spring 2005 through Spring 2008.)

No curricular recommendations have been formulated to date based on a review of the ATI surveys for the following reasons:

- The College of Nursing curriculum was revised and the first group of graduating seniors in the new curriculum was Spring 2006. That data could not be compared to the Fall or Spring 2005 data as those graduates completed the old curriculum.
- ATI sent us the new survey (Version 2.0) in Spring 2005, but sent us the old survey (Version
1.0) by mistake in Fall 2005. Therefore, even though both groups of students were educated in the old curriculum, they took different versions of the survey. Since then, the students have all completed Version 2.0 and graduated in the new curriculum.

- We have consistently had graduates from the Billings and Missoula campuses every semester, but we didn’t start to have graduates from GF in both Fall and Spring semesters until the 2005-06 AY; half of them in the old curriculum and half of them in the new curriculum. We have had graduates from Kalispell in Fall 2005 (old curriculum) and Fall 2006 and Fall 2007 (new curriculum), and graduates from Bozeman in Spring 2006, 2007, and 2008 (all in the new curriculum).

- In Spring 2007, ATI began to provide the data in a new format. For example, they no longer provide composite scores with national and program comparisons for: Critical Thinking, Therapeutic Nursing Interventions, Nursing Process, or NCLEX-RN Blueprint.

We are just getting to the point where we have a couple of years of consistent data that can be compared. For example, comparison of the Version 2.0 group mean scores for Fall 2007/Fall 2006 graduates by campus were: Billings (72.9%/72.6%), Great Falls (69.4%/70.7%), Kalispell (70.0%/74.0%), and Missoula (74.0%/71.1%); and Spring 2008/Spring 2007 graduates by campus were: Billings (70.4%/71.0%), Bozeman (74.7%/73.6%), Great Falls (68.1%/68.4%), and Missoula (73.6%/72.4%). These scores can be compared with the national mean score (70.2%) for all programs in the US that educate students for licensure as Registered Nurses and with the program mean score (69.9%) for all Baccalaureate nursing programs in the US. MSU means for both 2006-07 and 2007-08AY were generally higher than the national and program means except for the Great Falls campus (ranged from 68.1-70.7%). We will be looking at the GF campus mean scores in more detail next year (2008-09AY).

<table>
<thead>
<tr>
<th>Campus/Semester</th>
<th>Fall 2006/Spring 2007</th>
<th>Fall 2007/Spring 2008</th>
</tr>
</thead>
<tbody>
<tr>
<td>Billings</td>
<td>72.6%/71.0%</td>
<td>72.9%/70.4%</td>
</tr>
<tr>
<td>Bozeman</td>
<td>NA/73.6%</td>
<td>NA/74.7%</td>
</tr>
<tr>
<td>Great Falls</td>
<td>70.7%/68.4%</td>
<td>69.4%/68.1%</td>
</tr>
<tr>
<td>Kalispell</td>
<td>74.0%/NA</td>
<td>70.0%/NA</td>
</tr>
<tr>
<td>Missoula</td>
<td>71.1%/72.4%</td>
<td>74.0%/73.6%</td>
</tr>
</tbody>
</table>

Critical thinking/problem-solving skills:

The college utilized the California Critical Thinking Test for many years by administering it to the sophomore nursing students enrolled in their first nursing course and then administering it again as the students were completing the senior year. The data were analyzed and found to be inconclusive in terms of measuring the improvement of critical thinking skills from the sophomore through the senior year. The college discontinued the use of this measurement in 1998.

However, the ATI surveys that are currently administered do have a critical thinking component to them. The Critical Thinking scores by campus for graduates in Fall 2007 (compared with Fall 2006) were as follows:
There were no Bozeman graduates during Fall 2006 or Fall 2007. The range of scores on the five subscales for all campuses over the two year period were: Interpretation (67.0-74.3%); Analysis (75.6-79.9%); Evaluation (71.4-80.5%); Inference (52.3-65.0%); and Explanation (36.0-50.8%). No national or program scores were provided for comparison.

The Critical Thinking scores for graduates in Spring 2008 (compared with Spring 2007) were as follows:

<table>
<thead>
<tr>
<th>Campus</th>
<th>Interpretation Sp’07/Sp’08</th>
<th>Analysis</th>
<th>Evaluation</th>
<th>Inference</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Billings</td>
<td>69.6%/67.9%</td>
<td>76.0%/76.6%</td>
<td>77.8%/79.0%</td>
<td>59.2%/61.1%</td>
<td>51.7%/47.2%</td>
</tr>
<tr>
<td>Bozeman</td>
<td>70.9%/73.4%</td>
<td>81.7%/80.1%</td>
<td>77.8%/76.7%</td>
<td>61.1%/69.2%</td>
<td>47.5%/42.5%</td>
</tr>
<tr>
<td>Great Falls</td>
<td>67.0%/65.8%</td>
<td>72.7%/74.7%</td>
<td>78.6%/72.1%</td>
<td>57.0%/57.4%</td>
<td>49.4%/52.0%</td>
</tr>
<tr>
<td>Missoula</td>
<td>69.6%/71.6%</td>
<td>79.7%/79.0%</td>
<td>74.8%/88.5%</td>
<td>62.6%/61.5%</td>
<td>47.3%/42.6%</td>
</tr>
</tbody>
</table>

There were no Kalispell graduates during Spring 2007 or Spring 2008. The range of scores on the five subscales for all campuses over the two year period were: Interpretation (67.0 – 73.4%); Analysis (72.7 – 81.7%); Evaluation (72.1– 88.5%); Inference (57.0 – 69.2%); and Explanation (42.6 – 51.7%). No national or program scores were provided for comparison.

As a part of critical thinking, a student’s ability to identify problems and recommend solutions specific to nursing care of clients (eg therapeutic nursing interventions) is evaluated by written nursing care plans. In addition, the ATI surveys include Therapeutic Nursing Interventions scores. Therapeutic Nursing Interventions are defined as “the events and activities associated with client care, validated through a written or electronic record that reflects quality and accountability in the provision of care” (ATI results, p.8).

For the Fall 2006 (compared with the Fall 2007) graduates, those scores were: Billings (72.0%/73.4%); Great Falls (70.9%/70.9%); Kalispell (76.5%/70.4%); and Missoula (71.5%/73.0%). The range of scores was 70.4 – 76.5%. No national or program scores were provided for comparison.
For the Spring 2007 (compared with Spring 2008) graduates, those scores were: Billings (70.5%/69.7%); Bozeman (74.7%/73.7%); Great Falls (69.5%/70.3%); and Missoula (70.2%/72.4). The range of scores was 69.5 – 74.7%. No national or program scores were provided for comparison.

Finally, a student is expected to implement the Nursing Process during the assigned clinical experience. The nursing process is dynamic problem solving. In the classroom, data from written examinations, oral presentations, and participation in group discussions are used to evaluate ability to analyze a client care situation and answer related questions. A student’s ability to analyze is also assessed through her/his written and/or oral critique of research articles. ATI also provides data on the Nursing Process in five sub-scales. The Nursing Process scores for the Fall 2006 and Fall 2007 graduates were:

<table>
<thead>
<tr>
<th>Campus</th>
<th>Assessment Fa’06/Fa’07</th>
<th>Diagnosis Fa’06/Fa’07</th>
<th>Planning Fa’06/Fa’07</th>
<th>Implementation Fa’06/Fa’07</th>
<th>Evaluation Fa’06/Fa’07</th>
</tr>
</thead>
<tbody>
<tr>
<td>Billings</td>
<td>71.4%/69.4%</td>
<td>77.4%/72.2%</td>
<td>72.8%/75.6%</td>
<td>70.5%/71.9%</td>
<td>83.5%/80.7%</td>
</tr>
<tr>
<td>Great Falls</td>
<td>72.0%/67.5%</td>
<td>74.3%/67.9%</td>
<td>69.8%/69.8%</td>
<td>68.9%/69.0%</td>
<td>77.6%/77.6%</td>
</tr>
<tr>
<td>Kalispell</td>
<td>73.4%/68.9%</td>
<td>74.3%/62.0%</td>
<td>72.9%/73.8%</td>
<td>73.5%/68.6%</td>
<td>81.6%/75.7%</td>
</tr>
<tr>
<td>Missoula</td>
<td>69.4%/72.2%</td>
<td>69.6%/69.1%</td>
<td>73.9%/75.8%</td>
<td>69.6%/73.8%</td>
<td>77.6%/78.2%</td>
</tr>
</tbody>
</table>

There were no Bozeman graduates in Fall 2006. The range of scores on the five sub-scales for all campuses were: Assessment (67.5-73.4%); Diagnosis (62.0-77.4%); Planning (69.8-75.8%); Implementation (68.9-73.5%); and Evaluation (77.6-83.5%). The range of scores was 62.0 – 83.5%. No national or program scores were provided for comparison.

The Nursing Process scores for the graduates in Spring 2007 and Spring 2007 were:

<table>
<thead>
<tr>
<th>Campus</th>
<th>Assessment Sp’07/Sp’08</th>
<th>Diagnosis Sp’07/Sp’08</th>
<th>Planning Sp’07/Sp’08</th>
<th>Implementation Sp’07/Sp’08</th>
<th>Evaluation Sp’07/Sp’08</th>
</tr>
</thead>
<tbody>
<tr>
<td>Billings</td>
<td>69.4%/70.1%</td>
<td>75.6%/70.8%</td>
<td>71.9%/71.2%</td>
<td>69.3%/68.5%</td>
<td>78.8%/80.2%</td>
</tr>
<tr>
<td>Bozeman</td>
<td>72.2%/74.7%</td>
<td>71.3%/78.1%</td>
<td>74.8%/76.1%</td>
<td>73.0%/73.2%</td>
<td>78.6%/76.8%</td>
</tr>
<tr>
<td>Great Falls</td>
<td>66.7%/65.0%</td>
<td>68.2%/68.0%</td>
<td>70.3%/67.2%</td>
<td>66.2%/68.1%</td>
<td>80.7%/79.5%</td>
</tr>
<tr>
<td>Missoula</td>
<td>71.1%/72.2%</td>
<td>72.7%/70.9%</td>
<td>74.0%/72.9%</td>
<td>70.5%/73.0%</td>
<td>78.9%/83.9%</td>
</tr>
</tbody>
</table>

There were no Kalispell graduates in Spring 2007. The range of scores on the five sub-scales for all campuses were: Assessment (66.7 – 72.2%); Diagnosis (68.2 – 75.6%); Planning (70.3 – 74.8%); Implementation (66.2 – 73.0%); and Evaluation (78.6 -80.7%). The range of scores was 66.2 – 80.7%. No national or program scores were provided for comparison.
To summarize, data regarding critical thinking/problem solving skills are collected in various ways including the ATI scores for critical thinking, therapeutic nursing interventions, and the nursing process.

Communication skills:

Oral communication skills are evaluated in the classroom during individual and/or group presentations. In clinical settings, oral communication is evaluated by monitoring conversations with clients, staff, and other students as well as with instructors. Students are expected to analyze communication by identifying and interpreting varied communication styles and to critique their own communication skills. Recording on the client record, a legal document, is an essential written communication activity in nursing care.

To successfully meet the curricular expectations for both written and oral communication skills in both the classroom and clinical settings, students must communicate at a satisfactory level as evaluated by the instructor over the semester. The instructor gathers data through scholarly papers, projects, examinations, and individual and group presentations. The ATI surveys that are currently administered also have a communication component to them. A comparison of group Communication scores from each campus with graduating seniors during Fall 2006 and Fall 2007 revealed the following: Billings (77.3%/78.2%); Great Falls (75.4%/73.7%); Kalispell (77.1%/72.0%); and Missoula (75.8%/80.5%). The range of scores was 75.4-80.5%. No national or program scores were provided for comparison.

A comparison of group Communication scores from each campus with graduating seniors during Spring 2006 and Spring 2007 revealed the following: Billings (74.9%/75.6%); Bozeman (76.9%/79.0%); Great Falls (73.2%/74.4%); and Missoula (77.9%/79.0%). The range of scores was 73.2 – 79.0%. No national or program scores were provided for comparison.

Assessment skills:

Various assessment skills are evaluated throughout the curriculum. Assessment is gathering information about the health status of the patient, analyzing and synthesizing those data, making judgments about nursing interventions based on the findings and evaluating patient care outcomes (the nursing process). These skills are initially evaluated in N239 and N223 in the sophomore level nursing courses and continue through upper division nursing courses. The ATI surveys that are currently administered also include therapeutic nursing interventions and the nursing process components (see those scores above).

Assessment also includes understanding the family, community, or population and utilizing data from organizations and systems in planning and delivering care. These types of assessments are evaluated in the family courses (N348 and N349), the community courses (N377 and N477) and in N418 as well as the care management course (N444).
Technical skills:

Technical skills are evaluated throughout the curriculum as well. As students move through the various clinical nursing courses, they are taught and they practice the technical skills in the college skills and simulation laboratories as well as in the clinical agencies. Faculty and preceptors supervise the clinical experiences of the students as they progress from the sophomore through the senior level courses and in each course, the students must demonstrate that they can perform the technical skills that are required before they move on to the next course. Clinical components of nursing courses are graded as pass or fail. Therefore, any clinical course that students have passed required that they successfully demonstrated the ability to perform the technical skills taught in that course.

Technical skills are also included in the Educational Benchmarking, Inc (EBI) survey that is administered to the graduating seniors each semester. An annual report that lumps both fall and spring graduates from all five campus sites is provided with the following 11 major assessment areas:

1. Quality of Nursing Instruction
2. Work and Class Size
3. Course Lecture and Interaction
4. Facilities and Administration
5. Classmates
6. Professional Values
7. Core Competencies
8. **Technical Skills**
9. Core Knowledge
10. Role Development
11. Overall Satisfaction w/Program

In addition to having a mean score for the MSU-Bozeman College of Nursing each year, based on a scale of 1-7 with 1 being very poor and 7 being excellent, the college is also compared to 6 peer institutions that have been selected by the college Dean, all participating schools, and all schools that are in the same Carnegie Classification as MSU-Bozeman. The college currently has five years of data from the EBI surveys (2002-2007). We will not receive EBI scores for 2008 until late in Summer 2008. Each year the MSU scores have remained close to 6.0 with a range of scores from 6.14 (2007) to 5.94 (2006) on the 1-7 scale (with 7.0 being the highest score). MSU scores are strong when compared to all of the other programs. The 2006 scores were the only year that were slightly lower than the select 6, but remained higher than all of the other programs.
Additional Goals:

BSN program:

The College of Nursing monitors pass rates on the national licensure examination for registered nurses (NCLEX-RN) on a quarterly, biannual, and annual basis. NCLEX-RN Program reports, State Board of Nursing reports, and ATI scores are used to assess pass rates. The goal is for the College of Nursing to maintain a pass rate that exceeds the state and national pass rate annually. The attached table (Appendix B) includes: 1) the annual college, state, and national pass rates from 1995-2007 provided by the State Board of Nursing; and 2) the biannual NCLEX-RN Program Reports

The ATI surveys also include scores which are predictive in nature in terms of the ability of the individual graduates to successfully pass the NCLEX-RN licensure exam. The group scores are provided for 8 content areas:

<table>
<thead>
<tr>
<th>Content Areas</th>
<th>Fall 2006/Fall 2007</th>
<th>Spring 2007/Spring 2008</th>
</tr>
</thead>
<tbody>
<tr>
<td>Management of Care</td>
<td>78.2% S07 81.8% F06</td>
<td>82.8% S07 76.9% S07</td>
</tr>
<tr>
<td></td>
<td>79.6% S08 83.2% F07</td>
<td>81.8% S08 81.1% S08</td>
</tr>
<tr>
<td></td>
<td></td>
<td>79.1% F07 77.7% F06</td>
</tr>
<tr>
<td></td>
<td></td>
<td>80.0% F07 80.2% F07</td>
</tr>
<tr>
<td>Safety and Infection Control</td>
<td>82.8% S07 83.0% F06</td>
<td>84.8% S07 79.8% S07</td>
</tr>
<tr>
<td></td>
<td>78.5% S08 81.4% F07</td>
<td>84.0% S08 79.5% F06</td>
</tr>
<tr>
<td></td>
<td></td>
<td>79.2% S08 78.1% F07</td>
</tr>
<tr>
<td></td>
<td></td>
<td>80.0% F07 77.8% S07</td>
</tr>
<tr>
<td></td>
<td></td>
<td>86.6% F06 84.5% S08</td>
</tr>
<tr>
<td></td>
<td></td>
<td>83.2% F07 83.2% F07</td>
</tr>
<tr>
<td>Health Promotion and Maintenance</td>
<td>63.6% S07 66.8% F06</td>
<td>68.5% S07 58.8% S07</td>
</tr>
<tr>
<td></td>
<td>63.1% S08 64.4% F07</td>
<td>69.3% S08 66.7% F06</td>
</tr>
<tr>
<td></td>
<td></td>
<td>65.4% S08 65.3% F07</td>
</tr>
<tr>
<td></td>
<td></td>
<td>70.1% S07 63.4% F06</td>
</tr>
<tr>
<td></td>
<td></td>
<td>67.5% S08 67.5% F07</td>
</tr>
<tr>
<td>Psychosocial Integrity</td>
<td>83.1% S07 84.9% F06</td>
<td>91.3% S07 84.1% S07</td>
</tr>
<tr>
<td></td>
<td>83.6% S08 85.7% F07</td>
<td>85.9% S08 82.9% F06</td>
</tr>
<tr>
<td></td>
<td></td>
<td>78.3% S08 86.1% F07</td>
</tr>
<tr>
<td></td>
<td></td>
<td>85.0% F06 86.1% F06</td>
</tr>
<tr>
<td></td>
<td></td>
<td>86.5% S08 87.7% F07</td>
</tr>
<tr>
<td>Basic Care and Comfort</td>
<td>65.8% S07 68.4% F06</td>
<td>68.4% S07 62.3% S07</td>
</tr>
<tr>
<td></td>
<td>65.2% S08 68.5% F07</td>
<td>72.1% S08 65.1% F06</td>
</tr>
<tr>
<td></td>
<td></td>
<td>61.2% S08 71.0% F07</td>
</tr>
<tr>
<td></td>
<td></td>
<td>69.7% F06 67.1% F07</td>
</tr>
<tr>
<td></td>
<td></td>
<td>63.1% S07 68.3% F06</td>
</tr>
<tr>
<td></td>
<td></td>
<td>69.8% S08 69.8% F07</td>
</tr>
<tr>
<td>Pharmacological &amp; Parenteral Therapies</td>
<td>62.5% S07 62.1% F06</td>
<td>64.4% S07 62.0% S07</td>
</tr>
<tr>
<td></td>
<td>60.8% S08 64.0% F07</td>
<td>64.2% S07 62.9% F06</td>
</tr>
<tr>
<td></td>
<td></td>
<td>61.3% S08 60.2% F07</td>
</tr>
<tr>
<td></td>
<td></td>
<td>62.3% F07 64.2% S07</td>
</tr>
<tr>
<td></td>
<td></td>
<td>62.2% F06 64.9% S08</td>
</tr>
<tr>
<td></td>
<td></td>
<td>68.4% F07 68.4% F07</td>
</tr>
<tr>
<td>Reduction of Risk</td>
<td>66.3% S07 68.8% S07</td>
<td>68.8% S07 62.7% S07</td>
</tr>
<tr>
<td></td>
<td></td>
<td>67.7% S07 67.7% S07</td>
</tr>
<tr>
<td></td>
<td>F06</td>
<td>S08</td>
</tr>
<tr>
<td>----------------</td>
<td>------</td>
<td>------</td>
</tr>
<tr>
<td>Potential</td>
<td>68.9%</td>
<td>65.7%</td>
</tr>
<tr>
<td></td>
<td>64.0%</td>
<td>61.0%</td>
</tr>
<tr>
<td>Physiological</td>
<td>70.0%</td>
<td>66.6%</td>
</tr>
<tr>
<td>Adaptation</td>
<td>69.8%</td>
<td>72.2%</td>
</tr>
<tr>
<td></td>
<td>70.3%</td>
<td>63.1%</td>
</tr>
<tr>
<td></td>
<td>71.1%</td>
<td></td>
</tr>
</tbody>
</table>

The prediction scale for individual students to pass NCLEX-RN is as follows:

- A score of 75% or better (98% probability of passing)
- A score of 74-75% (97% probability of passing)
- A score of 72-73% (96% probability of passing)
- A score of 70-71% (93% probability of passing)
- A score of 68-69% (89% probability of passing)
- A score of 66-67% (81% probability of passing)
- A score of 64-65% (71% probability of passing)
- A score of 62-63% (60% probability of passing)

Additionally, the College of Nursing monitors the ability of the BSN graduates to find employment as registered nurses and, as much as possible, retain these graduates in the state. The MSU Career Services Office surveys graduates of the University each year to determine whether or not the graduates have found employment in their discipline as well as what their salaries are and whether or not they are employed in Montana or out-of-state. The data from the graduates of the BSN program for the past couple of years are found in Appendix C. The goal is for all BSN graduates to find employment as registered nurses unless they are not seeking employment or are enrolled in graduate education. An additional goal is to retain a large percentage of BSN graduates in Montana - typically, about 70-75% are employed in Montana following graduation and licensure as registered nurses. The results of the 2007 survey are not yet available.

Finally, the College of Nursing is interested in the level of satisfaction with the BSN program and reviews the results of the University Senior Surveys that are completed by graduating seniors each year. Very low numbers of nursing students participate in these surveys. The college currently has results from the 2005-06AY (N=21 out of 192 graduates) and the 2006-07AY (N=26 out of 171 graduates) surveys. The survey questions relate to the following areas regarding the College of Nursing: 1) How effective is the college in preparing students for each of the 13 BSN program outcomes? 2) What are the strengths of the BSN program that the college should retain? 3) What are the weaknesses of the BSN program that the college should address? Other survey questions are related to the following areas regarding the University: 1) Effectiveness of professors; 2) Calculation of course grades; 3) Effectiveness of CORE 2.0 and major courses; 4) Effectiveness of various teaching/learning methods; 5) Class sizes; 6) Satisfaction with various aspects of education, including advising; 7) Demographic data; and 8) Additional comments. Results are predominately positive.
The college also uses the Educational Benchmarking, Inc. (EBI) Survey to determine satisfaction. This survey provides data on 11 factors as identified earlier on page 8. The last ten questions on the EBI survey also ask students how well they feel the college has prepared them to meet each of the terminal objectives of the program (listed on page one of this report).

Additionally, the College of Nursing receives results from the EBI Survey that compares the MSU graduates with graduates of the other participating nursing schools across the nation. The EBI data is reviewed regularly by the Undergraduate Academic Affairs Committee (UAAC) and other constituencies, but few recommendations have been made based on those data due to the nature of the results. For example, one area of concern is related to student dislike for group work/collaboration with peers. The college believes that group work and collaboration are important in preparing future leaders in professional nursing practice and students need the opportunity to learn those skills as students. EBI Summary information from data collected for the years 2002-2007 is available in the College of Nursing Office.

During Summer 2006, EBI surveyed graduates/alums of the program from Fall 2003/Spring 2004 and Fall 2004/Spring 2005 via the web. In turn, the alums were asked to provide an e-mail address for their employers so that they could also respond to an Employer Survey. The Alumni and Employer surveys were completed during June 2006 and the college received a report from EBI with this data as compared to Alumni and Employers at the peer nursing programs. The results were: 323 e-mail addresses were provided for the alums. Of those, 283 were verified (40 failed verification), and 34 verified e-mails failed delivery. Only 70 alums responded (24.7%). Of the 70 who responded, only 7 submitted employer e-mails and only 6 were verified. Of those 6, only 2 employers responded (33.3%) which did not provide enough data to be analyzed.

The alumni surveys analyzed 15 factors on a 1-7 scale with 1 being the lowest and 7 being the highest score:

1. Nursing Program Promoted Successful Career
2. School Activities Contributed to Success
3. Importance of Patient Relationships and Care
4. Enhanced Patient Relationships and Care
5. Importance of Problem Solving
6. Enhanced Problem Solving
7. Importance of Community Health Care
8. Enhanced Community Health Care
9. Importance of Professional Relationships
10. Enhanced Professional Relationships
11. Importance of Professional Skills
12. Enhanced Professional Skills
13. Importance of Management Skills
14. Enhanced Management Skills
15. Overall Program Effectiveness
In each category, MSU alumni scored slightly below the peer institutions with 3 exceptions. On factor one (Nursing Program Promoted Successful Career), the MSU group scored slightly higher than peers and on factors 3 (Importance of Patient Relationships and Care) and 9 (Importance of Professional Relationships), the scores were essentially the same as peers. The range of MSU scores were from 4.37 (our lowest score) on factor 2 (School Activities Contributed to Success) to 6.49 (our highest score) on factor 3 (Importance of Patient Relationships and Care). As noted earlier, the rating scale was 1-7 with 7 being the “most satisfied.” EBI Summary information from data collected in Summer 2006) is available in the College of Nursing Office.

**Plan for Gathering and Summarizing Data:**

Each semester the College of Nursing gathers objective data on graduating seniors in the BSN program to: 1) determine achievement of competencies required for BSN graduates; 2) determine achievement of additional goals; and 3) determine satisfaction with the BSN program. The tools used for collecting these data are: 1) The Assessment Technologies Institute Survey (Spring 2005-Spring 2008); 2) NCLEX-RN pass rates; 3) Career Services reports; 4) the EBI Survey of graduating seniors (Fall 2002-Spring 2008); and 5) University Senior Summaries; as well as 6) The EBI Survey of Alumni and Employers (Summer 2006). When the results of these instruments are received each semester/year, they are summarized and provided to the College of Nursing constituents including the administrative team, the Undergraduate Academic Affairs Committee (UAAC), and others for review, discussion, and recommendations to the faculty. UAAC also receives copies of recommendations, if any, from the State Board of Nursing Annual Reports, and recommendations, if any, from the Commission on Collegiate Nursing Education (CCNE), the national accrediting organization for the BSN program.

**Plan for Utilizing Data:**

The College of Nursing constituents, including the Campus Directors, Undergraduate Academic Affairs Committee (UAAC), and others review the evaluative data that is collected each year. Various reviewers may make recommendations to the faculty regarding any changes that are deemed necessary to improve the BSN program. UAAC minutes contain documentation of the materials they review, including any discussion as well as motions related to proposed changes. The motions go forward to the appropriate group/committee including General Faculty Meetings for faculty discussion and vote, as appropriate. Any changes are also documented in the minutes of the group. During Fall 2006 and Spring 2007, UAAC reviewed/discussed evaluation/outcomes data during the following meetings: 9/18/06; 10/2/06; 10/16/06 and 4/2/07. During the 2007-08 AY, there was little time to review data due to other charges to the committee. The campus directors, as part of the administrative team, regularly reviewed NCLEX-RN pass rates for the college and reviewed the ATI data for their campuses. No recommendations were forwarded to the faculty for discussion or vote during the past year.
### Appendix A

**ATI RN Comprehensive Predictor Examination – Spring 2005 – Spring 2008**

<table>
<thead>
<tr>
<th>Semester and Campus</th>
<th>Group Specialty Scores</th>
<th>Composite Group Score (Campus Score)</th>
<th>Group Mean (National – all RN programs; Program – all BSN programs)</th>
<th>Group Percentile Rank (National – all RN programs; Program – all BSN programs)</th>
</tr>
</thead>
</table>
| Spring 2005 Billings (32 students) | Group Composite Scores  
Medical-Surgical – 71.0%  
Maternal-Newborn – 66.7%  
Care of Children – 60.8%  
Mental Health – 86.6%  
Community Health – 79.5%  
Leadership – 79.5% | 72.0% (Billings Campus Group Score – average of all individual student scores on the Billings Campus) | 68.5% (National)  
68.7% (Program) | 84 (National)  
88 (Program) |
| Spring 2005 Missoula (21 students) | Group Composite Scores  
Medical-Surgical – 71.4%  
Maternal-Newborn – 63.8%  
Care of Children – 55.0%  
Mental Health – 85.2%  
Community Health – 75.7%  
Leadership – 83.5% | 71.2% (Missoula Campus Group Score – average of all individual student scores on the Missoula Campus) | 68.5% (National)  
68.7% (Program) | 84 (National)  
88 (Program) |
| Fall 2005 Billings (38 students) | Group Composite Scores  
Medical-Surgical – 63.6%  
Maternal-Newborn – 64.1%  
Care of Children – 60.4%  
Mental Health – 69.5%  
Community Health – 50.0%  
Leadership – 58.0% | 63.0% (Billings Campus Group Score – average of all individual student scores on the Billings Campus) | 61.6% (National)  
62.6% (Program) | 67 (National)  
54 (Program) |
| Fall 2005 Great Falls (32 students) | Group Composite Scores  
Medical-Surgical – 63.3%  
Maternal-Newborn – 58.6%  
Care of Children – 59.2%  
Mental Health – 68.4%  
Community Health – 59.4%  
Leadership – 57.2% | 61.9% (Great Falls Campus Group Score – average of all individual student scores on the Great Falls Campus) | 61.6% (National)  
62.8% (Program) | 51 (National)  
66 (Program) |
| Fall 2005 Kalispell (6 students) | Group Composite Scores  
Medical-Surgical – 66.9%  
Maternal-Newborn – 63.8%  
Care of Children – 59.6% | 64.6% (Kalispell Campus Group Score – average of all individual student scores on the Kalispell Campus) | 61.6% (National)  
62.8% (Program) | 87 (National)  
91 (Program) |
<table>
<thead>
<tr>
<th>Fall 2005 Missoula (22 students)</th>
<th><strong>Group Composite Scores</strong></th>
<th><strong>66.0% (Missoula Campus Group Score – average of all individual student scores on the Missoula Campus)</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Version 1.0 Old Curriculum</strong></td>
<td>Medical-Surgical – 65.8%</td>
<td>61.6%</td>
</tr>
<tr>
<td></td>
<td>Maternal-Newborn – 69.6%</td>
<td>62.8%</td>
</tr>
<tr>
<td></td>
<td>Care of Children – 60.7%</td>
<td>59.5%</td>
</tr>
<tr>
<td></td>
<td>Mental Health – 73.4%</td>
<td>59.4%</td>
</tr>
<tr>
<td></td>
<td>Community Health – 65.2%</td>
<td>65.6%</td>
</tr>
<tr>
<td></td>
<td>Leadership – 63.9%</td>
<td>50.5%</td>
</tr>
<tr>
<td><strong>Version 2.0 New Curriculum</strong></td>
<td>Medical-Surgical – 66.3%</td>
<td>68.5%</td>
</tr>
<tr>
<td></td>
<td>Maternal-Newborn – 61.5%</td>
<td>64.5%</td>
</tr>
<tr>
<td></td>
<td>Care of Children – 57.1%</td>
<td>53.4%</td>
</tr>
<tr>
<td></td>
<td>Mental Health – 82.6%</td>
<td>78.6%</td>
</tr>
<tr>
<td></td>
<td>Community Health – 74.7%</td>
<td>75.7%</td>
</tr>
<tr>
<td></td>
<td>Leadership – 75.2%</td>
<td>77.1%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Spring 2006 Billings (40 students)</th>
<th><strong>Group Composite Scores</strong></th>
<th><strong>67.5% (Billings Campus Group Score – average of all individual student scores on the Billings Campus)</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Version 2.0 New Curriculum</strong></td>
<td>Medical-Surgical – 66.3%</td>
<td>68.5%</td>
</tr>
<tr>
<td></td>
<td>Maternal-Newborn – 64.6%</td>
<td>64.5%</td>
</tr>
<tr>
<td></td>
<td>Care of Children – 59.3%</td>
<td>53.4%</td>
</tr>
<tr>
<td></td>
<td>Mental Health – 83.2%</td>
<td>78.6%</td>
</tr>
<tr>
<td></td>
<td>Community Health – 84.1%</td>
<td>75.7%</td>
</tr>
<tr>
<td></td>
<td>Leadership – 82.5%</td>
<td>77.1%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Spring 2006 Bozeman (14 students)</th>
<th><strong>Group Composite Scores</strong></th>
<th><strong>72.1% (Bozeman Campus Group Score – average of all individual student scores on the Bozeman Campus)</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Version 2.0 New Curriculum</strong></td>
<td>Medical-Surgical – 72.1%</td>
<td>68.5%</td>
</tr>
<tr>
<td></td>
<td>Maternal-Newborn – 64.6%</td>
<td>64.5%</td>
</tr>
<tr>
<td></td>
<td>Care of Children – 59.3%</td>
<td>53.4%</td>
</tr>
<tr>
<td></td>
<td>Mental Health – 83.2%</td>
<td>78.6%</td>
</tr>
<tr>
<td></td>
<td>Community Health – 84.1%</td>
<td>75.7%</td>
</tr>
<tr>
<td></td>
<td>Leadership – 82.5%</td>
<td>77.1%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Spring 2006 Great Falls (15 students)</th>
<th><strong>Group Composite Scores</strong></th>
<th><strong>71.3% (Great Falls Campus Group Score – average of all individual student scores on the Great Falls Campus)</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Version 2.0 New Curriculum</strong></td>
<td>Medical-Surgical – 71.6%</td>
<td>68.5%</td>
</tr>
<tr>
<td></td>
<td>Maternal-Newborn – 59.7%</td>
<td>64.5%</td>
</tr>
<tr>
<td></td>
<td>Care of Children – 58.0%</td>
<td>53.4%</td>
</tr>
<tr>
<td></td>
<td>Mental Health – 82.3%</td>
<td>78.6%</td>
</tr>
<tr>
<td></td>
<td>Community Health – 83.0%</td>
<td>75.7%</td>
</tr>
<tr>
<td></td>
<td>Leadership – 84.8%</td>
<td>77.1%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Spring 2006 Missoula (20 students)</th>
<th><strong>Group Composite Scores</strong></th>
<th><strong>69.9% (Missoula Campus Group Score – average of all individual student scores on the Missoula Campus)</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Version 2.0 New Curriculum</strong></td>
<td>Medical-Surgical – 69.2%</td>
<td>68.5%</td>
</tr>
<tr>
<td></td>
<td>Maternal-Newborn – 64.3%</td>
<td>64.5%</td>
</tr>
<tr>
<td></td>
<td>Care of Children – 54.5%</td>
<td>53.4%</td>
</tr>
<tr>
<td></td>
<td>Mental Health – 84.0%</td>
<td>78.6%</td>
</tr>
<tr>
<td></td>
<td>Community Health – 81.7%</td>
<td>75.7%</td>
</tr>
<tr>
<td></td>
<td>Leadership – 80.0%</td>
<td>77.1%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Fall 2006 Billings (35 students)</th>
<th><strong>Group Composite Scores</strong></th>
<th><strong>72.6% (Billings Campus Group Score – average of all individual student scores)</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Version 2.0</strong></td>
<td>Medical-Surgical – 72.6%</td>
<td>70.2%</td>
</tr>
<tr>
<td></td>
<td>Maternal-Newborn – 68.3%</td>
<td>64.3%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Fall 2005 Missoula (22 students)</th>
<th><strong>Group Composite Scores</strong></th>
<th><strong>66.0% (Missoula Campus Group Score – average of all individual student scores on the Missoula Campus)</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Version 1.0 Old Curriculum</strong></td>
<td>Medical-Surgical – 65.8%</td>
<td>61.6%</td>
</tr>
<tr>
<td></td>
<td>Maternal-Newborn – 69.6%</td>
<td>62.8%</td>
</tr>
<tr>
<td></td>
<td>Care of Children – 60.7%</td>
<td>59.5%</td>
</tr>
<tr>
<td></td>
<td>Mental Health – 73.4%</td>
<td>59.4%</td>
</tr>
<tr>
<td></td>
<td>Community Health – 65.2%</td>
<td>65.6%</td>
</tr>
<tr>
<td></td>
<td>Leadership – 63.9%</td>
<td>50.5%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Spring 2006 Billings (40 students)</th>
<th><strong>Group Composite Scores</strong></th>
<th><strong>67.5% (Billings Campus Group Score – average of all individual student scores on the Billings Campus)</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Version 2.0 New Curriculum</strong></td>
<td>Medical-Surgical – 66.3%</td>
<td>68.5%</td>
</tr>
<tr>
<td></td>
<td>Maternal-Newborn – 64.6%</td>
<td>64.5%</td>
</tr>
<tr>
<td></td>
<td>Care of Children – 59.3%</td>
<td>53.4%</td>
</tr>
<tr>
<td></td>
<td>Mental Health – 83.2%</td>
<td>78.6%</td>
</tr>
<tr>
<td></td>
<td>Community Health – 84.1%</td>
<td>75.7%</td>
</tr>
<tr>
<td></td>
<td>Leadership – 82.5%</td>
<td>77.1%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Spring 2006 Bozeman (14 students)</th>
<th><strong>Group Composite Scores</strong></th>
<th><strong>72.1% (Bozeman Campus Group Score – average of all individual student scores on the Bozeman Campus)</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Version 2.0 New Curriculum</strong></td>
<td>Medical-Surgical – 72.1%</td>
<td>68.5%</td>
</tr>
<tr>
<td></td>
<td>Maternal-Newborn – 64.6%</td>
<td>64.5%</td>
</tr>
<tr>
<td></td>
<td>Care of Children – 59.3%</td>
<td>53.4%</td>
</tr>
<tr>
<td></td>
<td>Mental Health – 83.2%</td>
<td>78.6%</td>
</tr>
<tr>
<td></td>
<td>Community Health – 84.1%</td>
<td>75.7%</td>
</tr>
<tr>
<td></td>
<td>Leadership – 82.5%</td>
<td>77.1%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Spring 2006 Great Falls (15 students)</th>
<th><strong>Group Composite Scores</strong></th>
<th><strong>71.3% (Great Falls Campus Group Score – average of all individual student scores on the Great Falls Campus)</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Version 2.0 New Curriculum</strong></td>
<td>Medical-Surgical – 71.6%</td>
<td>68.5%</td>
</tr>
<tr>
<td></td>
<td>Maternal-Newborn – 59.7%</td>
<td>64.5%</td>
</tr>
<tr>
<td></td>
<td>Care of Children – 58.0%</td>
<td>53.4%</td>
</tr>
<tr>
<td></td>
<td>Mental Health – 82.3%</td>
<td>78.6%</td>
</tr>
<tr>
<td></td>
<td>Community Health – 83.0%</td>
<td>75.7%</td>
</tr>
<tr>
<td></td>
<td>Leadership – 84.8%</td>
<td>77.1%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Spring 2006 Missoula (20 students)</th>
<th><strong>Group Composite Scores</strong></th>
<th><strong>69.9% (Missoula Campus Group Score – average of all individual student scores on the Missoula Campus)</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Version 2.0 New Curriculum</strong></td>
<td>Medical-Surgical – 69.2%</td>
<td>68.5%</td>
</tr>
<tr>
<td></td>
<td>Maternal-Newborn – 64.3%</td>
<td>64.5%</td>
</tr>
<tr>
<td></td>
<td>Care of Children – 54.5%</td>
<td>53.4%</td>
</tr>
<tr>
<td></td>
<td>Mental Health – 84.0%</td>
<td>78.6%</td>
</tr>
<tr>
<td></td>
<td>Community Health – 81.7%</td>
<td>75.7%</td>
</tr>
<tr>
<td></td>
<td>Leadership – 80.0%</td>
<td>77.1%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Fall 2006 Billings (35 students)</th>
<th><strong>Group Composite Scores</strong></th>
<th><strong>72.6% (Billings Campus Group Score – average of all individual student scores)</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Version 2.0</strong></td>
<td>Medical-Surgical – 72.6%</td>
<td>70.2%</td>
</tr>
<tr>
<td></td>
<td>Maternal-Newborn – 68.3%</td>
<td>64.3%</td>
</tr>
<tr>
<td>New Curriculum</td>
<td>Care of Children – 59.4%</td>
<td>Mental Health – 83.7%</td>
</tr>
<tr>
<td>-------------------------------------</td>
<td>--------------------------</td>
<td>-----------------------</td>
</tr>
<tr>
<td>Fall 2006 Great Falls (14 students)</td>
<td>Group Composite Scores</td>
<td>Medical-Surgical – 71.0%</td>
</tr>
<tr>
<td>Version 2.0</td>
<td></td>
<td>Mental Health – 83.9%</td>
</tr>
<tr>
<td>New Curriculum</td>
<td></td>
<td>70.7% (Great Falls Campus Group Score – average of all individual student scores on the Great Falls Campus)</td>
</tr>
<tr>
<td>Fall 2006 Kalispell (7 students)</td>
<td>Group Composite Scores</td>
<td>Medical-Surgical – 74.7%</td>
</tr>
<tr>
<td>Version 2.0</td>
<td></td>
<td>Mental Health – 83.6%</td>
</tr>
<tr>
<td>New Curriculum</td>
<td></td>
<td>74.0% (Kalispell Campus Group Score – average of all individual student scores on the Kalispell Campus)</td>
</tr>
<tr>
<td>Fall 2006 Missoula (23 students)</td>
<td>Group Composite Scores</td>
<td>Medical-Surgical – 70.1%</td>
</tr>
<tr>
<td>Version 2.0</td>
<td></td>
<td>Mental Health – 85.9%</td>
</tr>
<tr>
<td>New Curriculum</td>
<td></td>
<td>71.1% (Missoula Campus Group Score – average of all individual student scores on the Missoula Campus)</td>
</tr>
<tr>
<td>Spring 2007 Billings (36 students)</td>
<td>Group Composite Scores</td>
<td>Medical-Surgical – 70.9%</td>
</tr>
<tr>
<td>Version 2.0</td>
<td></td>
<td>Mental Health – 82.5%</td>
</tr>
<tr>
<td>New Curriculum</td>
<td></td>
<td>71.0% (Billings Campus Group Score – average of all individual student scores on the Billings Campus)</td>
</tr>
<tr>
<td>Spring 2007 Bozeman (16 students)</td>
<td>Group Composite Scores</td>
<td>Medical-Surgical – 71.3%</td>
</tr>
<tr>
<td>Version 2.0</td>
<td></td>
<td>Mental Health – 90.9%</td>
</tr>
<tr>
<td>New Curriculum</td>
<td></td>
<td>73.6% (Bozeman Campus Group Score – average of all individual student scores on the Bozeman Campus)</td>
</tr>
<tr>
<td>Spring 2007 Great Falls (17 students)</td>
<td>Group Composite Scores</td>
<td>Medical-Surgical – 67.7%</td>
</tr>
<tr>
<td>Version 2.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Version 2.0 New Curriculum</td>
<td>Maternal-Newborn – 57.1%</td>
<td>Care of Children – 57.6%</td>
</tr>
<tr>
<td>---------------------------</td>
<td>--------------------------</td>
<td>-------------------------</td>
</tr>
<tr>
<td>Spring 2007 Missoula (22 students)</td>
<td><strong>Group Composite Scores</strong></td>
<td>Medical-Surgical – 70.5%</td>
</tr>
<tr>
<td>Version 2.0 New Curriculum</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fall 2007 Billings (37 students)</td>
<td><strong>Group Composite Scores</strong></td>
<td>Medical-Surgical – 73.1%</td>
</tr>
<tr>
<td>Version 2.0 New Curriculum</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fall 2007 Great Falls (14 students)</td>
<td><strong>Group Composite Scores</strong></td>
<td>Medical-Surgical – 68.0%</td>
</tr>
<tr>
<td>Version 2.0 New Curriculum</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fall 2007 Kalispell (5 students)</td>
<td><strong>Group Composite Scores</strong></td>
<td>Medical-Surgical – 70.2%</td>
</tr>
<tr>
<td>Version 2.0 New Curriculum</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fall 2007 Missoula (22 students)</td>
<td><strong>Group Composite Scores</strong></td>
<td>Medical-Surgical – 73.4%</td>
</tr>
<tr>
<td>Version 2.0 New Curriculum</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: Group Composite Scores and Group Scores are averages of all individual student scores for different programs and campuses.
<table>
<thead>
<tr>
<th>Spring 2008 Billings (36 students)</th>
<th>Group Composite Scores</th>
<th>70.4% (Billings Campus Group Score – average of all individual student scores on the Billings Campus)</th>
<th>70.2%</th>
<th>69.9%</th>
<th>41</th>
<th>48</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Version 2.0</strong></td>
<td>Medical-Surgical – 69.9%</td>
<td>70.3%</td>
<td>70.0%</td>
<td>37</td>
<td>45</td>
<td></td>
</tr>
<tr>
<td><strong>New Curriculum</strong></td>
<td>Maternal-Newborn – 62.1%</td>
<td>64.3%</td>
<td>63.9%</td>
<td>31</td>
<td>33</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Care of Children – 59.6%</td>
<td>57.0%</td>
<td>56.5%</td>
<td>74</td>
<td>73</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mental Health – 84.0%</td>
<td>82.7%</td>
<td>82.5%</td>
<td>55</td>
<td>67</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Community Health – 77.2%</td>
<td>75.2%</td>
<td>76.1%</td>
<td>59</td>
<td>53</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Leadership – 79.5%</td>
<td>77.0%</td>
<td>76.6%</td>
<td>60</td>
<td>65</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Spring 2008 Bozeman (16 students)</th>
<th>Group Composite Scores</th>
<th>74.7% (Bozeman Campus Group Score – average of all individual student scores on the Bozeman Campus)</th>
<th>70.2%</th>
<th>69.9%</th>
<th>94</th>
<th>93</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Version 2.0</strong></td>
<td>Medical-Surgical – 74.6%</td>
<td>70.3%</td>
<td>70.0%</td>
<td>94</td>
<td>93</td>
<td></td>
</tr>
<tr>
<td><strong>New Curriculum</strong></td>
<td>Maternal-Newborn – 73.4%</td>
<td>64.3%</td>
<td>63.9%</td>
<td>98</td>
<td>97</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Care of Children – 57.2%</td>
<td>57.0%</td>
<td>56.5%</td>
<td>45</td>
<td>52</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mental Health – 87.2%</td>
<td>82.7%</td>
<td>82.5%</td>
<td>83</td>
<td>85</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Community Health – 79.9%</td>
<td>75.2%</td>
<td>76.1%</td>
<td>78</td>
<td>70</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Leadership – 82.4%</td>
<td>77.0%</td>
<td>76.6%</td>
<td>87</td>
<td>90</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Spring 2008 Great Falls (15 students)</th>
<th>Group Composite Scores</th>
<th>68.1% (Great Falls Campus Group Score – average of all individual student scores on the Great Falls Campus)</th>
<th>70.2%</th>
<th>69.9%</th>
<th>23</th>
<th>28</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Version 2.0</strong></td>
<td>Medical-Surgical – 66.9%</td>
<td>70.3%</td>
<td>70.0%</td>
<td>14</td>
<td>17</td>
<td></td>
</tr>
<tr>
<td><strong>New Curriculum</strong></td>
<td>Maternal-Newborn – 66.3%</td>
<td>64.3%</td>
<td>63.9%</td>
<td>66</td>
<td>73</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Care of Children – 54.3%</td>
<td>57.0%</td>
<td>56.5%</td>
<td>24</td>
<td>32</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mental Health – 81.3%</td>
<td>82.7%</td>
<td>82.5%</td>
<td>29</td>
<td>32</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Community Health – 71.9%</td>
<td>75.2%</td>
<td>76.1%</td>
<td>25</td>
<td>18</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Leadership – 80.6%</td>
<td>77.0%</td>
<td>76.6%</td>
<td>71</td>
<td>77</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Spring 2008 Missoula (23 students)</th>
<th>Group Composite Scores</th>
<th>73.6% (Missoula Campus Group Score – average of all individual student scores on the Missoula Campus)</th>
<th>70.2%</th>
<th>69.9%</th>
<th>88</th>
<th>90</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Version 2.0</strong></td>
<td>Medical-Surgical – 73.4%</td>
<td>70.3%</td>
<td>70.0%</td>
<td>85</td>
<td>85</td>
<td></td>
</tr>
<tr>
<td><strong>New Curriculum</strong></td>
<td>Maternal-Newborn – 65.2%</td>
<td>64.3%</td>
<td>63.9%</td>
<td>85</td>
<td>65</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Care of Children – 61.7%</td>
<td>57.0%</td>
<td>56.5%</td>
<td>87</td>
<td>87</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mental Health – 85.2%</td>
<td>82.7%</td>
<td>82.5%</td>
<td>65</td>
<td>75</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Community Health – 80.7%</td>
<td>75.2%</td>
<td>76.1%</td>
<td>84</td>
<td>73</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Leadership – 84.2%</td>
<td>77.0%</td>
<td>76.6%</td>
<td>96</td>
<td>97</td>
<td></td>
</tr>
</tbody>
</table>
Appendix B
PERFORMANCE OF MSU-BOXEMAN STUDENTS ON
NATIONAL LICENSING EXAMINATIONS (NCLEX-RN)
FROM 1995 - 2006

Performance of first time candidates on the NCLEX-RN from 1995-2006

<table>
<thead>
<tr>
<th>Year</th>
<th># of Candidates</th>
<th>% Passed MSU</th>
<th>% Passed Montana</th>
<th>% Passed National</th>
</tr>
</thead>
<tbody>
<tr>
<td>1995</td>
<td>115</td>
<td>94.78</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1996</td>
<td>104</td>
<td>94.23</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1997</td>
<td>100</td>
<td>90.0</td>
<td>86.4</td>
<td>87.8</td>
</tr>
<tr>
<td>1998</td>
<td>107</td>
<td>97.2</td>
<td>90.6</td>
<td>85.0</td>
</tr>
<tr>
<td>1999</td>
<td>114</td>
<td>95.6</td>
<td>87.2</td>
<td>84.8</td>
</tr>
<tr>
<td>2000</td>
<td>103</td>
<td>94.2</td>
<td>86.9</td>
<td>83.8</td>
</tr>
<tr>
<td>2001</td>
<td>117</td>
<td>95.2</td>
<td>87.9</td>
<td>85.5</td>
</tr>
<tr>
<td>2002</td>
<td>104</td>
<td>93.3</td>
<td>89.3</td>
<td>86.3</td>
</tr>
<tr>
<td>2003</td>
<td>145</td>
<td>87.59</td>
<td>84.64</td>
<td>81.58</td>
</tr>
<tr>
<td>2004</td>
<td>151</td>
<td>93.38</td>
<td>87.97</td>
<td>85.26</td>
</tr>
<tr>
<td>2005</td>
<td>163</td>
<td>87.12</td>
<td>88.89</td>
<td>86.25</td>
</tr>
<tr>
<td>2006</td>
<td>192</td>
<td>93.23</td>
<td>85.01</td>
<td>88.11</td>
</tr>
<tr>
<td>2007</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Appendix C
Montana State University-Bozeman Career Services Employment and Salary Surveys (College of Nursing): 2003-2006

<table>
<thead>
<tr>
<th>Year of Graduation</th>
<th>Total Graduates</th>
<th>Respondents #/%</th>
<th>Employed in Field</th>
<th>Unemployed</th>
<th>Employed but not in Field</th>
<th>Continuing Education and Employed</th>
<th>In-state vrs Out-of-state Employment</th>
<th>Salary</th>
<th># reporting salary</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006</td>
<td>190</td>
<td>121 (64%)</td>
<td>111/121 (92%) FT 5/111 (4%) PT</td>
<td>1 (1%)</td>
<td>1 (1%)</td>
<td>2 (2%)</td>
<td>67% MT 33% Out-of-state</td>
<td>$45,179</td>
<td>111/121 (92%)</td>
</tr>
<tr>
<td>2005</td>
<td>139</td>
<td>92 (66%)</td>
<td>82 (90%)</td>
<td>3 (3%)</td>
<td>0</td>
<td>2 (2%)</td>
<td>72% MT 28% Out-of-state</td>
<td>$42,008</td>
<td>82/92 (90%)</td>
</tr>
<tr>
<td>2004</td>
<td>125</td>
<td>84/125 (67%)</td>
<td>64/84 (76%) FT 3/84 (4%) PT</td>
<td>1 (1%)</td>
<td>0</td>
<td>4 (5%)</td>
<td>71% MT 29% Out-of-state</td>
<td>$42,023</td>
<td>59/84</td>
</tr>
<tr>
<td>2003</td>
<td>119</td>
<td>71/119 (60%)</td>
<td>63/71 (89%)</td>
<td>2 (3%)</td>
<td>0</td>
<td>0</td>
<td>76% MT 24% Out-of-state</td>
<td>$37,200</td>
<td>55/71</td>
</tr>
</tbody>
</table>
Department: Physics

Department Head: Bill Hiscock

Assessment Coordinator: Randy Babbitt

Degrees/Majors/Options Offered by Department
Professional Option
Interdisciplinary Option
Physics Teaching Option
Physics Minor (Non-Teaching)
Physics

Assessment Contact

Name : Bill Hiscock
Phone : 406-994-6170
E-mail: hiscock@physics.montana.edu

Program Assessment

Feedback from Current Students

*Society for Physics Students (SPS): SPS members sit on the undergraduate committee. Undergraduate representatives sit on all departmental committees.

*Students-Faculty Lunch: The Student-Faculty Lunch was held on May 3 2007. The following is a summary of the comments.

Flow charts
Correction to interdisciplinary flow chart: change 312 to being offered Spring of '09 (not '08)

211/221-212/222-213
Observation: Too many courses in Sophomore year; not enough in Freshman year.
Proposal: Move introductory sequence back to starting in Fall of Freshman year.
* Students without high-school calculus believe the current delay to Spring of Freshman year is important in order to get math background.
* Students with high-school calculus believe that Fall of Freshman year is wasted and that it's not until some time in Sophomore year that they begin to learn "real" physics. There is some anecdotal evidence of students switching majors (OUT of physics) because of this delay.
* The current sequence does allow engineering students the option of switching into physics sequence.
Proposal: make 221 & 222 available both semesters or more 221 to fall of freshman year.
* The Fall offering of 221 might have too few students due to lack of calculus prerequisite.
* Move 261 and 361 back as well.
* We don't want to make upper-division physics courses inaccessible to students following a 211-212 trajectory based on timing of courses.

Observation: Labs, particularly for 222, are unsatisfactory: too cookbook-like, 105-level, tutorial, lower-level than 221-222 lecture demonstrations, "useless", and poorly correlated in time with 221-222 lecture coverage. 212 lab goes slower than 222 lecture.
Proposal: establish honors labs, dedicated to the 221-222 sequence separate from the 211-212 labs. These labs would present more hands-on experimentation and at least better prepare students for 261. (See separate section on 261-361.)
* Offering one such lab section might present scheduling difficulties for students. Offering two such sections might result in too-low enrollment to justify TA resources.
* The honors labs might begin with lecture demonstrations, with subsequent student hands-on work in the lab.

"223"
Proposal: Establish an honors section of 213, focusing more on Modern Physics, which would be coupled to a move of 221 to the Fall.

261-361
Observation: 261-361 require a significantly higher work load than do typical 2-credit courses.
Proposal: Add an extra credit to account for it
  * To add this credit, we need to find a credit to take out somewhere else in the curriculum.
    - Proposal: take it out of the math electives, reducing them from 9 to 8 credits.
      + Currently, 25 math credits are required in both the professional and interdisciplinary options, which is only one credit short of a math minor.
      + (There are currently 52 credits of physics courses in physics professional option)
      + It would be difficult to find 2-credit math courses, so most students would still take 9 credits of math electives.
    Proposal: Reduce work load to match other 2-credit courses.
      * The instructor feels we are already at the absolute minimum coverage, and don't cover some topics that should be covered, e.g. data acquisition.
      - Get input from previous 261-361 students or from grad students on whether the coverage is too much or too little.
    Proposal: Beef up the 212/222 labs (solves TWO problems!)
      * Making the 212/222 labs "real" labs might reveal that 261 is not needed at all, but that making 361 a 3-credit class would cover all necessary topics.
      *There was some discussion and suggestions regarding data acquisition (DAQ).
        -Incorporate DAQ into 331.
        -Incorporate DAQ into existing labs.
        -DAQ was seen by some to be relatively easy to learn outside a formal environment.
        -Others believed that use of something like Labview for DAQ requires an understanding of "objects" or at least of flow-charts.

331
Proposal: Incorporate flow-chart ideas and/or DAQ. (See previous section on 261-361.)

Observation: CS is proposing a three-credit Matlab/problem-solving course for generic science problems: CS 392 Numerical Computation for Scientists and Engineers. Could it be pre-req or substitute for 331?

301
Question: Why is 213 a prerequisite?
Answer: It's not for the topic coverage in 213, but for the overall mathematical sophistication typically acquired by the time a student has completed 213.
311-312
Observation: These are lower-level courses than the other 300-level physics courses. However, due to scheduling issues, 312 is now offered every other year. This results in some students taking 312 after 435, which is a significant upper-division physics course. Proposal: Advisers should recommend that students take 312 in the currently science-deficient Freshman year.

-There was some discussion about pre- and co-requisites during the meeting. Algebra was said to be sufficient for this course, allowing it to be taken by physics majors in the Freshman year. However, the course catalog lists 205/211/221 as a pre-requisite and 206/212/222 as co-requisites for both courses. These requirements prevent physics majors from taking either 311 or 312 during the Freshman year.

Feedback from Recent Graduates

   Graduate Admissions and Employment: Maintaining email contact after graduation has proved to be very ineffective, despite considerable effort. Response from emails to the limited number of email addresses has been very low. We have determined that this is neither an efficient nor effective assessment tool and are not continuing this effort.

Evaluation of Teaching

   Pretests in Upper Division Courses: In Fall of 2006 and Spring of 2007, 11 assessment summaries were received by the committee (301, 311, 317, 331, 412, 451 in Fall 06 and 231, 318, 341, 361, and 425 in Spring 07). The comments and recommendation from these assessments have been collected and are being used by the undergraduate committee in their review of the curriculum.

Curriculum Review

   Undergraduate Committee: The following actions were taken by the undergraduate committee in 06-07 with respect to assessment:

   -The flow charts and option sheets for all physics options have been posted and updated
   -Nine catalog corrections were filed as per approved actions based on curriculum review were implemented. See previous years update.
   -The teaching option was updated to reflect changes in education courses.
   -A form for requiring research plans in order to register for 289/290/489/490 was implemented
MSU Departmental Assessment Report
Spring 2008

Department: Physics

Department Head: Bill Hiscock

Assessment Coordinator:
Randy Babbitt, Undergraduate Curriculum Chair

**Degrees/Majors/Options Offered by Department**
- Professional Option
- Interdisciplinary Option
- Physics Teaching Option
- Physics Minor (Non-Teaching)
Physics

Assessment Contact
Name: Randy Babbitt
Phone: 406-994-6156
E-mail: babbitt@physics.montana.edu

Program Assessment
Feedback from Current Students

Society for Physics Students (SPS): Undergraduate representatives were on the following departmental committees: Policy & Personnel, Undergraduate committee (3), Undergraduate recruiting, and Computer Committees. The SPS is run by student elected officers and assigned a faculty representative. Their inputs are given in committee meetings, at the student-faculty lunch, and through their representatives on the undergraduate committee, as well as direct communication with undergraduate committee and department head.

Students-Faculty Lunch: The Student-Faculty Lunch was held on April 24, 2008. The following is a summary of all the comments expressed during the meeting. The department prefers to list all comments here, even those that represent minority or singular opinions, so the inputs remain well documented. The undergraduate committee takes all inputs seriously and continually looks for ways to address all concerns, as long as a change to address one concern does not diminish the overall curriculum for others. As the lunch and senior interviews are held at the end of the year, these concerns will likely not be considered until the committee meets in Fall.

Phys 261/361: Based on past feedback from students, the work load for these courses was adjusted to better match a 2 credit course work level. Current students concurred that level was now more appropriate.

Phys 212/222 Lab Revamp: Though it was identified as a priority last year, and would complement the workload reduction in 261, the resources evaporated that had been identified for supporting the revamping of the labs during Spring '08. Students reiterated their strong desire for more robust labs. A funding source external to the department/college/university may be needed. The Undergraduate Committee will form a group to investigate funding sources and write a proposal. Because the revamp would benefit both physics and engineering students, university funds might be available. It is believed that PER ideas for 212/222 mostly involve batteries and bulbs, so there may be additional burden on the proposal writers to be innovative.

Phys 211/221-212/222-213 sequencing: There is not yet a consensus on starting 211/221 Spring of Freshman year. It is still under consideration by the committee.
Phys 211/221-212/222-213 honors labs: Not implemented. It was seen to be too restrictive in scheduling for the students and less of a benefit than improving the labs overall, which will be the priority.

Phys "223" (the honors section of 213): Not implemented as a greater need was seen for an intermediate physics course, which will be a major focus of next year’s committee.

Physics 311-312: Both have 205/211/221 as a pre-requisite and 206/212/222 as co-requisites, but they this may be too restrictive. Either 311 or 312 could be taken by well-prepared physics majors in the Freshman year by students who have taken appropriate high-school physics. (Historically, one of the two had been offered in the summer, when it was populated with physics majors and therefore taught at a higher level.)

Physics 331: Students can replace 331 requirement with the brand-new, three-credit CS 392 with adviser consent. An advisory will be sent to advisors. We await feedback from students who took it Spring ’08 before taking further action.

Phys 211/221-212/222-213 Lab cap on honors students: There is currently a cap of 2-3 honors students per lab section. The intent was to encourage mentoring by the honors students of the non-honors students. The student observation, however, is that the honors students cluster together. Should we remove the cap? This will be reviewed at the time the labs are revamped.

Pre-requisites: We need consistent, "rational" pre-reqs as an essential first step in their enforcement. The UG committee was urged to perform a curriculum-wide assessment. For example, in Phys 301, the material in 213 is not necessary, but 213 is used as a place holder to keep students from taking 301 too early. If the pre-reqs were 212 and 231, 231 could serve as the place holder. One student claimed that Math 225 was sufficient, but others stated that there was some usage of complex numbers and linear algebra, which is not covered in Math 225.

Physics Electives: They are offered disproportionately in Spring. Why? Is there a sequencing issue? This issue will be considered in future scheduling of courses.

Physics 441: The statement in the catalog about Phys 441 being "strongly recommended" for graduate school should be removed.

Phys 425: Being offered in Spring only, students graduating in Fall may need to plan two years in advance to take it. Because it is a more important class, should it be offered every year? We need 8-10 students on average to satisfy administration. Could we get that every year? Not likely given enrollment.

Physics 490: Is 490 research valuable enough to justify 3 credits, or should we bump it down to 2? There is currently ambiguity regarding what 2 or 3 credits means in terms of
effort. 490 credits cannot count for electives above a certain point, but this is not clearly defined. In 406C, there should be an assessment of how many students have 2 versus 3 credits of 490 before 406C? Better advising on the definition of a senior project is needed.

Physics teaching option: Should it require "real" research? Does 1-2 credits of 490 count in electives? Phys 318 (an elective) is only offered in Spring, and is offered at the same time as Math 329 (a requirement). Because students perform teaching experience Spring of senior year, they take Math 329 Spring of junior year, and miss out on Phys 318.

GRE Prep: Who takes over? Rotate faculty members through subjects? Could grad students do it? As implemented by Larry, it has been more about strategies than about physics. Who has that expertise? It had also been scheduled starting 1st of September. Now, the GRE itself has been shifted earlier in the year, so should the GRE Prep also be shifted? The School of Business does an MBA prep course for credit. What about having a summer course? One student voiced reluctance to make it a course, because the time investment should be a personal choice. Volunteering for the Help Center is excellent prep for GRE, but students should do so in teams to benefit the students who are there for help themselves.

The comments and recommendation from the faculty-student lunch will be considered by next year’s undergraduate committee in their review of the curriculum.

**Exit Surveys:** Exits interviews with our seniors, as well as other discussions with undergraduates, were conducted on an individual basis. The following comments were provided to the committee, along with discussion.

“There are several Math and Physics classes that are 200 or 300 level classes that would be good for freshmen to take, especially Math 221 and Math 333.” Our typical freshmen take Math 181 and 182 in their first year. Since Math 221 has a prerequisite of Math 182, and Math 333 has a prerequisite of Math 221, it will be a fairly rare freshman that will have the accelerated math preparation necessary to take either of these courses in the first year at MSU. But, if they did have the pre-requisites, taking these course freshman year could be appropriate and wise.

“The Physics of Photography, Phys 253, could be taken by freshmen.” The course pre-requisite is high school algebra. This should be conveyed to incoming students through the advising process.

“Astronomy Physics 311 could be completed by Freshmen.” Technically, PHYS 311 has prerequisites of PHYS 205 or 211 or 221, which would place it out of reach for freshmen, though an enthusiastic freshman may be able to do well in this class. This will be reviewed.
Feedback from Outside Constituencies

**Student Awards:** Student awards are announced on Physics home page and Newsletters. These include:

Three graduating Physics seniors have been selected to receive MSU Alumni Association/Chamber of Commerce Awards for Excellence. They were selected for this honor on the basis of their outstanding academic records.

One of our students was the 2007 recipient of the William E. Parkins Engineering-Physics Award. This award honors the MSU student with the top grade point average in engineering, math, and physics courses. He is a double major in Physics and Computer Science.

One of our students was selected to receive the 2007 Dean's Award for Excellence as the Outstanding Graduating Senior in Science, by the College of Letters and Science.

Evaluation of Teaching

**Student evaluations of courses:** The undergraduate course evaluations generated no concerns or comments appropriate to be passed on as feedback to the Undergraduate Committee.

**Faculty mentors:** There were no new faculty members in 07-08.

**Faculty Teaching Assessment:** The teaching evaluations conducted during retention and tenure reviews generated no concerns or comments appropriate to be passed on as feedback to the Undergraduate Committee.

**Pretests in Upper Division Courses:** In Fall of 2007 and Spring of 2008, 6 assessment summaries were received by the committee (301, 311, 317, 331, 412 in Fall 07 and 318 and 435 in Spring 08). The cumulative comments and recommendations from these assessments have been collected into a binder that is available to all instructors. The binder is used by the undergraduate committee in their review of the curriculum.

Curriculum Review

**Undergraduate Committee:** The following actions were taken by the undergraduate committee in 07-08 with respect to assessment:

- All comments and inputs from the student-faculty lunch and interviews were considered and prioritized by the committee for actions by the committee and department.

- Flow Charts: The flow charts and option requirement sheets for all physics options were updated and posted on web for 06-08 and 08-10 catalogs.

- Electives: The descriptions of electives in the professional and interdisciplinary option were modified so that they were consistent. The new language for both options is now: "The physics electives are to be selected from PHYS 253 and PHYS courses numbered 300 and above. The mathematics electives are to be selected from MATH 221 and
MATH and STAT courses numbered 300 and above. A minimum of 120 credits is required for graduation; 42 of these credits must be in Courses numbered 300 and above."

-Catalog changes: 1) Under "INTERDISCIPLINARY OPTION", the first sentence in the requirements at the end of the table now reads "The physics electives must be numbered 200 and above. The mathematics electives are to be selected from MATH 221 and courses numbered 300 or above." 2) Under "TEACHING OPTION", a requirement at the end of the table was added: "The physics electives must be numbered 200 and above." And 3) In the table for "TEACHING OPTION" in Junior year, the number of University Core and Electives should be changed from "8" to "5". (This will properly make total credits equal 32).

-Computer Science 392: An advisory was sent to all physics undergraduate advisors stating that CS392 can be used as a Math elective or a substitute for Physics 331 on a case by case basis. The Undergraduate committee is waiting on more feedback from physics students that take the course before recommending a firm policy and revising the catalog.

-Montana Department of Education Teaching Audit: MSU will be undergoing an education audit as part of their accreditation process. Documentation, such as course syllabus, table of contents of textbooks, and sample tests and assignments were provided.

-GRE Prep: GRE prep sessions will be organized for the Fall of 2008 for students that are interested.

**Student Advisors:** A new Freshman advisor was assigned this year, and each of the class advisors cycles up with their students, so each student has the same advisor throughout their MSU education. The student advisors attend and provide input at faculty meetings and student-faculty lunches, as well as directly to the undergraduate committee.
Department: Physics

Department Head: Dick Smith

Assessment Coordinator:
Randy Babbitt, Undergraduate Curriculum Chair

Degrees/Majors/Options Offered by Department
Professional Option
Interdisciplinary Option
Physics Teaching Option
Physics Minor (Non-Teaching)
Physics

Assessment Contact

Name: Randy Babbitt  
Phone: 406-994-6156  
E-mail: babbitt@physics.montana.edu

Program Assessment

This report is based on assessment plan updated Spring 2007. The next report will address the Spring 2009 updated plan.

Feedback from Current Students

**Society for Physics Students (SPS):** Undergraduate representatives were on the following departmental committees: Policy & Personnel, Undergraduate committee (3 students), Undergraduate recruiting(3 students), and Computer Committees. The SPS is run by student elected officers and assigned a faculty representative. Their inputs are given in committee meetings, at the student-faculty lunch, and through their representatives on the undergraduate committee, as well as direct communication with undergraduate committee and department head.

**Students-Faculty Lunch:** The Student-Faculty Lunch was held on April 30, 2009. The following is a summary of the comments. The following is a summary of all the comments expressed during the meeting. The department prefers to list all comments here, even those that represent minority or singular opinions, so the inputs remain well documented. The undergraduate committee takes all inputs seriously and continually looks for ways to address all concerns, as long as a change to address one concern does not diminish the overall curriculum for others. As the lunch and senior interviews are held at the end of the year, these concerns will likely not be considered until the committee meets in Fall.

Two changes were made to UG curriculum were announced (see below for details) 1. The definition of the senior project was developed and put on the web and 2. Included “complex variables” in description of Phys 231.

Phys 301: Should have a pre-requisite 212 and 231. It currently has a co-requisite of 213 and 231. Committee will address this next year. Flow charts need to be changed to reflect physics 301 pre-requisites and co-requisites.

Strongly recommend that students take Math 221 as a math elective during the Freshman year. There are no "real" pre-reqs (Math 176 or 182 is the current on-paper pre-reqs). It also introduces complex variables. According to students, there are two different presentations: one with Maple and one without, and "nobody learns anything" in the Maple version.

Math has introduced honors Math 191/192/234/235, which are taught at a significantly higher level than their non-honors counterparts. The honors classes are also taught by
professors instead of grad students. If we require our majors to take the honors versions, then we need to know whether the enrollments are or will be capped.

Can we merge 490 and 406C? Do university rules prohibit that? The purpose would be to save a credit to be added elsewhere in the curriculum.

Students report too little computer experience. Matlab is seen as not adequate. A need is seen for C or C++. Reports of REU application forms asking in particular about computing experience. We should advise Freshmen to take CS courses. Can we expand "math" electives to include CS classes? Should we add a computer course requirement?

Introduce elder-student advising of Freshmen in the first week of school. One particular topic to be emphasized in this way is curriculum experience -- how to plan for future semesters.

A presentation on adding a new course Phys 322 "Intermediate Physics" course into required physics curriculum was presented and discussed. Comments included:
- Who requires 213 aside from engineers and chemists?
- Would they want to keep 213 after the introduction of 322?
- Would they want to take the new 221-222-322 sequence?
- Is it possible with the 5-5-3 credit load?
- Would they want a restructuring of 213 to better suit their needs?
- Instead of restructuring 221 and 222, could we keep them as is and add 322 and a 2-credit thermal class?
- With the addition of Phys 322, can we move 411 back to Fall of Senior year?
- Students contradict the belief of some faculty that GRE performance is compromised by too little exposure to quantum.

Can we offer either Phys 231 or 213 both Fall and Spring semesters to cover transfer or major-changing students?

Moving 221 (and necessarily 213) back to Fall semester: As is, it discourages physics majors because they don't see physics their first semester in college. Also, students pad freshman year with "easy" core courses so there is no padding available later in the curriculum. Can we make Math 181 a co-req? How does that affect later courses, for example Phys 322 (which would then be offered in the Fall of sophomore year, requiring Math 225, etc.)? How would engineers, chemists, etc. be affected? A shift means that we need to teach 222 twice in the first year of change.

The comments and recommendation from the faculty-student lunch will be considered by next year’s undergraduate committee in their review of the curriculum.

Exit Surveys: Exits interviews with our seniors, as well as other discussions with undergraduates, were conducted on an individual basis. The following comments were provided to the committee by the department head. In general, the students are generally
pleased with the program. We did not have any courses this past year where a majority of the students felt negatively towards the current course.

The dominant messages from the exit interviews are summarized here:

1. Spread out the Core and the Physics electives. There is no need to rush through the Core in the first year or two. In fact, some core course are of greater value if taken as a junior or senior. Spreading out the Core then makes more room for Physics electives without overdosing on Physics in a given semester.

2. Students feel they need more computer experience

3. Advising: An annual meeting of advisors would help spread the news, tips, and good (and bad) ideas so that students get a consistent advising picture independent of who the advisor is. Also, pair up the freshman majors with upper classmen for an orientation to the program; get the freshman into SPS as soon as possible.

4. Students like 137, but also suggest that moving 211 forward to Fall semester would be good.

Below are all the exit interview questions and specific comments. Comments are not weighed as to number of students that responded with similar input. Some comments are only the views of one student.

1. What are your plans for next year? Contact Info?
Work in Bozeman; headed for grad school; year off then grad school; work at government lab; industry – sustainability; industry – robotics; industry – engineering; grad school in medical physics; look for work in industry;

2. Comments on courses taken?
Electives taken 311, 341(2), 353(2), 425(5), 426 (1), 441(2), 451(2) as electives; Adjunct teaching our physics major gets very high marks; level of 211-12 too low, take 221, 222; students were not ready for 301; move freshman physics forward to Fall; hard to maintain continuity in 1-credit relativity course; split 425 into thermo and stat mech, too much material; need coherence/continuity in 261/361; consider other texts for 317-18 and 411-12; 231 is a good lead into junior classes; single teacher for 411-12 and 317-18 is better than two different instructors; need more programming, simulation, modeling in 331; Math441 is good, CS160 is good, CS201 (C++) would have been nice; students would benefit from a logic course; professors very helpful; 261/361 at 2 credits is okay – a lot of work but okay; nice to have some sort of philosophy of science course, something that encompasses at least foundations of epistemology and ethics; 331 not much fun, but foundation is very beneficial; REUs are fantastic and should be pushed at every semester advisor meeting – point students to NSF web site in November;

3. Comments on lab experience?
Like senior lab – could we do a junior lab? Add a lab experience to lectures; don’t overdo the lab project in 261 – too much time; writing up experiments is good practice; 211-12 labs could be more challenging; the capstone experience is better than a “senior” lab; liked astronomy labs and senior lab; freshman could be advised into 311 – no need to wait until upper division; liked all lab courses; put more emphasis on lab book and taking notes in lab; 451 and 412 can work nice together;

4. Comments on advising experience?
Should have an advisors meeting at least once or twice a year; tell students to take more electives – push students a bit harder – we are too casual, not doing the students any favors; alert students to careers in Medical Physics; math and physics are too easy in 1st and 2nd years; be willing to allow incoming students to work outside the box; pair the incoming freshman up with seniors for orientation to learn the ropes (several comments on this); spread out your core – no need to take it all at beginning, then can fit in more electives (several comments on this); 1st and 2nd years are critical – talk to students; alert students to 221; get freshman into SPS; take core courses during study abroad; physics advisors can use more preparation; REU, RISE; talk up the REU early on, even to freshman;

In addition, input from outside the exit interview process provided this feedback: "It would be better if there were higher level courses in certain areas. It's also difficult to plan later years in your study when you have to have so many prerequisites. I think advising needs to be taken more seriously by advisers."

Feedback from Outside Constituencies

**Student Awards:** Student awards are announced on Physics home page and Newsletters. These include:

One student was selected to participate in the first annual U.S. Department of energy Student Energy Research Challenge (SERCh), a national competition held at Oak Ridge National Lab, Oak ridge, TN on Nov. 9-10. His poster described work on Solid Oxide Fuel Cells carried out in the Mechanical Engineering department.

One student was awarded the Undergraduate Physics Scholarship from Montana Space Grant Consortium. This honor reflects the student's past achievements as well as present and future commitment to the aerospace sciences and engineering. There are approximately 1900 Space Grant Scholars and Fellows nationwide.

Number of graduating seniors in Spring 09: 18 (a record high in recent years)

Students graduating with Honors (3.25 GPA or higher): 6

Students graduating with Highest Honors (3.75 GPA or higher): 5
One student was awarded the 2009 Alumni Association/Chamber of commerce Award for Excellence. The Award for Excellence signifies exceptional achievement - both academically and in community leadership - over a student's entire MSU career.

Evaluation of Teaching

**Student evaluations of courses:** The teaching evaluations were done in every course and evaluations were discussed with instructors during their annual reviews in Spring 09. The undergraduate course evaluations generated no concerns or comments appropriate to be passed on as feedback to the Undergraduate Committee.

**Faculty mentors:** The new faculty member was connected to past instructors of his first course to aid in his teaching. Also, the DH has agreed to support trips to APS/AAPT sponsored workshops for new faculty to be held in College Park, MD in Nov 2009.

**Faculty Teaching Assessment:** The teaching evaluations conducted during retention and tenure reviews generated no concerns or comments appropriate to be passed on as feedback to the Undergraduate Committee.

**Preparation Assessment in Physics Classes:** In Fall of 2008 and Spring of 2009, 8 assessment summaries were received by the committee (212, 261, 301, 311, 451 in Fall 08 and 212, 361, 406C, 425, and 461 in Spring 09). So far, 38 assessments have been carried out and documented. 20 of the 24 classes that have physics pre-requisites have been assessed. The cumulative comments and recommendations from these assessments have been collected into a binder that is available to all instructors. The binder is used by the undergraduate committee in their review of the curriculum.

**Syllabi of Physics Classes:** The syllabus from all 28 required and elective physics courses of our Physics majors’ curriculum have been collected. The syllabus for each course is included in the course assessment binder with the cumulative preparation assessments for that course. This collection of updated syllabi will be included in updated Spring 2009 assessment plan.

Curriculum Review

**Undergraduate Committee:** The 08-09 Undergraduate Committee had 5 faculty members and 3 undergraduate representatives. The following actions were taken by the undergraduate committee in 08-09 with respect to assessment and action on the physics curriculum:

- Flow Charts: The flow charts for all options were reviewed and the teaching option in 08-10 catalog was updated. The annual review, updating, and posting of the flow charts for all three degree options will be added to the assessment plan Spring 09 update.

- The senior project is designed to give a student the opportunity to develop, over two or more semesters, skills that are necessary for work in a professional scientific environment. The student will collaborate with a mentor on a project that: is of interest to the student, is either experimental or theoretical in nature, has a defined objective, is primarily based on the
student's own work. (This work normally will be presented in PHYS 406C). It could be an extension of background or historical work completed by the student in PHYS 470 or 489, but must also include 3 credits of PHYS 490; at least 2 credits of 490 must be completed before taking physics 406C (capstone). In PHYS 406C students will be required to complete: i) an APS-style abstract, ii) an APS-style 10-minute oral presentation, iii) a poster session, and iv) a written research report, based on their prior research.

Specific examples of current and past senior projects include: Laser development for specific applications, Conducting spectroscopy or surface measurements of materials, Extending or applying recent theories of quantum information theory, Theoretical work in astrophysics, gravitation, and Analysis and interpretation of astronomical data

-Honors math: Advise incoming Freshman to take Math 191 and 192 (Honors) rather than Math 181 and 182. This is based on the assessments that found students who have taken the honors versions of these courses (191/192/234) are much better prepared than the 181/182 students.

-Catalog changes: “Complex Variables” was added to the description of topics in Physics 231.

-Computer Science 392: An advisory was sent to all physics undergraduate advisors stating that CS392 can be used as a Math elective or a substitute for Physics 331 on a case by case basis. The Undergraduate committee is waiting on more feedback from physics students that take the course before recommending a firm policy and revising the catalog.

-The committee spent considerable effort in developing a proposal for an intermediate physics course. The proposal was presented to the faculty (4/30/09) and at the student-faculty lunch. The committee will consider and address the suggestion, comments, and concerns raised at these meeting to revise the proposal for further consideration.

-GRE Prep: GRE prep sessions were organized and held the Fall of 2008. A GRE prep session will be organized for Fall 2009, for students that are interested.

**Student Advisors:** A new Freshman advisor was assigned this year, and each of the class advisors cycles up with their students, so each student has the same advisor throughout their MSU education. The student advisors attended and provided input at faculty meetings and student-faculty lunch, as well as directly to the undergraduate committee.

Next year’s committee will set up meeting(s) with or provide advising manuals for all the undergraduate advisors prior to the start of advising periods in Fall and Spring. Twice annual meetings with advisors will be added to the Spring 09 update of the Assessment Plan.
Assessment Activities

Students were evaluated in the following areas:

1) **Technical skill** to solve physics problems.
2) **Breadth of knowledge** in different areas of physics.
3) **Communications skills**, both written and verbal.

In the assessment categories given in this report, student achievement is given a numerical score based on the following scale:

4 - The student has shown excellent command of the material being reviewed. The work is almost fully correct and complete, with correct responses and proper application of concepts to solve problems correctly with only minor mistakes; this level of achievement indicates originality of thinking.

3 – Good command of the material. The work is typically correct and complete, with only occasional errors in responses and applications of concepts to solve problems.

2 – Competence with the material, but significant weaknesses. The work contains many incorrect responses. Problem solutions are often missing important steps, or are incomplete.

1 – Very little command of the material. Responses to questions are mostly incorrect and problem solutions show little progress toward completion or are regularly incorrect.

Departmental Expectations

We expect 70% of our students to achieve 2.7 or higher in the three evaluations categories.

Assessment Results

**Technical skill**

PHSX 301 - Introduction to Theoretical Physics

<table>
<thead>
<tr>
<th># of students</th>
<th>rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>1</td>
<td>3.5</td>
</tr>
</tbody>
</table>
7                        3
1                        2.5
3                        2
5                        1

PHSX  425 - Electricity & Magnetism II

# of students     rating
1                        4
5                        3
1                        2.5

PHSX  461 - Quantum Mechanics I

# of students     rating
5                        4
1                        3
3                        2

Breadth of knowledge

PHSX 435 - Astrophysics

# of students     rating
1                        4
5                        3
1                        2

Communications skills (written report, poster, 10 minute talk)

PHSX 499 - Senior Capstone

<table>
<thead>
<tr>
<th># students</th>
<th>Writing</th>
<th># students</th>
<th>Poster</th>
<th># students</th>
<th>Talk</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>1</td>
<td>3</td>
<td>2</td>
<td>3</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>1</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Assessment Outcomes

1) Technical skill. Average student performance met expectations in PHSX 425, 461, and 499, but fell below expectations in PHSX 301.
2) Breadth of knowledge. Students performed as expected.
3) Communications skills. Generally, students did well in all three areas of communicating scientific information. More practice would reduce common mistakes.
Actions

For the weakest students in PHSX 301 that are physics majors, academic advisors have been informed so that steps can be identified to help these students succeed in the future. We also plan to give students more opportunities to practice their speaking skills.
June 28, 2013

Associate Dean Suzanne Monahan
College of Letters and Sciences
Wilson Hall
Montana State University

Dear Dr. Monahan:

I am writing to report the results of the Political Science Department’s first annual assessment of student achievement outcomes. I first briefly describe the process, then summarize the results, and close making some observations about strengthening and clarifying this process in the future.

We began by forming a department committee to develop an assessment plan in 2012. That committee was comprised of three faculty members, all with doctoral degrees in political science, and in different areas of political science. We intentionally recruited three faculty members with political science doctorates in different areas of subfield specialization since the assessment plan aims to assess the degree to which political science undergraduate students are achieving broadly conceived intellectual objectives associated with a degree in political science. That committee consisted of Professor David Parker (American Institutions), Professor Sara Rushing (Political Theory), and Professor Franke Wilmer (International Relations). This way, other faculty members could serve on the assessment committee in the future but the plan and criteria would be consistent with the field of political science and its subfields.

Following development of the assessment plan, two faculty members formed an assessment committee – Department Head Linda Young and myself. We began by operationalizing criteria to measure achievement of the outcomes, as measures of the objectives, on a 4-point scale. Those criteria are elaborated on the attached spreadsheet. Then we collected papers from courses corresponding to the outcomes outlined in the assessment plan. For example, Outcome 1 indicates that papers from PSCI 210 can be used to assess achievement of that outcome. Then we randomly selected 5 papers from each course, including the Capstone research course, and independently ranked those papers according to the criteria corresponding to each outcome. After our independent assessments, Professor Young and I met to discuss any discrepancies or differences in our scores for each paper and it was not difficult to come to agreement on a common score.
Now, a few words about the results. Overall, we concluded that our students were demonstrating a level of mastery of “good” to “excellent” on our 4-point scale. We also observed that the scores for assignments in the lower-level courses, presumably taken as foundation courses at the beginning of their tenure as political science majors, tend to be lower than the scores in their upper-level and capstone classes. The capstone was particularly notable for having a higher proportion of “excellent” and “good” assessments. This is what we would hope for – measurable progress from the earliest courses to the final capstone research project. Only one paper across all those assessed was scored as “poor.” It was not only a poorly written paper, but did not demonstrate achievement of the criteria for that outcome (Outcome 3: make reasoned conclusions from the evidence). The paper has some substance, but it was not at all consistent with the assignment. Overall, if we were to view these results on a curve, the curve bends toward the higher end of achievement.

We note that trends from performance in the foundation courses through the intermediary conceptual, methodological, and knowledge-based courses and culminating in the capstone research project do not, as of this assessment cycle, reflect cumulative dossiers on individual students. In other words, the students assessed in Outcome 1 are not the same as those assessed for the other outcomes. That is a function of this being the first round of assessment, as we plan to follow randomly selected students in the future to assess their progress. Future committees will have to balance the need for randomness and evaluation of cumulative individual dossiers.

This last point brings us to the future. One issue both Professor Young and I found troubling is the degree to which papers submitted for the foundation courses are poorly constructed, that is, lots of grammatical, spelling, and word use errors. We have not decided what can be done about this, but Professor Young thinks that our faculty members should largely be evaluating the content and not the lack of basic writing skills evident in these papers. I am not sure of a way to avoid this other than, as I have, urging students to use the Writing Center for review before they turn in the paper. Another is that the criteria we developed to distinguish “excellent” from “good” or even “fair” papers is the presence of some innovative or original thinking.

There were a few cases in which papers were deficient in demonstrating some of the criteria for lesser outcomes but did demonstrate innovative and original thinking. Could we let innovative and original thinking compensate for papers that did not demonstrate the mastery of the criteria for previous levels of competency? We concluded that we could not. In other words, to receive an assessment of “excellent,” a paper had to meet all of the criteria for “good.”

Finally, there were a few cases where the student met all of the criteria for excellent but the paper still had a few minor spelling, word choice, or grammatical errors, presenting us with a similar dilemma. We urge the next committee to review the
outcome criteria and decide whether such errors should be “deal breakers” for papers that otherwise meet all of the achievement objectives and reflect innovative and original thinking. To some degree, this problem refers back to the original concern with the technical quality of students’ writing.

If you have any questions or would like to discuss our assessment process and conclusions for 2013 further, please let me know. We hope that this letter will provide guidance for the next year’s committee as well as document the work done this year. The spreadsheet including the numeral scores and outcome criteria is attached.

Sincerely,

Professor Franke Wilmer
Professor and Department Head Linda Young
### Outcome 1: Evaluate conflicting arguments

<table>
<thead>
<tr>
<th>Student</th>
<th>Outcome 1</th>
<th>Outcome 2</th>
<th>Outcome 3</th>
<th>Outcome 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dove</td>
<td>3</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Koch</td>
<td>3</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prager</td>
<td>3</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tower</td>
<td>3</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ashe Ramirez</td>
<td>2</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Abbey</td>
<td>2</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Henderson</td>
<td>4</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kusler</td>
<td>3</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>McBride</td>
<td>3</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Walters</td>
<td>3</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dalberg</td>
<td>2</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gagnon</td>
<td>3</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Handsaker</td>
<td>4</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kessler</td>
<td>3</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ospina</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trammell</td>
<td>3</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Zimmerman</td>
<td>3</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hayes</td>
<td>4</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shaw</td>
<td>4</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Webb</td>
<td>2</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cook</td>
<td>3</td>
<td>3</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1. Poor means that the student did not demonstrate an ability to evaluate conflicting arguments. Conflicting arguments may have been identified, but the evaluation component was absent, confusing, or too superficial to convey any intellectually meaningful evaluation.

2. Fair means that the student identified conflicting arguments and made a cogent argument for and against each one. The paper may have some grammatical/spelling errors.

3. Good means that the student identified conflicting arguments, made cogent arguments for and against and the content of the arguments demonstrated some intellectual depth. Few or no grammatical/spelling errors.
4. Excellent means that the student identified conflicting arguments, made cogent arguments for and against, demonstrated intellectual depth as well as some innovative or original thinking. No grammatical/spelling errors.

**Outcome 2: Assemble empirical evidence and analyze normative concepts**

1. Poor means that the student did not demonstrate the ability to assemble empirical evidence and analyze normative concepts. There may be empirical evidence in the assignment evaluated, but it is weak, inconsistent, or inadequate and does not pertain to the normative concepts asserted. Student does not demonstrate an understanding of normative concepts or their role in the analysis.

2. Fair means that the student assembled some relevant empirical evidence related to the normative concepts in the assignment, but the relationship is not well-developed. Writing may lack clarity and include some grammatical and spelling errors.

3. Good means that the student identified empirical evidence relevant to the normative concept/s in the assignment and demonstrated the ability to analyze normative concepts in light of the evidence and made an overall well-supported and coherent argument.

4. Excellent means that the student analyzed normative concepts in light of relevant empirical evidence, making a coherent and well-supported argument and demonstrated innovative or original thinking.

**Outcome 3: Make reasoned conclusions from evidence**

1. Poor means that of the three elements – thesis statement, evidence, and conclusion linking the two – some or all of these elements are absent or too weak and inadequate to achieve the outcome.
<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>2.</td>
<td>Fair means that all three elements are present, the thesis is clear, there is adequate evidence pertaining to the thesis statement, and the conclusion effectively links the evidence and thesis statement together.</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>Good means that the thesis statement is clear, sharp, and focused; adequate and appropriate evidence is marshaled to evaluate the thesis, and the conclusion links the two. The paper overall reflects a high degree of intellectual depth and substance.</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>Excellent means that all three elements are outstanding or exceptional and the paper reflects not only intellectual depth, but also innovative or original thinking.</td>
<td></td>
</tr>
</tbody>
</table>

**Outcome 4:** Communicate orally and written work effectively; credit and cite sources

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Poor means that the student’s performance on written and oral work does not demonstrate the level of competence expected from a college-educated individual. Thinking is superficial, intellectually shallow, and/or unclear or confused. Sources are improperly credit and cited.</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Fair means the student’s performance on written and oral work demonstrates a minimum level of competence; the work is structured in a logical manner, moving from thesis to conclusion, presentation is clear and sources are properly credited and cited.</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>Good means that the student’s performance on written and oral work is competent (as described for “fair”), intellectually engaging, and substantive. Sources are properly credited and cited. There should be very few and only minor grammatical/spelling errors.</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>Excellent means that the student’s performance on written and oral work is outstanding; including competent as described above, demonstrates intellectual substance, and shows evidence of original or innovative thinking. Sources are properly credited and cited. There are no grammatical/spelling errors.</td>
<td></td>
</tr>
</tbody>
</table>
Department: Political Science

Department Head: Jerry Johnson

Assessment Coordinator: Jerry Johnson

Date: 11/4/10

Degrees/Majors/Options Offered by Department
BA Political Science with four options:
- International Relations
- Political Theory
- American Political Institutions
- Policy and Analysis

Masters of Public Administration (MPA)
Annual Update of Assessment Activities

The primary assessment used in the department consists of the use of the Knapp evaluation and in-class visits by peer reviewers. Knapp evaluations are conducted for every course offered by the department. I collect all Knapp scores into a departmental spreadsheet for use later in P&T reviews and suggest each candidate do the same for their personal data. As spelled out in our Role and Scope, for P&T review the department utilizes two items on the Knapp form for evaluating teaching effectiveness: overall effectiveness and mastery of subject matter. Candidates must achieve an overall mean score of "good" or better for all classes for both items to be considered effective.

In addition, each tenure track but not tenured faculty member asks an outside reviewer to visit their classes once during each semester. We use a form designed and adopted several years ago. Overall, faculty find the process a useful form of feedback – especially if the evaluation is done mid semester. We expect that by the tenure review, each candidate will have a strong body on course evaluations to draw on. Post tenure, faculty utilize a less frequent number of in-class visits.

Our qualitative student evaluations were converted to a quantitative form using the mark sense format. This will allow for better longitudinal analysis of the data.

We completed a comprehensive internal review during Spring 2007 and redesigned our curriculum based on the findings of that review. One output was the development of two options within the degree program – Analysis and Policy and International Relations. During 2009, we surveyed our majors and learned that not only did they appreciate the options; they wanted more. Subsequently, we designed two additional options - Political Theory and American Political Institutions.
Current Assessment
The Dept. of Political Science is a small department with 8 FT/TT faculty. One position is funded by Extension and does no classroom teaching but coordinates our relatively large intern program. We typically employ two adjuncts. We currently have two faculty with the rank of full professor, two associates, four with the rank of assistant; we have one full time administrative assistant. One tenure track department member has a .75 appointment and therefore, teaches less than a full load.

We offer two programs. Our undergraduate program has approximately 150 majors. Our Masters of Public Administration (MPA) program has, on average approximately 25 students. Half of our graduate student population is part time.

Assessment of faculty in the department consists of the use of the Knapp evaluation and in-class visits by peer reviewers. Knapp evaluations are conducted for every course offered by the department. I collect all Knapp scores into a departmental spreadsheet for use later in P&T reviews and suggest each candidate do the same for their personal data.

In addition, each tenure track but not tenured faculty member asks an outside reviewer to visit their classes once during each semester. We use a form designed and adopted several years ago (attached). The form and process is useful – especially if the evaluation is done mid semester. We expect each candidate to have several in class evaluations for P&T reviews.

The third leg of our assessment effort is a quantitative exit interview of graduating seniors. We will collect the data for long-term analysis.
MSU Departmental Assessment Update
Spring 2007

Department: Plant Sciences and Plant Pathology

Department Head: John Sherwood

Assessment Coordinator: Norm Weeden

Date: Summer 2007

Degrees/Majors/Options Offered by Department

Bachelor of Science in Plant Science
  • Crop Science Option
  • Plant Biology Option
Bachelor of Science in Biotechnology
  • Plant Systems Option
Bachelor of Science in Horticulture
  • Horticulture Science Option
  • Landscape Design Option
Assessment and Outcomes Progress 2006-2007—Department of Plant Sciences and Plant Pathology

The five areas of undergraduate instruction in the Department of Plant Sciences and Plant Pathology (PSPP) (horticulture, landscape design, plant biology, crop science and plant biotechnology) each have separate assessment plans. Over the last year progress has been made toward the implementation of each of the plans, with the most changes having been made in horticulture and landscape design as a result of feedback from students and recent faculty hires.

The undergraduate curriculums in both horticulture and landscape design were both thoroughly examined during a two-day retreat of the relevant faculty last fall. Direct comparisons were done with horticulture and landscape design programs at similar institutions throughout the United States in order to identify gaps in our coverage and streamline the presentation of some material. A number of significant changes were made both in the sequence of courses and the actual content of courses. A new course has been added in computer graphics and plans are being developed for a new design course and one or more summer courses. Some of these revisions represent a further modification of changes made last year. A phase implementation plan was developed to provide for a smooth transition. It is felt that the new curriculum will better meet the interests and needs of the students as well as more appropriately reflect the expertise of the faculty.

PSPP is charged with teaching the two general genetics courses on campus (BIOL 301 and PSPP 305). A survey was taken last summer of the departments requiring or recommending a genetics course for their undergraduate majors in order to ascertain whether BIOL 301 (Principles of Genetics) and/or PSPP 305 (Practical Genetics) were fulfilling the needs of the students. In general, the feedback was positive, although some departments had little knowledge of the content of PSPP 305, and BIOL 301 was occasionally reported to be somewhat difficult, containing material beyond the needs of certain curricula while omitting other more relevant material. In spring semester ’07 an attempt was made to allow students and departments to determine which genetics course better fit their needs by offering the two courses at the same time and with the same text, so that students could easily switch from one to the other after comparing syllabi and course goals. At least initially it appears that for many students in Fish and Wildlife, Exercise Science, Horticulture and certain other majors, PSPP 305 was a much better fit for their needs than BIOL 301.

We have continued to annually assess advising using the survey form developed previously. Analysis of the responses indicates a high degree of satisfaction with the advising the students are receiving.

Respectfully submitted,
N.F. Weeden, Chair,
Undergraduate Curriculum Committee
MSU Departmental Assessment Plan 2009-2010

Department: Plant Sciences and Plant Pathology

Department Head: John Sherwood

Assessment Coordinator: Norm Weeden

Degrees/Majors/Options Offered by Department
Assessment and Outcomes Progress 2008-2009—Department of Plant Sciences and Plant Pathology

The five areas of undergraduate instruction in the Department of Plant Sciences and Plant Pathology (PSPP) (horticulture, landscape design, plant biology, crop science and plant biotechnology) each have separate assessment plans. Over the last year progress has been made toward the implementation of each of the plans, with the most changes having been made in horticulture and landscape design as a result of feedback from students and recent faculty hires.

In 2006 those members of the department with specific interests in the horticulture and landscape design curricula met for a 2-day retreat. The undergraduate curricula for both programs were modified and a phased implementation was scheduled. This implementation is now complete, and student evaluations regarding the revised curriculum have been positive. It is felt that the new curriculum better meets the interests and needs of the students as well as more appropriately reflect the expertise of the faculty. The horticulture option has now been renamed Environmental Horticulture Science.

A change in the Plant Science option is the reinstatement of Botany (PSPP 251) as a required course and the dropping of Plant Development (PSPP 457) as requirements for the major due to faculty retirements and teaching responsibility changes. The department continues to teach the two general genetics courses on campus (BIOL 301 and PSPP 305) at the same time spring semester, allowing students to transfer from one to the other (usually from 301 to 305) as they determine which course better fits their needs.

We have continued to annually assess advising using the survey form developed previously. Analysis of the responses indicates a high degree of satisfaction with the advising the students are receiving.

Respectfully submitted,
N.F. Weeden, Chair,
Undergraduate Curriculum Committee
MSU Departmental Assessment Update
Spring 2007

Department: Psychology

Department Head: Richard A. Block

Assessment Coordinator: Richard A. Block

Date: April 23, 2007

Degrees/Majors/Options Offered by Department

B.S. in Psychology with options in Psychological Science and Applied Psychology
  M.S. in Applied Psychology
Summary of Undergraduate Survey Data

A total of 46 graduating seniors returned surveys. The response rate was 56.1% of the 82 students who were enrolled in PSY 493 (Senior Thesis Capstone) in Fall 2005 (n = 12 of 18), Spring 2006 (n = 7 of 25), Fall 2006 (n = 7 of 10), and Spring 2007 (n = 20 of 29). Please consult our assessment plan document for a copy of the survey.

**Items 1–4.** These items were rated on a 5-point scale, where 1 = very dissatisfied, 3 = neither satisfied nor dissatisfied, and 5 = very satisfied. We report each mean (M) and standard deviation (SD):

- On item 1 (“undergraduate program”), M = 3.44, SD = 0.81
- On item 2 (“instruction in your ‘regular’ courses”), M = 3.83, SD = 0.83
- On item 3 (“research and field practicum”), M = 3.74, SD = 0.86
- On item 4 (“academic and career advising”), M = 2.76, SD = 1.02

**Item 5.** The percentages (which total more than 100% because several students indicated more than one category) were:

- 15.2% “accept a job offer that already exists”
- 37.0% “search for a job somewhat related to psychology”
- 13.0% “search for a job completely unrelated to psychology”
- 54.3% “apply to a graduate program in psychology or related fields (e.g., counseling)”—includes students already or soon-to-be accepted
- 10.9% “apply to a professional school (e.g., law, medicine, business)”
- 13.0% “other; please describe” (two students “accepted to graduate program,” three others miscellaneous careers)

In some ways, the open-ended responses are more interesting than the responses to the items on the first page of the survey in that the students mention the most salient aspects (positive and negative) of our programs. On the other hand, a substantial minority of the students did not take the time to respond to one or all of these items (15.2% on items 6 and 7, 52.2% on item 8).

**Item 6.** A total of 17 students said that the professors are the “biggest strength,” “very knowledgeable,” “personable and easy to work with,” and similar comments. Another 7 students mentioned the “opportunities for research,” “good reputation in the research field,” and other similar comments. Another 3 mentioned “interesting courses,” and another 3 made positive comments about our administrative assistant.

**Item 7.** A total of 14 students mentioned concerns about advising, which was the main negative aspect mentioned. Another 9 students complained about limited variety or availability of classes, 5 complained that there are no clinical or counseling faculty or courses (note: in psychology, these courses are only taught at the graduate level), 5 said that there is too much focus on research instead of applied aspects, 1 said that there is not enough emphasis on science, and 1 complained that “the bathrooms smell bad all the time.”

**Item 8.** There were various suggestions, each made by only 1–3 students: need to expand the program, need more advisors, need to broaden course selection, should not have the department chair changing so often, no need to require COM 110, career fair needs improvement, and miscellaneous other suggestions.
Summary of Graduate Survey Data

A total of 4 (of 6) second-year graduate students returned surveys. The response rate was 66.7% of the total of 6 second-year graduate students in Spring 2007. Please consult our assessment plan document for a copy of the survey.

*Items 1–4.* These items were rated on a 5-point scale, where 1 = very dissatisfied, 3 = neither satisfied nor dissatisfied, and 5 = very satisfied. We report each mean ($M$):

- On item 1 (“graduate program”), $M = 4.75$
- On item 2 (“instruction in your graduate courses”), $M = 4.50$
- On item 3 (“research/thesis experiences”), $M = 5.00$
- On item 4 (“career advising and placement”), $M = 4.75$

*Item 5.* The percentages (extrapolating from known data on all 6 students) are:

- 83.3% “accepted into a Ph.D. program and I will be enrolling in that program next year”
- 17.6% “remaining in Bozeman for 1 yr. then applying to Ph.D. programs”

*Items 6–8.* Limited sample size and varied responses make any reporting of these data relatively meaningless. Responses were generally very positive. There were a few suggestions on which we could take action if we had sufficient resources (e.g., offer a second-year psychological statistics course, provide full-time access to a photocopier/printer, and so on).

Evidence from Undergraduate and Graduate Alumni

During the past few years, we have also collected unsolicited e-mail and other messages from undergraduate and graduate alumni. These tend to be somewhat selective sources of information about the outcomes of our programs: Perhaps alumni who have embarked on a less successful career path are less likely to write our faculty than are those who have embarked on a more successful career path. Nevertheless, these unsolicited letters provide us with important positive feedback, mainly letting us know what we have done to improve the lives of former students, to enhance the reputation of our department, and to educate citizens of Montana and other states. It is not easy to summarize this information, but we take it into account on a regular basis. These letters are available for perusal.

Summary of Department Meeting to Discuss These Data

The Department of Psychology met on April 11, 2007, to discuss data collected concerning undergraduate and graduate student outcome assessment issues. Our seven tenure-track faculty attended, along with one adjunct assistant professor. We discussed the outcome assessments of our undergraduate (B.S.) and graduate (M.S.) programs, as revealed by various outcomes data, as well as future outcomes data that we could potentially collect, if we are provided funding. We unanimously (by a 7-0 vote) agreed on this report.

Although our undergraduate students (Psychology majors) generally reported that they are satisfied with our program, some of them (30.4%) expressed concern with our advising, and so we focused on this issue. After most of these data were collected, the Banner system has enabled us actually to know the names of all our majors and easily to e-mail them important information on their advisor, advising news, and so on. (Previously, we were not able to do this
efficiently, and we had to rely on Psychology majors to locate and peruse a list of advisors and advisees posted on the Psychology office door. Some of them were not able to do this.) Now that we have a more efficient way of informing our majors about advising possibilities, we think that we have remedied a source of complaints from some of our majors. In addition, we are now able to e-mail announcements, such as concerning the two graduate-school workshops that we offer every fall, instead of merely relying on them to notice posted flyers in our building.

We decided that with a ratio of 30:1 undergraduate students to tenured or tenure-track advisees—considerably higher than any MSU or peer-comparison normative standards—the only recourse is for us to ask MSU administrators to decrease that ratio by enabling our department to hire additional tenure-track faculty. We have requested an additional two hires during the next two years. Undergraduate student complaints about advising, course availability, breadth of courses, and other issues can be remedied if MSU administrators will respond positively to this issue.
Department: Psychology

Department Chair: Richard A. Block

Assessment Coordinator: Richard A. Block

Date: April 9, 2008

Degrees/Majors/Options Offered by Department

   B.S. in Psychology (with options in Psychological Science and Applied Psychology)

   M.S. in Psychology (with emphasis on Psychological Science)
Summary of Undergraduate Survey Data

Since 2005, a total of 61 graduating seniors have returned exit surveys. The overall response rate was 60.4% of the 101 students who were enrolled in PSY 493R (Senior Thesis Capstone) in Fall 2005 \((n = 12 \text{ of } 18)\), Spring 2006 \((n = 7 \text{ of } 25)\), Fall 2006 \((n = 7 \text{ of } 10)\), Spring 2007 \((n = 20 \text{ of } 29)\), and Fall 2007 \((n = 15 \text{ of } 19)\). Please consult our assessment plan document for a copy of the survey.

Items 1–4. These items were rated on a 5-point scale, where 1 = very dissatisfied, 3 = neither satisfied nor dissatisfied, and 5 = very satisfied. Averaged across the five semesters, mean satisfaction \((M)\) and standard deviation \((SD)\) were as follows:

- On question 1 (Q1, concerning “undergraduate program”), \(M = 3.52, SD = 0.79\)
- On question 2 (Q2, concerning “instruction in ‘regular’ courses”), \(M = 3.92, SD = 0.78\)
- On question 3 (Q3, concerning “research and field practicum”), \(M = 3.77, SD = 0.86\)
- On question 4 (Q4, concerning “academic and career advising”), \(M = 2.87, SD = 1.07\)

As shown in the figure below, the overall mean satisfaction increased across the five semesters, \(p = .07\). (It is also of minor interest to note that mean satisfaction is greater during Fall semesters, when the number of students enrolled in Senior Thesis Capstone is smaller. This suggests that the addition of a second section of Senior Thesis Capstone during Spring semesters may increase overall student satisfaction with our undergraduate program.)

Mean rated satisfaction on the four quantitative items as a function of semester and year. Q2 concerns the instruction in “regular” courses, Q3 concerns the research and field practicum, Q1 concerns the undergraduate program, and Q4 concerns academic and career advising.
Item 5. The percentages (which total more than 100% because many students indicated more than one category) were:

14.8% “accept a job offer that already exists”
36.1% “search for a job somewhat related to psychology”
11.5% “search for a job completely unrelated to psychology”
65.6% “apply to a graduate program in psychology or related fields (e.g., counseling)—includes students already or tentatively accepted
9.8% “apply to a professional school (e.g., law, medicine, business)”
11.5% “other; please describe” (four entering miscellaneous careers, one traveling)

In some ways, the open-ended responses are more interesting than the responses to the items on the first page of the survey in that the students mention the most salient aspects (positive and negative) of our programs. On the other hand, a substantial minority of the students did not take the time to respond to one or all of these items (18.0% on item 6, 19.7% on item 7, and 60.7% on item 8).

Item 6. A total of 26 students (42.6%) spontaneously reported that the Psychology professors are the “biggest strength,” “very knowledgeable,” “personable and easy to work with,” and similar comments. Another 9 students mentioned the “opportunities for research,” “good reputation in the research field,” and other similar comments. Another 5 mentioned “interesting courses,” and another 4 made positive comments about our administrative assistant (Betsy Anderson).

Item 7. A total of 17 (27.9%) students mentioned concerns about advising. Another 13 students complained about limited variety or availability of classes, 6 complained that there are no clinical or counseling courses (note: in psychology, these courses are only taught at the graduate level), 5 said that there is too much focus on research instead of applied aspects, 1 said that there is not enough emphasis on science, and 1 complained that “the bathrooms smell bad all the time.”

Item 8. Somewhat surprisingly, only 14 students offered other comments or suggestions, each made by only 1–3 students: need to expand the program, need more advisors, need to broaden course selection, should not have the department chair changing so often, career fair needs improvement, and miscellaneous other suggestions.

Summary of Graduate Survey Data

A total of 4 second-year graduate students returned surveys. The response rate was 66.7% of the 6 second-year graduate students in Spring 2007. Please consult our assessment plan document for a copy of the survey.

Items 1–4. These items were rated on a 5-point scale, where 1 = very dissatisfied, 3 = neither satisfied nor dissatisfied, and 5 = very satisfied. We report each mean \((M)\):

- On item 1 (“graduate program”), \(M = 4.75\)
- On item 2 (“instruction in your graduate courses”), \(M = 4.50\)
- On item 3 (“research/thesis experiences”), \(M = 5.00\)
- On item 4 (“career advising and placement”), \(M = 4.75\)
Item 5. The percentages (extrapolating from known data on all 6 students) are:

83.3% “accepted into a Ph.D. program and I will be enrolling in that program next year”
17.6% “remaining in Bozeman for 1 yr. [i.e., working at Zoot Enterprises], then applying to Ph.D. programs”

Items 6–8. Limited sample size and varied responses make any reporting of these data relatively meaningless. Responses were generally very positive. There were a few suggestions on which we could take action if we had sufficient resources (e.g., offer a second research design and analysis course, provide full-time access to a photocopier/printer, and so on).

Evidence from Undergraduate and Graduate Alumni

During the past several years, we have also collected unsolicited e-mail and other letters from undergraduate and graduate alumni. These tend to be somewhat selective sources of information about the outcomes of our programs: Perhaps alumni who have embarked on a less successful career path are less likely to write our faculty than are those who have embarked on a more successful career path. Nevertheless, these unsolicited letters provide us with important positive feedback, mainly letting us know what we have done to improve the lives of former students, to enhance the reputation of our department, and to educate citizens of Montana and other states. It is not easy to summarize this information, but we take it into account on a regular basis. These letters are available for perusal.

Summary of Department Meetings to Discuss These Data

The Department of Psychology has met twice (most recently, on April 9, 2008) to discuss data collected concerning undergraduate and graduate student outcome assessment issues. All seven tenure-track faculty have participated, along with one adjunct assistant professor. We discussed the outcome assessments of our undergraduate (B.S.) and graduate (M.S.) programs, as revealed by various outcomes data, as well as future outcomes data that we could potentially collect, if we are provided funding. We unanimously agreed on this report.

Although our undergraduate students (Psychology majors) generally reported that they are satisfied with our program, some of them expressed concern with our advising, and so we focused on this issue. After most of these data were collected, the SCT Banner system has enabled us actually to know the names of all our majors. However, we are still not able efficiently to e-mail them important information on their advisor, advising news, and so on because of serious issues with MyPortal e-mail. We still rely mainly on Psychology majors to locate and peruse a list of advisors and their advisees, as well as advising information, posted on the Psychology bulletin boards. Some of them are not able to do this.

We decided that with a ratio of about 33:1 undergraduate students to tenure-track advisees—higher than any MSU or peer-comparison normative standards—the only recourse is for us to ask MSU administrators to decrease that ratio by enabling our department to hire additional tenure-track faculty.

For this reason and for other similar reasons, we have requested to be allowed to make additional tenure-track faculty hires during the next two years, which would bring our department to a
slightly more comparable level to Carnegie RU/VH (or even RU/H) Psychology Departments in the Northwest, although it would still leave our department well below the peer average number of tenure-track faculty. Undergraduate student complaints about advising, course availability, and breadth of courses can be remedied if there is some action on this issue.
Department: Psychology

Department Chair: Richard A. Block

Assessment Coordinator: Richard A. Block

Date: May 6, 2009

Degrees/Majors/Options Offered by Department

B.S. in Psychology (with options in Psychological Science and Applied Psychology)

M.S. in Psychology (with emphasis on Psychological Science)
Summary of Undergraduate Survey Data

Since Fall 2005, a total of 123 graduating seniors have returned exit surveys. The overall response rate was 72.4% of the 170 students who were enrolled in PSY 493R (Senior Thesis Capstone) in Fall 2005 (n = 12 of 18), Spring 2006 (n = 7 of 25), Fall 2006 (n = 7 of 10), Spring 2007 (n = 20 of 29), Fall 2007 (n = 15 of 19), Spring 2008 (n = 18 of 21), Fall 2008 (n = 16 of 19), and Spring 2009 (n = 28 of 29). Please consult our assessment plan document for a copy of the survey.

Items 1–4. These items were rated on a 5-point scale, where 1 = very dissatisfied, 3 = neither satisfied nor dissatisfied, and 5 = very satisfied. Averaged across the eight semesters, mean satisfaction (M) and standard deviation (SD) were as follows:

- On Item 1 (Q1, concerning “undergraduate program”), $M = 3.54$, $SD = 0.85$
- On Item 2 (Q2, concerning “instruction in ‘regular’ courses”), $M = 3.83$, $SD = 0.78$
- On Item 3 (Q3, concerning “research and field practicum”), $M = 3.74$, $SD = 0.97$
- On Item 4 (Q4, concerning “academic and career advising”), $M = 2.80$, $SD = 1.02$

The figures below show the trends across semesters.
Across all semesters, mean satisfaction was significantly lower on Item 4 (advising, \( p < .001 \)) than on all the other three items, none of which differed significantly (all \( p > .05 \)).

**Item 5.** The percentages (which total more than 100% because some students indicated more than one category) were:

- 62.6\% (\( n = 77 \)) “apply to a graduate program in psychology or related fields (e.g., counseling)—includes students already or tentatively accepted
- 35.8\% (\( n = 44 \)) “search for a job somewhat related to psychology”
- 13.0\% (\( n = 16 \)) “search for a job completely unrelated to psychology”
- 12.2\% (\( n = 15 \)) “accept a job offer that already exists”
- 11.4\% (\( n = 14 \)) “apply to a professional school (e.g., law, medicine, business)”
- 11.4\% (\( n = 14 \)) “other; please describe” (entering miscellaneous careers, traveling)

In some ways, the open-ended responses are more interesting than the responses to the items on the first page of the survey in that the students mention the most salient aspects (positive and negative) of our programs. On the other hand, some students did not take the time to respond to one or all of these items (about 15\% on item 6, 15\% on item 7, and 55\% on item 8).

**Item 6.** At least 52 students (42.2\%) reported that the Psychology professors are the “biggest strength,” “very knowledgeable,” “personable and easy to work with,” and similar comments. At least 39 students (31.7\%) mentioned the “opportunities for research,” “good reputation in the research field,” and other similar comments. Another 8 (6.5\%) mentioned “interesting courses.” There were many other miscellaneous comments.

**Item 7.** At least 40 (32.5\%) students mentioned concerns about advising. Another 13 (10.6\%) students complained about limited variety or availability of classes; 23 (10.5\%) questioned the limited availability of courses, such as those in clinical, counseling, or applied psychology; 6 (4.8\%) said that there is too much focus on research instead of applied aspect; and a few other students made comments such as “there is not enough emphasis on science.”

**Item 8.** Relatively few students offered other comments or suggestions, each made by only 1–7 students: Need to expand the program, need more advisors, need to broaden course selection, career fair needs improvement, and miscellaneous other comments and suggestions, such as: “Once I made contact with professors, things went really well.” “I was glad I decided to come here.” “My years at MSU have been awesome….I will recommend this program to everyone.” Another student said simply, “I love MSU.”
Summary of Graduate Survey Data

Since Spring 2007, a total of 9 graduating M.S. students have returned exit surveys. The overall response rate was 52.9% of the 17 students graduating in Spring 2007, 2008, and 2009. Please consult our assessment plan document for a copy of the survey.

Items 1–4. These items were rated on a 5-point scale, where 1 = very dissatisfied, 3 = neither satisfied nor dissatisfied, and 5 = very satisfied. We report each overall mean ($M$):

- On Item 1 (“graduate program”), $M = 4.56$
- On Item 2 (“instruction in your graduate courses”), $M = 4.11$
- On Item 3 (“research/thesis experiences”), $M = 4.89$
- On Item 4 (“career advising and placement”), $M = 4.44$

There are obvious ceiling effects in these data, although our graduate program seems to be very highly rated on all four items.
Item 5. The percentages (extrapolating slightly from other known data) are:

69.2% (n = 9) “accepted into a Ph.D. program and I will be enrolling in that program next year”
15.4% (n = 2) “not been accepted in to a Ph.D. program, but I will apply again next year”
15.4% (n = 2) “accepted a job offer, although I may try to obtain a Ph.D. degree at a later time”

Item 6. Responses were generally very positive, such as “strong faculty,” “small department encourages the development of academic relationships and encourages collaboration among labs,” “one-on-one ability of faculty to work with students,” “variety of research opportunities,” “opportunities to present research at conventions is supported by faculty and department,” “diversity of classes,” “the professors at MSU are amazing and should have a Ph.D. program,” “I am extremely impressed by [named professors],” “program was academically stimulating,” “incredibly bright department of teachers, faculty, adjuncts, etc.,” and “by attending APS and SPSP I was introduced to a different level of Psychology,”

Item 7. There were a few suggestions on which we could possibly take action, including: “offer a second research design and analysis course,” “a 2-semester statistics course,” “provide full-time access to a photocopier/printer,” “limited course options,” and “limited electronic resources [in room 317 Traphagen].”

Item 8. Additional comments or suggestions included “inconsistent expectations,” “format of a few of the classes seemed very experimental . . . and grading in these classes was very subjective,” “investigate alternative supporting course options,” “graduate handbook should include a section that outlines the responsibilities of committee members,” “I was very impressed with the program,” and “small class sizes (6-7 students) were best for the seminars.”

Evidence from Undergraduate and Graduate Alumni

During the past several years, we have also collected unsolicited e-mail and other letters from undergraduate and graduate alumni. These tend to be somewhat selective sources of information about the outcomes of our programs. Nevertheless, these unsolicited letters provide us with important positive feedback, mainly letting us know what we have done to improve the lives of former students, to enhance the reputation of our department, and to educate citizens of Montana and other states.
Summary of Department Meetings to Discuss These Data

The Department of Psychology met three times (most recently, on May 6, 2009) to discuss data collected concerning undergraduate and graduate student outcome assessment issues. All seven tenure-track faculty participated, along with one adjunct assistant professor. We discussed the outcome assessments of our undergraduate (B.S.) and graduate (M.S.) programs, as revealed by various outcomes data (see above).

Although our graduating Psychology B.S. students generally reported that they are satisfied with our program, some of them expressed concern with our advising, and so we focused on this issue. After most of these data were collected, the SCT Banner system enabled us to know the names of all our majors. However, we are still not able to e-mail them important information on their advisor, advising news, and so on because of issues with MyPortal e-mail. With the advent of Gmail at MSU, we think that most of our majors will now be able to receive notice about the advising sessions that we conduct every semester. We also discussed plans to transmit this information so that in the future more of our majors will attend these sessions. If so, that might lead to an increase in the evaluations of our advising. We still rely mainly on Psychology majors to locate and peruse a list of advisors and their advisees, as well as advising information, posted on the Psychology bulletin boards.

We also discussed issues concerning how to make our majors aware of career opportunities. For example, with some guidance from our department chair, MSU Career services now has a double-sided brochure that we plan to distribute widely, along with our traditional three other pages on careers in Psychology and related fields. These will be distributed to students and parents who visit to inquire about enrolling at MSU, during Orientation sessions, during MSU Fridays, and during individual career advising meetings of majors with their advisor.

Another area of development discussed by the faculty was to increase the number of departmental undergraduate seminars and workshops. Every fall semester, we have been offering workshops on how to apply to graduate school and on training options in the mental health professions. We view this as a positive activity, but not all interested students can attend. The department will explore videotaping these events and putting them on one of our web pages.

The department recently hired a new faculty member, who will assume the duties of new Department Chair effective July 1, 2009. This hire, along with another one or two in the next few years, will bring our department to a slightly more comparable level to Carnegie RU/VH (or even RU/H) Psychology Departments in the Northwest. We believe this will have a positive impact on the quality of our undergraduate and graduate programs.

Our graduating M.S. students report higher satisfaction on the four survey items than do our graduating B.S. students. Nevertheless, we focused considerable discussion on how we could possibly remedy some of their comments and suggestions of our graduating M.S. students, especially including: (a) improving collegiality among faculty (b) requiring some incoming students to take our undergraduate statistics course during their first semester, and (c) shifting our PSYX 501 course to their second semester. We will continue to discuss and evaluate possible changes to our graduate program with our new Department Chair.
Department: Psychology

Department Chair: Keith Hutchison

Assessment Coordinator: Keith Hutchison

Date: October 8, 2010

Degrees/Majors/Options Offered by Department

B.S. in Psychology (with options in Psychological Science and Applied Psychology)

M.S. in Psychology (with emphasis on Psychological Science)
Summary of Undergraduate Survey Data

Since Fall 2005, a total of 179 graduating seniors have returned exit surveys. The overall response rate was 74.6% of the 240 students who were enrolled in PSY 493R (Senior Thesis Capstone) in Fall 2005 (n = 12 of 18), Spring 2006 (n = 7 of 25), Fall 2006 (n = 7 of 10), Spring 2007 (n = 20 of 29), Fall 2007 (n = 15 of 19), Spring 2008 (n = 18 of 21), Fall 2008 (n = 16 of 19), Spring 2009 (n = 28 of 29), Summer 2009 (n = 11 of 13), Fall 2009 (n = 15 of 16), Spring 2010 (n = 25 of 30), and Summer 2010 (n = 5 of 11). Because summer enrollments are reduced, these data are combined with the students from each previous spring semester. Please consult our assessment plan document for a copy of the survey.

Items 1–4. These items were rated on a 5-point scale, where 1 = very dissatisfied, 3 = neither satisfied nor dissatisfied, and 5 = very satisfied. Averaged across the ten semesters, mean satisfaction (M) and standard deviation (SD) were as follows:

On Item 1 (Q1, concerning “undergraduate program”), $M = 3.63$, $SD = 0.82$
On Item 2 (Q2, concerning “instruction in ‘regular’ courses”), $M = 3.87$, $SD = 0.72$
On Item 3 (Q3, concerning “research and field practicum”), $M = 3.71$, $SD = 0.96$
On Item 4 (Q4, concerning “academic and career advising”), $M = 2.77$, $SD = 1.01$

The figures below show the trends across semesters.
There was a significant linear increase in overall satisfaction with the program (Item 1) across semesters ($R^2 = .044, p < .01$). No trends were significant for the other items (all $p$’s $> .35$). Across all semesters, mean satisfaction was significantly higher on Item 2 (instruction, $p < .05$) than on each of the other three items and significantly lower on Item 4 (advising, $p < .001$) than on each of the other three items. Satisfaction for item 1 (overall satisfaction) and item 3 (research/field practicum) did not differ ($p > .25$).

**Item 5.** The overall percentages (which total more than 100% because some students indicated more than one category) were:

- 59.8% ($n = 107$) “apply to a graduate program in psychology or related fields (e.g., counseling)—includes students already or tentatively accepted
- 34.6% ($n = 62$) “search for a job somewhat related to psychology”
- 15.6% ($n = 28$) “search for a job completely unrelated to psychology”
- 11.2% ($n = 20$) “accept a job offer that already exists”
- 11.7% ($n = 21$) “apply to a professional school (e.g., law, medicine, business)”
- 16.8% ($n = 30$) “other; please describe” (entering miscellaneous careers, traveling)

In some ways, the open-ended responses are more interesting than the responses to the items on the first page of the survey in that the students mention the most salient aspects (positive and negative) of our programs. On the other hand, some students did not take the time to respond to one or all of these items (about 11% on item 6, 12% on item 7, and 56% on item 8).

**Item 6.** At least 92 students (51.4%) reported that the Psychology professors are the “biggest strength,” “very knowledgeable,” “personable,” and similar comments. Included in this number is about 18% whom listed “faculty concern for students”. At least 42 students (23.5%) mentioned the “opportunities for research,” “good reputation in the research field,” and other similar comments. Another 24 (13.4%) mentioned “interesting courses,” “challenging courses” or “diversity of courses”. Finally, about 14% mentioned “friendly” or “helpful staff”. There were many other miscellaneous comments.

**Item 7.** At least 68 (37.9%) students mentioned concerns about career and academic advising. Another 20 (11.2%) students complained about limited variety or availability of classes; 28 (15.6%) questioned the limited availability of courses, such as those in clinical, counseling, or applied psychology; 13% complained about the condition of Traphagen 317 and the fact that we only use 1 classroom; 7% complained that students simply propose, rather than actually carry out, a study for senior thesis.

**Item 8.** Relatively few students offered other comments or suggestions, each made by only 1–7 students: Need to expand the program, need more advisors, need to broaden course selection, career fair needs improvement, and miscellaneous other comments and suggestions, such as: “Once I made contact with professors, things went really well.” “I was glad I decided to come here.” “My years at MSU have been awesome….I will recommend this program to everyone.” Another student said simply, “I love MSU.”
Summary of Graduate Survey Data

Since Spring 2007, a total of 13 graduating M.S. students have returned exit surveys. The overall response rate was 61.9% of the 21 students graduating in Spring 2007, 2008, 2009, and 2010. Please consult our assessment plan document for a copy of the survey.

*Items 1–4.* These items were rated on a 5-point scale, where 1 = very dissatisfied, 3 = neither satisfied nor dissatisfied, and 5 = very satisfied. We report each overall mean ($M$):

- On Item 1 (“graduate program”), $M = 4.15$, $SD = 0.80$
- On Item 2 (“instruction in your graduate courses”), $M = 4.00$, $SD = 0.82$
- On Item 3 (“research/thesis experiences”), $M = 4.69$, $SD = 0.48$
- On Item 4 (“career advising and placement”), $M = 4.15$, $SD = 0.90$

There are obvious ceiling effects in these data, although our graduate program seems to be very highly rated on all four items.
Item 5. The percentages (extrapolating slightly from other known data) are:

69.2% (n = 9) “accepted into a Ph.D. program and I will be enrolling in that program next year”
15.4% (n = 2) “not been accepted in to a Ph.D. program, but I will apply again next year”
15.4% (n = 2) “accepted a job offer, although I may try to obtain a Ph.D. degree at a later time”

Item 6. Strengths included “strong faculty,” “Good academic relationships and collaboration among labs,” “one-on-one ability of faculty to work with students,” “variety of research opportunities,” “plenty of office space,” “good teaching opportunities,” “opportunities to present research at conventions,” “diversity of classes,” “the professors at MSU are amazing and should have a Ph.D. program,” “I am extremely impressed by [named professors],” “program was academically stimulating,” “incredibly bright department of teachers, faculty, adjuncts, etc.,” and “by attending APS and SPSP I was introduced to a different level of Psychology.”

Item 7. The most common weaknesses reported were “weak statistics training,” “lack of second research design and analysis course “limited access to photocopier/printer,” “limited course options,” “lack of software support [spss], and “limited electronic resources [in room 317 Traphagen].”

Item 8. Additional comments or suggestions included “inconsistent expectations,” “format of a few of the classes seemed very experimental . . . and grading in these classes was very subjective,” “Brenda is overworked,” “GTA duties overwhelming,” “I feel well prepared for a Ph.D. program,” “investigate alternative supporting course options,” “graduate handbook should include a section that outlines the responsibilities of committee members,” “I was very impressed with the program,” and “small class sizes (6-7 students) were best for the seminars.”

Evidence from Undergraduate and Graduate Alumni

During the past several years, we have also collected unsolicited e-mail and other letters from undergraduate and graduate alumni. These tend to be somewhat selective sources of information about the outcomes of our programs. Nevertheless, these unsolicited letters provide us with important positive feedback, mainly letting us know what we have done to improve the lives of former students, to enhance the reputation of our department, and to educate citizens of Montana and other states.

Summary of Department Meetings to Discuss These Data

The Department of Psychology met four times (most recently, on October, 20, 2010) to discuss data collected concerning undergraduate and graduate student outcome assessment issues. All seven tenure-track faculty participated, along with one adjunct assistant professor. We discussed the outcome assessments of our undergraduate (B.S.) and graduate (M.S.) programs, as revealed by various outcomes data (see above).

Although our graduating Psychology B.S. students generally reported that they are satisfied with our program, some of them expressed concern with our advising, and so we focused most
heavily on this issue. After years of trouble concerning how to contact our majors, in the last 3 semesters we have been successful in notifying our majors via email about the advising sessions that we conduct every semester. As of fall 2009, we implemented a plan to make advising sessions mandatory. To aid in locating their advisors, Psychology majors are sent an email at the beginning of each semester with a list of advisors and their advisees. This information is also posted on the Psychology bulletin boards.

We also discussed issues concerning how to make our majors aware of career opportunities. For example, with some guidance from our department chair, MSU Career services now has a double-sided brochure that is distributed widely, along with our traditional three other pages on careers in Psychology and related fields. These are distributed to students and parents who visit to inquire about enrolling at MSU, during Orientation sessions, during MSU Fridays, and during individual career advising meetings of majors with their advisor. As of fall 2010, we are now including a “career advising station” at our mandatory advising sessions which occur during the week prior to registration. This station will provide information regarding various career opportunities for psychology majors after graduation.

Another area of development discussed by the faculty was to increase the number of departmental undergraduate seminars and workshops. Every fall semester, we have been offering workshops on how to apply to graduate school and on training options in the mental health professions. We view this as a positive activity, but not all interested students can attend. Starting fall 2009, the department began videotaping these events and putting them on one of our web pages.

The department is currently searching for a new faculty member, who will assume the duties of new Department Chair effective July 1, 2011. This hire, along with another promised line in the next few years, will bring our department to a slightly more comparable level to Carnegie RU/VH (or even RU/H) Psychology Departments in the Northwest. We believe this will have a positive impact on the quality of our undergraduate and graduate programs.

Our graduating M.S. students report higher satisfaction on the four survey items than do our graduating B.S. students. Nevertheless, we focused considerable discussion on which comments have been remedied and which still need improvement. The reported “weaknesses” that have been remedied include: (a) the poor statistics training, (b) limited access to the printer/photocopier, (c) and overloaded GTA duties. We have completely redesigned the graduate statistics course to be a two-course sequence and changed instructors. The content of the first course in the sequence has been approved by our internal statistics improvement committee. For access, we have designated both a first-year and a second-year graduate student as responsible for a group office key to allow access to the main office. However, this has necessitated extra precautions in locking all confidential department files. Finally, we’ve restructured the GTA duties to be less cumbersome and involve more student-led activities rather than at-home grading responsibilities, while still fulfilling the 20 required hours per week.

Reported weaknesses that have not been addressed include the overloading of our departmental assistant and the lack of funding for graduate student software. We agree that these are weaknesses; however, overcoming either of them would require additional funding from central administration. We estimate the additional funding needed would be ~$3,000/year for SPSS software licenses and ~ $15,000/year for a 1/2-time administrative assistant.
MSU Departmental Undergraduate Assessment Report, May 2013

Department: Psychology

Department Chair: Colleen F. Moore

Assessment Coordinators: Department tenure track faculty members as a ‘committee of the whole’, plus participation by some adjunct faculty (Heiser, Numbers)

Degrees/Majors/Options Offered by Department

- B.S. in Psychology (with options in Psychological Science and Applied Psychology)
- M.S. in Psychological Science (not addressed in this document)

Contents:
- Rubrics used, pp. 2-9
- Assessment Results, May 2013, pp. 10-20.
- Appendix: Timeline as proposed in Assessment Plan of December 2011, p. 20-21
Lawrence University Psychology Department Capstone Assessment Rubric

Evaluation of Senior Capstone Presentations

Student: ____________________ Topic: ____________________ Date: ____________________

Critical Thinking
1. The presentation demonstrated critical thinking about psychological research.
   1 2 3 4 5 6 7
   very weak average very strong

2. The presentation demonstrated understanding of the interplay between psychological theory and research.
   1 2 3 4 5 6 7
   very weak average very strong

Oral Communication
3. The presentation was well organized.
   1 2 3 4 5 6 7
   very weak average very strong

4. Important points were clearly explained.
   1 2 3 4 5 6 7
   very weak average very strong

5. The style of the presentation was engaging.
   1 2 3 4 5 6 7
   very weak average very strong

Values & Ethics
6. The presentation reflects an understanding of the values and ethics of psychologists.
   1 2 3 4 5 6 7 Not Applicable
   very weak average very strong

Methodology & Research
7. Presented research evidence was relevant and accurate.
   1 2 3 4 5 6 7
   very weak average very strong

8. If an empirical project, the student clearly communicated the methodology.
   1 2 3 4 5 6 7 Not Applicable
   very weak average very strong

9. If an empirical project, the student highlighted and explained key findings.
Diversity

10. The presentation reflected understanding of the diversity issues relevant to the student’s topic.

1 2 3 4 5 6 7 Not Applicable
very weak average very strong

(from Lawrence University, Appleton, WI)
The VALUE rubrics were developed by teams of faculty experts representing colleges and universities across the United States through a process that examined many existing campus rubrics and related documents for each learning outcome and incorporated additional feedback from faculty. The rubrics articulate fundamental criteria for each learning outcome, with performance descriptors demonstrating progressively more sophisticated levels of attainment. The rubrics are intended for institutional-level use in evaluating and discussing student learning, not for grading. The core expectations articulated in all 15 of the VALUE rubrics can and should be translated into the language of individual campuses, disciplines, and even courses. The utility of the VALUE rubrics is to position learning at all undergraduate levels within a basic framework of expectations such that evidence of learning can be shared nationally through a common dialog and understanding of student success.

The type of oral communication most likely to be included in a collection of student work is an oral presentation and therefore is the focus for the application of this rubric.

Definition

Oral communication is a prepared, purposeful presentation designed to increase knowledge, to foster understanding, or to promote change in the listeners' attitudes, values, beliefs, or behaviors.

Framing Language

Oral communication takes many forms. This rubric is specifically designed to evaluate oral presentations of a single speaker at a time and is best applied to live or video-recorded presentations. For panel presentations or group presentations, it is recommended that each speaker be evaluated separately. This rubric best applies to presentations of sufficient length such that a central message is conveyed, supported by one or more forms of supporting materials and includes a purposeful organization. An oral answer to a single question not designed to be structured into a presentation does not readily apply to this rubric.

Glossary

The definitions that follow were developed to clarify terms and concepts used in this rubric only.

- Central message: The main point/thesis/"bottom line"/"take-away" of a presentation. A clear central message is easy to identify; a compelling central message is also vivid and memorable.
- Delivery techniques: Posture, gestures, eye contact, and use of the voice. Delivery techniques enhance the effectiveness of the presentation when the speaker stands and moves with authority, looks more often at the audience than at his/her speaking materials/notes, uses the voice expressively, and uses few vocal fillers ("um," "uh," "like," "you know," etc.).
- Language: Vocabulary, terminology, and sentence structure. Language that supports the effectiveness of a presentation is appropriate to the topic and audience, grammatical, clear, and free from bias. Language that enhances the effectiveness of a presentation is also vivid, imaginative, and expressive.
- Organization: The grouping and sequencing of ideas and supporting material in a presentation. An organizational pattern that supports the effectiveness of a presentation typically includes an introduction, one or more identifiable sections in the body of the speech, and a conclusion. An organizational pattern that enhances the effectiveness of the presentation reflects a purposeful choice among possible alternatives, such as a chronological pattern, a problem-solution pattern, an analysis-of-parts pattern, etc., that makes the content of the presentation easier to follow and more likely to accomplish its purpose.
- Supporting material: Explanations, examples, illustrations, statistics, analogies, quotations from relevant authorities, and other kinds of information or analysis that supports the principal ideas of the presentation. Supporting material is generally credible when it is relevant and derived from reliable and appropriate sources. Supporting material is highly credible when it is also vivid and varied across the types listed above (e.g., a mix of examples, statistics, and references to authorities). Supporting material may also serve the purpose of establishing the speakers credibility. For example, in presenting a creative work such as a dramatic reading of Shakespeare, supporting evidence may not advance the ideas of Shakespeare, but rather serve to establish the speaker as a credible Shakespearean actor.
**Oral Communication VALUE Rubric**

**for more information, please contact value@aacu.org**

**Definition**

Oral communication is a prepared, purposeful presentation designed to increase knowledge, to foster understanding, or to promote change in the listeners' attitudes, values, beliefs, or behaviors.

Evaluators are encouraged to assign a zero to any work sample or collection of work that does not meet benchmark (cell one) level performance.

<table>
<thead>
<tr>
<th></th>
<th>Capstone</th>
<th>Milestones</th>
<th>Benchmark</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Organization</strong></td>
<td>4</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Organizational pattern (specific introduction and conclusion, sequenced material within the body, and transitions) is clearly and consistently observable and is skillful and makes the content of the presentation cohesive.</td>
<td>Organizational pattern (specific introduction and conclusion, sequenced material within the body, and transitions) is clearly and consistently observable within the presentation.</td>
<td>Organizational pattern (specific introduction and conclusion, sequenced material within the body, and transitions) is intermittently observable within the presentation.</td>
<td>Organizational pattern (specific introduction and conclusion, sequenced material within the body, and transitions) is not observable within the presentation.</td>
</tr>
<tr>
<td><strong>Language</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Language choices are imaginative, memorable, and compelling, and enhance the effectiveness of the presentation. Language in presentation is appropriate to audience.</td>
<td>Language choices are thoughtful and generally support the effectiveness of the presentation. Language in presentation is appropriate to audience.</td>
<td>Language choices are mundane and commonplace and partially support the effectiveness of the presentation. Language in presentation is appropriate to audience.</td>
<td>Language choices are unclear and minimally support the effectiveness of the presentation. Language in presentation is not appropriate to audience.</td>
</tr>
<tr>
<td><strong>Delivery</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Delivery techniques (posture, gesture, eye contact, and vocal expressiveness) make the presentation compelling, and speaker appears polished and confident.</td>
<td>Delivery techniques (posture, gesture, eye contact, and vocal expressiveness) make the presentation interesting, and speaker appears comfortable.</td>
<td>Delivery techniques (posture, gesture, eye contact, and vocal expressiveness) make the presentation understandable, and speaker appears tentative.</td>
<td>Delivery techniques (posture, gesture, eye contact, and vocal expressiveness) detract from the understandability of the presentation, and speaker appears uncomfortable.</td>
</tr>
<tr>
<td><strong>Supporting Material</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A variety of types of supporting materials (explanations, examples, illustrations, statistics, analogies, quotations from relevant authorities) make appropriate reference to information or analysis that significantly supports the presentation or establishes the presenter's credibility/authority on the topic.</td>
<td>Supporting materials (explanations, examples, illustrations, statistics, analogies, quotations from relevant authorities) make appropriate reference to information or analysis that generally supports the presentation or establishes the presenter's credibility/authority on the topic.</td>
<td>Supporting materials (explanations, examples, illustrations, statistics, analogies, quotations from relevant authorities) make appropriate reference to information or analysis that partially supports the presentation or establishes the presenter's credibility/authority on the topic.</td>
<td>Insufficient supporting materials (explanations, examples, illustrations, statistics, analogies, quotations from relevant authorities) make reference to information or analysis that minimally supports the presentation or establishes the presenter's credibility/authority on the topic.</td>
</tr>
<tr>
<td><strong>Central Message</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Central message is compelling (precisely stated, appropriately repeated, memorable, and strongly supported.)</td>
<td>Central message is clear and consistent with the supporting material.</td>
<td>Central message is basically understandable but is not often repeated and is not memorable.</td>
<td>Central message can be deduced, but is not explicitly stated in the presentation.</td>
</tr>
</tbody>
</table>
The VALUE rubrics were developed by teams of faculty experts representing colleges and universities across the United States through a process that examined many existing campus rubrics and related documents for each learning outcome and incorporated additional feedback from faculty. The rubrics articulate fundamental criteria for each learning outcome, with performance descriptors demonstrating progressively more sophisticated levels of attainment. The rubrics are intended for institutional-level use in evaluating and discussing student learning, not for grading. The core expectations articulated in all 15 of the VALUE rubrics can and should be translated into the language of individual campuses, disciplines, and even courses. The utility of the VALUE rubrics is to position learning at all undergraduate levels within a basic framework of expectations such that evidence of learning can by shared nationally through a common dialog and understanding of student success.

Definition

Critical thinking is a habit of mind characterized by the comprehensive exploration of issues, ideas, artifacts, and events before accepting or formulating an opinion or conclusion.

Framing Language

This rubric is designed to be transdisciplinary, reflecting the recognition that success in all disciplines requires habits of inquiry and analysis that share common attributes. Further, research suggests that successful critical thinkers from all disciplines increasingly need to be able to apply those habits in various and changing situations encountered in all walks of life.

This rubric is designed for use with many different types of assignments and the suggestions here are not an exhaustive list of possibilities. Critical thinking can be demonstrated in assignments that require students to complete analyses of text, data, or issues. Assignments that cut across presentation mode might be especially useful in some fields. If insight into the process components of critical thinking (e.g., how information sources were evaluated regardless of whether they were included in the product) is important, assignments focused on student reflection might be especially illuminating.

Glossary

The definitions that follow were developed to clarify terms and concepts used in this rubric only.

- **Ambiguity**: Information that may be interpreted in more than one way.
- **Assumptions**: Ideas, conditions, or beliefs (often implicit or unstated) that are "taken for granted or accepted as true without proof." (quoted from www.dictionary.reference.com/browse/assumptions)
- **Context**: The historical, ethical, political, cultural, environmental, or circumstantial settings or conditions that influence and complicate the consideration of any issues, ideas, artifacts, and events.
- **Literal meaning**: Interpretation of information exactly as stated. For example, "she was green with envy" would be interpreted to mean that her skin was green.
- **Metaphor**: Information that is (intended to be) interpreted in a non-literal way. For example, "she was green with envy" is intended to convey an intensity of emotion, not a skin color.
**Critical Thinking VALUE Rubric**

*for more information, please contact value@aaacu.org*

**Definition**

Critical thinking is a habit of mind characterized by the comprehensive exploration of issues, ideas, artifacts, and events before accepting or formulating an opinion or conclusion.

*Evaluators are encouraged to assign a zero to any work sample or collection of work that does not meet benchmark (cell one) level performance.*

<table>
<thead>
<tr>
<th>Capstone</th>
<th>Milestones</th>
<th>Benchmark</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>3</td>
<td>2</td>
</tr>
</tbody>
</table>

### Explanation of issues

- **Issue/problem to be considered critically is stated clearly and described comprehensively, delivering all relevant information necessary for full understanding.**
- **Issue/problem to be considered critically is stated, described, and clarified so that understanding is not seriously impeded by omissions.**
- **Issue/problem to be considered critically is stated but description leaves some terms undefined, ambiguities unexplored, boundaries undetermined, and/or backgrounds unknown.**
- **Issue/problem to be considered critically is stated without clarification or description.**

### Evidence

- **Information is taken from source(s) with enough interpretation/evaluation to develop a comprehensive analysis or synthesis. Viewpoints of experts are questioned thoroughly.**
- **Information is taken from source(s) with enough interpretation/evaluation to develop a coherent analysis or synthesis. Viewpoints of experts are subject to questioning.**
- **Information is taken from source(s) with some interpretation/evaluation, but not enough to develop a coherent analysis or synthesis. Viewpoints of experts are taken as mostly fact, with little questioning.**
- **Information is taken from source(s) without any interpretation/evaluation. Viewpoints of experts are taken as fact, without question.**

### Influence of context and assumptions

- **Thoroughly (systematically and methodically) analyzes own and others' assumptions and carefully evaluates the relevance of contexts when presenting a position.**
- **Identifies own and others' assumptions and several relevant contexts when presenting a position.**
- **Questions some assumptions. Identifies several relevant contexts when presenting a position. May be more aware of others' assumptions than one's own (or vice versa).**
- **Shows an emerging awareness of present assumptions (sometimes labels assertions as assumptions). Begins to identify some contexts when presenting a position.**

### Student's position (perspective, thesis/hypothesis)

- **Specific position (perspective, thesis/hypothesis) is imaginative, taking into account the complexities of an issue. Limits of position (perspective, thesis/hypothesis) are acknowledged. Others' points of view are synthesized within position (perspective, thesis/hypothesis).**
- **Specific position (perspective, thesis/hypothesis) takes into account the complexities of an issue. Others' points of view are acknowledged within position (perspective, thesis/hypothesis).**
- **Specific position (perspective, thesis/hypothesis) acknowledges different sides of an issue.**
- **Specific position (perspective, thesis/hypothesis) is stated, but is simplistic and obvious.**

### Conclusions and related outcomes (implications and consequences)

- **Conclusions and related outcomes (consequences and implications) are logical and reflect student's informed evaluation and ability to place evidence and perspectives discussed in priority order.**
- **Conclusion is logically tied to a range of information, including opposing viewpoints; related outcomes (consequences and implications) are identified clearly.**
- **Conclusion is logically tied to information (because information is chosen to fit the desired conclusion); some related outcomes (consequences and implications) are identified clearly.**
- **Conclusion is inconsistently tied to some of the information discussed; related outcomes (consequences and implications) are oversimplified.**
The VALUE rubrics were developed by teams of faculty experts representing colleges and universities across the United States through a process that examined many existing campus rubrics and related documents for each learning outcome and incorporated additional feedback from faculty. The rubrics articulate fundamental criteria for each learning outcome, with performance descriptors demonstrating progressively more sophisticated levels of attainment. The rubrics are intended for institutional-level use in evaluating and discussing student learning, not for grading. The core expectations articulated in all 15 of the VALUE rubrics can and should be translated into the language of individual campuses, disciplines, and even courses. The utility of the VALUE rubrics is to position learning at all undergraduate levels within a basic framework of expectations such that evidence of learning can be shared nationally through a common dialog and understanding of student success.

Definition

Quantitative Literacy (QL) – also known as Numeracy or Quantitative Reasoning (QR) – is a "habit of mind," competency, and comfort in working with numerical data. Individuals with strong QL skills possess the ability to reason and solve quantitative problems from a wide array of authentic contexts and everyday life situations. They understand and can create sophisticated arguments supported by quantitative evidence and they can clearly communicate those arguments in a variety of formats (using words, tables, graphs, mathematical equations, etc., as appropriate).

Quantitative Literacy Across the Disciplines

Current trends in general education reform demonstrate that faculty are recognizing the steadily growing importance of Quantitative Literacy (QL) in an increasingly quantitative and data-dense world. AAC&U’s recent survey showed that concerns about QL skills are shared by employers, who recognize that many of today’s students will need a wide range of high level quantitative skills to complete their work responsibilities. Virtually all of today’s students, regardless of career choice, will need basic QL skills such as the ability to draw information from charts, graphs, and geometric figures, and the ability to accurately complete straightforward estimations and calculations.

Preliminary efforts to find student work products which demonstrate QL skills proved a challenge in this rubric creation process. It’s possible to find pages of mathematical problems, but what those problem sets don’t demonstrate is whether the student was able to think about and understand the meaning of her work. It’s possible to find research papers that include quantitative information, but those papers often don’t provide evidence that allows the evaluator to see how much of the thinking was done by the original source (often carefully cited in the paper) and how much was done by the student herself, or whether conclusions drawn from analysis of the source material are even accurate.

Given widespread agreement about the importance of QL, it becomes incumbent on faculty to develop new kinds of assignments which give students substantive, contextualized experience in using such skills as analyzing quantitative information, representing quantitative information in appropriate forms, completing calculations to answer meaningful questions, making judgments based on quantitative data and communicating the results of that work for various purposes and audiences. As students gain experience with those skills, faculty must develop assignments that require students to create work products which reveal their thought processes and demonstrate the range of their QL skills.

This rubric provides for faculty a definition for QL and a rubric describing four levels of QL achievement which might be observed in work products within work samples or collections of work. Members of AAC&U’s rubric development team for QL hope that these materials will aid in the assessment of QL – but, equally important, we hope that they will help institutions and individuals in the effort to more thoroughly embed QL across the curriculum of colleges and universities.

Framing Language

This rubric has been designed for the evaluation of work that addresses quantitative literacy (QL) in a substantive way. QL is not just computation, not just the citing of someone else’s data. QL is a habit of mind, a way of thinking about the world that relies on data and on the mathematical analysis of data to make connections and draw conclusions. Teaching QL enables us to design assignments that address authentic, data-based problems. Such assignments may call for the traditional written paper, but we can imagine other alternatives: a video of a PowerPoint presentation, perhaps, or a well designed series of web pages. In any case, a successful demonstration of QL will place the mathematical work in the context of a full and robust discussion of the underlying issues addressed by the assignment.

Finally, QL skills can be applied to a wide array of problems of varying difficulty, confounding the use of this rubric. For example, the same student might demonstrate high levels of QL achievement when working on a simplistic problem and low levels of QL achievement when working on a very complex problem. Thus, to accurately assess a students QL achievement it may be necessary to measure QL achievement within the context of problem complexity, much as is done in diving competitions where two scores are given, one for the difficulty of the dive, and the other for the skill in accomplishing the dive. In this context, that would mean giving one score for the complexity of the problem and another score for the QL achievement in solving the problem.
Quantitative Literacy (QL) – also known as Numeracy or Quantitative Reasoning (QR) – is a "habit of mind," competency, and comfort in working with numerical data. Individuals with strong QL skills possess the ability to reason and solve quantitative problems from a wide array of authentic contexts and everyday life situations. They understand and can create sophisticated arguments supported by quantitative evidence and they can clearly communicate those arguments in a variety of formats (using words, tables, graphs, mathematical equations, etc., as appropriate).

**Definition**

Quantitative Literacy (QL) is a "habit of mind," competency, and comfort in working with numerical data. Individuals with strong QL skills possess the ability to reason and solve quantitative problems from a wide array of authentic contexts and everyday life situations. They understand and can create sophisticated arguments supported by quantitative evidence and they can clearly communicate those arguments in a variety of formats (using words, tables, graphs, mathematical equations, etc., as appropriate).

Evaluators are encouraged to assign a zero to any work sample or collection of work that does not meet benchmark (cell one) level performance.

<table>
<thead>
<tr>
<th>Interpretation</th>
<th>Capstone 4</th>
<th>3</th>
<th>Milestones 2</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ability to explain information presented in mathematical forms (e.g., equations, graphs, diagrams, tables, words)</td>
<td>Provides accurate explanations of information presented in mathematical forms. Makes appropriate inferences based on that information. For example, accurately explains the trend data shown in a graph and makes reasonable predictions regarding what the data suggest about future events.</td>
<td>Provides accurate explanations of information presented in mathematical forms. For instance, accurately explains the trend data shown in a graph.</td>
<td>Provides somewhat accurate explanations of information presented in mathematical forms, but occasionally makes minor errors related to computations or units. For instance, accurately explains trend data shown in a graph, but may miscalculate the slope of the trend line.</td>
<td>Attempts to explain information presented in mathematical forms, but draws incorrect conclusions about what the information means. For example, attempts to explain the trend data shown in a graph, but will frequently misinterpret the nature of that trend, perhaps by confusing positive and negative trends.</td>
</tr>
</tbody>
</table>

| Representation | Skillfully converts relevant information into an insightful mathematical portrayal in a way that contributes to a further or deeper understanding. | Competently converts relevant information into an appropriate and desired mathematical portrayal. | Completes conversion of information but resulting mathematical portrayal is only partially appropriate or accurate. | Completes conversion of information but resulting mathematical portrayal is inappropriate or inaccurate. |

| Calculation | Calculations attempted are essentially all successful and sufficiently comprehensive to solve the problem. Calculations are also presented elegantly (clearly, concisely, etc.) | Calculations attempted are essentially all successful and sufficiently comprehensive to solve the problem. | Calculations attempted are either unsuccessful or represent only a portion of the calculations required to comprehensively solve the problem. | Calculations are attempted but are both unsuccessful and are not comprehensive. |

| Application / Analysis | Uses the quantitative analysis of data as the basis for deep and thoughtful judgments, drawing insightful, carefully qualified conclusions from this work. | Uses the quantitative analysis of data as the basis for competent judgments, drawing reasonable and appropriately qualified conclusions from this work. | Uses the quantitative analysis of data as the basis for workmanlike (without inspiration or nuance, ordinary) judgments, drawing plausable conclusions from this work. | Uses the quantitative analysis of data as the basis for tentative, basic judgments, although is hesitant or uncertain about drawing conclusions from this work. |

| Assumptions | Explicitly describes assumptions and provides compelling rationale for why each assumption is appropriate. Shows awareness that confidence in final conclusions is limited by the accuracy of the assumptions. | Explicitly describes assumptions and provides compelling rationale for why assumptions are appropriate. | Explicitly describes assumptions. | Attempts to describe assumptions. |

| Communication | Uses quantitative information in connection with the argument or purpose of the work, presents it in an effective format, and explicates it with consistently high quality. | Uses quantitative information in connection with the argument or purpose of the work, though data may be presented in a less than completely effective format or some parts of the explication may be uneven. | Uses quantitative information, but does not effectively connect it to the argument or purpose of the work. | Presents an argument for which quantitative evidence is pertinent, but does not provide adequate explicit numerical support. (May use quasi-quantitative words such as "many," "few," "increasing," "small," and the like in place of actual quantities.) |

For instance, accurately explain version of information but accurately explain computations or units. For example, attempt to explain trend data shown in a graph, but will frequently misinterpret the nature of that trend, perhaps by confusing positive and negative trends.

For example, accurately explain trend data shown in a graph, but may miscalculate the slope of the trend line.
Results of Assessments Administered to Students

I. **499R, Senior Thesis.** We assessed several learning goals in the context of 499R, Senior Thesis. First, the Lawrence University Capstone Rubric assesses **Values in Psychology** (items 6, 10), and **Critical Thinking** in Psychology (items 1, 2), **Research Methods** (items 7, 8, 9), and **Communication Skills** (items 3, 4, 5), and overall capstone performance. The LEAP Oral Communication rubric assesses **Critical Thinking** in item 4, and overall Capstone performance. Finally, the Psychology Department has administered its own ‘Senior Survey’ in Psyx 499R since 2005 (with 2 years omitted) to gauge student satisfaction with different aspects of the major, as well as job/career intentions post-graduation.

a. **Lawrence University Capstone rubric.**
   i. For Fall 2011 and Spring 2012 principal components analysis showed that the items loaded on a single factor, and that the smallest loading was .67 for Q10. The single factor accounted for 72% of variance in the data space. Therefore, we summed each student’s scores across the 10 items to create a composite score representing overall capstone accomplishment.
      1. The composite scores ranged from 1.8 to 7.0. The mean was 5.54 and the median was 5.75, on a 7-point scale. These central tendency measures indicate that on average our students are performing well in their senior capstone projects.
      2. The frequency distribution (Fig 1) shows a strong mode between 5 and 6, which shows very good performance. The cumulative frequency distribution (Fig 2) shows that 75% of the students score 4.5 or above. The midpoint of the scale is 4.0.
   ii. The **Values in Psychology** assessment includes items 6 and 10 of this rubric. Item #6 had a mode at 7, and 84% of the students scored 5 or above. Item #10 on Diversity had a mode of 6, and 66% of the students scored 5 or above.
   iii. The **Critical Thinking** items are #1 and #2. The means on these items were 5.4 and 5.5 respectively, and the median and mode were 6.0 on both items. This is very good performance on critical thinking. Only 1 student scored below 4 on either of these items.
   iv. The **Research Methods** items (#s 7, 8, 9) had means of 5.3, 5.6, and 5.6 respectively. The modes were 5, 7, and 6, while the medians were 5, 6, and 6. One student scored below 4 on item #7, 2 on item #8, and 2 on item #9.
   v. The **Communication Skills** items (#s 3, 4, 5) showed means of 5.7, 5.7 and 5.4, respectively. The modes and medians were 6 for all three items (on a 7 point scale).
b. LEAP Oral Communication rubric.
   i. **Overall capstone performance.** For Fall 2011 and Spring 2012 principal components analysis showed that the 5 items loaded on a single factor, and that the smallest loading was .71 for Q3. The single factor accounted for 72% of variance in the data space. Therefore, we summed each student’s scores across the 5 items to create a composite score representing capstone accomplishment across the key dimensions. The means of all items except #2, Language, were above 3.0. Figures 3 and 4 plot the histogram and cumulative distribution of the LEAP oral communication rubric.
   ii. **Critical Thinking** on the LEAP rubric is item #4, ‘Supporting Material’. The mean was 3.14 (on a scale of 4), and the median and modes were 3.0. Fours students were rated a ‘2’ on this item.
   iii. **Communication Skills** are assessed in items 1, 2, 3, and 5. The means on these items were all above 3 on a 4 point scale (3.3, 3.5, 3.1, 3.3, respectively), and the medians were all 3
c. **Grade Distributions in Psyx 499R.** The grade distributions appear to be consistent with the rubric assessments. Table 1 shows that only occasional students earned grades below a “C”, the minimum grade for fulfilling the Psychology major requirements. The grade distribution is shown in Table 1 for years 2009 to Fall 2012. Approximately 8% of students dropped the course or received a non-passing grade over this time period. To determine whether the individuals who dropped the course eventually re-enrolled and succeeded would require a level of individual tracking for which the department does not have the resources. Figure 5 plots the cumulative grade distribution for the time period in Table 1.
Table 1. Percentage of grades in each category in each semester in Psyx 499R Senior Thesis

<table>
<thead>
<tr>
<th>Semester</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>F</th>
<th>W</th>
</tr>
</thead>
<tbody>
<tr>
<td>F 09</td>
<td>75.00</td>
<td>18.75</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>6.25</td>
</tr>
<tr>
<td>Sp 10</td>
<td>66.67</td>
<td>23.33</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>10.00</td>
</tr>
<tr>
<td>F 10</td>
<td>90.91</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>9.09</td>
</tr>
<tr>
<td>Sp 11</td>
<td>67.50</td>
<td>20.00</td>
<td>2.50</td>
<td>0.00</td>
<td>2.50</td>
<td>7.50</td>
</tr>
<tr>
<td>F 11</td>
<td>62.50</td>
<td>16.67</td>
<td>8.33</td>
<td>0.00</td>
<td>0.00</td>
<td>12.50</td>
</tr>
<tr>
<td>Sp 12</td>
<td>73.08</td>
<td>23.08</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>3.85</td>
</tr>
<tr>
<td>Total %</td>
<td>71.52</td>
<td>17.72</td>
<td>1.90</td>
<td>0.00</td>
<td>0.63</td>
<td>8.23</td>
</tr>
</tbody>
</table>

Figure 5. Senior Thesis Cumulative Grade Distribution
d. **The Psychology Department ‘Senior Survey’**. This survey assesses important aspects of satisfaction with the major as well as immediate post-graduation job and education intentions (verbatim survey questions are available in the supplementary material). Principal components of survey items 1 to 4 showed that they loaded on a single factor. The smallest loading was .66 for Item #3, satisfaction with Research and Field Practicum opportunities, and the highest loading was .86 for Item #1, overall satisfaction with the major. The single factor accounted for 57% of the variance in the 4 items. We created a composite score, and we also report the responses on the 4 individual items, as well as the item asking about post-graduation plans. The composite scores

i. **Composite scores.** The most recent mean composite Satisfaction scores are 4.0 and 3.9 on a 5-point scale. This is plotted in Figure 6.

![Composite Score: Satisfaction](image)

Figure 6. Composite score from Psychology Department Student Satisfaction Survey. Bars are +/- 1 standard error.

ii. The individual questions for Overall satisfaction with the major, Course satisfaction, Research / Field Practicum Satisfaction, and Career / Academic Advising Satisfaction are plotted in Figures 7 to 10.
Figure 7. Satisfaction with Major from Psychology Department Student Satisfaction Survey. Bars are +/- 1 standard error.

Figure 8. Course Satisfaction from Psychology Department Student Satisfaction Survey. Bars are +/- 1 standard error.
A majority of students intend to apply to graduate school in Psychology or a related field, 76 and 55% in the latest two semesters. Many of our students are seeking jobs related to psychology, 43 and 45% in the latest surveys. And some students have already accepted a job prior to graduation: 24 and 27%. These results over the years are plotted in Figures 11 to 13. (Note: percentages may sum to more than 100 because students could mark multiple options). These data show a very positive impact of the major on students’ post-graduation intentions, and it is excellent to see that approximately 25% of students are accepting jobs at graduation.
II. **Critical Thinking: Research Design and Analysis II.** We assessed *Critical Thinking* in the context of Psyx 225. This is a required course, and it is expected that students might not perform as well at this point in the development compared to in Senior Thesis, Psyx 499R for which the data were presented above.

a. Two coders independently coded final project papers from Fall 2012 Psyx 225 using the LEAP Critical Thinking Rubric. The inter-rater agreement for a subsample of the 28 papers was 66%. Principal components analysis showed that the 5 items of the LEAP rubric loaded on a single factor, and that the smallest loading was .84 for “Conclusion”. The single factor accounted for 80% of the variance in the data space. We created a composite score by averaging the 5 dimensions on the LEAP rubric, but we also present the results for the individual dimensions. The mean on the composite score was 2.51 on the 4 point scale, a level that is between “Milestone 2” and “Milestone 3”.

i. The means of the 5 dimensions of the Critical Thinking rubric are presented in Figure 14. The mean scores on the 5 features of critical thinking ranged from 2.3 to 3.0, with the lowest scores for “Influence of Context and Assumptions”. The standard deviations ranged from .81 to 1.17. The percentages of students scoring at levels 3 and 4 of the LEAP rubric were 68, 53, 32, 46 and 46% for the 5 features. A score of 3 or above indicates performance just below “Capstone”. The median scores were 3, 3, 2, 2, 2 for the 5 dimensions. Our students are performing well on the dimensions of “Explanation of Issues” and “Evidence.” We would like to see median performance on the “Context and Assumptions”, “Perspective, Thesis/Hypothesis”, and “Conclusions, Implications, Consequences” advance to level 3 as well.
We calculated the correlation between numerical grade on the paper and LEAP rubric composite score in order to assess the degree to which our normal grading procedures incorporate the same elements that are considered in the rubric. The correlation was .80. The scatter plot with regression line is presented in Figure 15. This provides evidence that our normal grading procedure does incorporate the important elements of the LEAP Critical Thinking rubric. The grading was done entirely separately from the coding of the LEAP rubric dimensions.

**Figure 14.** Mean scores on the 5 dimensions of the LEAP Critical Thinking rubric in Psyx 225. Bars are +/- 1 standard error.

**Figure 15.** Scatter plot of Grade on project by LEAP composite score with regression line.
III. Quantitative Literacy, Psyx 223, Research Design and Analysis I.

a. One coder (not the instructor) applied the Quantitative Literacy LEAP rubric to the second assigned class project for a class of 47 students. The project covers aspects of inferential statistics and applications. Principal components analysis showed that the 6 dimensions of the LEAP rubric loaded on a single factor, and that the smallest loading was .50 for “Calculation”, while all other items loaded above .75. The single factor accounted for 64% of variance. We created a composite score by averaging the 6 dimensions on the LEAP rubric, but we also present the results for the individual dimensions. The mean on the composite score was 3.11 on a 4-point scale, with a standard deviation of .60. The median of the composite score was 3.17, showing that over half of the students are performing at “Milestone 3”. We retained individual identification information so that at a later date we can relate performance in Quantitative Literacy to later performance on the capstone rubrics.

b. The means on the separate dimensions ranged from 2.65 to 3.61, and standard deviations ranged from .60 to .89. The means on the 6 dimensions are presented in Figure 16. The medians were all 3 except that “Representation” had a median of 4. This shows that students are performing especially well at representing problems.

![Quantitative Literacy LEAP -- Psyx 223](image)

Figure 16. Mean scores on the Quantitative Literacy LEAP rubric in Psyx 223. Bars are +/- 1 standard error.
IV. **Knowledge Base of Psychology**: Criterion-referenced test items. To assess the content knowledge base, instructors in several courses chose 10 to 15 multiple choice items that represent important concepts in the field covered by the course, and that had been administered in class. At least one other faculty member (not the instructor) examined the test items and judged whether each item represented a concept that is important to the course. The scores reported below are for those items that faculty agreed to be assessments of important concepts for the target course. At least 8 items were agreed on for each course reported below. The verbatim items are available in a supplement from the Department.

a. **Memory & Cognition, Psyx 380**. This course is offered every semester and covers material that is central to psychology. Scores on the criterion referenced items ranged from 61 to 98% correct. The overall mean performance on the exams was approximately 80% correct, while the mean on the key concept criterion referenced items was 84%. Items covered concepts such as semantic memory and priming, mental rotation, language processing, and reasoning processes.

b. **Psychology of Learning, Psyx 370**. This course or Psyx 270 is offered every semester and covers material that is central to understanding psychological principles of behavior change. Scores on the criterion referenced items ranged from 72 to 94% correct. The mean on the criterion referenced items was 86%. The items covered concepts such as the definitions of reinforcing events, extinction, avoidance conditioning, and schedules of reinforcement.

c. **Judgment and Decision Making, Psyx 481**. This is an advanced course that covers relatively difficult material, although the material is highly applicable to everyday reasoning processes. Scores on the criterion referenced items ranged between 44 and 91% correct, with a mean of 74.5%. The items covered concepts such as the ‘sunk cost’ effect, endowment effect, effects of mood on decision making style, overconfidence, framing effects, and Prospect Theory.

d. **Social Psychology, Psyx 360**. This is a service course that is currently offered every semester. Scores on the items ranged from 83 to 97% correct, with a mean of 90%. Items covered concepts such as variables influencing prosocial behavior, aggressive behavior, framing effects, stereotyping, inter-group conflict, effects of rewards on motivation, and effects of social expectations.

---

**Appendix: Proposed timelines as of December 2011.**

---**Proposed ‘Developmental’ Assessments of Student Progress**

Students would be assessed across the two courses listed in a row, or pre- and post-course completion if only one course is listed in a row.

<table>
<thead>
<tr>
<th>Learning Goal</th>
<th>Freshman</th>
<th>Sophomore</th>
<th>Junior</th>
<th>Senior</th>
</tr>
</thead>
<tbody>
<tr>
<td>2, 3, 6</td>
<td>Psyx 223</td>
<td>Psyx 225</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2, 3, 6, 7</td>
<td>Psyx 225</td>
<td></td>
<td>Psyx 499R</td>
<td></td>
</tr>
<tr>
<td>4, 9</td>
<td>Psyx 370</td>
<td>Psyx 375</td>
<td>Psyx 495</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Psyx 223</td>
<td>Psyx 225</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5, 8</td>
<td>Psyx 235D</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5, 8</td>
<td>Psyx 335</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Psyx 100IS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1, 7</td>
<td>(any Psyx course)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>--------------------------------</td>
<td>-----------</td>
<td>-----------</td>
<td>-----------</td>
<td>-----------</td>
</tr>
<tr>
<td>1. Psychology Knowledge Base</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>TBD</td>
</tr>
<tr>
<td>2. Research Methods</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>Appendix B, plus TBD</td>
</tr>
<tr>
<td>3. Critical thinking in Psychology</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>Appendices B, C, D</td>
</tr>
<tr>
<td>4. Apply psychology to practical problems</td>
<td>X</td>
<td>X</td>
<td></td>
<td>TBD</td>
</tr>
<tr>
<td>5. Values in psychology</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>Appendix B</td>
</tr>
<tr>
<td>6. Information and technological literacy</td>
<td>X</td>
<td></td>
<td></td>
<td>TBD</td>
</tr>
<tr>
<td>7. Communication skills</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>Appendices B, C, D</td>
</tr>
<tr>
<td>8. Sociocultural and international awareness</td>
<td>X</td>
<td></td>
<td></td>
<td>TBD</td>
</tr>
<tr>
<td>9. Personal development</td>
<td>X</td>
<td></td>
<td></td>
<td>Senior survey, plus TBD</td>
</tr>
</tbody>
</table>

* TBD ~ rubric to be developed
MSU Departmental Assessment Report, May 2014

Department: Psychology
Department Chair: Colleen F. Moore
Assessment Coordinators: Department tenure track faculty members as a ‘committee of the whole’, plus participation by some adjunct faculty (Heiser, Numbers, Manley)

Degrees/Majors/Options Offered by Department

B.S. in Psychology (with options in Psychological Science and Applied Psychology)
M.S. in Psychological Science (not addressed in this document)

Contents:
Section 1. Undergraduate assessment pp. 3 - 24
Rubrics used pp. 3-10
Undergraduate Assessment Results, May 2014, pp. 11-24
I. Senior thesis, capstone, satisfaction with major, post-grad jobs p. 12
II. Critical thinking in research methods p. 19
III. Quantitative literacy p. 21
IV. Knowledge base of Psychology p. 22
V. Engagement, Outreach, Integration; Student research p. 23
Section 2. M.S. Graduate program assessment
   Enrollment and retention  p. 25
   Doctoral program preparation and careers  p. 27
   Student satisfaction  p. 28
   Research productivity  p. 28
Lawrence University Psychology Department Capstone Assessment Rubric

Evaluation of Senior Capstone Presentations

Student: ___________________  Topic: ___________________  Date: ___________________

Critical Thinking
1. The presentation demonstrated critical thinking about psychological research.
   
   1  2  3  4  5  6  7  
   very weak  average  very strong

2. The presentation demonstrated understanding of the interplay between psychological theory and research.
   
   1  2  3  4  5  6  7  
   very weak  average  very strong

Oral Communication
3. The presentation was well organized.
   
   1  2  3  4  5  6  7  
   very weak  average  very strong

4. Important points were clearly explained.
   
   1  2  3  4  5  6  7  
   very weak  average  very strong

5. The style of the presentation was engaging.
   
   1  2  3  4  5  6  7  
   very weak  average  very strong

Values & Ethics
6. The presentation reflects an understanding of the values and ethics of psychologists.
   
   1  2  3  4  5  6  7  
   very weak  average  very strong

Methodology & Research
7. Presented research evidence was relevant and accurate.
   
   1  2  3  4  5  6  7  
   very weak  average  very strong

8. If an empirical project, the student clearly communicated the methodology.
   
   1  2  3  4  5  6  7  
   very weak  average  very strong

9. If an empirical project, the student highlighted and explained key findings.
Diversity

10. The presentation reflected understanding of the diversity issues relevant to the student’s topic.

(From Lawrence University, Appleton, WI)
Results of Assessments Administered to Students

I. **499R, Senior Thesis.** We assessed several learning goals in the context of 499R, Senior Thesis. First, the Lawrence University Capstone Rubric assesses **Values in Psychology** (items 6, 10), and **Critical Thinking** in Psychology (items 1, 2), **Research Methods** (items 7, 8, 9), and **Communication Skills** (items 3, 4, 5), and overall capstone performance. The LEAP Oral Communication rubric assesses **Critical Thinking** in item 4, and overall Capstone performance. Finally, the Psychology Department has administered its own ‘Senior Survey’ in Psyx 499R since 2005 (with 2 years omitted) to gauge **student satisfaction** with different aspects of the major, as well as **job/career intentions post-graduation**.

a. **Lawrence University Capstone rubric.**

   i. For Fall 2011 and Spring 2012 principal components analysis showed that the items loaded on a single factor, and that the smallest loading was .67 for Q10. The single factor accounted for 72% of variance in the data space. Therefore, we summed each student’s scores across the 10 items to create a composite score representing overall capstone accomplishment.

   1. The **composite scores** ranged from 1.8 to 7.0. The mean was 5.54 and the median was 5.75, on a 7-point scale. These central tendency measures indicate that on average our students are performing well in their senior capstone projects.

   2. The frequency distribution (Fig 1) shows a strong mode between 5 and 6, which shows very good performance. The cumulative frequency distribution (Fig 2) shows that 75% of the students score 4.5 or above. The midpoint of the scale is 4.0.

   ii. The **Values in Psychology** assessment includes items 6 and 10 of this rubric. Item #6 had a mode at 7, and 84% of the students scored 5 or above. Item #10 on Diversity had a mode of 6, and 66% of the students scored 5 or above.

   iii. The **Critical Thinking** items are #1 and #2. The means on these items were 5.4 and 5.5 respectively, and the median and mode were 6.0 on both items. This is very good performance on critical thinking. Only 1 student scored below 4 on either of these items.

   iv. The **Research Methods** items (#s 7, 8, 9) had means of 5.3, 5.6, and 5.6 respectively. The modes were 5, 7, and 6, while the medians were 5, 6, and 6. One student scored below 4 on item #7, 2 on item #8, and 2 on item #9.

   v. The **Communication Skills** items (#s 3, 4, 5) showed means of 5.7, 5.7 and 5.4, respectively. The modes and medians were 6 for all three items (on a 7 point scale).
b. LEAP Oral Communication rubric.
   i. **Overall capstone performance.** For Fall 2011 and Spring 2012 principal components analysis showed that the 5 items loaded on a single factor, and that the smallest loading was .71 for Q3. The single factor accounted for 72% of variance in the data space. Therefore, we summed each student’s scores across the 5 items to create a composite score representing capstone accomplishment across the key dimensions. The means of all items except #2, Language, were above 3.0. Figures 3 and 4 plot the histogram and cumulative distribution of the LEAP oral communication rubric.
   ii. **Critical Thinking** on the LEAP rubric is item #4, ‘Supporting Material’. The mean was 3.14 (on a scale of 4), and the median and modes were 3.0. Fours students were rated a ‘2’ on this item.
   iii. **Communication Skills** are assessed in items 1, 2, 3, and 5. The means on these items were all above 3 on a 4 point scale (3.3, 3.5, 3.1, 3.3, respectively), and the medians were all 3
c. **Grade Distributions in Psyx 499R**. The grade distributions appear to be consistent with the rubric assessments. Table 1 shows that only occasional students earned grades below a “C”, the minimum grade for fulfilling the Psychology major requirements. The grade distribution is shown in Table 1 for years 2009 to Fall 2012. Approximately 8% of students dropped the course or received a non-passing grade over this time period. To determine whether the individuals who dropped the course eventually re-enrolled and succeeded would require a level of individual tracking for which the department does not have the resources. Figure 5 plots the cumulative grade distribution for the time period in Table 1.
Table 1. Percentage of grades in each category in each semester in Psyx 499R Senior Thesis

<table>
<thead>
<tr>
<th>Semester</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>F</th>
<th>W</th>
</tr>
</thead>
<tbody>
<tr>
<td>F 09</td>
<td>75.00</td>
<td>18.75</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>6.25</td>
</tr>
<tr>
<td>Sp 10</td>
<td>66.67</td>
<td>23.33</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>10.00</td>
</tr>
<tr>
<td>F 10</td>
<td>90.91</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>9.09</td>
</tr>
<tr>
<td>Sp 11</td>
<td>67.50</td>
<td>20.00</td>
<td>2.50</td>
<td>0.00</td>
<td>2.50</td>
<td>7.50</td>
</tr>
<tr>
<td>F 11</td>
<td>62.50</td>
<td>16.67</td>
<td>8.33</td>
<td>0.00</td>
<td>0.00</td>
<td>12.50</td>
</tr>
<tr>
<td>Sp 12</td>
<td>73.08</td>
<td>23.08</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>3.85</td>
</tr>
<tr>
<td>Total %</td>
<td>71.52</td>
<td>17.72</td>
<td>1.90</td>
<td>0.00</td>
<td>0.63</td>
<td>8.23</td>
</tr>
</tbody>
</table>

Figure 5. Senior Thesis Cumulative Grade Distribution
d. **The Psychology Department ‘Senior Survey’**. This survey assesses important aspects of satisfaction with the major as well as immediate post-graduation job and education intentions (verbatim survey questions are available in the supplementary material). Principal components of survey items 1 to 4 showed that they loaded on a single factor. The smallest loading was \( .66 \) for Item #3, satisfaction with Research and Field Practicum opportunities, and the highest loading was \( .86 \) for Item #1, overall satisfaction with the major. The single factor accounted for 57% of the variance in the 4 items. We created a composite score, and we also report the responses on the 4 individual items, as well as the item asking about post-graduation plans. The composite scores

i. **Composite scores.** The most recent mean composite Satisfaction scores are 4.0 and 3.9 on a 5-point scale. This is plotted in Figure 6.

![Composite Score: Satisfaction](image)

**Figure 6.** Composite score from Psychology Department Student Satisfaction Survey. Bars are +/- 1 standard error.

ii. The individual questions for Overall satisfaction with the major, Course satisfaction, Research / Field Practicum Satisfaction, and Career / Academic Advising Satisfaction are plotted in Figures 7 to 10.
Figure 7. Satisfaction with Major from Psychology Department Student Satisfaction Survey. Bars are +/- 1 standard error.

Figure 8. Course Satisfaction from Psychology Department Student Satisfaction Survey. Bars are +/- 1 standard error.
iii. Post-graduation intentions

A majority of students intend to apply to graduate school in Psychology or a related field, 76 and 55% in the latest two semesters. Many of our students are seeking jobs related to psychology, 43 and 45% in the latest surveys. And some students have already accepted a job prior to graduation: 24 and 27%. These results over the years are plotted in Figures 11 to 13. (Note: percentages may sum to more than 100 because students could mark multiple options). These data show a very positive impact of the major on students’ post-graduation intentions, and it is excellent to see that approximately 25% of students are accepting jobs at graduation.
II. **Critical Thinking: Research Design and Analysis II.** We assessed *Critical Thinking* in the context of Psyx 225. This is a required course, and it is expected that students might not perform as well at this point in the development compared to in Senior Thesis, Psyx 499R for which the data were presented above.

a. Two coders independently coded final project papers from Fall 2012 Psyx 225 using the LEAP Critical Thinking Rubric. The inter-rater agreement for a subsample of the 28 papers was 66%. Principal components analysis showed that the 5 items of the LEAP rubric loaded on a single factor, and that the smallest loading was .84 for “Conclusion”. The single factor accounted for 80% of the variance in the data space. We created a composite score by averaging the 5 dimensions on the LEAP rubric, but we also present the results for the individual dimensions. The mean on the composite score was 2.51 on the 4 point scale, a level that is between “Milestone 2” and “Milestone 3”.

i. The means of the 5 dimensions of the Critical Thinking rubric are presented in Figure 14. The mean scores on the 5 features of critical thinking ranged from 2.3 to 3.0, with the lowest scores for “Influence of Context and Assumptions”. The standard deviations ranged from .81 to 1.17. The percentages of students scoring at levels 3 and 4 of the LEAP rubric were 68, 53, 32, 46 and 46% for the 5 features. A score of 3 or above indicates performance just below “Capstone”. The median scores were 3, 3, 2, 2, 2 for the 5 dimensions. Our students are performing well on the dimensions of “Explanation of Issues” and “Evidence.” We would like to see median performance on the “Context and Assumptions”, “Perspective, Thesis/Hypothesis”, and “Conclusions, Implications, Consequences” advance to level 3 as well.
ii. We calculated the correlation between numerical grade on the paper and LEAP rubric composite score in order to assess the degree to which our normal grading procedures incorporate the same elements that are considered in the rubric. The correlation was .80. The scatter plot with regression line is presented in Figure 15. This provides evidence that our normal grading procedure does incorporate the important elements of the LEAP Critical Thinking rubric. The grading was done entirely separately from the coding of the LEAP rubric dimensions.

Figure 14. Mean scores on the 5 dimensions of the LEAP Critical Thinking rubric in Psyx 225. Bars are +/- 1 standard error.

Figure 15. Scatter plot of Grade on project by LEAP composite score with regression line.
III. **Quantitative Literacy**, Psyx 223, Research Design and Analysis I.

a. One coder (not the instructor) applied the Quantitative Literacy LEAP rubric to the second assigned class project for a class of 47 students. The project covers aspects of inferential statistics and applications. Principal components analysis showed that the 6 dimensions of the LEAP rubric loaded on a single factor, and that the smallest loading was .50 for “Calculation”, while all other items loaded above .75. The single factor accounted for 64% of variance. We created a composite score by averaging the 6 dimensions on the LEAP rubric, but we also present the results for the individual dimensions. The mean on the composite score was 3.11 on a 4-point scale, with a standard deviation of .60. The median of the composite score was 3.17, showing that over half of the students are performing at “Milestone 3”. We retained individual identification information so that at a later date we can relate performance in Quantitative Literacy to later performance on the capstone rubrics.

b. The means on the separate dimensions ranged from 2.65 to 3.61, and standard deviations ranged from .60 to .89. The means on the 6 dimensions are presented in Figure 16. The medians were all 3 except that “Representation” had a median of 4. This shows that students are performing especially well at representing problems.

Figure 16. Mean scores on the Quantitative Literacy LEAP rubric in Psyx 223. Bars are +/- 1 standard error.
IV. **Knowledge Base of Psychology:** Criterion-referenced test items. To assess the content knowledge base, instructors in several courses chose 10 to 15 multiple choice items that represent important concepts in the field covered by the course, and that had been administered in class. For 4 of the 5 courses, at least one other faculty member (not the instructor) examined the test items and judged whether each item represented a concept that is important to the course. The scores reported below are for those items that faculty agreed to be assessments of important concepts for the target course. At least 8 items were agreed on for each course reported below. The verbatim items are available in a supplement from the Department.

a. **Memory & Cognition, Psyx 380.** This course is offered every semester and covers material that is central to psychology. Scores on the criterion referenced items ranged from 61 to 98% correct. The overall mean performance on the exams was approximately 80% correct, while the mean on the key concept criterion referenced items was 84%. Items covered concepts such as semantic memory and priming, mental rotation, language processing, and reasoning processes.

b. **Psychology of Learning, Psyx 370.** This course or Psyx 270 is offered every semester and covers material that is central to understanding psychological principles of behavior change. Scores on the criterion referenced items ranged from 72 to 94% correct. The mean on the criterion referenced items was 86%. The items covered concepts such as the definitions of reinforcing events, extinction, avoidance conditioning, and schedules of reinforcement.

c. **Judgment and Decision Making, Psyx 481.** This is an advanced course that covers relatively difficult material, although the material is highly applicable to everyday reasoning processes. Scores on the criterion referenced items ranged between 44 and 91% correct, with a mean of 74.5%. The items covered concepts such as the ‘sunk cost’ effect, endowment effect, effects of mood on decision making style, overconfidence, framing effects, and Prospect Theory.

d. **Social Psychology, Psyx 360.** This is a service course that is currently offered every semester. Scores on the items ranged from 83 to 97% correct, with a mean of 90%. Items covered concepts such as variables influencing prosocial behavior, aggressive behavior, framing effects, stereotyping, inter-group conflict, effects of rewards on motivation, and effects of social expectations.

e. **Psychology of Aging, Psyx 333.** This course is offered annually if possible and covers material that integrates social, cognitive and developmental psychology around topics in aging. Scores on the criterion-referenced items ranged from 67 to 90% correct, with a mean of 79.3%. Items covered concepts such as biological aspects of aging, medical issues in aging, cognitive and memory function in aging, discrimination and the social psychology of aging.
V. Other metrics: Engagement, Outreach and Integration of Learning and Engagement

a. The notable strengths of our undergraduate major are the twin emphases on Psychology as a science combined with the opportunity to be involved in both research (Psyx 490R) and Field Practicum (Psyx 495). The structure of our curriculum contributes strongly to MSU’s strategic goal of increasing student engagement in both community service and research. In the last 5 years we taught over 300 students in 945 SCH of Research (Psyx 490R) and 225 students in 675 SCH of Field Practicum (Psyx 495). (See Table 1.)

b. Another strength of our curriculum is research involvement and the Senior Thesis requirement. The senior thesis requires students to integrate their psychology major around a topic of their own choice. The course requires that students develop a project, write a grant proposal, generate data (often fake data are used because the requirement is for one semester only), analyze and interpret the results, and present either a poster or talk on the project. Students often use the Senior Thesis to integrate their research (Psyx 490R) or field practicum (Psyx 495) with their background in research methods and other coursework. The integration of learning and engagement is a major aspect of MSU’s current strategic plan, and the Psychology
Department’s Senior Thesis course is an example of such integration. Over the last 5 years we have taught approximately 55 students per year in Senior Thesis for approximately 845 SCH (see Table 1).

Table 1: 5 year total of Engagement, Outreach and Integration
Formal Coursework by Undergraduate Psychology Majors

<table>
<thead>
<tr>
<th>MSU Strategic Goal</th>
<th>Course</th>
<th>SCH</th>
<th>Student FTE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engagement</td>
<td>Research 490R</td>
<td>945</td>
<td>315</td>
</tr>
<tr>
<td>Outreach</td>
<td>Practicum 495</td>
<td>675</td>
<td>225</td>
</tr>
<tr>
<td>Integration</td>
<td>Senior Thesis</td>
<td>845</td>
<td>282</td>
</tr>
</tbody>
</table>

c. **Student participation in research** is an important part of MSU’s newly adopted strategic plan. Student research discovers and disseminates new knowledge, prepares students for employment, builds skills that students can use in a variety of settings, and helps students learn to work in teams as well as independently (see Table 1 above for Research credits in Psyx 490R).

  1. **Productivity of our students.** In the last 5 years our undergraduates co-authored 61 presentations at conferences (including coauthorship at professional conferences as well as presentations at undergraduate research conferences on campus and elsewhere), and our undergraduates have also published 6 papers.

  2. **Student research funding:** McNair, AIRO, USP, and INBRE. Over the last 5 years Psychology majors have won 16 University Scholars Program awards, 3 McNair scholar awards, 2 INBRE awards, and 4 students in the AIRO (American Indian Research Opportunities) program have participated in research with a Psychology faculty member.
Section 2: Graduate Program Assessment

- Graduate program: M.S. in Psychological Science

**Overall context.** The content, structure and nature of the graduate program were adjusted during the 10-year period of the KPI data. From 2002 to 2006 the Department offered a masters in Applied Psychology with emphasis on industrial/organizational psychology. With the departure of four faculty members and with the hire of new faculty, the department organized the masters program as a research-intensive program in Psychological Science that has been very successful.

Our M.S. research program in Psychological Science prepares students for admission into a doctoral program or for employment in applied settings. Our students receive individualized mentoring from faculty and participate in advanced coursework, individual research projects culminating in the masters thesis, and research colloquia. In anonymous graduate student surveys, students describe our greatest strengths as our strong faculty, opportunity for one-on-one training, strong research focus, and opportunities to present research at conferences. The latest assessment report on the Graduate Program is attached in Appendix D. Here we give a summary.

1. **Graduate enrollment and degree data.** We have enrolled between 9 and 13 students each year, and have graduated between 2 and 9 students each year since 2003 (average number of graduates = 5.0 per year).

   Retention and graduation rates are outstanding. For incoming classes that enrolled from 2003 – 2010, 81% (43 out of 53) graduated with their M.S. degrees within two years, 6% (3 out of 53) graduated during the following summer, and 13% (7 out of 53) left our program. Two of the 7 that left our program did so because they were accepted early into doctoral programs (see Figure 7).

![Graduation Status of Psychology students enrolling in M.S. program since 2003.](image-url)
2. Graduate program assessment
   i. Structure of M.S. in Psychological Science

Students enrolled in the graduate program must fulfill coursework, master’s thesis, GTA assignments, and departmental colloquia (see Appendix D for requirement details).

- **Coursework.** The Master of Science program requires a minimum of 31 credit hours of graduate level coursework. Our students currently register for 2 courses (6 credits) in each of their first three semesters and 1 course during their fourth semester (3 credits). The required coursework is designed to provide students with an overview of specific content areas, as well as with research methods and statistics in psychology. Each student must take at least seven of the following courses (21 credits) and maintain a 3.0 GPA. Examples of courses we typically offer are listed below. Courses are offered on a 2-year rotation except for Psyx 501 and 502 which are offered annually.
  - PSYX 501 (Advanced Research Design & Analysis
  - PSYX 502 (Advanced Statistical Analysis)
  - PSYX 539 (Physiological Processes)
  - PSYX 541 (Cognitive Processes)
  - PSYX 542 (Learning)
  - PSYX 543 (Memory)
  - PSYX 544 (Social Psychology)
  - PSYX 546 (Social Cognition)

Students are now required to take PSYX 501 and PSYX 502 during the first year of the program. This has been a longstanding department goal that we have enacted during 2012-13. Students report increased statistical competence and confidence resulting from the second statistical methods and design course.

Students may substitute one graduate level class (outside of the department) related to their psychology research for one of the above classes, with approval of their advisor and the department Graduate Coordinator. Students may also choose from advanced undergraduate psychology classes that are co-convened (i.e., cross listed as both a graduate and undergraduate class). Recent topics offered in this way include “Food, Motivation and Eating”, “Psycholinguistics”, “Psychology of Time”.

- **Masters Thesis.** Each student must register for 10 thesis credits during their second year. Currently, our students register for 3 thesis credits in the fall and 7 in the spring. The schedule of deadlines for the thesis is relatively strict and is incorporated in Appendix D.

A master’s thesis is an empirical study (e.g., involving collection of original data by the student, in either a lab experiment or a field study), the purpose of which is for students to learn and to demonstrate their ability to carry out a scientific investigation in all aspects from data collection to final write-up. The thesis project is designed to facilitate a number of skills that are beneficial in either applied or academic settings: Familiarity with a scientific literature, critical thinking skills that help to identify weaknesses in the literature, formulation of hypotheses, formulation of appropriate methodology to answer research questions, collecting and analyzing data, critical and thoughtful interpretation of results/implications for literature, and effective written and oral communication skills.

- **Every Semester Evaluation of Graduate student progress.** Evaluation of coursework, research, GTA performance, progress toward degree, and citizenship are used as a major criterion for making decisions about subsequent graduate assistantship funding. Failure to make satisfactory progress, as determined by the psychology faculty and the Division of Graduate Education, may result in the loss of financial assistance or even suspension from the program. Each semester, students submit a personal statement, vita/resume, and any available teaching evaluations to their advisor three weeks prior to the end of the semester, or per the deadline set by the Graduate Coordinator.
ii. Evidence of instructional quality – Graduate program

In addition to looking at retention and degrees granted (reported above) we have tracked success of our students in entering doctoral programs, their reported satisfaction on student surveys, and graduate student research productivity.

- **Doctoral program preparation and careers.** Our graduate students are well prepared for doctoral-level work and have excelled in doctoral programs. Of our graduates that applied to doctoral programs, 92% were accepted (24 out of 26). Approximately 65% of our graduates applied to doctoral programs (see Figure 8).

![Figure 8. Career Choices of Psychology M.S. students after graduation (since 2003).](image)

- **Graduate student surveys** conducted from 2007-2010 revealed that graduate students were generally pleased with the program. The four questions asked concerned (1) overall satisfaction with the program, (2) instruction in graduate classes, (3) research/thesis experiences, and (4) career advising and placement. These data are shown in Figure 9. As can be seen, the students rated the graduate program high in all areas, with an especially high rating (4.7) in “research/thesis experience.”
• **Graduate student research productivity.** Since 2007, students have presented 62 papers at scientific conferences, and have published 29 papers as co-authors. This high rate of success in research dissemination is strong evidence of the effectiveness of our M.S. program in Psychological Science. Our students regularly present their research as co-authors at regional scientific conferences as well as at national and international venues including Association for Psychological Science (APS), APA, Psychonomics, Society for Personality and Social Psychology. Their publications are in peer-refereed journals.
### Psychology Department Undergraduate Assessment Plan Timeline

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Psychology Knowledge Base</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td>Criterion-referenced test items</td>
<td>all courses (different courses in different years). A minimum of one course per year will be assessed.</td>
</tr>
<tr>
<td>2. Research Methods</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>LEAP, publications and presentations</td>
<td>Psyx 499R, Psyx 223, 225, 490R</td>
</tr>
<tr>
<td>3. Critical thinking in Psychology</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td>LEAP</td>
<td>Psyx 225, 499R,</td>
</tr>
<tr>
<td>4. Apply psychology to practical problems</td>
<td>X</td>
<td>X</td>
<td></td>
<td>X</td>
<td>Criterion-referenced test items</td>
<td>Psyx 370, 375, 475, 495</td>
</tr>
<tr>
<td>5. Values in psychology</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>Lawrence Rubric</td>
<td>Psyx 225, 499R</td>
</tr>
<tr>
<td>6. Information and technological literacy</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td>LEAP</td>
<td>Psyx 223, 225, 499R plus others</td>
</tr>
<tr>
<td>7. Communication skills</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td>LEAP</td>
<td>Psyx 225, 499R</td>
</tr>
<tr>
<td>8. Sociocultural and international awareness</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td>LEAP</td>
<td>Psyx 235D, 333, 335, 462</td>
</tr>
<tr>
<td>9. Personal development</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td>Senior survey</td>
<td>Psyx 375, 475, 495 Post graduation</td>
</tr>
</tbody>
</table>
Assessment Report and Action Plan for Sociology and Anthropology
Fall 2013
Prepared and submitted by the faculty
ANTY 450: Archaeological Theory
Professor: Michael Neeley

Assessment by: Dr. Michael Neeley
Learning Outcome: Students shall understand and articulate key anthropological concepts and theories.

This course provides an in-depth perspective on the methodological and theoretical issues and approaches in the discipline of archaeology. In many ways, it is a complementary course to the capstone offerings (ANTY 425 and ANTY 428) which focus more broadly on anthropological theory and theoretical issues pertinent to social/cultural anthropology. Archaeological theory examines questions of interest to archaeologists and addresses the type of information used, current theoretical and analytical methods, and how this information is applied to enhance our understanding of the past. Specific course outcomes for students include describing the development history of the discipline of archaeology, understanding how archaeological questions are constructed, and assessing and applying current method and theory for understanding the past.

The course material was presented through a combination lecture and discussion. The discussions followed readings in the text (A History of Archaeological Thought) and selected readings from archaeological journals. These readings and subsequent discussions gave students an opportunity to examine the role of theory in archaeology and how it has changed over the history of the discipline.

Assignments for the class included three problem sets, each focusing on a different aspect of archaeological methodology (e.g., seriation, culture history and environmental reconstruction, and settlement patterns) and interpretation. In addition there were three exams that covered the theoretical development of the discipline. There was also a final paper project that required the student to apply their understanding of archaeological theory to a topic of their choice. The paper could take one of the three following forms:

(1) A research proposal using historical or archaeological data. This involved selecting an archaeological region or culture for study and identifying a question of interest. Once the question was chosen, a particular theoretical orientation was selected to serve as an interpretive filter for examining the question. This step in the process required the student to realize that theory serves as lens through which to view the archaeological record and helps one identify the necessary data (materials and observations) that link the material remains with theoretical interpretation.

(2) The paper can take the form of a profile of an archaeologist. In this option, the student had to describe the theoretical and material contributions of an archaeologists to the field. Elements to include in this paper were: (1) what did the person research, dig, investigate, and write about?; (2) when did they do this?; (3)
what sort of training did they have and what were their perspectives and philosophical/theoretical viewpoints?; (4) did this archaeologist’s work and approaches change through time?; and (5) what did other archaeologists write about this person?

(3) The student could select one of the following theoretical perspectives and write about its historical development, the basic tenets and ideas of this perspective, examples of successful applications, the strengths and weaknesses of the approach, and the value to the field.

Optimal foraging theory
Behavioral archaeology
Agency
Post-Processual archaeology

Gendered approaches to archaeology
Evolutionary archaeology
Marxist archaeology

To quantify the research outcomes for this course, I used the scores on the paper projects and the final exams as a data source and aligned the outcomes with the proposed scoring method. The scoring method as defined in the document that outlines the anthropology learning outcomes is:

<table>
<thead>
<tr>
<th>Scale:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Unacceptable</td>
<td>1</td>
</tr>
<tr>
<td>Minimally acceptable</td>
<td>2</td>
</tr>
<tr>
<td>Acceptable</td>
<td>3</td>
</tr>
<tr>
<td>Exceeds expectation</td>
<td>4</td>
</tr>
<tr>
<td>Exceptional</td>
<td>5</td>
</tr>
<tr>
<td>For graded assignments = D, D-, or F</td>
<td></td>
</tr>
<tr>
<td>For graded assignments = D+/C-</td>
<td></td>
</tr>
<tr>
<td>For graded assignments = C/C+</td>
<td></td>
</tr>
<tr>
<td>For graded assignments = B’s or A-</td>
<td></td>
</tr>
<tr>
<td>For graded assignments = A/A+</td>
<td></td>
</tr>
</tbody>
</table>

A total of thirteen papers were submitted by the students. The average score for the final paper was 80%. Using the above scale, this suggests that the class “exceeds expectations” for the learning outcome of articulating and understanding key anthropological (archaeological) theories and concepts. However, it is noted that this is at the lower end of this measure. On a student by student basis, three students were in the unacceptable range, one in the minimally acceptable, one in the acceptable, seven in the exceeds expectations, and one in the exceptional range.

For students who were in the unacceptable or minimally acceptable range for the paper project, their outputs typically suffered from: (1) failing to run the topic by the instructor for approval; (2) underdeveloped papers (not up to the minimum requirement of 8 pages); (3) inadequate level of research to support their argument; and (4) scattered or incoherent organization/structure to the paper. It is my opinion that these papers were hastily constructed at the last minute prior to the deadline.

The examination of the final exams reveals a similar pattern. The average score for the final exam was 81%, again suggesting an overall rating of “exceeds expectations” for this learning outcome. The individual breakdown consists of two students in the
unacceptable range, none in the minimally acceptable, four in the acceptable, six in the exceeds expectations, and one in the exceptional range.

In the case of the final exams, only two fell into the unacceptable range. In both cases, the did not adequately prepare for the final exam as they were allowed to prepare a single page review guide for the exam. One student did not have a guide prepared, and the other’s guide was incomplete for the material covered.

In sum, I believe the assessment indicates that students who take this class (and put forth an honest effort) are successful in meeting the learning outcomes of greater understanding of key anthropological theories and concepts.

Assessment by: Dr. Jack Fisher

Learning Outcome: Students shall understand and articulate key anthropological concepts and theories.

The syllabus for ANTY 450 (Archaeological Theory) clearly indicates that the students will be engaged throughout the course in learning about major theoretical perspectives in archaeology and also key archaeological methods, approaches, and practices. These learning opportunities include reading assignments, exercises in methodology and theory, exams, and a research project.

Four Final Exams and three Research Projects were provided for this assessment. The Final Exam consisted of four essay questions. The questions were well designed to test students’ knowledge of important theoretical and conceptual approaches in archaeology, and how these relate to the investigation of major archaeological questions, issues, and practices. The students’ results ranged from exceeds expectations to unacceptable. The best students showed a good understanding of the relevant theoretical and conceptual approaches, and were able to relate these in a thoughtful fashion to specific archaeological research questions and/or to how archaeology is practiced today. The students who performed poorly either had not prepared adequately (i.e., had not read the relevant materials), or displayed a poor understanding of the topics, as reflected by answers that were brief and superficial.

The Research Project was an excellent opportunity for students to expand and deepen their knowledge of archaeological theory, concepts, and methods, and to integrate these with one another. The three Research Projects ranged from unacceptable to exceptional. The best students’ projects were thorough, well researched, showed good integration of theory to the interpretation of the archaeological record, and were well organized and well written. The unacceptable paper was short, rather superficial, and did not explore theoretical or conceptual issues adequately. Additionally, some errors in spelling and grammar detracted from the quality of this students’ work.

Both the Final Exam and Research Project offer students excellent venues for learning about anthropological theory and concepts, and to synthesize and
articulate this knowledge. The sample of students’ materials that I have examined convinces me that this course “exceeds expectations” with respect to the designated learning outcome that students shall understand and articulate key anthropological concepts and theories.
ANTY 453: Zooarchaeology  
Professor: Jack Fisher

Assessment by: Dr. Jack Fisher  
Learning Outcome: Engage in field or laboratory research and carry out preliminary analyses of materials from primary materials and/or collections.

This course provides students with a solid introduction to two key areas in the study of animal bone assemblages from archaeological sites. One of these is osteology and the identification of bones and teeth to skeletal element and to taxon. Emphasis is placed on larger mammals found at Montana archaeological sites, but coverage also includes smaller mammals, birds, reptiles, and amphibians. The second area concerns methods and theory for analysis and interpretation of archaeological bone assemblages. This includes methods for quantifying bone assemblages; identifying and assessing taphonomic processes; interpreting bone frequencies; identifying and interpreting bone modifications such as stone–tool cut marks, tooth marks, and bone breakage patterns; estimating age-at-death and season-of-death; and inferring & interpreting human activities and behaviors. There is no textbook for this course. Students read numerous articles pertaining to zooarchaeology that are published in professional anthropological journals.

Specific student outcomes include the ability to identify the major bones of the mammalian skeleton, to understand and apply zooarchaeological analytical methods to interpret human behaviors, and to carry out preliminary analysis of zooarchaeological materials using zooarchaeological collections or primary (i.e., published) materials.

Course materials were presented through hands–on learning in osteology and bone identification, and in discussing assigned readings. Students were expected to devote substantial time outside of class to working with bone specimens from the comparative bone collection in the archaeology lab at MSU to learn osteology and bone identification.

Assignments for the class include the following: (1) making detailed drawings of bones from a variety of species provided by the instructor to enhance and reinforce their knowledge and abilities in bone anatomy and identification; (2) writing a 1-2 page synopsis of a small number of journal article reading assignments in which the students were asked to identify the research issue, discusses the materials and methods, specify the major findings and results, and discuss weaknesses and/or strengths of the research; (3) learning and applying to Montana mammals the system of biological taxonomy and classification; (4) learning the major categories of mammalian tooth types; and (4) carrying out zooarchaeological exercises such as analyzing the stage of tooth eruption and wear in bison lower jaws to estimate the age-at-death and season-of-death of the specimens by reference to published criteria. Two bone identification quizzes were given to test students’ knowledge and skills in the identification of major bones of the skeleton.

There were no formal examinations in this course. The students, additionally, had to design, carry out, and write up a major research project on an appropriate zooarchaeological topic of their choosing with approval by the
instructor. Several students created a “bone atlas” in which they compared the bones of two or three animal species whose bones are similar in size and shape, such as wolf and mountain lion. This entailed detailed comparisons of actual bones of the species, identification of anatomical criteria that differentiate between the species, making life size drawings of the bones of all the species, and annotating the drawings with descriptions of the anatomical differences between the species. Others carried out an experiment on a topic of zooarchaeological importance, such as animal butchery with stone tools and the resultant cut marks on bones; or, feeding fresh bones to their dog and analyzing the patterns of bone damage and destruction. They presented their experiment, analyses, and results as a written paper. Several students analyzed bones from an archaeological site and presented their results as a paper. Other students based their project entirely on journal articles and/or other publications.

To quantify the research outcomes for this course, I present the scores on the following items as a data source: (1) analysis of bison teeth for age-at-death and season-of-death; (2) a synopsis of a reading assignment; and (3) the final research project. I will quantify the outcome for each of these three assignments. I aligned the outcomes with the anthropology program’s Indicators of Student Achievement:

<table>
<thead>
<tr>
<th>Category</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unacceptable</td>
<td>1</td>
</tr>
<tr>
<td>Minimally acceptable</td>
<td>2</td>
</tr>
<tr>
<td>Acceptable</td>
<td>3</td>
</tr>
<tr>
<td>Exceeds expectation</td>
<td>4</td>
</tr>
<tr>
<td>Exceptional</td>
<td>5</td>
</tr>
</tbody>
</table>

1. Bison Teeth: Twenty-four of the 25 students carried out this assignment. The purpose of this assignment in zooarchaeological methods was to give the students hands-on experience in carrying out an analysis of the stage of tooth eruption and wear in several lower jaws of sub-adult bison that had died at different ages and that display corresponding differences in the stage of eruption and wear exhibited by their teeth. These bison lower jaws come from two different archaeological sites in Montana. The students had to assess the stage of eruption and wear for each tooth in these jaws, and from this estimate, by reference to published zooarchaeological criteria, how old the animal was when it died. That knowledge, in turn, provided the basis for estimating the season of year in which the animal was hunted and killed.

The average score for this exercise is 84% (this excludes a score of “0” for the one student who did not turn in this assignment). This indicates that the class as a whole “exceeds expectations” for the learning outcome of engaging in field or laboratory research and carrying out preliminary analyses of materials from primary materials and/or collections. Five students’ work was unacceptable. One student’s work was acceptable. Eight students’ work exceeded expectations, and the work of the remaining 11 students was exceptional.

Students who performed poorly on this assignment generally did not correctly assess the stage of eruption of individual teeth and/or did not correctly assess the amount of
wear present on individual teeth. The assessment of tooth eruption and wear was discussed and presented to the class as a whole in preparation for this assignment. The results of this assignment suggest that some students struggled in their understanding of these concepts, and that they would benefit from additional instruction in assessing tooth eruption and wear.

2. **Synopsis of Reading**: Twenty-four students submitted a synopsis of this reading assignment. The purpose of this assignment was to have students critically analyze a professional journal article that focuses on an important methodological topic in zooarchaeology. The average score was 85% (this excludes a score of “0” for the student who did not turn in this assignment). This indicates that the class as a whole “**exceeds expectations**”. Two students’ work was unacceptable, and two more were minimally acceptable. One student’s work was acceptable, 12 students exceeded expectations, and eight were exceptional.

For students who performed poorly on this assignment, their work typically suffered from superficiality in their analysis of the article as reflected by the failure to: (1) identify the main research issue of the article; (2) assess the weaknesses/strengths of the research; and/or (3) summarize the main research findings and their significance.

3. **Research Project**: Twenty-two students turned in a final research project. The purpose of this project was to have students carry out a meaningful research project in zooarchaeology. The average score was 84% (this excludes a score of “0” for the three students who did not turn in this assignment). This indicates that the class as a whole “**exceeds expectations**”. Two students’ work was minimally acceptable, and a further two produced acceptable work. Fourteen students’ work exceeded expectations, and five students’ work was exceptional.

For students whose research project was “minimally acceptable” or “acceptable”, their product typically suffered from one or more of the following shortcomings: (1) the project was somewhat superficial as reflected by inadequate depth and detail in its substance, analyses, and conclusions; (2) the student presented little or no critical evaluation/assessment appropriate to their project; (3) there were problems with organization and/or with writing (such as clarity of expression and/or punctuation); and (4) the bibliography had missing or incomplete entries.

These students might benefit from receiving additional guidance and support from the instructor as they design, carry out, and write up their research project.

In sum, assessment of these assignments indicates that this course as a whole is successful in teaching zooarchaeological method and theory and in providing an effective learning environment for students to develop their abilities to successfully carry out zooarchaeological analyses and research.
Assessment by: Dr. Michael Neeley  
Learning Outcome: Students shall engage in field or laboratory research and carry out preliminary analyses of materials from primary materials and/or collections.

Based on the syllabus for ANTY 453 (Zooarchaeology), there are numerous assignments in which students can engage in laboratory research with archaeological materials. Two of the assignments were provided for this assessment. One was a lab-based exercise in which students had to identify the age of the animal (bison) at death based upon the tooth eruption pattern. This is an excellent example of a hands-on, lab-based exercise that has direct application to questions of archaeological interest: how old was the animal at death and what was the season (e.g., spring, summer, fall, winter) at death. Five examples of the student work were provided representing a range of skill from exceptional to unacceptable. The best students were able to identify the necessary tooth wear and eruption landmarks to assess the age and seasonality of death. Less skilled students typically could identify the areas of wear, but were unable to properly interpret or contextualize the pattern of wear in order to determine age and seasonality.

The second lab-based example consisted of three of the final student projects. In this case, they created an atlas of selected bones for similar sized species (usually 2-3). This included drawing and labeling several different views of the animal skeletons. In this case, the examples ranged from exceptional to exceeds expectations. Differences in the student outcomes generally involved the level of detail in the projects, particularly as it pertained to the individual skeletal landmarks that differentiate the species from one another.

Both of these assignments are excellent learning tools for students using lab-based skills. Students are able to apply concepts learned through class instruction and apply them to focused exercises and independent projects. From this sample of student materials, I believe that the course “exceeds expectations” in terms of the designated learning outcome of engaging in laboratory research and conducting a preliminary analysis of materials from primary materials and/or collections.

Learning Outcomes Summary for Fall 2012-Spring 2013
ANTHROPOLOGY FACULTY RESPONSE

The faculty of the Anthropology Program met to review the assessment plan for the Fall 2012 and Spring 2013 terms. The reviews were of two upper division courses. The first of these was Anthropology 450, Archaeological Theory, which was assessed to ascertain the success in accomplishing the learning outcome to “understand and articulate key anthropological concepts and theories.” The second course was Anthropology 453, Zooarchaeology, which was assessed to measure the learning outcome to “engage in field or laboratory research and carry out preliminary analyses of materials from primary materials and/or collections.” The
enrollments for these courses were 15 students (Archaeological Theory) and 30 students (Zooarchaeology). Our review procedures involve having the instructor use the relevant criteria to review his/her own course and have the second specialist in this sub-discipline (archaeology) read a subset of the materials submitted by the students to see if the relevant criteria has been met.

For Archaeological Theory, the instructor (Dr. Neeley) determined that the course, on average, exceeded expectations (4 on a scale of 5) in meeting the learning outcome. The second reviewer (Dr. Fisher), reading a sub-set of the student exams and projects, agreed that the course exceeded expectations in providing students with an opportunity to understand and articulate key anthropological concepts and theories. In the second course, Zooarchaeology, Dr. Fisher assessed that the course had exceeded expectations (4 on a scale of 5) in providing students with lab opportunities to conduct analysis of primary materials or collections. The second reviewer (Dr. Neeley) read a sub-set of the student projects and independently agreed that the course exceeded expectations with regard to the proposed learning outcomes.

While we agree that the courses under review here are successful in meeting the learning outcomes, there are typically a handful of students who are unsuccessful in the course. As part of our assessment, this is an opportunity to reflect upon the methods and strategies used and suggest ways in which the student outcomes can be improved. One concern with student projects is the rush to complete the project at the last minute. These projects generally are under-researched and tend to fail to meet the desired learning outcome. One way to force students to engage in the research process is to require them to submit project ideas, outlines, and drafts at selected times during the semester in order to provide critical feedback for the success of the project. While these benchmarks are often used in lower level anthropology classes with project assignments, implementing them more consistently at the upper level will ensure that students are moving toward their final research goals in a timely manner.
SOCI414: Family Violence

Professor: Steven Swinford

Assessment by: Dr. Steven Swinford

Learning Outcome: Sociology as a Discipline

This learning outcome was assessed by the attached rubric, and all students who took the final exam (n = 34) were scored according to the rubric. The readings for the course were comprised of a combination of peer-reviewed articles and an advanced, comprehensive textbook. The course was divided into four different topical sections (theory/methods, child abuse, intimate partner violence, and elder abuse) with quizzes, papers, and exams covering all material. Classes were conducted as a combination of lecture and discussion of the course readings. Students were frequently called upon to engage in meaningful classroom discussions to the extent possible in a course enrolling more than 30 students.

Of the 34 students, 31 of them received a rubric score at the minimally acceptable level. This indicates that these students met the expectations for this learning outcome. The three students who did not score as minimally acceptable did so due to a lack of preparation for the exam. All three students also missed numerous class meetings as well, often for University athletic competitions. Of the 31 who met the minimal threshold, the distribution of scores were: 6 scored as Exceptional, 8 scored as Exceeds Expectations, 15 scored as Acceptable, and 2 scored as Minimally Acceptable.

Across the six criterion categories in the rubric, students excelled most in the Disciplinary Understanding and Content categories. Organization of answers varied across students and was associated with poor writing skills. The three students who did not achieve the minimally acceptable standard provided answers that lacked understanding, content, and clarity in the presentation of the material. This level of work was not inconsistent with other classroom-based written work from them throughout the semester.

Most answers reflected an understanding of the main disciplinary concepts necessary to answer the question, the content of the course materials (readings and lecture based information), and were organized at a level consistent with a 400-level course. The reading took approximately 180 minutes per week to read if the student took adequate notes while doing so. The instructor encouraged note taking by allowing their use on in-class quizzes. None of the three students who did not meet the minimal standard on the assessment item were ever witnessed using their notes when taking quizzes, an indication that the reading was likely never completed by these students.
<table>
<thead>
<tr>
<th>Criteria</th>
<th>Excellent 10 points</th>
<th>Approaching Excellence 9 points</th>
<th>Above Average 8 points</th>
<th>Average 7 points</th>
<th>Below Average 6 points</th>
<th>Poor 5 points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disciplinary Understanding</td>
<td>Successful and original application of disciplinary concepts to topic. Author takes a strong position on the issue and clearly states objectives.</td>
<td>Successful application of disciplinary concepts to topic. Author takes a strong position on the issue and states objectives</td>
<td>Adequate application of disciplinary concepts. Author clearly states objectives and takes a moderate position on the issue.</td>
<td>Proper use of disciplinary terms, but no application of concepts. These papers weakly state and support a position on the issue.</td>
<td></td>
<td>No attempt to use disciplinary concepts in analysis. These papers do not state a position on the issue.</td>
</tr>
<tr>
<td>Content</td>
<td>Content demonstrates understanding of society and change. Analysis is supported by many details or examples.</td>
<td>Content demonstrates understanding of society or change. Analysis is supported by one example.</td>
<td>Content demonstrates understanding of society or change. Analysis is supported by many details or examples.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Organization</td>
<td>Organization is unified and logical, with excellent transitions.</td>
<td>Organization is unified and logical, with effective transitions.</td>
<td>Organization is unified and coherent and transitions are used.</td>
<td>Organization may lack clear movement or focus, making the writer’s ideas difficult to follow.</td>
<td></td>
<td>No organizational structure.</td>
</tr>
<tr>
<td>Writing Skill</td>
<td>There are minimal errors in grammar, usage, and mechanics. An outstanding command of language is apparent.</td>
<td>There are very few errors in grammar, usage, and mechanics. An outstanding command of language is apparent.</td>
<td>While there may be a few errors in grammar, usage, and mechanics, a good command of language is apparent.</td>
<td>A competency with language is apparent, even though there may be some errors in grammar, usage, and mechanics.</td>
<td>Numerous errors in grammar, usage, or mechanics show poor control of language and may at times impede understanding.</td>
<td>Severe problems with grammar, usage, or mechanics show very poor control of language and may significantly impede understanding</td>
</tr>
</tbody>
</table>
Sociology 335: Juvenile Justice System
Professor: Sara Rasch

Assessment by: Dr. Leah Schmalzbauer
Learning Outcome: Sociological Concepts

Sociology 335 is an upper-division criminology course whose stated learning objectives are: 1) to understand the evolution of the policies and practices of the juvenile justice system; 2) be able to identify the types of social change that triggered changes in the juvenile justice system; 3) understand the purpose and objectives of juvenile policing and adjudication, and 4) recognize the rationale behind specialized correctional, prevention and intervention programs for juveniles.

I randomly selected nine papers to assess for the students’ use of sociological concepts – three A papers, three B papers, and three C papers. There were no D or F papers for this specific assignment. The papers I assessed were three-page reflection papers in which Prof. Rasch assigned the class a specific essay question to which they had to respond. Prof. Rasch assigned three reflection papers throughout the semester, each focused on a particular course reading. Students were required to use two academic references for the paper beyond the course textbook, and to engage criminological concepts from the course. Attached is the grading rubric with Prof. Rasch used to grade the papers.

“A” papers:
The A papers were excellent. They were well written, the students structuring their theses around appropriate sociological concepts and staying close to the relevant sociological literature. I was most impressed with the students’ ability to develop a sophisticated and coherent argument using concepts from the course. Students interwove concepts into their analysis, thus presenting sophisticated arguments that were also clear.

“B” papers:
The students who earned B’s wrote solid papers. Yet, unlike the students who earned A’s on their papers, the students in the B group presented arguments which were less clear, and did not define the concepts they used in as complete a manner. While they still demonstrated good use of the outside academic sources, they did not as effectively use the concepts from these sources in their arguments. Overall, the papers, while good, were less clear and coherent.

“C” papers:
These papers though clearly weaker than the A and B papers in my sample, were still not terrible. They were separated from the stronger papers first and foremost by the simplicity and shallowness of their arguments in which they often failed to use appropriate sociological concepts, or did not use them correctly. The papers were short and were much less closely wedded to the academic literature. As a result, they read in large part like opinion pieces, which were not analytically sound. It is clear that these students do not understand the distinction between sociological concepts and media newsbytes. Nor do they fully appreciate the importance of using sociological concepts to develop a clear and coherent argument.
<table>
<thead>
<tr>
<th>Criteria</th>
<th>Excellent 10 points</th>
<th>Approaching Excellence 9 points</th>
<th>Above Average 8 points</th>
<th>Average 7 points</th>
<th>Below Average 6 points</th>
<th>Poor 5 points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Critical Thinking</td>
<td>Successful and original application of course concepts to topic. Author takes a strong position on the issue and clearly states objectives.</td>
<td>Successful application of course concepts to topic. Author takes a strong position on the issue and states objectives.</td>
<td>Solid application of course concepts. Author clearly states objectives and takes a moderate position on the issue.</td>
<td>Adequate application of course concepts. Author adequately states and supports a position on the issue.</td>
<td>Proper use of Juvenile Justice terms, but no application of concepts. These papers weakly state and support a position on the issue.</td>
<td>No attempt to use course content in analysis. These papers do not state a position on the issue.</td>
</tr>
<tr>
<td>Content</td>
<td>Content directly and logically relates to the main topic. Analysis is supported by many details or examples</td>
<td>Content directly relates to the main topic. Analysis is supported by several details or examples.</td>
<td>Content clearly relates to the main topic. Analysis is supported by 1-2 details or examples.</td>
<td>Content generally relates to the main topic. Analysis is mostly supported by details or examples.</td>
<td>Content deviates from main topic. Analysis is weakly supported by details or examples.</td>
<td>Content rarely relates to the main topic. Analysis is not supported by details or examples.</td>
</tr>
<tr>
<td>Support and Proper Citations</td>
<td>All sources are accurately documented in the desired format (ASA).</td>
<td>All sources are accurately documented, but there may be some inconsistency in the use of the desired format (ASA).</td>
<td>Most sources are accurately documented, but may not be in the desired format (ASA).</td>
<td>Most sources are not accurately documented, nor are they in the desired format (ASA).</td>
<td>Many sources are not accurately documented and there is no format used.</td>
<td>Too many sources are not accurately documented and there is no format used.</td>
</tr>
<tr>
<td>Organization</td>
<td>Organization is unified and logical, with excellent transitions.</td>
<td>Organization is unified and logical, with effective transitions.</td>
<td>Organization is clear enough to follow without difficulty.</td>
<td>Organization may lack clear movement or focus, making the writer’s ideas difficult to follow.</td>
<td>No organizational structure.</td>
<td>No organizational structure.</td>
</tr>
<tr>
<td>Writing Skill</td>
<td>There are minimal errors in grammar, usage, and mechanics. An outstanding command of language is apparent.</td>
<td>There are very few errors in grammar, usage, and mechanics. An outstanding command of language is apparent.</td>
<td>While there may be a few errors in grammar, usage, and mechanics, a good command of language is apparent.</td>
<td>A competency with language is apparent, even though there may be some errors in grammar, usage, and mechanics.</td>
<td>Numerous errors in grammar, usage, or mechanics show poor control of language and may at times impede understanding.</td>
<td>Severe problems with grammar, usage, or mechanics show very poor control of language and may significantly impede understanding.</td>
</tr>
</tbody>
</table>
Learning Outcomes Summary for Fall 2012-Spring 2013
SOCIOLOGY FACULTY RESPONSE

The faculty of the Sociology program discussed the assessment plan for the Fall 2012 and Spring 2013 terms. The reviews were conducted on two different classes: SOCI 335 Juvenile Justice System and SOCI 414 Family Violence. The learning outcomes that were assessed, based on a prior assignment of learning outcomes from our assessment plan, was a) sociology as a discipline (SOCI 414); and b) sociological concepts (SOCI 335). Our review procedures entail using constructed rubrics designed (before use) to evaluate the learning outcomes with samples of student coursework.

Learning Outcome: Sociology as a Discipline

A few of the patterns revealed by the assessment of SOCI 414 (by Steve Swinford) are recurrent themes that prior assessments have found. Our C students struggle with writing assignments and the ability to organize their writing in a clear, concise, and fluid manner. We discussed the possibility of assigning our students a second writing course to strengthen student writing. Scott Myers reported that he had recently talked with a couple of our recent graduates and they each expressed a wish that we would offer a course—at the 100 or 200 level—that would teach them how to read and write in sociology. Scott reported that he had a similar course at Vanderbilt during his undergraduate years. It was a semester-long course, taken after the introductory course, where students read different types of professional writings as well as a rigorous review of writing in the social sciences.

Steve Swinford also noted that the marginal students (i.e., those who performed poorly in achieving this learning outcome) that the students manifested some of the typical signs of a lack of preparation—no notes present (when students were allowed to use notes on quizzes), poor attendance, and poor performance on other evaluations. While this is clearly a campus-wide problem (indeed, a problem that besets all colleges and universities), the faculty agreed that we need to consider strategies that we can use to respond to this enduring problem among some of our majors.

Learning Outcome: Sociological Concepts

Leah Schmalzbauer noted that while some of the reviewed papers showed that these students could develop a sophisticated and coherent argument using concepts from the field (and discussed in the class), we also have a number of students whose use of the concepts showed a simplicity and shallowness that often reverted to “opinion pieces” instead of properly demonstrating the requisite understanding of sociological concepts. Faculty discussed these findings and possible responses that may reduce this issue, including such simple strategies as emphasizing the importance of learning and using the concepts and not using preconceived notions when writing for a sociology course.

Action Plan

Based upon the assessment and our faculty discussion, the faculty have decided on the following actions:
1. Explore the possibility of adding a lower division course (majors only) that will teach writing and reading in sociology;
   a. The faculty will be meeting shortly about curriculum changes in our major, so we can discuss the possibility of substituting such a course for another required course

2. Considering a policy dictating that faculty make a referral to the Office of Student Success once certain warnings (poor attendance, grade failure, lack of prep) have been triggered

3. Emphasizing (to students) the importance of learning and using the concepts and not using preconceived notions when writing for a sociology course, including specific language in syllabi, reminders before each exam, and other strategies.
Anthropology Curricular Assessment: Report submitted at our April 19, 2006 faculty meeting at which all tenured and tenure-track faculty were in attendance.

We followed through with our advising outcomes scenario, in which the combined faculty meets with each major to assess that student’s progress, to discuss their future career plans, and to obtain their feedback on the current operation of the anthropology major. In the past year, we met with seven majors after a collective faculty review of a sophomore level paper and an upper level (junior or senior) class paper submitted by the student (the ‘student portfolio’). These meetings typically lasted from 30 to 90 minutes. While this approach is time intensive, and may have to be modified down the line as anthropology continues to expand, we feel that it has provided a very useful way to assess both advising and curricular success since it provides an opportunity to both provide and obtain in-depth, individualized, feedback that allows us to refashion our own aims as a disciplinary program at the same time we can give maximum individualized guidance and advice to each student.

Expected Competencies (examined 2006):
1. Competence in basic quantitative analytical skills
2. Computer literacy including basic data management skills

The Department experienced staffing changes among Sociology faculty that had a direct impact on the Anthropology program. For that reason, assessment in 2006 focused on the expected competencies most affected by these staffing changes, and how the curriculum should be adjusted to adapt to these staffing changes.

In particular, a faculty member who taught Sociology courses in quantitative data analysis and data base management retired. As a result of this retirement and other staffing changes, the Sociology program re-evaluated its curriculum and areas of focus and decided not to pursue another hire specializing in data base management. As a result, the Anthropology program was required to reassess and readjust its curriculum.

The affected sequence of courses was SOC 318, SOC 302 or SOC 427, and SOC 303. This sequence helped provide a broad grounding in quantitative, as well as qualitative, methods, an opportunity to apply those methods to in a directed research format, and to expose students to work in social psychology (which includes material that, given our current staffing in anthropology, we simply cannot cover within the anthropology curriculum). Students will continue to take SOC 318 (a social science research methods course) and SOC 303 (a course in social psychology from a symbolic interactionist perspective). SOC 302 and SOC 427 were, however, eliminated from the Sociology curriculum and as such are no longer available to Anthropology students. Our current curricular revisions focused on a similar broadening of options within the sociology sequence. After several meetings in August and September of 2005, and searches of other available disciplinary offerings, we now are offering anthropology majors an option of the full sociology sequence (with an increased emphasis on substantive material and a
decreased emphasis on database management skills), or adumbrated work in sociology
supplemented by either a foreign language sequence (at least through ML 219) or an
approved, complementary, minor.

Obviously, these structural changes to the sociology program, and their direct impact on
anthropology, will require a revision to our expected competencies. Students will
continue to be exposed to quantitative and qualitative research methods and techniques,
but we no longer have a direct route for teaching about database management. We will
undertake these revisions in 2007, along with curricular review of two other “expected
competencies.”

In addition to these adjustments to our departmental context, we have adjusted our
required philosophy sequence, a set of courses that helps students better understand the
conceptual grounding of anthropology as a discipline, logical reasoning, and the way in
which anthropology fits within the broader framework of scientific inquiry. Specifically,
we have broadened the philosophy options to include some courses that help students
further theorize the topics of race, language, and the history of scientific inquiry.
Finally, we also have a “departmental honors in anthropology” option, which allows the
most motivated students to complete the minor, a foreign language, and the sociology
sequence. We plan to monitor the outcomes of this shift for a few years to see if our
graduates are advantaged by these new options.
**Sociology/Justice Studies Curricular Assessment:** Report submitted at our April 19, 2006 faculty meeting at which all tenured and tenure-track faculty were in attendance.

**Broader context:** The Sociology program has undergone significant change in the past year. In Spring 2006, the department voted to discontinue a formal “Justice Studies” option in the department, and consolidate Justice Studies courses into the Sociology curriculum. Since the early 1990’s, the department had worked to strengthen and clarify the sociological underpinnings of the “Justice Studies” program – through curricular changes, changes in individual courses and staffing decisions that emphasized the theoretical and methodological traditions of basic, as opposed to applied, science. Despite these efforts to strengthen the intellectual foundations of the curriculum, a significant proportion of students continued to believe that they were enrolled in an applied “Criminal Justice” program that was distinct from the discipline of Sociology. This curricular consolidation clarifies the mission of the program and its course offerings while allowing students to pursue a flexible curriculum where they can, if they wish, take justice-related courses.

For our annual curricular assessment, the Sociology program focused on two of the expected competencies we have for our students.

1. Understanding of the logic of empirical research.
2. Ability to conduct a literature search and synthesize results.

The following assessment is based on written and oral comments from faculty who have reviewed methods and capstone projects (our data for assessment) and/or taught these courses.

**Understanding the logic of empirical research**

In our research methods and capstone courses, students engage in self-directed empirical research. It is in these contexts that students most directly confront the ‘logic of empirical research’ and come to a deeper understanding of what that means. Our treatment of this expected competency in other ‘substantive’ courses is, however, mixed as evidenced by student confusion about empiricism and epistemology at the outset of the research methods and capstone courses. (And, although the capstone course follows the research methods course, it is not clear that students either remember or connect what they learned about the ‘logic of empirical research’ to the capstone project).

Once in the research methods or capstone course, our assessment reveals that students are able to complete acceptable projects – although projects vary in their quality from minimally acceptable to conference or journal quality, and the amount of hands-on guidance and mentoring from faculty also varies from minimal intervention to significant hand-holding through the process. Supervision of these projects requires significant faculty time, time that might be reduced if students entered the classes with a clearer sense of the ‘logic of empirical research’.

Faculty also noted that students have a stronger grounding in quantitative than qualitative research, perhaps not surprising since the sequence of methods courses begins with an introduction to inferential statistics and many students use secondary data of the
quantitative sort for their research methods projects. In capstone courses, many students are less clear about the role of qualitative research or its techniques; it was also noted that some students were skeptical of the value of qualitative research. Some faculty suggested a qualitative research course as an addition to the curriculum. It may also be helpful for faculty from different methodological traditions to communicate more extensively on the content of the research methods course or to co-teach the research methods course. In addition, it may be useful – in substantive courses as well as methods courses – to articulate for students the complementary natures of qualitative and quantitative research.

One curricular change that will occur in the 2006-08 catalogue may help students to better achieve this competency. That is, beginning in Fall 2006 we will expand our methods sequence to two courses: “Quantitative Techniques” (an inferential statistics course grounded in the social sciences) and “Research Methods” (an advanced course that builds upon “Quantitative Techniques” but focuses more specifically on complex analytical strategies of both the quantitative and qualitative sort). In future years, we will assess the degree to which this course, in sequence with others, contributes to student understanding of the ‘logic of empirical research’.

3. Ability to conduct a literature search and synthesize results.

In the assessment process, faculty views of the degree to which students meet this competency were mixed. Some faculty found students able to conduct literature searches, in both capstone (“I have been quite impressed with my students’ ability to conduct a literature search and synthesize the results”) and research methods courses (“literature reviews generally consist of 10-15 sources”). Others were disappointed in student ability in this area, citing their lack of experience in conducting literature searches and also their struggles to identify the sociological concepts that would allow them to organize and pursue a literature search. Faculty who expressed concern with this competency took special steps to assist students – scheduling lab sessions to introduce students to library resources or working one-on-one with students to develop literature search strategies. At the conclusion of the research methods and capstone projects, faculty express satisfaction with student progress in this area, but it may be desirable for this concept to be systematically introduced in other and/or earlier substantive courses.
Department: Sociology and Anthropology

Department Head: Dr. Sue Monahan

Assessment Coordinator:
Tamela Eitle and Scott Myers (sociology)
Larry Carucci, Jack Fisher, Mike Neeley (anthropology)

Date: 4-25-2007

Degrees/Majors/Options Offered by Department
BA in Anthropology
BA in Sociology
Faculty Present: Eitle, D., Eitle, T., Monahan, Myers, Quinn, Schmalzbauer, Swinford
Faculty Absent: Clark-Miller, J.

Chair Sue Monahan called the meeting to order at 4:00 PM. A quorum was present.

Note: full assessment report is kept on file in the Department and is available upon request.

OPENING REMARKS FROM T. EITLE
• Assessment document is a work in progress representing the departments’ ongoing long-term assessment needs and approaches.
• Assessment strategy represents a slight shift from previous years as we attempt to incorporate an embedded assessment approach annually.
• Next year, based on comments from the faculty, assessment competencies will be elaborated prior to classes and assessment of students will be both formative and summative.
• Prior knowledge of assessed competencies may assist faculty in their pedagogical planning.

REMARKS FROM FACULTY ON OPENING STATEMENT
• Most of the assessed competencies are incorporated into most of our classes already.
• This new focus does not contradict our existing pedagogical approaches and epistemologies.
• As per ASA guidelines, it is best that we focus on just 3 or 4 competencies per assessment period instead of attempting a laundry-list approach.

GENERAL COMMENTS FROM FACULTY
• Questions arose regarding the purpose of assessment. As a department, we agreed that assessment serves the roles of: (1) Self-regulation, (2) Accreditation, and (3) Informing functional objectives of teaching and learning.
• As a department, we agreed that assessment is not simply ritualistic.
• As a department, we decided that our assessment process should include a change mechanism and reporting. That is, in subsequent assessment reports, we will detail what changes were made in our courses in response to the prior year’s assessment report. This will serve us well as it shows that the department is actively responding to our assessment outcomes, strengths, and weaknesses.
SPECIFIC COMMENTS FROM FACULTY ON ASSESSMENT DOCUMENT

- The faculty voiced unanimous support for the assessment report.
- Structurally, the assessment report will contain a section on the “Strengths” and “Areas for Improvement” of our assessed competencies.
- Dr. Quinn suggested that our assessment report contain some historical context on our major’s competencies and improvements. All faculty concurred.
- Dr. Swinford suggested that we emphasize the role of independent research—noting that our majors are required to complete two independent research projects in completing their major. All faculty concurred.
- Future reports should emphasize that all upper-division courses require sociology research using sociological constructs and concepts.
- Absent from this year’s report and needed for next year’s report is an assessment of the research opportunities available to our students throughout our courses and major. That is, we will collect information on the processes and not just outcomes.
- Responding to the assessment report as a whole, faculty agreed that our students should be encouraged to seek additional writing experiences outside of Sociology.

The meeting was adjourned at 5:00 PM, as there was no other business.
ANTHROPOLOGY UPDATE

During the 2006-07 academic year, the anthropology faculty met with nine graduating seniors. With a few exceptions, the assessment interview was carried out by all three members of the faculty. Students graduating in this period included Joel Menssen, Jessica Burgard, Erika Malo, Kelsy Traeger, Kelli Webb, Loni Waters, Jessica Rieger, Krystin Rogers, and Arian Adams.

The following is a representative sample of the comments and suggestions that resulted from these interviews. For purposes of organization, they are combined under general headings derived from the goals of the assessment procedure.

Overview of writing assessment:
- as a whole, the graduating seniors have demonstrated an improvement in their ability to analyze and critically evaluate anthropological concepts (able to construct logically coherent arguments that are well supported empirically)
- while recognizing different levels of writing proficiency, there is a strong positive trend toward improved writing skills between their sophomore and senior years
- where weaknesses in the writing were identified, these resulted largely from the need to dedicate more time to editing and proofreading materials and were less concerned with the students’ sophistication in analysis and synthesis

Strengths of the anthropology program and department:
- the small size of the classes (positive student-faculty relationship)
- the presence of an academic cohort during undergraduate education
- the rigor and challenge of the curriculum (exceeds that of most other departments)
- opportunity for hands-on experience in the form of field research projects, lab work, independent studies, and class projects
- opportunity to work as a teaching assistant for Anthropology 101 or another course
- the variety in the anthropology curriculum (the four-field approach)

Things they would like to see improved in the department:
- broader range of anthropology courses offered (e.g., human osteology, linguistics, historical archaeology, medical anthropology—excited by the arrival of a new anthropologist for 2007)
- addition of more faculty
- more opportunities for archaeological excavation projects (regular field school)
- offer a capstone class in archaeology (or offer alternatives to the cultural capstones with an archaeology or biological anthropology capstone)
- addition of English classes beyond the 121 level to the curriculum (greater emphasis on writing)
- addition of Geographic Information Systems (GIS) courses as a possible 4th option to the back side of the curriculum worksheet
Plans after graduation:

- several students plan to work for a year and then apply to graduate school (have taken or will take the GREs for this purpose)
- the interest of these students include linguistics, archaeology, historical archaeology, biological anthropology, and cultural anthropology
- one student will be enrolling in graduate school in the fall (biological anthropology—U. Alaska Anchorage)
- several students expressed an interest in MA programs with specific applied anthropological careers in mind
- several expressed an interest in obtaining a PhD with the goal of working in an academic setting (teaching and research)
- exploring jobs in non-profit organizations, cultural resource management, and other anthropologically related fields
Department: Sociology & Anthropology

Department Head: Sue Monahan

Assessment Coordinator: Sociology: Scott Myers and Dave Eitle, Anthropology: Mike Neeley

Date: October 31, 2008 (replaces preliminary report)

Degrees/Majors/Options Offered by Department

BS in Anthropology
BS in Sociology
Assessment Procedure

Each year the anthropology faculty schedules a meeting with each of the graduating anthropology majors. These individualized meetings are used to assess the each student’s progress in the program, discuss their future plans, and obtain positive and negative feedback on the larger scope of the program. Typically, the entire anthropology faculty meets with each graduating senior in his/her final term for 30 minutes to 1 hour. These materials form the groundwork for the anthropology faculty’s annual program assessment.

Our assessment of the student progress in the program is carried out through an examination of written materials (terms papers and/or take home exams) submitted by the student. We require that they submit a minimum of two samples with the first representative of a 200-level class and the second corresponding to a 300 or 400-level class. Reading these writing samples side-by-side enables the anthropology faculty collectively to identify or track changes in a student’s analytic skills, writing proficiency, sophistication of thought, and grasp of anthropology. It is our expectation that students will leave the program showing growth in each of these areas, particularly in relation to their earlier works. As part of our assessment, we provide a critical evaluation of these skills, identifying those areas where they meet or exceed our proficiency expectations as well as offering feedback for those areas where students can still show improvement.

We also ask students to share with us their plans about life after graduation. On the one hand, this forces them to think beyond graduation but, perhaps more importantly, it allows us to identify areas where we might be able to assist them in their future careers. Students who wish to pursue graduate studies are reminded of deadlines that pertain to the GRE or LSAT examinations and encouraged to allow adequate time to research schools, submit applications, and obtain letters of recommendation as they pursue their future plans. We also use this opportunity to advise them on schools that might meet their interests in anthropology or other fields. In addition, we offer advice on non-academic career opportunities and strategies that students might pursue to achieve success in these fields. We have been quite successful in the past placing our graduates in degree programs and in advising them of other career opportunities. Therefore, we feel that it is important that our connection to graduating students does not end upon graduation and that we remain a viable resource for students even after they have left the institution. To this end, we encourage students to stay in touch with us, and to feel free to consult with us about graduate school, even if they do not pursue graduate school for a year or more after graduating from MSU.

Finally, as part of the anthropology assessment, we solicit feedback from graduating students regarding how the program met or did not meet their needs and interests. This portion of the assessment procedure allows them to suggest ways the program could be improved and to identify those aspects of the program that they feel are strong and should
remain intact. Although our ability to change some aspects of the program (such as an increased number of faculty) may be limited, many of the comments are useful in constructing an historical body of responses that can be used for assessing the ability of the program to meet the students' needs and interests.

2007-08 Assessment Results

During the 2007-08 academic year, the anthropology faculty met with five graduating seniors. In each case, the assessment interview was carried out by all four members of the faculty. Students graduating in this period included Kelly Hayes, Amanda Daniel, Samantha Brockman, Jennifer Hudyma, and Eryka Thorley.

The following is a representative sample of the comments and suggestions that resulted from these interviews. For purposes of organization, they are combined under general headings derived from the goals of the assessment procedure.

Overview of writing assessment:
- as a group, the graduating seniors have demonstrated an improvement in their ability to analyze and critically evaluate anthropological concepts (able to construct logically coherent arguments that are well supported empirically)
- while recognizing different levels of writing proficiency, there is a strong positive trend toward improved writing skills between their sophomore and senior years (in particular, they move from a descriptive style of writing to one that effectively integrates a theoretical perspective and is more well-grounded in comparative sources)
- where weaknesses in the writing were identified, these resulted largely from the need to dedicate more time to editing and proofreading materials and were less concerned with the students' sophistication in analysis and synthesis
- for students interested in graduate school, the faculty suggested that the next leap in their writing, in most cases, will be a certain amount of “risk taking” as they expand their critical thinking and writing skills
- as a whole, this group was exceptionally proficient in writing

Strengths of the anthropology program and department:
- found their experience in the anthropology program to be a positive, enjoyable one
- course offerings were challenging and rigorous, especially in comparison to courses taken in other disciplines
- positive feedback regarding the four-field approach to anthropology (emphasis on cultural anthropology, archaeology, biological anthropology, and linguistics)
- availability of research opportunities in class and hands-on research (e.g., excavation, analysis, community-based projects) outside of the classroom
- accessibility of faculty and their interaction and communication with the students
- individualized advising from the faculty

Things various students would like to see improved in the department:
• addition of more biological anthropology classes (e.g., forensics) and the addition of a biological anthropologist
• more efficient way to disseminate information about departmental activities and offerings to the students
• simplifying the scheduling of class offerings
• greater variety in the organization of classes (tend to have similar sorts of assignments [papers, projects] in all of the classes)
• more equal distribution of classes among the faculty (want to take multiple classes from all of the faculty)
• university support for international research experiences for undergraduates (qualified loans or other forms of assistance). (Three of this year’s anthropology graduates [and others] had planned to travel to the Marshall Islands but, ultimately, were told they would have to obtain market-rate loans to make the trip since they had “maxed-out” their student loan availability for the year. Ultimately, the trip was cancelled.)

Plans after graduation:
• several students have identified graduate school as a future option and plan on taking the GREs this summer or next fall
• potential areas of interest for graduate study include archaeology, primatology, museum studies, cultural anthropology, and feminist studies
• most of the graduates will spend the next year working as they sort out what they want to do
• one student is planning to go to Argentina to get field experience on a primate research project
• another student will be working with Jack Fisher on an archaeological excavation this summer in SE Montana
• a third student will continue to assist Larry Carucci with editorial work for the Pacific anthropology newsletter
• for each of the students with interests in graduate school, we discussed the process and deadlines associated with graduate school applications
• we also encouraged all of them to stay in touch with us and to feel free to ask us for letters of recommendation for work or graduate school opportunities
Faculty Present: Eitle, D., Myers, Quinn, Schmalzbauer, Swinford
Faculty Absent: Monahan, Eitle, T.

David Eitle called the meeting to order at 11:30 am. A quorum was present.

Note: full assessment report is kept on file in the department and is available upon request.

OPENING REMARKS FROM D. EITLE
- The department continues to build on prior assessments, including the incorporation of corrective actions (and their evaluations) in light of previous assessments

GENERAL COMMENTS FROM FACULTY
- Faculty discussed the summaries of the three areas of student competencies assessed in 2007: analytic skills (students acquire the skills to collect and analyze qualitative and quantitative data) critical thinking skills (students are to analyze and interpret quantitative and qualitative data [drawing inferences, hypothesis testing, interpreting results, formulating conclusions, etc.]), and analysis of contemporary questions (students analyze contemporary multicultural, global, or international social questions).
- Concerns arose regarding the level of competency that students displayed with regards to specific aspects of analytic and critical thinking skills, especially the ability of students to initiate their own projects and carry out appropriate analytic techniques for their research questions and data types. This appears to be a particular concern with faculty expectations regarding the goals of our Senior Capstone course. S. Swinford mentioned that a university committee is revising the university guidelines regarding capstone courses, and the faculty unanimously agreed to meet at the end of the academic year, after the university guidelines have been formally revised, to discuss the Senior Capstone course, the gap between faculty expectations and student competencies, and related issues.
- Additionally, S. Swinford and S. Myers, the two faculty members who currently teach our research methods course, discussed how the methods curriculum has been changed in order to emphasize the importance of choice of methods to answer research questions—a concern that was raised in the 2007 Assessment report. Faculty agreed that we should continue to assess this issue in the upcoming year in order to re-evaluate student competencies in light of this implemented change.
• S. Myers noted that Jeff Adams utilizes a template in order to evaluate our assessment report and a number of faculty agreed with S. Myers that having this template may facilitate the writing of future assessment reports. S. Myers will request the template from Jeff Adams.

• B. Quinn raised concerns about how critical thinking skills were being operationalized. Specifically, none of our current assessment outcomes adequately capture theoretical application or problem solving skills. S. Myers noted that Washington State University had a funded project from which an array of critical thinking outcomes was developed. The faculty agreed that we should examine this document with the purpose of expanding our current assessment of critical thinking learning outcomes. The faculty agreed to delay the selection of new learning outcomes to assess this academic year until we can consider the Washington State document.

The meeting was adjourned at 12:00 noon, as there was no other business.
Report of Sociology Assessment 2008-2009
Meeting May 2009

Present: Steve Swinford, Scott Myers, Beth Quinn, Leah Schmalzbauer, Wade Cole, Sue Monahan, David Eitle, Tami Eitle

The meeting opened with some comments by D. Eitle including the listing of the three learning outcomes assessed this year according to the Assessment Plan:

1. Knowledge Acquisition and Application Skills
   - DEF: Students apply the most up-to-date facts and information to their understanding of social conditions and problems

2. Analytic Skills
   - DEF: Students acquire the skills to collect and analyze qualitative and quantitative data

3. Communication Skills
   - DEF: Students develop effective written communication and editing skills

General Comments from Faculty
D. Eitle noted that the most common sentiment from faculty was the considerable variation among our student in how they fare in each of these competencies. Faculty noted that each have students who are competent, even excel, in each area, but have other students who are really struggling or are somewhere in-between struggling and mastery. After these opening comments D. Eitle opened the report up for discussion.

There was a general discussion of our assessment process and whether it should include some other components (number of graduates, exit interview data) and it was generally agreed that this would provide valuable supplemental data for what is already included in the report. The faculty agreed to include some of these types of data in the report for next year. S. Swinford agreed to lead the collection and summary of this information.

The faculty next discussed the communication and writing outcomes and brainstormed about what might be done to increase the student competency in this area. S. Myers suggested that we might want to consider adding a 200 level Sociology writing class to our required curriculum in Sociology. The faculty agreed that this would be something to consider and S. Myers volunteered to draft an outline of what such a course might look like. There was a brief discussion regarding potential complications/costs about requiring such a course as a prerequisite for upper division courses. What would this mean for visitors taking our upper divisions courses? How to handle different prerequisites for majors and non-majors? Etc. The faculty agreed to consider such issues (including staffing and other related logistical issues) this summer and to meet in the fall to consider this course again.

D. Eitle prompted the faculty to discuss the analytical skills learning outcome by asking whether the faculty agreed with his summary in the report that stated that students do better with structured projects and not as well as a group with less structured projects. He asked if the faculty should consider adding more structured projects into our upper division courses. There was conversation among the faculty indicating that generally students do better with concrete rather than abstract thinking and analysis. S. Swinford summarized the new requirements in the methods course and how such changes might influence student competencies in later coursework.

The faculty ended the meeting with a discussion about the capstone seminar and some of the successes and problems that students (and faculty) encounter. Faculty reported mixed experiences (for themselves and the students) with some faculty reporting great experiences and others indicating the experiences were more mixed. S. Myers suggested that faculty teaching the capstone may want to encourage students to build off of earlier projects that they have undertaken in other upper-division sociology courses. S. Monahan suggested that one key to maximizing success in the capstone course is to encourage students to explore a question that excites them. Overall, faculty concluded that such discussions (regarding the capstone) were worthwhile and that these exchanges should be regular (and part of the assessment-evaluation process).

Meeting April 2009
Present: Larry Carucci, Jack Fisher, Mike Neeley, Tomomi Yamaguchi

Assessment Procedure

Each year the anthropology faculty schedules a meeting with each of the graduating anthropology majors. These individualized meetings are used to assess the each student’s progress in the program, discuss their future plans, and obtain positive and negative feedback on the larger scope of the program. Typically, the entire anthropology faculty meets with each graduating senior in his/her final term for 30 minutes to 1 hour. These materials form the groundwork for the anthropology faculty’s annual program assessment.

Our assessment of the student progress in the program is carried out through an examination of written materials (terms papers and/or take home exams) submitted by the student. We require that they submit a minimum of two samples with the first representative of a 200-level class and the second corresponding to a 300 or 400-level class. Reading these writing samples side-by-side enables the anthropology faculty collectively to identify or track changes in a student’s analytic skills, writing proficiency, sophistication of thought, and grasp of anthropology. It is our expectation that students will leave the program showing growth in each of these areas, particularly in relation to their earlier works. As part of our assessment, we provide a critical evaluation of these skills, identifying those areas where they meet or exceed our proficiency expectations as well as offering feedback for those areas where students can still show improvement.

We also ask students to share with us their plans about life after graduation. On the one hand, this forces them to think beyond graduation but, perhaps more importantly, it allows us to identify areas where we might be able to assist them in their future careers. Students who wish to pursue graduate studies are reminded of deadlines that pertain to the GRE or LSAT examinations and encouraged to allow adequate time to research schools, submit applications, and obtain letters of recommendation as they pursue their future plans. We also use this opportunity to advise them on schools that might meet their interests in anthropology or other fields. In addition, we offer advice on non-academic career opportunities and strategies that students might pursue to achieve success in these fields. We have been quite successful in the past placing our graduates in degree programs and in advising them of other career opportunities. Therefore, we feel that it is important that our connection to graduating students does not end upon graduation and that we remain a viable resource for students even after they have left the institution. To this end, we encourage students to stay in touch with us, and to feel free to consult with us about graduate school, even if they do not pursue graduate school for a year or more after graduating from MSU.

Finally, as part of the anthropology assessment, we solicit feedback from graduating students regarding how the program met or did not meet their needs and interests. This portion of the assessment procedure allows them to suggest ways the program could be improved and to identify those aspects of the program that they feel are strong and should remain intact. Although our ability to change some aspects of the program (such as an increased number of faculty) may be limited, many of the comments are useful in constructing an historical body of
responses that can be used for assessing the ability of the program to meet the students needs and interests.

**2008-09 Assessment Results**

During the 2008-09 academic year, the anthropology faculty met with five graduating seniors. In each case, the assessment interview was carried out by all four members of the faculty. Students graduating in this period included Jenny Nagra, Dallas Timms, Nick Shepherd, Carly Borth, Jake Adams, and Clint Garret.

The following is a representative sample of the comments and suggestions that resulted from these interviews. For purposes of organization, they are combined under general headings derived from the goals of the assessment procedure.

**Overview of writing assessment:**
- A range of writing abilities among the graduating senior, however all demonstrated improvement in writing from sophomore through senior years
- Several graduates are accomplished writers and this is demonstrated in their superior organization of their papers and their ability to use primary data to make a logically consistent argument
- All of the students demonstrate an ability to summarize the components of arguments presented in readings and a few are able to go beyond this understanding of the arguments and engage in a critical analysis of the material
- Students are aware of weaknesses which include: (1) inconsistent organization or structure of papers, (2) need for multiple drafts, (3) timeliness in turning in assignments, and (4) sorting out competing arguments
- In sum, while this is not the strongest group of writers we have had, they have demonstrated significant improvement in their writing (and understanding of writing) over the period of review (sophomore to senior years)

**Strengths of the anthropology program and department:**
- Liked the size of the program and the ability to know and interact with the faculty
- Various aspects of the class structure (hands on activities, use of case studies, take home exams)
- Appreciated the rigor of the course offerings
- Faculty advising system (way to know the faculty)
- Opportunities for independent studies and department connections for fieldwork opportunities
- Opportunities for being a teaching assistant for the 101 course

**Things various students would like to see improved in the department:**
- Addition of a field school or more regular fieldwork opportunities
- Greater success of the anthropology club
- Addition of classes (forensics) and more specialized classes
- Fewer group projects and more student presentations
Plans after graduation:

- Several students indicated an interest in graduate school, however, all of them plan to delay this decision for at least a year (need to take the GREs)
- Graduate school at University of Montana (archaeology) and serve as a crew chief at the U of M field school
- Establishing residency in Arizona to attend graduate school at Northern Arizona University
- Hope to pursue CRM archaeology
- Work at the Museum of the Rockies
- Pay off loans and work as a climbing and fishing guide
Department: Sociology & Anthropology

Department Head: Scott Myers

Assessment Coordinator: Sociology: Dave Eitle
Anthropology: Larry Carucci

Date: September 1, 2010

Degrees/Majors/Options Offered by Department

BS in Anthropology
BS in Sociology

Report of Sociology Assessment, 2009-2010
Meeting May 2010

Present: Wade Cole, David Eitle, Tami Eitle, Scott Myers, Leah Schmalzbauer, Steve Swinford

Assessment Committee: David Eitle (Chair); Wade Cole

COMPETENCIES ASSESSED FOR FALL 2009 AND SPRING 2010

1. Communication Skills: Students demonstrate the ability to present materially orally in an organized and effective manner.
2. Analytic Skills: Students demonstrate appropriate computer skills (e.g., D2L, word processing, spreadsheets, powerpoint).
3. Critical Thinking Skills: Students formulate research questions.

MEETING NOTES

Chair Comments

Dave Eitle opened the meeting with the following comments:
- Naming and defining the competencies assessed.
- A summary of the findings: (1) Communication and analytic skills: the department approaches these skills in a variety of curricular and pedagogical ways. This variety
shows the diversity of approaches taken by the department in achieving important student skills. The analytical component is especially important for Sociology majors in the open labor market. (2) Critical thinking: this skill is a major component for most courses. There were five (5) unique courses where this skill is specifically required.

General Comments from Faculty

- Tami Eitle noted that the increased use of and competency in analytical skills and the use of technology has been encouraging, but with a significant downside. Specifically, instances of plagiarism increase as students become more technologically skilled. All faculty agreed that they now deal with more issue of plagiarism and other forms of academic dishonesty. The faculty discussed how to deal with and prevent academic dishonesty. Steve Swinford provided options through the use of D2L, included electronic submissions to create a paper trail. Dave Eitle discussed the importance of educating students about what comprises academic dishonesty, and a discussion ensued about whether students know they are being dishonest. The discussion concluded about how the department can deal with technology and academic dishonesty through (a) our Sociology 101IS course and (b) a departmental policy.

- Scott Myers discussed the future of departmental assessment given the broader changes occurring at MSU regarding leadership, working groups, and the faculty union. S. Myers suggested that the department hold off on long-term planning until we hear about the centralization of assessment. T. Eitle did suggest a potential role that Sociology 499 could play in the future—use the Capstone papers to determine the Sociological progress of our majors, perhaps using a rubric to measure this progress. All faculty were in agreement with this idea and noted that regardless of MSU’s direction this could be an important departmental component. This discussion was guided by last year’s meeting where there was a general discussion of our assessment process and whether it should include some other components (number of graduates, exit interview data) and it was generally agreed that this would provide valuable supplemental data for what is already included in the report. The faculty agreed to include some of these types of data in the report for next year.

- S. Swinford led a discussion about upcoming assessment and curricular issues. He suggested that as we design our courses that we think about (a) how our assessment competencies guide course organization, content, and teaching, and (b) how our assessment competencies guide our approach to Capstone. D. Eitle noted that in the faculty assessment summaries that communication and analytical competencies drive the majority of our courses, in both content and structure. Leah Schmaulzbauer agreed and suggested that these competencies have produced stronger sociology majors in recent graduating classes.

- Finally, S. Swinford led a broad discussion about the use and role of D2L in our face-to-face and online courses. We brainstormed about ways to offer online exams and to guard against academic dishonesty.
Assessment Procedure

Anthropology faculty members schedule a meeting with each of the graduating anthropology majors during the final term each student is in attendance at MSU. These individualized meetings are used to assess the progress each student has made in the program, discuss their future plans, and obtain positive and negative student feedback on the larger aims and accomplishments of the anthropology program. Typically, the entire anthropology faculty meets with each graduating senior in his/her final term for 40 minutes to 1 hour. These materials form the groundwork for the anthropology faculty’s annual program assessment.

Our assessment of the student progress in the program is carried out through an examination of written materials (terms papers, research papers, and/or take home exams) submitted by the student. We require that they submit a minimum of two writing samples, the first representative of a 200-level class and the second a manuscript produced in a 300 or 400-level class. Reading these writing samples side-by-side enables the anthropology faculty collectively to identify or track changes in a student’s analytic skills, writing proficiency, sophistication of thought, and grasp of core anthropological concepts. It is our expectation that students will leave the program having shown growth in each of these areas, particularly in relation to their earlier works. As part of our assessment, we provide a critical evaluation of each of these skills, identifying those areas where they meet or exceed our proficiency expectations as well as offering feedback for the areas where students can still show improvement.

We also ask students to share with us their post-graduation plans. On the one hand, this encourages students to think beyond graduation and, equally importantly, it allows us to identify areas where we might be able to assist them in their future careers. Students who are going directly on for a post-baccalaureate degree will have already worked with members of the anthropology faculty on their applications and, for students graduating in Spring term, may well have received graduate school offers. Other graduating seniors who wish to pursue graduate studies but who have not yet applied are reminded of deadlines that pertain to the GRE, LSAT, or MCAT examinations and encouraged to allow adequate time to research schools, submit applications, and obtain letters of recommendation as they pursue their future plans. We also use this opportunity to advise them on schools that might meet their interests in anthropology or other fields. In addition, we offer advice on non-academic career opportunities and strategies that students might pursue to achieve success in these fields. We have been quite successful in the past placing our graduates in degree programs and in advising them of other career opportunities. Therefore, we feel that it is important that our connection to graduating students does not end upon graduation and that we remain a viable resource for students even after they have left Montana State University. To this end, we encourage students to stay in touch with us, and to feel free to consult with us about graduate school, even if they do not pursue graduate school for a year or more after graduating from MSU.

Finally, as part of the anthropology assessment, we solicit feedback from graduating students regarding how the program met or did not meet their needs and interests. This portion of the
The assessment procedure allows them to suggest ways the program could be improved and to identify those components of the program that they feel are strong and should remain intact. Although our ability to change some aspects of the program (such as an increased number of faculty) may be limited, many of the comments are useful in constructing an historical body of responses that can be used to assess the ability of the program to meet the students needs and interests.

2009-10 Assessment Results

During the 2009-10 academic year, the anthropology faculty met with six graduating seniors. In each case, the assessment interview was carried out by all four members of the faculty. Students graduating in this period included Seth Alt, Laura Jester, River Lovec, Nathan Husky, Alexandre Manigault and Philip Murray.

The following is a representative sample of the comments and suggestions that resulted from these interviews. For purposes of organization, they are combined under general headings derived from the goals of the assessment procedure.

Overview of writing assessment:
- A range of writing abilities among the graduating seniors, however, all demonstrated improvement in writing from sophomore through senior years.
- Several graduates are accomplished writers and this is demonstrated in the superior organization of their papers, their ability to analyze material through the use of a sophisticated theoretical framework, and their ability to use primary research information to make logically consistent arguments.
- All of the students demonstrate an ability to summarize the components of arguments presented in readings and most are able to go beyond this understanding of the arguments and engage in a critical analysis of the material at the level of research and/or theory.
- Students are aware of weaknesses in their written materials which include: (1) inconsistent organization or structure of papers, (2) need for multiple drafts, (3) timeliness in turning in assignments, and (4) sorting out consistencies and inconsistencies among competing arguments.
- While this is a strong group of writers, they have, nonetheless, demonstrated significant improvement in their writing over the period of review (sophomore to senior years). Each student also has an understanding of various ways to further improve their organizational skills and analytic and writing abilities.

Strengths of the anthropology program and department:
- Liked the size of the program and the ability to interact intensively with the faculty and with other anthropology majors.
- Various aspects of the class structure are seen as particularly valuable (hands on activities [research projects, field research activities, laboratory studies], use of case studies, take home exams).
- Ambivalence about the shift to a new curriculum. The value of being able to custom-design a course of study under the new curriculum was seen as positive, but the shift
away from a required rigorous course of study was also viewed as problematic. (Each of these students graduated under the old curriculum.)

- Appreciated the rigor of the course offerings
- High Quality faculty advising (close contact between students and faculty)
- Opportunities for independent studies and department connections for fieldwork opportunities
- Teaching Assistant opportunities for Anthropology 101 or other courses

Things various students would like to see improved in the department:

- Addition of further fieldwork opportunities (particularly in applied research)
- Greater success of the anthropology club
- Possible elimination of Anth 101 as a required course
- More specialized classes
- An earlier track for student research grants, projects, and opportunities for regional/national level presentations

Plans after graduation:

- Two students have been accepted to graduate school. One will pursue an advanced degree in Anthropology at the University of British Columbia with hopes of becoming a research anthropologist and professor. The second student will pursue a Master’s Degree in the Department of History and Philosophy at Montana State University with plans to transfer to an applied anthropology program for the Ph.D.
- One student is awaiting final notification regarding graduate school.
- One student will fulfill his military commitment before proceeding to graduate school.
- Two students indicated an interest in graduate school, however, both of them plan to delay this decision for at least a year (need to take the GREs)
- Work at the Museum of the Rockies and, perhaps later, another museum
- Pay off loans through work in public sector
MSU Departmental Assessment Update  
Spring 2007

Department: Veterinary Molecular Biology

Department Head: Dr. Mark Quinn

Assessment Coordinator: Dr. Mark Quinn

Date: 4-18-07

Degrees/Majors/Options Offered by Department
BS in Biotechnology, Animal Systems Option
Biotechnology Animal Systems Assessment
Presented at the April 18, 2007 Faculty Meeting

Faculty present: Richard Bessen, Michele Hardy, William Halford, Allen Harmsen, Mark Jutila, Benfang Lei, David Pascual, Mark Quinn, Edward Schmidt, Michael White

Overall, students gave positive reviews of the biotechnology program on their exit interviews in 2006. This is the primary mechanism used for feedback.

Changes made to the program this year based on faculty recommendations, etc.:  
- All advisors were made aware that the restricted electives list on the DA-1 form are suggested courses, but not exclusive. Any upper division (300 level or greater) science course can be considered for the restricted electives but should be approved by the advisor. Space is already provided for listing these courses.
- The Department continues to work on a list of past internship locations for reference by current students regarding where possible positions might be found.
- As before, faculty members were encouraged to attend Capstone internship seminars and provide comments.
- VTMB 475 (Pre-veterinary Internship) was submitted to the Core Committee for consideration as VTMB 475R to meet the research requirement. It was denied, and suggestions were made to revise. Dr. Mattix will pursue this again at some point.

Some major comments and suggested changes to consider are summarized below:

1. Courses
- Again, all students indicated the Methods courses and Internship were the most valuable.
- Several students suggested that MB 301 (Immunology) should be a required course and would benefit students before the lab series.
- Some students indicated problems occurred with lab organization. This was corrected in 2006 with course revisions.
- Becky suggested we consider allowing students to take ARNR 337 (Diseases of Domestic Livestock) taught by a DVM (Dr. Moreax) as a substitute for VTMB 406.
- Further discussion is needed regarding addition of a Pre-veterinary Option to the Biotechnology Degree. Input on the proposed curriculum and effects on courses will be needed.

2. Advising
- Overall, the students were satisfied with advising.
- Some students indicated it would be helpful to move to VTMB advising sooner because they were out of sequence for many of the lab courses.
- VTMB101 was supposed to be moved from the requirements to the electives section. This was not accomplished on the DA-1 form and will be done this year. Students now have the option of this or any other science-related CS course for their core requirement. Advisors will be reminded to continue to make sure students meet their core CS requirement.

3. Internship
- The students again commented on the importance of a good internship experience.
• Some students indicated that internship selection needs to be discussed earlier and the actually process of identifying and signing up for internships could use more guidance.

Recommendations (minutes) from the faculty meeting (4/18/2007):
• After discussion regarding ARNR 337, it was decided that ARNR 337 could not be a substitute for VTMB 406. However, ARNR 337 will be available as a restricted upper-division elective on the DA-1 form.
• Advisors will begin discussing internship options earlier with the students.
• Advisors will recommend MB 401 Immunology to the students, but this course will remain listed as a restricted upper-division elective on the DA-1 form.
• The possibility of offering options for students who leaving early for Veterinary School and want to complete a degree at MSU is being considered. At minimum, the students will need to complete all lab courses (VTMB 411-414, VTMB 421-422) and the Internship (VTMB 476). This will be developed further this year.
Department: Veterinary Molecular Biology

Department Head: Dr. Mark Quinn

Assessment Coordinator: Dr. Mark Quinn

Date: May 12, 2008

Degrees/Majors/Options Offered by Department
Bachelor of Science in Biotechnology—Animal Systems Option
Biotechnology Animal Systems Assessment  
Presented at the May 12, 2008 Faculty Meeting

Faculty present:

Overall, students gave positive reviews of the biotechnology program on their exit interviews in 2007/2008. This is the primary mechanism used for feedback. Many students indicated this is the best science-based degree program at MSU because it provides them skill needed to directly enter the workforce.

Changes made to the program this year based on faculty recommendations, etc.:

- Advisors were reminded to begin discussing internship options earlier with the students.
- The DA-1 form has been revised to indicate courses required for the Pre-Vet students but not required for Biotechnology students. These are to meet Veterinary School admission requirements.
- The possibility of offering options for students who leaving early for Veterinary School and want to complete a degree at MSU is acceptable. At minimum, the students will need to complete all lab courses (VTMB 411-414, VTMB 421-422) and the Internship (VTMB 476). The mechanism of how to accept credits back is still not clear and needs further clarification.

Some major comments and suggested changes to consider are summarized below:

1. Courses
   - As in past years, all students indicated the Methods courses and Internship were the most valuable.
   - Several students suggested that we reevaluate overlap between lectures taught in VTMB 421 and 422 and consistency in the labs taught for these classes.
   - Further discussion is needed regarding addition of a Pre-veterinary Option to the Biotechnology Degree. Input on the proposed curriculum and effects on courses are still needed.

2. Advising
   - Overall, the students were satisfied with advising.
   - As before, some students indicated it would be helpful to move to VTMB advising sooner because they were out of sequence for many of the lab courses.
   - Some students arrive quite late in their curriculum and expect to complete all methods courses and internship in one year. This is unrealistic and leads to a poor internship.
   - Adding new advisors should be considered.

3. Internship
   - The students again commented on the importance of a good internship experience.
   - Some students still need more help in identifying internships.
   - Internships at the Veterinary Diagnostic Lab need to be reevaluated because recent students are not developing hypothesis-driven projects.

Recommendations (minutes) from the faculty meeting (5/12/2008):
- VTMB 421 and 422 curricula will be evaluated and revised this summer
- Addition of a Pre-veterinary Option will be reevaluated.
- Internships will be scrutinized to make sure the projects are meeting the required scope.
- A new biotech advisor will be solicited from among the junior faculty members.
MSU Departmental Assessment Update
Spring 2009

Department: Veterinary Molecular Biology

Department Head: Dr. Mark Quinn

Assessment Coordinator: Dr. Mark Quinn

Date: May 12, 2008

Degrees/Majors/Options Offered by Department
Bachelor of Science in Biotechnology—Animal Systems Option
Biotechnology-Animal Systems Option Assessment  
Presented at the May 14, 2009 Faculty Meeting

Faculty present: Robert Cramer, Michele Hardy, Allen Harmsen, Mark Jutila, Benfang Lei, David Pascual, Mark Quinn, Jay Radke, Edward Schmidt, Jovanka Voyich-Kane

Overall, students gave positive reviews of the biotechnology program on their exit interviews and Aleamoni/Knapp ratings in 2008/2009. These are two of the primary mechanisms used for feedback. The third mechanism is internship evaluation, which is discussed below. Many students indicated this is the best science-based degree program at MSU because it provides them skill needed to directly enter the workforce. The graduates have been very successful in getting jobs or getting into graduate/professional schools. This year, three of the four graduates were accepted to Veterinary School.

Changes made to the program this year based on faculty recommendations, etc.:
1. The DA-1 form has been revised again to indicate the new numbering of all courses at MSU. Course required for the Pre-Vet students to meet Veterinary School admission requirements are clearly indicated.
2. VTMB 421 and 422 curricula are being reevaluated to address any overlap and adapt to instructor changes.
3. Internships are being evaluated to make sure the projects are meeting the required scope.
4. A call for faculty interested in serving as advisors was initiated.

Some major comments and suggested changes to consider are summarized below:
1. Courses
   - **Outcomes**
     - In general, Aleamoni ratings were improved over the previous year indicating we are doing a good job teaching the biotech courses.
     - As in past years, the students indicated the Methods courses and Internship were the most valuable.
   - **Issues**
     - Some students commented that VTMB 421 and 422 should be coordinated better.
   2. Advising
      - **Outcomes**
        - Overall, the students were satisfied with advising.
      - **Issues**
        - Students indicated that switching to the Animal Systems advisors should occur as soon as possible after they select the Animal Systems Option. This has been improved in recent years.
        - Some students indicated they did not meet much with their advisors. While students need to be reminded to meet with their advisors, it is up to the student
to make the appointments. Registration PINs will not be given to students without advisor meetings.

3. Internship

**Outcomes**
- Four students completed internships. The quality of some of these internships seemed lower this year.
- The students again commented on the importance of a good internship experience.

**Issues**
- More students are taking internships during the academic year. Summer is more desirable.
- With the loss of internships at LigoCyte, there are fewer opportunities in Bozeman. Students seem to be having a difficult time identifying suitable internships.

Recommendations (minutes) from the faculty meeting (5/14/2009):
- Revision of VTMB 421 and 422 curricula should be completed this summer/fall.
- The internship program needs to be evaluated to make sure opportunities are available and the projects are meeting the required scope. The students also need to make a better effort in finding internships. It is recommended that the internship be completed prior to their last semester. Internships in the last semester are not recommended due to declining student motivation in their last semester.
- Improved evaluation of internships was discussed. Based on the recommendations, the paper will be required at the end of the internship instead of delaying it until the Capstone. The papers will be evaluated and graded by a Departmental Committee of at least three faculty members. Internships could be changed from P/F to actual grades.
- A new biotech advisor will be assigned from among the junior faculty members.
Degrees/Majors/Options Offered by Department

Biotechnology-Animal Systems Option
Biotechnology-Animal Systems Option Assessment
Presented at the May 19, 2010 Faculty Meeting

Faculty present: Michele Hardy, Allen Harmsen, Mark Jutila, Benfang Lei, David Pascual, Mark Quinn, Edward Schmidt, Robert Cramer, Jovanka Voyich-Kane, Jay Radke

Overall, students gave positive reviews of the biotechnology program on their exit interviews and Aleamoni/Knapp ratings in 2008/2009. These are two of the primary mechanisms used for feedback. The third mechanism is internship evaluation, which is discussed below. Many students indicated this is the best science-based degree program at MSU because it provides them skill needed to directly enter the workforce. The graduates have been very successful in getting jobs or getting into graduate/professional schools.

Changes made to the program this year based on faculty recommendations, etc.:

- The DA-1 form has been re-revised again to indicate the new numbering of all courses at MSU.
- VTMB 421 and 422 (BIOB 475 and 478) curricula were reevaluated and the process will be completed this summer to address curriculum and adapt to instructor changes.
- Internships are being evaluated with a weekly report now to make sure the projects are meeting the required scope. The internship was changed to P/F for grading.
- We have not yet identified new faculty advisors but hope to this summer and bring them online Fall 2010.

Some major comments and suggested changes to consider are summarized below:

1. Courses
   **Outcomes**
   - In general, Aleamoni ratings were improved over the previous year indicating we are doing a good job teaching the biotech courses.
   - As in past years, the students indicated the Methods courses and Internship were the most valuable.
   **Issues**
   - No major issues were indicated. We are still collecting student feedback.

2. Advising
   **Outcomes**
   - Overall, the students were satisfied with advising. All students received advising before they were allowed to receive PINs.
   **Issues**
   - The change in course numbering has created some challenges that are being addressed with the revised DA-1 form for guidance.
• The new course number has potentially impacted the Prevet perceptions because courses no longer have VTMB in the numbering. This will need to be discussed.

3. Internship

**Outcomes**
• Five students completed internships in Fall 2009/Spring 2010. The quality of some of most of the internships improved this year.
• The students again commented on the importance of a good internship experience.

**Issues**
• Some students are still taking internships during the academic year. We continue to advise students to use summer internships.
• Tracking progress on internships needs improving, so we are moving to a weekly report.
• Some students seem to be having a difficult time identifying suitable internships. LigoCyte was not able to offer any this year. However, Bioscience Laboratories indicated they were very pleased to have one of our interns this year and hope to take more.

Recommendations (minutes) from the faculty meeting (5/19/2010):
• Complete the review and revision of VTMB 421/422.
• Identify new advisors for the Biotechnology students.
• Evaluate why students are not getting basic background prior to the VTMB 410 and 420 series (BIOB 421-414, 475, 478). The curriculum committee will consider requiring BIOB 256/260 instead of BIOB 160/170.
• Continue revising the DA-1 with the newer changes in course numbering. Remind advisors of the changes in course numbering.
• Evaluate possible interactions/consolidation with the Microbiology Option.
Annual Assessment Report

Academic Year:  2012-13
Department:  Agricultural Economics and Economics
Program(s):  Agricultural Business and Economics

1. What Was Done

The following three objectives are central to both programs.
1. Our graduates will develop high end critical thinking skills
2. Our graduates will develop effective communication skills
3. Our graduates will receive programs that enable them to understand and cogently discuss current economic issues.

2. What Data Were Collected

Student evaluations and senior exit interviews form the basis of this assessment. Other data are also collected including detailed Danforth reviews of faculty teaching for candidates for retention, tenure and promotion.

3. What Was Learned

1. Ninety percent or more students indicate that their critical thinking skills have become highly developed. Employers note that graduates from DAEE are exceptional in this regard.
2. Student evaluations from the capstone courses in economics and agricultural business indicate that those courses and the program have substantially and substantively increased oral and written communication skills for over 90 percent of all students.
3. Almost every year the department offers astonishingly innovative seminars focusing on current affairs. This year, the seminar focused on the central economic issues in the Obama Romney presidential campaign. The program was rated by over 80 percent of students as genuinely excellent and relevant and it reflects the ongoing innovated process central to the department’s work.

4. How We Responded

The department’s programs are highly successful and the DAEE will continue to focus on excellence in these three areas.
Annual Assessment Report

Academic Year:  2013-14

Department:  Agricultural Economics and Economics

Program(s):  Agricultural Business and Economics

1. What Was Done

   As is always the case, the following three objectives are central to both programs.
   1. Our graduates will develop high end critical thinking skills
   2. Our graduates will develop effective communication skills
   3. Our graduates will receive programs that enable them to understand and cogently discuss current economic issues

2. What Data Were Collected

   Student evaluations and senior exit interviews form the basis of this assessment. Other data are also collected including detailed Danforth reviews of faculty teaching for candidates for retention, tenure and promotion

3. What Was Learned

   1. Ninety three percent or more students indicate that their critical thinking skills have become highly developed. Employers note that graduates from DAEE are exceptional in this regard
   2. Student evaluations from the capstone courses in economics and agricultural business indicate that those course and the program have substantially and substantively increased oral and written communication skills for over 94 percent of all students.
   3. Almost every year the department offers seminars focusing on current affairs. This year, he seminar focused on a global comparison of the Montana and world livestock industry. The 23 MSU students participating in the program uniformly rated this seminar as the most outstanding seminar in their academic career and it reflects the ongoing innovated process central to the department’s work.

4. How We Responded
The department’s programs are highly successful and the DAEE will continue to focus on excellence in these three areas.
Assessment report for the 2013/2014 academic year
Department of Chemistry and Biochemistry

Prepared by: Prof. Mary Cloninger, Head of the Department
September 4, 2014

During the 2013/2014 academic year, the assessment that was performed in the Department of Chemistry and Biochemistry was focused on learning outcomes 1, 2, 3, 5, 6, 7, and 8. For learning outcomes 1, 2, and 6, the students’ proficiencies were evaluated during their CHMY 494 and BCH 494 capstone seminar courses. They were also evaluated during the department’s annual undergraduate research poster symposium. For learning outcomes 3, 5, and 7, the American Chemical Society (ACS) standardized subject exams in organic, inorganic, analytical, and physical chemistry were administered. Learning outcome 4 and part of learning outcome 3 were not assessed during the 2013/2014 academic year; these learning outcomes will be assessed by administering the biochemistry and physical chemistry ACS subject exams during the 2014/2015 academic year. Learning outcome 8 was assessed using the endorsement data for high school teacher certifications.

Overall Summary
All of the learning objectives are being met programmatically, indicating that this is a strong and successfully program for chemistry and biochemistry majors when compared to other programs in the United States.

(1) Learning Outcome 1
Professional, biochemistry, and teaching options: Students will be able to clearly communicate research findings in an oral presentation and poster session format.

Assessment for Learning Outcome 1
Twenty-five senior undergraduate students were evaluated for clarity and depth of oral presentation during a 25 minute PowerPoint presentation to their peers in CHMY 494 and BCH 494 senior capstone seminar during the spring semester of 2014. These students also presented posters (which were evaluated) at the Undergraduate Research Poster Symposium that is held annually by the Department of Chemistry and Biochemistry in April. All of the students successfully communicated their research findings in both formats.

(2) Learning Outcome 2
Professional, biochemistry, and teaching options: Students will be able to solve problems related to chemistry and biochemistry.

Assessment for Learning Outcome 2
The ability of twenty-five senior undergraduate students to comprehensively solve problems related to chemistry and biochemistry were evaluated during their 25 minute oral PowerPoint presentations to their peers in CHMY 494 and BCH 494 senior capstone seminar during the spring semester of 2014. These students also presented posters (which were evaluated) at the Undergraduate Research Poster Symposium that is held annually by the Department of Chemistry and Biochemistry in April. All students mastered the problem solving learning
objective as demonstrated by their presentation of the progress that they were able to make and then describe for their research projects.

(3 and 7) Learning Outcomes 3 and 7
Professional and teaching options:
Students will have a broad knowledge required in organic, inorganic, physical and analytical chemistry as well as in biochemistry.

Assessment for Learning Outcomes 3 and 7
Organic, Inorganic, and Analytical areas were assessed for all majors. Physical chemistry was assessed for the teaching major.

Twenty (15 biochemistry, 4 professional, 1 teaching option) majors in CHMY 323 took the ACS organic subject exam (2012) as the final exam for their course. The average score for this cohort placed them at the 67th percentile nationally, with a median score at the 63rd/66th percentile. Thus, this learning objective was achieved for the organic subject area. Individually, thirteen students scored at or above the 50% percentile. Seven of the students (one teaching option and six biochemistry) failed to meet this learning objective. A survey of these seven students’ transcripts indicates that they are earning lower grades across their course loads than the rest of the cohort. In order to try to increase the success of students such as these across all of their chemistry courses, we are offering recitation sections for CHMY 141 and 143 during the spring semester of 2015 in a pilot program. We hope that a firmer understanding of general chemistry will enable students to comprehend more of their upper level chemistry curriculum.

One teaching option major took the ACS physical chemistry comprehensive exam (1995) in CHMY 361. She scored at the 0th percentile and did not meet the learning outcome for physical chemistry. This is too small a data set for much interpretation, so we will simply keep an eye on the teaching option cohort for now without making any changes.

Sixteen majors (eight biochemistry, seven professional, one teaching option) in CHMY 401 took the ACS inorganic chemistry subject exam (2009) as the final exam for their course. The average score for this cohort placed them at the 59th percentile nationally, with a median score at the 54th percentile. Thus, the learning objective was achieved for the inorganic subject area. Seven of the students (three biochemistry, three professional, and one teaching option student) scored under the 50th percentile for students nationally and failed to meet this learning objective. Nine of the students met the learning objective.

Twenty-seven majors (17 biochemistry and 10 professional) in CHMY 311 took the ACS analytical chemistry subject exam (2013) as the final exam for their course. Because this is a newer exam, less percentiled data is available now from ACS. The average score that ACS can currently report is 26/50 questions, and the currently reported median score is 25/50. The average for our cohort was 28.3, which places them well above the current national average. The median score for our cohort was 28, again well above the national average. Nine students (five biochemistry and four professional option) scored under the 50th percentile for students nationally. Eighteen students scored at or above the 50th percentile.
The physical chemistry component of this learning outcome was not assessed during the 2013/2014 academic year for the professional option. The biochemistry component was not assessed during the 2013/2014 academic year for the teaching option.

(4) Learning Outcome 4
Biochemistry option:
Students will have a solid foundation in all aspects of biochemistry.

Assessment for Learning Outcome 4
This Learning Outcome was not assessed during the 2013/2014 academic year.

(5) Learning Outcome 5
Biochemistry option:
Students will be able to apply mathematical tools and computational methods to biochemical problems.

Assessment for Learning Outcome 5
Sixteen majors with the biochemistry option took the ACS physical chemistry comprehensive subject exam (1995) during CHMY 361. The average score for this cohort placed them at the 32nd percentile nationally, with a median score at the 26th percentile. Since this exam is meant for professional option students who have had two courses in physical chemistry (CHMY 371 and CHMY 373), these scores indicate that this learning objective is being met very well by our curriculum. Seven of the students (one teaching option and six biochemistry) failed to meet this learning objective. In order to try to increase the success of students across all of their chemistry courses, we are offering recitation sections for CHMY 141 and 143 during the spring semester of 2015 in a pilot program. We hope that a firmer understanding of general chemistry will enable students to comprehend more of their upper level chemistry curriculum. Nine students met the learning outcome.

(6) Learning Outcome 6
Biochemistry option:
Students will understand the problems in another biological science (e.g., microbiology, cell biology, neuroscience, plant or animal science) that biochemical techniques help solve.

Assessment for Learning Outcome 6
Twenty-five senior undergraduate students were evaluated for clarity and depth of oral presentation during a 25 minute PowerPoint presentation to their peers in CHMY 494 and BCH 494 senior capstone seminar during the spring semester of 2014. All of the students demonstrated extremely high mastery of this learning option.

(8) Learning Outcome 8
Teaching option:
Students will develop instructional and pedagogical competence such that they meet state certification standards.
Assessment for Learning Outcome 8
According to the Field Placement Office’s data on endorsements between Sept 1, 2012 and August 31, 2013, as provided by Bill Freese (iedbf@montana.edu), three people were endorsed for Montana high school teaching in chemistry. One of those was a spring 2013 chemistry teaching graduate, one was a Northern Plains Transition to Teaching participant, and one was a fall 2009 chemistry teaching graduate who took her time about getting endorsed.

None of the graduates from the Department of Chemistry and Biochemistry were endorsed between Sept. 1, 2013 and August 31, 2014, but there were eight people endorsed in chemistry, one for Colorado, five for Montana and two for Wyoming. The Colorado endorsement went to a person who already had Montana and Washington endorsements in chemistry, math and physics from 2005. The other seven were all Northern Plains Transition to Teaching students. One of those was last enrolled in spring 2011, one in fall 2013, and the rest in the past year.

Note
The updated assessment plan for the learning outcomes for undergraduate majors in the Department of Chemistry and Biochemistry is attached.

Overall Summary
All of the learning objectives are being met programatically, indicating that this is a strong and successfully program for chemistry and biochemistry majors when compared to other programs in the United States.
Annual Assessment: B.S. in Mathematics – Applied Mathematics Option.
M450-M451
AY 2011-2012

Assessment Coordinator: Mark Pernarowski

This report summarizes an assessment of M450-451 with regard to the Applied Mathematics Option and the rubrics:

- (Outcome 1) Rigorous mathematical reasoning
- (Outcome 2) Setting up Mathematical models

Preamble: The current (first) assessment plan was not in place until mid spring 2012, well after M450 finished. Consequently no useful data related to that course could be collected and scores below are listed as N/A.

Data Collection: In Spring 2012, Applied Mathematics II with rubric M451 had a total of 17 students enrolled. Of these, two were pursuing an Applied Mathematics Option. For the assessment copies of the Midterm and Final examinations were used.

Scores: | Course Number | Outcome 1 | Outcome 2 |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>M450</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>M451</td>
<td>Acceptable</td>
<td>N/A</td>
</tr>
</tbody>
</table>

Outcome 2 could not be assessed since students were not required to “Set up” any mathematical models. The majority of data collected required a high degree of rigorous mathematical reasoning. On the whole the performance was acceptable but not outstanding.

Recommendation:

Though the course does involve the analysis of certain mathematical models the students are not required to “set them up”. We recommend Outcome 3 instead be assessed next time. This concerns selecting appropriate techniques for analysis. These results and recommendations have been communicated to the faculty and, where necessary, will be discussed at a faculty meeting.
The relevant learning outcome is as follows:

Students completing a BS in Applied Mathematics at Montana State University should demonstrate the ability to:

Use rigorous mathematical reasoning or computations to establish fundamental applied mathematics concepts.

2 Applied Mathematics Option majors took M 472, Spring 2012. All questions on the final were used to determine whether these students demonstrated the ability to use rigorous mathematical reasoning or computations as required.

Using the Mathematics Option Assessment Plan rubric, both of these students demonstrated the ability at an “excellent” level.

These results have been communicated to the faculty and, where necessary, will be discussed at a faculty meeting.
Learning Outcomes Assessment
Spring 2012

Learning Outcome—CCSS Mathematical Practices:

Reason with and about mathematical statements and construct and validate mathematical arguments.

Assessment Context:

M242, Signature assignment.

Signature assignment:

The Project!

The project is a chance for you to engage in authentic mathematics and work like a real mathematician. You are given a question (below) and you are to develop the entire mathematical theory to answer the question. You will be placed on on-line groups to post your responses. You are required to post at least once every two weeks and collectively develop a final response to the question that is due on April 16. Intermediate write-ups are due January 23, February 20, and March 12. You and your group are also required to present your thinking about the problem to the rest of the class on a regular basis.

Rules: You may not discuss this problem with anyone outside of our classroom community. You may not Google the question. You may however use any resource you wish to find supporting materials like theorems and axioms needed to answer the question. Not following the rules will be considered plagiarism and reported to the registrar with a recommendation of a F for the course.

Dividing Squares

Can you divide a square into a certain number of smaller squares?

Assignment Assessment:

The learning outcomes described above were assessed using 300 online student posts, the three write-ups, and 21 videos collected from classroom presentations. The assessment criteria was whether or not a student
• presented at least one mathematical statement
• used at least one mathematical statement in a mathematical context
• supported or rebutted at least one mathematical statement
• developed at least one argument for or against a mathematical statement
• responded to another about a mathematical argument

Affirming that a student gave at least one response associated with the activities described in any one of the first four bullets was considered evidence that the student reasoned with a mathematical statement. Affirming that the student gave at least one response associated with the activities described in the third or fourth bullets was considered evidence that the student constructed a mathematical argument. Affirming
that a student gave at least one response associated with the activities described in the five bullet was considered evidence that the student validated mathematical arguments.

**Outcomes:**

All 23 students (100%) who complete the course satisfied the learning outcomes as assessed above.

**Response:**

These results have been communicated to the faculty and, where necessary, will be discussed at a faculty meeting.
Outcomes Assessment, Math 382, Advanced Calculus II

The outcomes were to

“Be able to use the basic proof techniques including direct proofs, indirect proofs, and mathematical induction, and

“Be able to construct counterexamples, in each of the following areas, to conjectures that are actually false even though they look plausible and resemble given results.” [These two objectives are followed by a list of areas to which they apply.]

Nine Mathematics Option majors took Advanced Calculus II, M 382, Spring 2012. The outcomes to be assessed all concerned proofs and counterexamples. Six problems on the final exam were used to assess proofs and five were used to assess counterexamples. Using the Mathematics Option Assessment Plan rubric, among those nine students, eight performed at an excellent or acceptable level at proofs and one was marginal. Five performed at an excellent or acceptable level at counterexamples, three were marginal and one unacceptable.

These results have been communicated to the faculty and, where necessary, will be discussed at a faculty meeting.
Learning Outcome 6C): *Additionally, students should demonstrate the ability to prove and/or make computations related to at least two of the following fields of mathematics: complex analysis,*

10 Mathematics Option majors took M 472, Spring 2012. All questions on the final were used to determine whether students demonstrated the ability to make computations. Using the Mathematics Option Assessment Plan rubric,

7 of these students demonstrated the ability at an “excellent” level.

3 of these students demonstrated the ability at an “acceptable” level.

These results have been communicated to the faculty and, where necessary, will be discussed at a faculty meeting.
To : Kenneth Bowers  
Chair, Dept of Mathematical Sciences  
From: Steve Cherry, Statistics  
Re: Outcomes Assessment of 6 Statistics Option majors  
Ken,  
Below is a brief report summarizing our assessment of 6 our undergraduate Statistics majors. These are all Juniors and Seniors. They are being assessed on Outcomes 4 and 5 in the Statistics Program Assessment Model, a copy of which is attached. These results have been communicated to the faculty, and where necessary will be discussed as a faculty meeting.

- Student Number 1
  
  Outcome 4: Excellent (based on STAT 412 written assignments and final project)  
  Outcome 5: Acceptable (based on STAT 412 written assignments and final project)  

  Student performed well as the only undergraduate student in the course. He matured greatly over the semester in terms of his ability to explain and justify his ideas in writing and ask practically important questions. He also learned to pay closer attention to the details of performing a statistical analysis, resulting in far fewer mistakes, and now shows a greater concern and pride in his work than he did at the beginning of the semester.

- Student Number 2
  
  Outcome 4: Excellent (based on STAT 412 written assignments and exams)  
  Outcome 5: Excellent (based on STAT 412 written assignments and exams)  

  Student has done consistently high quality work. He writes extremely well and his written reports have been complete but concise - he knows what to include and what not to include.

- Student Number 3
  
  Outcome 4: Excellent (based on STAT 412 written assignments and exams)  
  Outcome 5: Excellent (based on STAT 412 written assignments and exams)  

  Student does a very nice job. He struggles a bit sometimes with details but his overall work is solid. He shows a good grasp of fundamentals.

- Student Number 4
  
  Outcome 4: Acceptable (based on STAT 412 written assignments and exams)  
  Outcome 5: Acceptable (based on STAT 412 written assignments and exams)  

  Student has never performed up to her potential. Her work is TOO concise - she always does enough to get by but never goes the extra step to put together a really high quality output.
• Student Number 5

Outcome 4: Acceptable (based on STAT 412 written assignments and exams)
Outcome 5: Acceptable (based on STAT 412 written assignments and exams)

Student works hard but has struggled, partly due to factors outside his control. He has some fundamental misunderstandings about statistical concepts and has trouble articulating those he does understand.

• Student Number 6

Outcome 4: Acceptable (based on STAT 412 written assignments and exams)
Outcome 5: Acceptable (based on STAT 412 written assignments and exams)

Student is exceptionally smart but has not produced the best applied work in this course. He misses class more than others and has failed to turn in 2 homework assignments. I get the impression that he is much more interested in theory than in applications. He seems to be quite gifted mathematically.

All of the above are good to very good to exceptional students with great potential. I have been particularly impressed with their writing skills. Overall I am very pleased with this group of students.
To: Ron Larsen, Vice Provost, and Sue Monahan, Associate Dean, College of Letters & Science  
From: Bridget Kevane, Chair, Department of Modern Languages & Literatures  
Re: Assessment  
Date: May 10, 2012

The MLL Assessment Committee, a committee of the whole, met on May 8, 2012, to measure three learning outcomes (critical thinking, verbal communication, written communication) in three courses, ML 100, German 490R and Spanish 490R. Below is our assessment:

Learning Outcome | Targeted Course
--- | ---
A. Critical Thinking | ML 100: Intro to World Cultures
B. Oral Communication | German and Spanish ML490R Senior Capstone
C. Written Communication | German and Spanish ML 490R Senior Capstone

A. ML 100: Intro to World Cultures: 35/100 sampled

Critical Thinking Question:
Consider the areas of the world we have studied in this course. How has globalization transformed the patterns of immigration?

Background:
Globalization and immigration were key terms and themes addressed throughout the semester and used to frame the course. Students were assigned the question the day before in order to prepare and the following day they were given were given 20 minutes in class to respond. We were guided by the Critical Thinking Value Rubric from the Association of American Colleges and Universities (attached) to determine our assessment. This rubric has four columns which begin with benchmarking criteria, move to two levels of milestone criteria and end with capstone criteria.

Results:
Each faculty member read 5 of the short expository responses. Twenty five reached most of the benchmark criteria. 7 were a combination benchmark and milestone. 2 do not meet benchmark.

MLL faculty are not satisfied with the final result. The benchmark criteria are rather weak and all faculty felt strongly that we could improve the majority of the students response by informing ML 100 students that they will be asked to turn in a 2-3 page at the end of the semester on critical question such as the one posed above. In fact, we might include a list of 5-7 critical questions that they should be thinking of throughout the semester and let them know that one will be chosen for them to respond to at the end of the semester.

B. Oral and Written Proficiency in German and Spanish Senior Capstones

MLL faculty used the American Council on the Teaching of Foreign Languages (ACTFL) standards and guidelines (see attached) to determine the levels of learning outcomes for oral and written language proficiency in the German and Spanish senior capstone courses.

German 490R:
Oral Proficiency- 10 students were enrolled in Dr. Mueller’s senior capstone course which focused on environmental issues in Germany. Students gave oral presentations on their final research papers. Dr.
Mueller, in consultation with MLL faculty, ranked 9 students as having met the criteria for Intermediate High levels of oral proficiency. One, however, did not.

Written Proficiency-Students wrote final research papers on original topics of their choosing. Dr. Mueller discussed 9 of the 10 papers with MLL faculty sharing the topics and the basic grammar issues. ACTFL guidelines rank written proficiency on a scale of 1-4 with 1 as the lowest benchmark, 2 as the milestone, 3 the advanced milestone, and 4 the highest capstone level possible. Of the 9 essays reviewed the majority (seven) met the criteria for milestone, two met the criteria for benchmark, and 1 met the criteria that fell between a 3 and 4.

Spanish 490R:
Oral Proficiency-12 students were enrolled in Dr. Catoira’s senior capstone which focused on the Latin American detective novel. Students gave oral presentations based on their final research papers. Dr. Catoira reported to MLL at large discussing students’s oral presentations. Dr. Catoira, in consultation with MLL faculty, ranked 11 students as reaching Intermediate High levels of oral proficiency. One, however, did not.

Written Proficiency-12 students wrote final research papers on original topics of their choosing. Dr. Catoira discussed 9 of the 12 papers (two had taken incompletes? With MLL faculty sharing the topics and the basic grammar issues. ACTFL guidelines rank written proficiency on a scale of 1-4 with 1 being the lowest benchmark and 4 being the highest capstone level possible. Of the 9 essays reviewed the majority (seven) met some of the criteria in both 2 and 3. Two met the criteria for the capstone level and 1 met some of the criteria in both 3 and 4.
To: Ron Larsen, Vice Provost and  
   Sue Monahan, Associate Dean, College of Letters and Science  
Fr: Jack Jelinski, Interim Chair, Department of Modern Languages & Literatures  
Re: MLL Assessment for 2013  
Date: May 10, 2013

The MLL Assessment Committee, a committee of the whole Department, met on May 6, 2013, to measure the reading proficiency of second-year students in French, German and Spanish. We assessed learning outcomes as defined by the Intermediate High category of the ACTFL Proficiency Guidelines which defines proficiency goals.

<table>
<thead>
<tr>
<th>Learning Outcomes</th>
<th>Targeted Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>At the Intermediate High sublevel, readers are able to understand fully and with</td>
<td>French 220D</td>
</tr>
<tr>
<td>ease short, non-complex texts that convey basic information and deal with personal</td>
<td></td>
</tr>
<tr>
<td>and social topics to which the reader brings personal interest or knowledge. These</td>
<td>German 220D</td>
</tr>
<tr>
<td>readers are also able to understand some connected texts featuring description and</td>
<td>Spanish 220D</td>
</tr>
<tr>
<td>narration although there will be occasional gaps in understanding due to a limited</td>
<td></td>
</tr>
<tr>
<td>knowledge of the vocabulary, structures, and writing conventions of the language.</td>
<td></td>
</tr>
</tbody>
</table>

A. French 220D: French Language and Culture

Procedure: There were thirty-one students enrolled in this class. Students were asked to read a 700 word article published in the literary journal *La Quinzaine littéraire*. The article begins by explaining that six francophone writers were interviewed about their use of the French language. The interviewer asks the following two questions: Why do you use French? Because you chose to use it or because it was imposed on you via institutional reasons, teaching, or social pressure? Then come the responses of the six authors, each from a different Francophone country (two from Congo, Haiti, Quebec, Algeria, Morocco). The students are asked first to “summarize in one or two sentences the gist of what each author says.” Then the students are asked, “In what way do the Francophone writers contribute to the development of the evolution of the French language?” The students are given six lines for their responses.

Results: Twenty-seven students met the expectations outlined in the ACTFL learning outcomes for reading ability on the intermediate-high sublevel and five did not.
B. German 220D: German Language and Culture

Procedure: Students were asked to read a short and non-complex information text on "Austrians Abroad". They were then given three comprehension questions asking about specific details from the source text in order to test students' level of understanding of written language (ACTFL intermediate-high sublevel). Students had to respond in full sentences identifying the relevant information from the initial text.

Results: Out of 23 students 21 met the expectations outlined in the ACTFL learning outcomes for reading ability on the intermediate-high sublevel.

C. Spanish 220D: Spanish Language and Culture

Procedure: Students were expected to read Isabel Allende's novel La ciudad de las bestias. They were tested with fifteen questions: ten “specific” questions covered student comprehension of the reading at the level of characters and plot. Five “open and theoretical questions” tested students' ability to generate more in-depth observations about important themes, motifs and stylistic elements of the text.

Results: Each faculty member read forty-nine exams. Of the forty-nine exams reviewed, forty-five met the ACTFL criteria for reading proficiency at the intermediate-high sublevel. On the whole the faculty were satisfied with the ability of these students to comprehend the text in question and utilize vocabulary relevant to such an exercise.
Department of Modern Languages and Literatures

Annual Assessment Report

Academic year: 2013-2014

Program: French

1. Targeted Program Learning Outcomes. Based on our revised assessment plan, we evaluated program learning outcomes 1 and 6.

   Outcomes
   1. Our graduates will apply critical thinking skills.
   6. Our graduates will acquire an overview of historical and cultural trends.

   Target threshold: 80%

2. Data. 25 mid-term exams for FRCH 305: French Civilization were scored using a rubric designed to assess these two outcomes together.

3. Results. 96% of students scored above the threshold value.

<table>
<thead>
<tr>
<th>Performance level</th>
<th>Number of essays</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outstanding</td>
<td>12</td>
</tr>
<tr>
<td>Satisfactory</td>
<td>12</td>
</tr>
<tr>
<td>Unsatisfactory</td>
<td>1</td>
</tr>
<tr>
<td>Satisfactory or above</td>
<td>96%</td>
</tr>
</tbody>
</table>

4. Response. No changes are needed regarding learning outcomes 1 and 6.
1. **Targeted Program Learning Outcomes.** Based on our revised assessment plan, we evaluated program learning outcomes 1 and 6.

   **Outcomes**
   1. Our graduates will apply critical thinking skills.
   6. Our graduates will acquire an overview of historical and cultural trends.

   **Target threshold:** 80% at “satisfactory” or higher

2. **Data.** 11 final essays from GRMN 450/490: Senior Capstone were scored using a rubric designed to assess these two outcomes together.

3. **Results.** 83.3% of students were rated “satisfactory” or higher.

<table>
<thead>
<tr>
<th>Performance level</th>
<th>Number of essays</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outstanding</td>
<td>7</td>
</tr>
<tr>
<td>Satisfactory</td>
<td>3</td>
</tr>
<tr>
<td>Unsatisfactory</td>
<td>2</td>
</tr>
</tbody>
</table>

   Satisfactory or above: 83.3%

4. **Response.** No changes are needed regarding learning outcomes 1 and 6.
1. **Targeted Program Learning Outcomes.** Based on our revised assessment plan, we evaluated program learning outcomes 1 and 6.

   **Outcomes**
   1. Our graduates will apply critical thinking skills.
   6. Our graduates will acquire an overview of historical and cultural trends.

   **Target threshold:** 80% at “satisfactory” or higher

2. **Data.** 15 essays by seniors in the major from the final exam for SPNS430: Latin American Perspectives were scored using a rubric designed to assess these two outcomes together.

3. **Results.** 80% of students were rated “satisfactory” or higher.

<table>
<thead>
<tr>
<th>Performance level</th>
<th>Number of essays</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outstanding</td>
<td>2</td>
</tr>
<tr>
<td>Satisfactory</td>
<td>10</td>
</tr>
<tr>
<td>Unsatisfactory</td>
<td>3</td>
</tr>
</tbody>
</table>

   Satisfactory or above: 80%

4. **Response.** The majority of the students scored “satisfactory” or better, but we would like to improve their ability to formulate an analytical thesis in response to essay prompts. Further raising their awareness of the criteria that determine performance levels by distributing and discussing the grading rubrics used to evaluate their essays may help them improve in this area.
MISSION OF THE DEPARTMENT. The programs of Sociology and Anthropology are oriented around the following objectives:

- To provide a well-rounded liberal arts education heavily invested in Sociology & Anthropology.
- To provide students an opportunity to study social worlds, societies and individuals in-depth, including social arrangements, interactions, structures, institutions, and cultures.
- To foster critical reading and thinking, intellectual curiosity, and ethical reasoning.
- To enable students to pursue their own intellectual questions through independent research and learning.
- To help progress our students’ communication skills.
- To prepare students for the workforce – in government, business, education, nonprofits – by developing skills in research, synthesis, analysis, and written and oral communication.
- To prepare interested students for graduate-level studies in academic and applied fields.

SOCIOLGY PROGRAM

PURPOSE OF ASSESSMENT. The Sociology Program engages in assessment as an effective means for enhancing student learning and the fulfillment of our mission. The main priority of our assessment plan is to enable the program and its faculty to systematically study student learning in a way that such learning can be enhanced. Our academic program assessment further enables us to enhance student learning by making a clear conceptual distinction between teaching and learning. We achieve this by focusing on the (a) teaching process through the alignment of learning goals and embedded assessment and the (b) resultant learning outcomes through the analyses of the embedded assessment data and trends. We also strive for a properly executed assessment of our academic programs so that it contributes to our improved teaching and learning in a variety of ways. Specifically, from our assessment, our faculty

1. engage in serious and substantive discussions about important learning outcomes and the education of our students.
2. design and administer good assessment instruments and methods that offer a meaningful way to rigorously evaluate our learning outcomes.
3. reflect on and discuss the assessment results in a forum that facilitates a genuine consideration of possible changes that will enable learning objectives to be more fully realized.

PROGRAM LEARNING OUTCOMES

- **Learning Outcome 1: Sociology as a Discipline.** Our students will demonstrate an understanding of the discipline of sociology and its role in contributing to our understanding of society and changes in society.

- **Learning Outcome 2: Sociological Concepts.** Our students will demonstrate a knowledge, comprehension, and relevance of core sociological concepts.

- **Learning Outcome 3: Sociological Theories.** Our students will demonstrate an understanding of the role of theory in sociology.

- **Learning Outcome 4: Sociological Application.** Our students will formulate research questions based on critical readings and understandings of sociological research.

- **Learning Outcome 5: Oral Communication.** Our students will demonstrate the ability to present materially orally in an organized and effective manner.

- **Learning Outcome 6: Written Communication:** Our students will demonstrate appropriate writing practices and formats and effective written communication and editing skills.
Learning Outcome 7: Empiricism. Our students will demonstrate an understanding of the roles and uses of evidence in qualitative and quantitative methods.

INDICATORS OF STUDENT ACHIEVEMENT

Contingent on the rubric used. For both rubric and graded evaluations, Work must be judged minimally acceptable to meet the expectations for the learning outcome under evaluation.

<table>
<thead>
<tr>
<th>ASSESSMENT PLANNING CHART. PROGRAM: Sociology</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Assessment Targets</strong></td>
</tr>
<tr>
<td><strong>Assessment Year and Targeted Courses</strong></td>
</tr>
<tr>
<td><strong>LEARNING OUTCOME</strong></td>
</tr>
<tr>
<td><strong>2011-12</strong></td>
</tr>
<tr>
<td><strong>2012-13</strong></td>
</tr>
<tr>
<td><strong>2013-14</strong></td>
</tr>
<tr>
<td><strong>2014-15</strong></td>
</tr>
<tr>
<td><strong>SOCI414</strong></td>
</tr>
<tr>
<td><strong>SOCI499</strong></td>
</tr>
<tr>
<td><strong>SOCI455</strong></td>
</tr>
<tr>
<td><strong>SOCI470</strong></td>
</tr>
<tr>
<td><strong>SOCI499</strong></td>
</tr>
<tr>
<td><strong>SOCI318</strong></td>
</tr>
<tr>
<td><strong>SOCI499</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Learning Outcome 1: Sociology as a Discipline.</strong> Our students will demonstrate an understanding of the discipline of sociology and its role in contributing to our understanding of society and changes in society.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Assessment Targets</strong></td>
</tr>
<tr>
<td><strong>Assessment Year and Targeted Courses</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Learning Outcome 2: Sociological Concepts.</strong> Our students will demonstrate a knowledge, comprehension, and relevance of core sociological concepts.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Assessment Targets</strong></td>
</tr>
<tr>
<td><strong>Assessment Year and Targeted Courses</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Learning Outcome 3: Sociological Theories.</strong> Our students will demonstrate an understanding of the role of theory in sociology.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Assessment Targets</strong></td>
</tr>
<tr>
<td><strong>Assessment Year and Targeted Courses</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Learning Outcome 4: Sociological Application.</strong> Our students will formulate research questions based on critical readings and understandings of sociological research.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Assessment Targets</strong></td>
</tr>
<tr>
<td><strong>Assessment Year and Targeted Courses</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Learning Outcome 5: Oral Communication.</strong> Our students will demonstrate the ability to present material orally in an organized and effective manner.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Assessment Targets</strong></td>
</tr>
<tr>
<td><strong>Assessment Year and Targeted Courses</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Learning Outcome 6: Written Communication.</strong> Our students will demonstrate appropriate writing practices and formats and effective written communication and editing skills.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Assessment Targets</strong></td>
</tr>
<tr>
<td><strong>Assessment Year and Targeted Courses</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Learning Outcome 7: Empiricism.</strong> Our students will demonstrate an understanding of the roles and uses of evidence in qualitative and quantitative methods.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Assessment Targets</strong></td>
</tr>
<tr>
<td><strong>Assessment Year and Targeted Courses</strong></td>
</tr>
</tbody>
</table>
ANTHROPOLOGY PROGRAM

PURPOSE OF ASSESSMENT. The Anthropology Program uses assessment to obtain a meaningful overview of our success in the fulfillment of our mission and as an opportunity to enhance the methods used to promote student learning. Our yearly assessments involve meeting with each graduating student and analyzing that student’s work as an entire faculty based on a lower level paper and a senior level paper. Our academic program assessment allows us to look at individual courses and ascertain how student-learning outcomes in each course contribute to our overall learning goals for students enrolled in that course. We strive to improve teaching and learning through

1. A substantive discussion about how our curriculum and course design will work to maximize learning outcomes and the overall education of our students.
2. A thorough analysis of each student’s work as that student has progressed through our curriculum.
3. Reflection on and analysis of assessment results in a manner that will lead to positive changes in learning outcomes for anthropology students.

PROGRAM LEARNING OUTCOMES

- Students will be able to understand and articulate key anthropological concepts and theories
- Students will learn to read, understand, and critique anthropological books, articles, visual media, and reports
- Students will acquire research skills that include the acquisition of research materials, the analysis of those materials, and the ability to synthesize findings in a report format, as appropriate to the course
- Students will develop the ability to write in an organized and logically consistent manner
- Students shall learn to analyze multi-cultural and global issues.
- Students shall engage in field or laboratory research and learn to carry out preliminary analyses of materials from primary materials and/or collections
- Students shall learn to analyze and interpret contemporary, historic, and prehistoric data from a variety of societies or eras of past human experience.
- Students shall learn to formulate and present materials in a clear and understandable oral format

INDICATORS OF STUDENT ACHIEVEMENT

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unacceptable</td>
<td>1</td>
</tr>
<tr>
<td>Minimally acceptable</td>
<td>2</td>
</tr>
<tr>
<td>Acceptable</td>
<td>3</td>
</tr>
<tr>
<td>Exceeds expectation</td>
<td>4</td>
</tr>
<tr>
<td>Exceptional</td>
<td>5</td>
</tr>
</tbody>
</table>

(for graded assignments = D, D-, or F)
(for graded assignments = D+/C-)  
(for graded assignments = C/C+)
(for graded assignments = B's or A-)
(for graded assignments = A/A+)

Work must be judged minimally acceptable to meet the expectations for that course.

In each year, those whose courses are being monitored for learning outcomes will read a sampling of the other person’s students’ work or attend a sampling of oral presentations for that course (i.e., in 2011-12 the instructor for ANTY 425 will read a sampling of work from students in ANTY 343, and vice versa). The professor of the course and his/her colleague shall read the selected papers (or judge presentations) based on the designated learning outcome under review. This shall help provide a way of norming the assessment outcomes for any particular course. Each sampled paper or presentation shall be scored in accord with the
designated learning outcome. Therefore, grades for this outcome may vary from a student’s overall grade on the assignment.

<table>
<thead>
<tr>
<th>LEARNING OUTCOME</th>
<th>Assessment Year and Targeted Courses</th>
<th>Assessment Targets</th>
</tr>
</thead>
<tbody>
<tr>
<td>Understand &amp; articulate anthropological concepts &amp; theories</td>
<td>ANTY450</td>
<td>Essay &amp; Project</td>
</tr>
<tr>
<td>Learn to read, understand, &amp; critique anthropological works</td>
<td>ANTY473</td>
<td>Course Exams</td>
</tr>
<tr>
<td>Acquire research skills that include the acquisition, analysis, and synthesis of research materials in a report format</td>
<td>ANTY425</td>
<td>Research Project</td>
</tr>
<tr>
<td>Develop the ability to write in a organized and logically consistent manner</td>
<td>ANTY313</td>
<td>Term Paper</td>
</tr>
<tr>
<td>Learn to analyze multi-cultural and global issues</td>
<td>ANTY343</td>
<td>Anime Project</td>
</tr>
<tr>
<td>Engage in field or laboratory research and carry out preliminary analyses of materials from primary materials and/or collections</td>
<td>ANTY453</td>
<td>Lab Project</td>
</tr>
<tr>
<td>Learn to analyze, compare &amp; interpret contemporary, historic, and prehistoric data from several societies or eras of past human experience</td>
<td>ANTY428</td>
<td>First &amp; Final Exams</td>
</tr>
<tr>
<td>Learn to formulate and present materials in an oral format</td>
<td>ANTY494</td>
<td>Final Presentation</td>
</tr>
</tbody>
</table>
SOCI499: Senior Capstone
Professor: Leah Schmalzbauer

Assessment by: Dr. Tami Eitle and Danielle Hidalgo
Learning Outcome: Written Communication

Six (6) papers were randomly selected for assessment of student learning outcomes: two A papers, two B papers, and 2 C or D papers from each capstone section (12 papers total).

Overall our assessments of the papers were very similar. We had a discussion based on our assessments and agreed upon the following:

Students who perform well (at the A level) in the capstone are doing really superior work. They show an understanding of the kinds of questions that sociology can address, are able to critically read and assess prior research, are knowledgeable enough to choose appropriate research methods given their research topics and questions, and provide informed sociological interpretation of their results. In addition they write very well. In fact some of these papers we felt were of such high quality that they could be prepared for presentation at professional meetings along side the work of graduate students.

Students who produced B level papers were more of a mixed group. Two of the papers were similar in many respects to the A papers, but were not as well written and showed less of a mastery of the literature. The rest of the papers were just sloppy in many respects: For example, more summary than critical discussion of prior research, not enough consideration given to the appropriateness of the method, less independent interpretation in their discussion of findings. These papers also depended more on direct quotes rather than describing prior research in their own words.

The C (or in one case D) papers were altogether a lot more confused than the other papers. The literature reviews were often disorganized and not focused, the research questions in at least half the cases were not really sociological, the research methods were not necessarily appropriate for the research questions, and the papers trialed off into narrative way too often for a formal research paper. These students often still do not understand what data are (confusing data with research articles that they find in the library system), their proposed studies or analysis was not at the same level of analysis as their research question suggested, and they had a tendency to want to ask their research questions to their subjects. Example: Research Questions: Why do police officers have higher divorce rates compared with many other professionals? Proposed Methods: Interviewing police officers and asking them why police officers have higher divorce rates. Finally there is a marked and significant drop in the quality of the writing in the C papers compared to any of the other papers.
SOCI470: Environmental Sociology
Professor: Scott Myers

Assessment by: Dr. Scott Myers
Learning Outcome: Oral Communication

This learning outcome was assessed by the attached rubric, and all students enrolled in the class (n = 31) were scored according to the rubric. The readings for the course were comprised solely of peer-reviewed journal articles and published books by well-regarded publishing houses. The course was divided into five different topical sections, and each student was required to be a discussion leader for one of the sections. On average, each section had six students as discussion leaders, and each section lasted about three weeks. The students were provided with extensive guidelines on how to lead discussions, and these guidelines were nearly identical in scope to the criterion in the attached rubric.

Of the 31 students, 30 of them received a rubric score at the minimally acceptable level. This indicates that these students met the expectations for this learning outcome. The one student who did not score as minimally acceptable did so because of a lack of preparation and attendance. Of the 30 who met the minimal threshold, the distribution of scores were: 5 scored as Exceptional, 12 scored as Exceeds Expectations, 8 scored as Acceptable, and 5 scored as Minimally Acceptable.

Across the six criterion categories in the rubric, students excelled most in the Responding to Students and Atmosphere categories. On the other hand, the discussion leaders tended to struggle most with Question Types and Closure. In fact, only a few students were able to successfully close out a class discussion properly due, in part, because of the types of questions they used to frame the discussions. Interestingly, there appeared to be a peer-learning effect occurring throughout the semester. That is, the quality of the discussions and discussion leaders improved with each subsequent section, perhaps indicating that the non-discussion leaders learned about oral communication by observing the discussion leaders. These students then applied these lessons during their tenure as discussion leader.

Most of the students came well prepared and excited to lead the discussions, and most of the students who were not discussion leaders were equally excited for the challenge. The main hurdle for both groups of students was perhaps the level of reading required. It appeared that the students struggled with some of the academic readings, especially when these readings were highly theoretical or contained inferential statistics.

While not part of this learning outcome, the incorporation of this activity into the course appeared to have an unanticipated outcome. Namely, the quality of the in-class written exams was of very high quality.
### Discussion Leader / Oral Communication Scoring Rubric
SOCI470 – Environmental Sociology; Spring 2011

<table>
<thead>
<tr>
<th>Criterion</th>
<th>Exceptional to Good (4 – 5 points)</th>
<th>Fair to Acceptable (2 – 3 points)</th>
<th>Poor to Unacceptable (0 – 1 points)</th>
<th>SCORE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initiation of Discussion</td>
<td>Leader begins with a short, concise statement of the problem being discussed; avoids an introductory lecture.</td>
<td>Leader begins with rambling problem statement; has a tendency to lecture at the outset.</td>
<td>Leader begins discussion with a long lecture, and to some extents tends to achieve the goal by self.</td>
<td></td>
</tr>
<tr>
<td>Responding to Students</td>
<td>Leader responds well to students who provide input; acknowledges contributions regularly and thanks with sincerity; asks appropriate follow-up questions.</td>
<td>Leader non-uniformly acknowledges contributions provided by students, or uses only such statements as okay, yes, etc. Rarely asks follow-up questions.</td>
<td>Leader fails to acknowledge contributions made by students. Does not ask follow-up questions to obtain required clarification if necessary.</td>
<td></td>
</tr>
<tr>
<td>Question Types</td>
<td>Leader uses a wide variety of question types; uses questions that directly bear on the expressed goal; avoids rhetorical questions; manages to have students think and talk critically about topic.</td>
<td>Leader uses a limited variety of question types; limited applicability of questions to goal attainment; some use of rhetorical questions.</td>
<td>Leader uses a very limited variety of question types; some showing a degree of inapplicability to goal attainment; does not achieve any reasonable depth of discussion.</td>
<td></td>
</tr>
<tr>
<td>Question Shifting</td>
<td>Leader generally begins discussion with divergent questions and moves toward convergent questions near the end of the discussion; makes appropriate digressions if necessary.</td>
<td>Leader’s choice of questions somewhat erratic, but tend to move from divergent to convergent as discussion continues.</td>
<td>Leader does not exhibit any concern for type of questions asked either at beginning or conclusion. Questions bear directly on subject matter in a lock-step fashion.</td>
<td></td>
</tr>
<tr>
<td>Atmosphere</td>
<td>Leader maintains a friendly, collaborative atmosphere; all students appear free to participate without recrimination.</td>
<td>Leader tends to maintain a reasonable atmosphere for discussion, but sometimes fails to control criticisms or witticisms of others.</td>
<td>Leader fails to maintain atmosphere conducive to successful discussion; statements or witticisms of others offend some students.</td>
<td></td>
</tr>
<tr>
<td>Closure</td>
<td>Leader helps students to arrive at a meaningful conclusion to the discussion, restating the original goal, and having students explain its solution or achievement; uses appropriate questioning to ensure attainment of goal.</td>
<td>Leader tends to do his or her own summary; concludes discussion early and quickly due to a lack of time; does a minimal job to determine whether or not educational goal has been attained.</td>
<td>Leader does not achieve any form of closure, or does so very inadequitely; runs out of time; does not assess to determine whether or not students have achieved educational goal.</td>
<td></td>
</tr>
</tbody>
</table>

Adapted from: *Physics Teacher Education Program Illinois State University*

<table>
<thead>
<tr>
<th>INDICATORS OF ACHIEVEMENT</th>
<th>RANGE*</th>
</tr>
</thead>
<tbody>
<tr>
<td>EXCEPTIONAL</td>
<td>27 – 30</td>
</tr>
<tr>
<td>EXCEEDS EXPECTATIONS</td>
<td>23 – 26</td>
</tr>
<tr>
<td>ACCEPTABLE</td>
<td>12 – 22</td>
</tr>
<tr>
<td>MINIMALLY ACCEPTABLE</td>
<td>6 – 11</td>
</tr>
<tr>
<td>UNACCEPTABLE</td>
<td>5 OR LESS</td>
</tr>
</tbody>
</table>

*Work must be judged as "Minimally Acceptable" to meet the expectations for this learning outcome.

TOTAL: 30
Learning Outcomes Summary for Spring 2012
SOCIOLOGY FACULTY RESPONSE

The two courses assessed for the 2011-2012 cycle was SOCI499: Senior Capstone and SOCI470: Environmental Sociology. SOCI499 assessed the learning outcome of written communication and SOCI470 assessed the learning outcome of oral communication. The quality of the work of the students in both classes were mixed, but, on average, met the expectations for each learning outcome.

For SOCI499, the evaluation of the C and D paper group revealed that these students struggled for two different reasons: (1) many of them are just disinterested, unmotivated, and want to do only enough to get by, but (2) among this group are also students who really are just getting by and they are working at it but are just generally borderline C students. The recommendation of the Sociology faculty is that it may worthwhile to express to faculty and particularly faculty teaching research methods about the confusion in students minds about data and research articles being the same thing. Further, it would benefit our students to have to think about unit of analysis as they read through the research that we all assign in our classes. For writing skills, we believe it would greatly benefit our students and their learning if they took at least one English comp class in addition to the W Core requirement. Even among the A paper group, these stronger students might improve their writing with more practice.

For SOCI470, the Sociology faculty saw similar themes as that in SOCI499. Namely, most students struggle with original journal articles, especially those that are empirically and statistically driven. Yet, the faculty still regarded the Discussion Leader component as an integral aspect of student learning—one that goes far in achieving active and student-centered learning principles. Much like the above recommendation for an additional writing course, the faculty believe that our majors would benefit from a public speaking course, perhaps advising them to take COM110US to fulfill the CORE 2.0 requirement.

Curricular changes: None recommended at this point, but the faculty will continue to discuss the possibility of requiring our majors to take COM110US
ANTY343: Popular Culture in/out of Japan
Professor: Tomomi Yamaguchi

Assessment by: Dr. Yamaguchi
Learning Outcome: Students shall learn to analyze multi-cultural and global issues.

This course examines the significant socio-historical and political meanings that mass/popular culture has in our everyday lives in personal, local and global contexts. In this case, the focus is on pop culture materials originating from or related to Japan. With this theme, all of the materials in this course are oriented toward the learning outcome under review which deals with providing students with the tools to allow them to analyze multi-cultural and global issues. Students learned the approaches and skills to critically interpret and analyze a variety of pop culture media and people’s use of them in multi-cultural and global contexts, and learned how to connect academic approaches to popular culture to students’ everyday life experiences. Students also discussed how various cultural practices have the potential to cause social change, both in Japan and globally.

In lectures and class discussions, the class both dealt with the appropriation of American popular culture in Japan, and also with performing arts, TV shows, films and games that originated in Japan and subsequently became extremely popular and were appropriated by people in the U.S. There is a long history of such materials – such as Power Rangers and Pokemon, Japanese games, and the Internet (especially the cult-popularity, especially among the college generation, of the anonymous online message board, 4chan, which has been heavily influenced by the Japanese online message boards). Close examination and discussion of these concrete phenomenon during class provided students the opportunities to analyze popular culture in the context of globalization, as well as its impact in people’s everyday lives.

Moreover, the class discussed the roles of popular culture as a means of resistance among minorities in multi-cultural settings. An example is the discussion of the subculture of Japanese drumming, or taiko, in North America. The field trip to the Montana Taiko group’s practice session and a documentary film on Taiko in North America provided students opportunities to investigate taiko’s role as a means of ethnic pride and resistance among Japanese Americans in the U.S. Most of this has occurred since the Civil Rights era of the 1960s. Another example is the discussion of women’s professional wrestling and women’s soccer in Japan, in which students considered the role of performance and sports a means of resistance by women against the dominant construction of gender, and the possibility of alternative genders.

This year, in particular, due to the massive earthquake in the Tohoku region and resulting accident at Fukushima Daiichi nuclear power plant, a number of sources were used that reflected the past and ongoing politics of nuclear weapons and power in Japan. In some cases, a comparative American interpretation of the situation was considered as well. The class explored how the themes of nuclear weapons and energy have been discussed in Japanese media and popular culture, especially since the 1950s. Again, the United States helped to provide a comparative perspective. One source of primary materials that the
class discussed related to this theme were the films Gojira (1954) alongside Godzilla (1956), a Hollywood re-made version broadly based on the original Japanese film). Tezuka Osamu's Astroboy from the 1950s was then considered. This is a manga/anime that reflects the idealization of nuclear energy in Japan (released at a time when nuclear weaponry was heavily criticized). Astroboy also later became popular in the U.S. as well. The class then investigated the 2007 anime Summer Wars whose key motif includes the catastrophic accident at a nuclear power plant and the failure of science and technology, another extremely popular film among the anime fans in the U.S. Finally, a recent manga (2007~current), Coppelion, whose setting is nearly identical to the recent tragedy at Fukushima Nuclear Power Plant was analyzed and discussed in the class. Through in-depth analyses of those works, students gained the ability to critically examine popular cultural phenomenon in relation to significant social and political issues in Japan and beyond.

The course included lectures, in-class and online discussion on the assigned readings and films, oral presentations and discussion led by students. These approaches gave students ample opportunities to actively participate in the analysis of popular culture in and out of Japan, and its role in global and multicultural world. Along with scholarly articles and books, students were exposed to primary materials from Japan – such as manga, anime and films (subbed or dubbed) -- and conducted critical analyses on them.

There were four major assignments for the course (in addition to readings and watching films, class participation and online participation). I will list them below, with brief explanation of how it is relevant to students' obtaining skills analyzing global and multicultural concerns.

To quantify the research outcomes of this course, I have used the scores on Assignment #1 (Gojira/Godzilla paper) as the data source and aligned the outcomes with the proposed scoring method. That scoring method as defined in the document that outlines the anthropology learning outcomes is:

Scale:

- Unacceptable 1 (for graded assignments = D, D-, or F)
- Minimally acceptable 2 (for graded assignments = D+/C-)
- Acceptable 3 (for graded assignments = C/C+)
- Exceeds expectation 4 (for graded assignments = B’s or A-)
- Exceptional 5 (for graded assignments = A/A+)

1. Assignment #1 Gojira/Godzilla paper – Students were asked to critically examine and compare two films: one is Gojira made in Japan in 1954, and the other is Godzilla produced in Hollywood in 1956, and present their analysis in a 3-4 page paper. The 1956 American version is an edited and re-made version of the original 1954 version produced in Japan. Students were asked to pay particular attention to the historical context of the 1950s Cold War era, and especially in relation to the U.S. nuclear testing and the emergence of anti-nuclear sentiments in Japan in the 1950s. Students were also asked to conduct critical analyses of the representation of “Japan” and of the Japanese people, character descriptions, historical and political backgrounds, genders,
and a newly added character that appears in the U.S. version. With twenty-seven students submitting projects, the average percentage score on the project was 84.87%. In accord with the scale noted above, this suggests that, as a whole, the class “exceeds expectations” for the global/multicultural analysis learning outcome. On a student-by-student basis, three students completed projects in the “exceptional” category. On the other hand, two students were in the “acceptable” range, five students were in the “minimally acceptable” range, and one student was in the “unacceptable” range. All remaining members of the class were in the “exceeds expectation” range.

2. Assignment #2  Taiko field trip paper with Montana Taiko. – Students were asked to go to a practice session by a local taiko group, participate in the practice, and write an ethnographic analysis of the session, along with a comparative discussion of the history and contemporary practices of taiko in the U.S. The main purpose of this assignment is to critically analyze the history of cultural exchanges and practices as a means of ethnic pride and resistance in a multicultural society. The average score for the class was 84.43%, and other than five students whose works were “minimally acceptable” and one student in “acceptable” range, all other students received “exceeds expectation” or above.

3. Assignment #3  Doujinshi (in Japanese) or zine-making project featuring manga or any other materials that students choose to focus on. This group project provided an opportunity for students to engage in hands-on experience of an extremely popular sub-culture in Japan, among literature, manga and anime fans. By engaging in the project, students discussed the reasons for popularity of this particular subculture in Japan – and in the U.S. as well. All groups received “exceeds expectation” or above for this assignment.

4. Assignment #4  Students wrote an 8-13 page paper on an issue relating to Japanese popular culture that emerged out of this class (e.g. popular culture and social change, globalization of popular culture.) Some students chose a poster-option and a film-making option, combined with a short paper. Students were asked to integrate the knowledge they gained through the readings, discussions, analysis of internet resources, media viewings, fieldtrips, as well as required additional research for the paper. Exceptional works includes a detailed analysis of the history of the “super sentai” series (so-called “Rangers” series, such as Mighty Morphin Power Rangers). It included an in-depth comparison as well as historical contextualization. The other outstanding paper critically analyzed the representation of shrine maids in Japanese manga/anime, and discussed the cultural meaning behind the popularity of this form. One characteristic of this class is that students tend to become extremely enthusiastic about what they research. The works by most skilled students are unique in their approaches and could be easily developed into Capstone project, or even into a Master’s level thesis. There were three students who failed to submit this assignment in time, and four students received “acceptable” scores. All others received “exceeds expectation” or above, with five students who did “exceptional” quality work.
It should be noted this course has students from a wide variety of majors including Anthropology, Japan Studies, film, global and multicultural studies, etc., with varying degree of knowledge and different amounts of experience writing upper-division, college-level papers. Students who were in the “minimally acceptable” and “unacceptable” ranges received better grades in the assignments later in the course. There was also an exchange student from Japan in the class who struggled with writing her assignment in English, especially earlier in the semester. This student received a “minimally acceptable” score.

Assessment of these major assignments in the class demonstrates that the class as a whole exceeds learning outcomes for global/multicultural analysis.

As an additional note, I had a few students at the end of class who were so inspired that they are seriously considering pursuing the subject of Japanese popular culture in graduate school, or are contemplating switching their majors to Anthropology or Japan Studies.

**Assessment by: Dr. Larry Carucci**

**Learning Outcomes: Students shall learn to analyze multi-cultural and global issues.**

The syllabus for Anthropology 343 is chock full of opportunities for students to address multi-cultural and global issues, most particularly those relating to contemporary and historical issues in Japan, the society used to frame this course.

In addition to reviewing the syllabus, as an outside reviewer, I have read a sample of two assignments that provided students with occasions when they had to use their knowledge of the cultural and historical differences between Japan and the United States in order to demonstrate to the professor their awareness of the specific grounding of these differences. The first of these exercises asked students to compare the two films Godzira and Godzilla (a Japanese and American rendition of “the same” material) as a way to address how the Japanese original was posited as an anti-nuclear critique in an era following the horrendous end of the Pacific War along with the disastrous aftermath of the 1954 Bravo Test in the Marshall Islands. With a far different socio-historical positioning, the film was re-made in the United States as Godzilla, a much more genre-typical horror thriller with an over-elaborated love story accompaniment that downplayed nuclear/technological themes and the awkward political positioning of the United States in these historical events. The most skilled students demonstrated a sophisticated understanding of these thematic differences as well as the fact that they could NOT be attributed to any simplistic idea that a we::they distinction could account for the distinctly different consciousnesses that underlay the way in which the films came to be fashioned in such thematically unique manners. The less skilled students were still able to point to distinct themes in the two films and to align them with some critical differences in the cultural practices of Japan and the United States, even if they were not as nuanced in their ability to situate these distinctions in specific historical and contextual frames that might best be used to account for the differences. Equally, the most sophisticated students were highly skilled in their use of examples and outside sources to support their arguments, with the mediocre students being less-systematic in their deployment of these analytic tools. In short, this assignment
provided strong evidence that the students had been provided with a sophisticated way of analyzing cross-cultural perspectives on an issue of global concern. As always, the most accomplished students were able to demonstrate that they had thoroughly incorporated the ability to deploy this knowledge with aplomb, while the less accomplished students certainly learned a good deal about how to approach such problems.

Similarly, the second exercise asked students to write an analysis based on their cross-cultural understanding of a Montana Taiko event. In this case, the exercise allows students to engage in a field research exercise and to personally experience something of the “feel” of doing Taiko as well as interviewing some of those in the group who regularly engage in this performative sport/ritual event. These are state of the art skills that students with plans to move on to graduate school must understand (as is the case for many of the anthropology majors who are students in this class). Equally, the written exercise, with its requirement to compare the students’ own research experiences with anthropological accounts of Taiko, and to historically contextualize their analyses are most important. This encourages students to engage some well-grounded contrasts between American society and Japanese society (like the radical individualism of Americans and the socio-centric orientations of Japanese) at the same time it forces them not to reify such stereotypes. As with the Godzira and Godzilla exercise, the most skilled students demonstrated considerable sophistication in their ability to position the differences between Japanese and American social practice in a contextually appropriate manner. The mediocre students tended more toward stereotype. Nonetheless, they were able to identify some central performative themes of Taiko and relate them to important distinctions that generally hold true for Japanese cultural activities. Admirably, in a couple of the best papers, students were also able to begin to explore how their personal experiencing of this event, even at an introductory level, altered how they might position themselves as they fashioned an analytic account of what Taiko was all about. Finally, several students also attempted to explore just how the syncretic features of this event required some special thought about the heterodoxy in all performances of this type. This automatically moves students away from any simplistic stereotyping of cultural difference toward a much more appropriate understanding of the types of “otherness” encountered in today’s globalized world.

In short, an analysis of the syllabus and student research materials submitted for Anthropology 343 demonstrates that this course accomplishes its goal of presenting students with a sophisticated framework through which they may come to understand multi-cultural and global issues. Reading the students’ work, I would say the course “exceeds expectations” in demonstrating how students have internalized these messages, with the best students quite clearly in the “exceptional” range.
ANTY425: Social Organization  
Professor: Dr. Larry Carucci

Assessment by: Dr. Larry Carucci  
Learning Outcomes: Research

Social Organization is a Capstone course in Anthropology designed to complement material learned in Anthropological Theory and focused on a comprehensive senior-level understanding of how anthropologists have approached this central topic since the inception of anthropology in the second half of the nineteenth century. Therefore, the course provides a history of social organizational theory (and kinship theory has been at the core of anthropology since its inception) as well as an investigation into several recent approaches to the topic. Shifting research methods are inextricably intertwined with the outcomes of research in social organization and students learn about the different methodological approaches and their outcomes throughout the course. Students are also expected to complete a research project and approximately 1/3 of the course is focused on this project.

Students always design their own research projects, but in Spring Term of 2012, they were encouraged to use active, grounded, ethnographic methods to inquire into the principles that members of their own families used to define what kinship and family relationships were all about. As an option, students were encouraged to see how residence might be implicated in the redefinition of interpersonal relationships through the life cycle. Finally, one archaeology student, by special arrangement with the instructor, focused his inquiry on the difficulties encountered in the attempt to "read" gendered activity out of the material cultural remains investigated by archaeologists.

The entire class began the research process with a discussion of the parameters of research in the field, ethical concerns, and the reasoning behind the IRB process. While most students in anthropology are already CITI certified, those who were not completed their CITI certifications, and each student submitted a research proposal detailing the focus of their project by the beginning of the third week of class. Once projects were approved by the MSU IRB, students began their research, consulting with Professor Carucci throughout the term at any point a student encountered any research difficulty. Most of these concerns had to do with developing a narrower and more focused research question that could be addressed in reasonable depth within the time constraints presented by the term. For those students desiring early feedback, early drafts received detailed comment. These were due early in April, with the final projects (typically research papers of 15-30 pages supported with outside comparative sources and appended field research notes) due during the final week of Spring Term.

In terms of content, two students dedicated the main part of their research inquiry into residential concerns, though a few other class members also considered changing residence patterns as one critical factor influencing the shifting nature of interpersonal relationships within their own families. In one of the residence-focused projects, the student researcher looked at the ways in which the move from a long-standing family
residence into a long-term care facility was envisioned by seniors who had experienced such a move. Both survey and interview methods were involved in this inquiry. The perspectives of the seniors were then compared with the views of two staff members at this long-term care facility in order to see the strategies used to make the long-term care setting "home-like" and to see the success or failure of this strategy in the eyes of the residents of the care facility. The second residence-focused research project relied on extended interviews with college-aged students to come to understand what effects shifting residence (from their families of orientation to the university setting) had on the identity constructs of these students. This research was exemplary in terms of its depth and focus.

Remaining members of the class interviewed numerous members of their families and more extended relatives to assess what the key principles were used to define what kinship was all about. Most of the students discovered that these principles were largely subconscious and people just took them for granted. Secondly, many discovered that there was some agreement of the nature of the underlying principles, there was also substantial variation in which principles were stressed. The best students could then identify the way in which these variations among their relatives were related to the social positioning of each person within the larger social field. Finally, several students also noted correlations with other social organizational researchers in the field who have noted that through time, American kinship is slowly being reconceived in a fashion that includes more individual "intent". This, of course, correlates with the increasing sense at the cultural level that individual choices really make a difference in how people live their lives. And, ironically, this cultural stress on the importance of individual choice itself correlates with the decreased amount of control that individuals actually have over the course of their lives at the level of social practice.

In cultural terms, this means there is a shift in the idea that "blood is thicker than water" (once a kinsperson, always a kinsperson) toward a newer construction of "fashioned kinship" (my family or kinship group is made up of immediate consociates who act properly and I feel "close to"). The most sophisticated students correlated their research findings with other materials we read during the term along with outside published sources. In every instance, ethnographic inquiry by the students should have been aligned with other research in the field as one requirement of the course.

Overall, all students in this class demonstrated a reasonable understanding of the methods of research inquiry in the field of anthropology. Each student used appropriate ethnographic methods to acquire the materials needed to ground their research and each student was able to use those field research materials as a primary source to ground their general analysis. In all cases, students allowed their readers to "hear the voices" of those whom they interviewed, often using appropriate quotations from their interviews. Most students also grounded their findings in comparative published sources in a meaningful way, and the best students were able to point out how their own research not only corroborated some of the most recent research findings in social organizational theory, but also may have led in certain new, innovative directions.
To quantify the research outcomes of this course, I have used the scores on the research project as the data source and aligned the outcomes with the proposed scoring method. That scoring method as defined in the document that outlines the anthropology learning outcomes is:

**Scale:**
- Unacceptable: 1 (for graded assignments = D, D-, or F)
- Minimally acceptable: 2 (for graded assignments = D+/C-)
- Acceptable: 3 (for graded assignments = C/C+)
- Exceeds expectation: 4 (for graded assignments = B’s or A-)
- Exceptional: 5 (for graded assignments = A/A+)

With fifteen students submitting projects, the average score on the project was 87.33. In accord with the scale noted above, this suggests that, as a whole, the class “**exceeds expectations**” for the research-learning outcome. On a student-by-student basis, 2 students completed projects in the “exceptional” category and 3 students were on the border that separates “exceptional” and “exceeds expectation”. On the other hand, 2 students were in the “acceptable” range and 1 student was on the border that separates “exceeds expectation” from “acceptable”. All remaining members of the class were in the “exceeds expectation” range.

It should be noted that one (1) student failed the course by not submitting a drop form, but that student completed only one of three exams and did not submit a research project. With the exception of one day in early April, this student stopped attending class on March 9th, prior to Spring Break. That student is not included in the research assessment since the research project was not completed and no research materials were submitted.

As the long-standing instructor for this course, I have no doubt that this class (along with Anthropological Theory) is successful in teaching students how to conduct hands-on research using appropriate anthropological methods. The best proof of this is not the claim of the professor nor the quantitative measures, but comes from students who have now completed graduate school and return to note that they not only understood the appropriate theory to a far greater degree than any of their fellow graduate students, they also knew how to conduct sophisticated anthropological research from having done so in these two capstone anthropology courses (Social Organization and Anthropological Theory) as well as in other classes in the anthropology curriculum.
Assessment by: Dr. Tomomi Yamaguchi
Learning Outcomes: Research

As a capstone course in Anthropology, Social Organization requires students to engage in their own ethnographic research project as the major assignment for the course. In Spring Term of 2012, many students conducted in-depth interviews with the members of their own families on their definitions and conceptualizations on kinship and family relationships. There were also students who chose to study the implication of residence on one’s interpersonal relationships and his/her definition of “home.”

In order to conduct ethnographic field research for the class, students had to acquire necessary knowledge of research methods and ethical issues. They obtained CITI certification and applied for IRB approval. Students were also required to spend significant amount of time interviewing people, transcribing the interview data, analyzing the materials in detail, and discussing them utilizing various theories of kinship that they learned in class.

I read several of the students’ research projects for the class. While there was the range in the quality of students’ papers, all papers, even the weaker ones, clearly conducted in-depth interviews with their own family members or interviews on residence locales people inhabited around Bozeman, and they presented the research results as the basis for their analyses. The papers clearly show students’ following necessary ethical guidelines and having acquired methodological skills appropriate for a senior-level sociocultural anthropology capstone course.

All papers not only presented their research results, but also demonstrated their analyses – although to varying degrees – by utilizing theoretical perspectives learned in the course. Students especially used anthropologist David Schneider’s work on kinship to support their own analyses of the conceptualization of kinship of their own family members. Even mediocre papers that include some misunderstandings and a lack of in-depth grasp of Schneider and other kinship theories, still attempted to incorporate theoretical perspectives in their analyses. Stronger papers went much more in depth in their analyses of ethnographic data, incorporating not only theories learned in class but also several outside sources to support their analyses.

Writing is another crucial component in anthropological research, and while some weaker papers still have some writing issues in terms of grammar and organization, above average students successfully presented their argument on the construction of kinship, family, locality and “home” in the United States, in a manner more than appropriate for senior level college students. Their sentences, along with organizations, showed major improvement from what I typically see in lower-division and mid-level Anthropology courses.

As a result of the above assessment, it is clear to me that the learning outcomes on research were successfully met in this course. In most cases, I would judge the learning outcomes on average to fall in the “exceeds expectation” range.
Learning Outcomes Summary for Spring 2012
ANTHROPOLOGY FACULTY RESPONSE

The members of the Anthropology Program met to review the implementation of our assessment plan for Spring Term 2011. The initial reviews were of two upper-division courses. One of these was Anthropology 343, Popular Culture In/Out of Japan, which was assessed to ascertain the success in accomplishing the learning outcome to "learn to analyze multi-cultural and global issues." The second course was Anthropology 425, Social Organization, which was assessed to measure the learning outcome to "acquire research skills that include the acquisition, analysis, and synthesis of research materials in a report format, as appropriate to the course" The respective enrollments for these courses were 29 students (Popular Culture) and 17 students (Social Organization). Our review procedures entail having the course instructor use the relevant criteria to review his/her own course and also have the second specialist in this sub-discipline of anthropology (in this case, the second instructor at MSU with expertise in Social and Cultural Anthropology) read a subset of the materials submitted by students for the course to see if the relevant criteria has been met.

Using the two projects submitted for Popular Culture, the instructor (Dr. Yamaguchi) determined that, overall, the course had exceeded expectation (4 on a scale of 5) in meeting the learning outcome. The second reviewer, Dr. Carucci, reading a sub-set of these two projects, agreed that the course had exceeded expectation (4 on a scale of 5) in providing students with an opportunity to learn and analyze multi-cultural and global issues. For the second course, Social Organization, the instructor (Dr. Carucci) assessed that the course had exceeded expectation (4 on a scale of 5) in providing students with research opportunities and skills that included "the acquisition, analysis, and synthesis of research materials in a report format." The second reviewer, Dr. Yamaguchi, independently reading several of the student's projects, agreed that the course exceeded expectation in providing students with research opportunities and assisting them in developing the skills to gather, analyze, and synthesize research materials in a report format.

As a faculty, we believe our curriculum is one of the exemplary locations on campus where students learn to analyze multi-cultural and global issues in a sophisticated analytic manner. Our curriculum stresses research projects in most courses from the sophomore to senior levels, thereby preparing students early on to engage in research activities. The capstone courses, including Social Organization, provide students with meaningful research opportunities that encourage them to apply relatively sophisticated abilities to acquire, analyze, and synthesize these research materials in one of several viable reporting formats.

The two courses assessed here have exceeded expectations for the selected criteria. At the same time, both courses successfully meet the broader learning outcomes designated for all courses within the anthropology curriculum.

Curricular changes: None recommended
Assessment Report for Anthropology major and minor
Assessment Report for Sociology major, including Criminology option
Assessment Report for Sociology minor

September 15, 2014
Learning outcomes reviewed in Anthropology for 2013-2014:

1) Students shall learn to read, understand, and critique anthropological works.
2) Students shall learn to formulate and present materials in an oral format.

Two classes were reviewed for the academic year 2013-2014 following the established review procedures. A summary of the review procedures, outcomes, and new strategies follows the review of each class.

ANTY 350: Old World Prehistory
Professor: Michael Neeley

Assessment by: Dr. Michael Neeley
Learning Outcome: Students shall learn to read, understand, and critique anthropological works.

This course provides an understanding of the origins and development of human culture over the past three million years in the Old World (Africa, Asia, Europe, and Australia). Rather than just surveying cultural developments, this course examines key theoretical and methodological developments in the fields of archaeology and paleoanthropology as they pertain to the Old World archaeological record. Specific course outcomes for students include demonstrating an understanding of the archaeology of the Old World ranging from the Lower Paleolithic through the rise of the state, understanding key developments and debates in Old World archaeology, engaging in critical thinking and discussion of Old World themes, and applying these themes in a research paper using primary, professional sources.

The course material was presented through a combination lecture and discussion. The discussions followed topical readings from selected archaeological journals and book chapters. These readings and subsequent discussions gave students an opportunity to explore the archaeological topics that fall within the parameters of the Old World.

Assignments for the class included ten quizzes, covering a different set of readings. These quizzes were administered on a weekly basis. In addition there were three exams that covered: (1) taphonomy and the Lower Paleolithic, (2) modern human origins and the Upper Paleolithic, and (3) agriculture and the emergence of complex societies. There was also a final paper project that required the student to apply their understanding of Old World archaeology to a topic of their choice.

To quantify the research outcomes for this course, I used the scores from the final exam as a data source and aligned the outcomes with the proposed scoring method. The scoring method as defined in the document that outlines the anthropology learning outcomes is:
A total of 28 exams were submitted by the students. The average score for the final exam was 83% (or 3.64 on a 5 point scale). Using the above scale, this suggests that the class “exceeds expectations” for the learning outcome of reading, understanding, and critiquing anthropological works. This appears to be solidly in the middle of the measure and certainly exceeds the acceptable standard. On a student by student basis, four students were in the unacceptable range, four in the minimally acceptable, one in the acceptable, eight in the exceeds expectations, and eleven in the exceptional range.

In the case of the four students in the unacceptable range, they did not adequately prepare for the final exam either through poor attendance or lack of reading as evidenced by their poor scores on the reading quizzes.

In sum, I believe the assessment indicates that students who take this class (and put forth an honest effort) are successful in meeting the learning outcomes of learning to read, understand, and critique anthropological works.

**Assessment of ANTY350 taught by Dr. Michael Neeley**
**Assessed by: Dr. Jack Fisher**

**Learning Outcome:** Students shall learn to read, understand, and critique anthropological works.

The syllabus for ANTY 350 (*Old World Prehistory*) clearly indicates that the students will be engaged throughout the course in reading, analyzing, and critiquing a large number of anthropological publications pertaining to a broad range of important topics in Old World prehistory. These learning opportunities include reading assignments (professional journal articles and scholarly book chapters) on which students were quizzed on a weekly basis, leading class discussion on assigned readings, taking exams, and carrying out a major research project culminating in a written paper.

Six Final Exams (Exam #3) were provided for this assessment. The Final Exam consisted of two essay questions, 10 concepts/terms that had to be defined, and a small number of extra-credit points for naming certain archaeological models. The essay questions were well designed to test students’ knowledge of the substantive archaeological topics as well as important theoretical, methodological, and conceptual approaches employed in archaeological investigations in the Old World. Both questions required students to discuss a specific journal article that addresses a major question/problem in Old World prehistory. One of these articles pertains to
archaeologists’ understanding of the process of animal and plant domestication, and the other pertains to the emergence of state-level societies in southern Mesopotamia. The concepts/terms to be defined tested students’ knowledge on specific archaeologically important artifact types, archaeological sites, explanatory models, paleo-environmental episodes, and the like. Students’ results ranged from exceptional to unacceptable. The best students showed a good understanding, in their answers to essay questions, of relevant methodological, theoretical, and conceptual approaches, and were able to relate these in a thoughtful fashion to the particular archaeological issues/problem in Old World prehistory that the essay question specified. These students’ responses to the definitions of concepts/terms displayed a good understanding of all 10 concepts/terms. In addition, they received the maximum possible extra-credit points. The students who performed poorly displayed, to varying degrees, essay answers that were incomplete, superficial, generalized, or otherwise reflected deficiencies in the student’s understanding of the substance of the question. They displayed, to varying degrees, an incomplete understanding of one or more of the 10 concepts/terms that were to be defined. They did not receive the maximum possible extra-credit points.

The Final Exam offered students an excellent venue for displaying their understanding of the substance of key issues in Old World prehistory, as well as major methodological and theoretical advances that guide archaeological research. The sample of students’ materials that I have examined convinces me that this course “exceeds expectations” with respect to the designated learning outcome that students shall learn to read, understand, and critique anthropological works.

Anthropology 336, Myth, Ritual, Religion,  
Dr. Laurence M. Carucci

This course was selected by the anthropology faculty to serve as the class to be used to assess the following outcome:

**Learning Outcome:** Students shall learn to formulate and present materials in a clear and understandable oral format.

The class involved three exams over a number of required books and reserve readings along with a project. Topics for the projects were selected by small teams of students organized into research groups but, while research could be conducted in small groups, the final papers and presentations were to be completed on an individual basis. Topics varied depending upon students’ interest, but included work on a local atheist group, on local Buddhist meetings, on neo-Pagan believers in and around Bozeman, on local Catholic religious practices, and others. 100 percent of the content grade for the research project was based on the written paper, but 25% of the overall project was judged on the basis of the quality of the oral presentations. This percentage was decided by a vote of the class members.
Therefore, other than in the rare case where a lack of content had a direct effect on weaknesses in the presentation, only the public speaking components of the presentation were judged as part of the oral presentation grade.

Due to the size of the class and the fact that all presentations had to be given in the final 1/3 of the term (with most of them in the final two weeks), each student was given a 10-12 minute time frame to present their materials. It was suggested that, given the time constraints, no more than 5-6 power point slides be used for the presentation.

Oral presentation grades fell within a narrower range than did the overall grades for the project. All grades were between a mid-C and an A with most falling in the B- to B+ range. This indicates that most of the students in this class can do a reasonable job when asked to present orally even if they were not able to complete a very sophisticated research project. Not surprisingly, those with the most sophisticated projects also did better, on average, with the presentations when compared to other members of the class. Just over 50% of the students in this class were anthropology majors, with others coming from disciplines such as religious studies, psychology, or the physical sciences.

Student presentations were judged on the basis of organization, clarity of verbal presentation -- (voice quality/loudness/modulation, speed of presentation, etc), clarity of the power point presentation (were photos of a size to be readily visible to the audience, were any written materials on the slide easily readable, was too much information presented on a single slide, etc.), engagement with audience (eye contact, excitement conveyed to audience, did speaker talk only to the presentation screen and not direct any attention to audience, etc.)

The most common areas where improvement could be demonstrated were:

- eye contact with the entire group of students.
- not constantly speaking to the PowerPoint slides showing on the screen
- simplification of slides/too much information on slides/slides should not include the entirely of what you (as speaker) intend to convey to audience
- other issues with PowerPoint slides (print or images too small or not adequate contrast)
- ending statements with questioning tonality (as the presenter, you are the authority)
- organization of presentation
- precise word choice

Overall scores for the entire group of students who presented indicate that the course "exceeds expectations" 4 (on a scale of 5) when it comes to their oral presentation abilities. The overall class average for presentations was at a high "B" level, just shy of a "B+". In contrast, the class average for the content part of the
research projects was also at the "B" level, but closer to a "B-". Of course, while the ability to present is important for anthropology majors and those in related disciplines since this is something they will likely encounter in their future lives, it is not a core content component of anthropology, per se. Nevertheless, inasmuch as MSU no longer has a speech communication requirement for graduation, the anthropology faculty feel it is necessary to ensure that our majors are at least reasonably competent with oral presentations. This assessment indicates that, while there is certainly room for improvement with every student (no one received 100% for their oral presentation), the students in Anthropology 336 provide evidence that this learning outcome has been met at the **exceeds expectation** level.

Assessment of ANTY336 taught by Professor Laurence M. Carucci  
Assessed by: Dr. Tomomi Yamaguchi, Associate Professor of Anthropology  
Learning Outcome: Students shall learn to formulate and present materials in a clear and understandable oral format.

As part of the class requirement, students must deliver a 10-12 minute presentation on their own anthropological research projects at some point during the second half of the semester. Presenting their own research is a skill that anthropology students frequently need in their upper-division classes, and to prepare students for their future careers in Anthropology and other related fields. Students were encouraged to use power point slides in their presentation, in ways that anthropologists usually do in academic presentations. Students were also provided with instructions as to what constitutes good oral communication and help with constructing high quality visual aids (power point slides) was provided to the students as well.

The criteria of evaluation included: organization of the presentation, clarity of verbal presentation, clarity of the power point presentation, and engagement with audience. All of these are necessary components of successful academic presentations in sociocultural anthropology. The presentation was evaluated independently from the contents of students’ projects, and focused only on the oral presentation. Frequently, this meant that a student’s grade on the oral presentation varied significantly from the grade the student received for the field research project.

All oral presentation grades were between a mid-C and an A with most falling in the B- to B+ range. The average of all student presentations in the class was slightly above 86%. These grades clearly reflect the successful achievement of the learning outcome of oral presentation in the Anthropology program. While anthropology students will gain additional experiences and practices in oral presentations in their 400-level classes, the results of ANTY336 demonstrated that the students exceeded expectations on the learning outcome for oral communication in Anthropology.
Learning Outcomes Summary for Autumn 2013-Spring 2014
ANTHROPOLOGY FACULTY RESPONSE

The faculty of the Anthropology Program met to review the assessment plan for the Fall 2013 and Spring 2014 terms. The reviews were of two upper division courses. The first of these was Anthropology 350, Old World Prehistory, which was assessed to ascertain student success in the learning outcome to “learn to read, understand, and critique anthropological works”. The second course was Anthropology 336, Myth, Ritual and Religion, which was assessed to measure the learning outcome to “learn to formulate and present materials in an oral format.” The enrollments for these courses were 28 students (Old World Prehistory) and 26 students (Myth, Ritual and Religion). Our review procedures involve having the instructor use the relevant criteria to review his/her own course and have the second specialist in this sub-discipline (archaeology in the case of Old World and social and cultural anthropology in the case of Myth, Ritual) read a subset of the materials submitted by the students, or overview their oral presentations to see if the relevant criteria has been met.

For Old World Prehistory, the instructor (Dr. Neeley) determined that the course, on average, exceeded expectations (4 on a scale of 5) in meeting the learning outcome. The second reviewer (Dr. Fisher), reading a sub-set of the student exams and projects, agreed that the course exceeded expectations in providing students with an opportunity to read, understand and critique anthropological works. In the second course, Myth, Ritual and Religion, Dr. Carucci assessed that the course had exceeded expectations (4 on a scale of 5) in providing students with lab opportunities to formulate and present materials in an oral format. The second reviewer (Dr. Yamaguchi) overviewed a sub-set of presentations and independently agreed that the course exceeded expectations with regard to the proposed learning outcomes.

While we agree that the courses under review here are successful in meeting the learning outcomes, there are typically a handful of students who are not particularly successful in the courses. As part of our assessment, this is an opportunity to reflect upon the methods and strategies used and suggest ways in which the student outcomes can be improved. One concern is always with getting students to read all materials required for the course or getting them to read a high quality sampling of the existing research on a particular student field research project topic. Some students often seem to postpone their reading until the last minute or try to get by without reading each work comprehensively. The supporting literature for research projects may be selected by the student in haste, without a consideration of the best and most up-to-date literature on the topic. The supporting literature problem could be addressed by requiring each student to meet with the professor to review their selected literature well in advance of the end of the class. One strategy to encourage students to read in a more consistent and engaged manner would be to require them to engage in on-line discussion groups for each topic or for a selected set of readings. The student conversations that take place around the posted
questions should then offer a good guide to assess whether each student is able to capture the core themes of that particular reading. The professor would then follow up with students who struggle to capture important elements of the readings. Additionally, students periodically could be required to submit synopsis of reading assignments. It is our hope that implementing new reading and research assessment strategies will help students at the upper level move toward accomplishing their goals of increased comprehension and analytic sophistication as they attend to already existing literature in the field of anthropology.
SOCI 318 Research Methods
Instructor: Sara Rasch

Assessment by: Cody Warner and David Eitle
Learning Outcomes: Sociological application

SOCI 318 is an upper division sociology course whose stated learning objectives are: a) understand and describe a variety of different quantitative and qualitative research methods; b) identify the methods appropriate to investigate different research questions; c) frame a sociological research question and identify and apply appropriate research methods to address the question; and d) demonstrate the ability to synthesize the literature on a sociological research question.

We randomly selected 10 papers to. Four A papers, three B papers, and three C papers were selected for the assessment. The papers that were assessed were papers in which the student was asked to propose a research question, provide support for the research questions, and then create a proposal that discusses how the question will be address (i.e., methods utilized). Students were required to provide citations and a reference list.

We constructed the scoring rubric (attached) independent of the paper assignment itself, since the purpose of the assessment is to determine whether learning outcomes are being met. Nonetheless, it is an important caveat to note that the goals of the paper assignment may not be entirely consistent with the assessment of this particular learning outcome.

A’ papers:
The A papers that were sampled were generally well written, with adequate attributions and (overall) well organized. The students did a credible job in identifying a testable research question and overall, produced solid support for the research questions.

‘B’ papers:
The B papers that were sampled were not as well written or as well organized as the A papers (as expected), but were still solid essays. However, the assessment committee began to see students struggle to produce a sociological research question that could be empirically tested. A question was often posed, but it was unclear how the question would guide the literature review that followed. Students still provided suitable support for their research ‘interest,’ but it was a bit more challenging to discern what their research question was and (for some) what was sociological about the question.

‘C’ papers:
The C papers were (at best) adequately written and suffered from organizational problems. The biggest deficit, however, was that the sampled papers failed to demonstrate an understanding of what constitutes a sociological research question. The support for the ‘interest’ was adequate, likely stemming from struggles to frame the interest in a sociologically relevant way.
**Recommendations:**
Being able to formulate sociological research questions is a critical skill and we found that at least half of the students in this course found this challenging. In addition, those teaching the capstone courses have also noted that developing sociological research questions is something that students struggle with achieving, even at the end of their degree program. In order to improve student outcomes on this learning goal we recommend that all upper division courses emphasize identifying and formulating sociological research questions, including providing more examples in class, having students practice writing questions and giving students more examples on how to set up a paper, organized around the research question.
**Learning Outcome 4: Sociological Application:** Our students will formulate research questions based on critical readings and understandings of sociological research.

<table>
<thead>
<tr>
<th>Grading Criteria</th>
<th>Poor (1)</th>
<th>Unsatisfactory (2)</th>
<th>Average (3)</th>
<th>Above Average (4)</th>
<th>Sophisticated (5)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Formulation of Sociological Research Questions</strong></td>
<td>The research question or problem is neither clear nor adequate and the student fails to demonstrate an understanding of how research questions contribute to sociology</td>
<td>The research question or problem is neither clear nor adequate</td>
<td>The research question or problem is not completely clear and requires significant modifications.</td>
<td>The research question or problem is clear and only requires minor modifications. It may not be very compelling or original, however.</td>
<td>The research question or problem is clear and compelling. It also demonstrates some originality in thought.</td>
</tr>
<tr>
<td><strong>Support for Research Questions</strong></td>
<td>Student does not provide any support beyond individual experience, speculation, and conjecture for research</td>
<td>Student largely fails to provide support for research question or problem, fails to use appropriate research databases to inform the research question.</td>
<td>Student provides some basis for research question, but large gaps exist in providing relevant theories, research, and sources.</td>
<td>Student includes appropriate theories, research evidence and sources to generate research question or problem, but may be missing some relevant material</td>
<td>Student selects appropriate theories, research evidence and sources to generate research question or problem</td>
</tr>
<tr>
<td><strong>Overall Organization</strong></td>
<td>The essay is confusing with no organization.</td>
<td>The main points of the essay are ambiguous, making the writer’s ideas difficult to follow.</td>
<td>Writing has minimal organization and a basic thesis statement, but does not go beyond the basics.</td>
<td>Writing follows a unified and logical organization, but sometimes drifts from the thesis.</td>
<td>Organization is unified and logical, with excellent transitions</td>
</tr>
<tr>
<td><strong>Grammar and Punctuation</strong></td>
<td>Severe problems with grammar, usage, or mechanics show very poor control of language and may significantly impede understanding.</td>
<td>Numerous errors in grammar, usage, or mechanics show poor control of language and may at times impede understanding.</td>
<td>The essay has a few major errors and multiple minor errors, but almost all sentences are clear and understandable.</td>
<td>The essay has few major errors. There may be multiple minor errors as long as they do not interfere with understanding.</td>
<td>The essay has no major grammatical and punctuation errors and very few minor errors. Any minor errors do not interfere with the understanding of the essay.</td>
</tr>
</tbody>
</table>
SOCI 311 Criminology
Instructor: Sara Rasch

Assessment by: Cody Warner and David Eitle
Learning Outcomes: Sociological Theories

SOCI 311 is an upper division criminology course whose stated learning objectives are: a) demonstrate an understanding of the nature and causes of crime and delinquency; b) demonstrate an understanding of the extent and distribution of crime; c) use sociological methodology to study crime and delinquency; d) evaluate explanations of crime and delinquency; and e) analyze and assess primary research literature or research data related to crime and delinquency.

We randomly selected 10 papers to assess for student’s application and understanding of theory, concepts, and assumptions. Four A papers, three B papers, and three C papers were selected for the assessment. The papers that were assessed were papers in which the student was asked to identify a social problem, explore the literature salient to the problem, and then apply a generalist criminological theory (or theories) to explain the behavior/problem. Students were required to provide citations and a reference list.

We constructed the scoring rubric (attached) independent of the paper assignment itself, since the purpose of the assessment is to determine whether learning outcomes are being met. Nonetheless, it is an important caveat to note that the goals of the paper assignment may not be entirely consistent with the assessment of this particular learning outcome.

‘A’ papers:
The A papers that we sampled were of the best quality of the papers we sampled. They were most set apart from the other papers by being well written, fairly well organized, and appear to make appropriate attributions to the work of others. These students also demonstrated a better understanding of theoretical concepts compared to other students. That said, even students who earned this grade seemed to largely ignore the assumptions of the theory being discussed, and could have made more sophisticated examinations of the theory than were provided.

‘B’ papers:
This group of papers were solid overall, but also demonstrated some clear deficiencies. For instance, the writing and organization of these papers was less sophisticated and some students struggled with producing cohesive statements. Additionally, we witnessed more cases of insufficient attribution, or an overreliance on quotations from the work of others. As a result, the ‘meat’ of these papers tended to have fewer original ideas/contributions. The actual discussion of theory in these essays was adequate, or at least students were aware of the theories that might inform their topic. However, since the students spent the bulk of their essays discussing the nature of the problem, it was too often the case that there was insufficient discussion or application of theoretical perspectives.
‘C’ papers:
These papers were clearly the weakest of the three groups, and students really provided barely sufficient (or insufficient) discussions/applications of theory. Overall, these papers were adequately written overall, but the problems of attribution/over-quoting, grammar and organization, and cohesiveness were more prominent. A couple of the papers did not sufficiently demonstrate to the assessment team that they had an adequate understanding of theory.

Recommendations:

Being able to demonstrate the power of theory to understand social phenomena is an important learning outcome and we found that a number of the students in this class did not provide sufficient attention to theory application. Other faculty have observed this pattern in other classes as well, even in the capstone classes. In order to improve success on this learning outcome, we encourage that faculty put greater emphasis on demonstrating the power of theory and the importance of discussing the assumptions underlying social theory.
Learning Outcome 3: Sociological Theories: Our students will demonstrate an understanding of the role of theory in sociology.

<table>
<thead>
<tr>
<th>Grading Criteria</th>
<th>Poor (1)</th>
<th>Unsatisfactory (2)</th>
<th>Average (3)</th>
<th>Above Average (4)</th>
<th>Sophisticated (5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall Organization</td>
<td>The essay is confusing with no organization.</td>
<td>The main points of the essay are ambiguous, making the writer’s ideas difficult to follow.</td>
<td>Writing has minimal organization and a basic thesis statement, but does not go beyond the basics.</td>
<td>Writing follows a unified and logical organization, but sometimes drifts from the thesis.</td>
<td>Organization is unified and logical, with excellent transitions.</td>
</tr>
<tr>
<td>Understanding of theory / concepts</td>
<td>Major mistakes evident regarding theory or in definition of concepts</td>
<td>Main points of theory are on track, but errors in applying or illustrating theory are pronounced.</td>
<td>Concepts and theory are correct, but only textbook definitions with no elaboration.</td>
<td>Theory and key concepts are well defined and organized/linked properly.</td>
<td>Concepts are clearly defined, linked where appropriate, and illustrated with examples</td>
</tr>
<tr>
<td>Theoretical Assumptions</td>
<td>The essay fails to address assumptions of theory or does so incorrectly</td>
<td>The essay minimally discusses assumptions, but not completely or adequately</td>
<td>The essay provides clear list of assumptions, but doesn’t elaborate</td>
<td>The essay describes assumptions, and elaborates, but doesn’t connect with concepts.</td>
<td>The essay describes assumptions, and elaborates, and connects with core concepts.</td>
</tr>
<tr>
<td>Grammar and Punctuation</td>
<td>Severe problems with grammar, usage, or mechanics show very poor control of language and may significantly impede understanding.</td>
<td>Numerous errors in grammar, usage, or mechanics show poor control of language and may at times impede understanding.</td>
<td>The essay has a few major errors and multiple minor errors, but almost all sentences are clear and understandable.</td>
<td>The essay has few major errors. There may be multiple minor errors as long as they do not interfere with understanding.</td>
<td>The essay has no major grammatical and punctuation errors and very few minor errors. Any minor errors do not interfere with the understanding of the essay.</td>
</tr>
</tbody>
</table>
Learning Outcomes Summary for Fall 2013-Spring 2014

The Sociology Assessment Committee met and reviewed two different courses, based on our assessment plan schedule: SOCI 318 Research Methods and SOCI 311 Criminology. The learning outcomes that were assessed, based on a prior assignment of learning outcomes from our assessment plan, were: a) sociological application—assess whether students were able to formulate research questions based on readings and understandings of sociological research; and b) sociological theories—assess for student’s application and understanding of theory, concepts, and assumptions. Our review procedures entail using constructed rubrics designed (before use) to evaluate the learning outcomes with samples of student coursework.

Learning Outcomes: Sociological Application

As stated in our recommendation section, the assessment committee concluded that many of our students still struggled to identify sociological research questions that are testable. We will forward our suggestions to the instructor of the course and encourage the instructor to take the steps outlined in the recommendation section.

We also (once again) saw evidence of the problem of our C students being able to write in a clear, concise, and organized manner. We will discuss our recommendation below in the action plan.

Learning Outcomes: Sociological Theories

The assessment committee concluded that a number of our students did not devote as much attention to exploring the power of sociological theories to explain social problems. Rather, many devoted too much time to the social problem and little attention to the theory or its’ application. In short, the issue may be one of balance, rather than the failure of students to understand and apply theory to social problems. We will forward our suggestions to the instructor of the course and encourage the instructor to take the steps outlined in the recommendation section.

Action Plan

Based upon the assessment and our faculty discussion, we have decided on the following actions:

1. Discuss the possibility of adding a lower division course (majors only) that will teach writing and reading in sociology. While we discussed this in the past year, we will shortly be meeting as a faculty to discuss changes in the sociology/criminology (including minors) curriculums.

2. Emphasize to our instructors (in addition to students) the importance of students clearly demonstrating the ability to construct sociological research questions and the application of sociological theories to social problems.
3. Continue to emphasize the importance of investigating and exploring the literature to support essays. Examples from both classes demonstrated that this was a priority and there were several good essays that included competent literature reviews.
Annual Assessment Report

Academic Year: 2013 - 2014

Department: The School of Art

Director Vaughan Judge

Program(s):

Degrees/Majors/Options Offered by the School of Art

Bachelor of Art in Liberal Art
Bachelor of Art in Art History
Bachelor of Art in Art Education K-12
Bachelor of Fine Art in Graphic Design
Bachelor of Fine Art in Studio Art
Master of Fine Art in Art
Masters of Art in Art History

What Was Done:

Assessment Activities

Discipline-Specific Knowledge
Knowledge, skills, and abilities are assessed in the School of art by evaluations done in ARTH, ARTZ, GDSN-Senior Thesis. These evaluations are in the form of critiques of the student artist’s final works of art and design; the assessment of the Senior Thesis Exhibition; assessment of the Senior Thesis paper (Art History majors); and assessment of the student artist’s knowledge of a wide variety of basic studio skills and educational theories related to artistic experiences (Art Education).

Communication Skills
Communication skills are assessed by evaluating the student’s ability to verbally express understanding of the art and design produced as well as the art and design produced by peers. This assessment takes place with one or more faculty in both individual and group formal critiques.
In the area of written communication, students are assessed with art history papers, journals in studio courses, and undergraduate thesis statements in the ARTZ/GDSN 499-Senior Thesis course. Written communication skills develop an understanding of common art elements and vocabulary, place works of art in historical and stylistic context, and form and defend value judgments about art and design and art-related issues.

Problem-Solving Skills
Problem-solving skills are assessed by evaluating the student’s competence in demonstrating the ability to communicate the origin and generation of ideas, and by evaluating the creative and technical skills appropriate to the particular studio such as color theory, painting, bronze casting, etc. Students must be able to break down the different levels of achievement in a composition, and discuss the thought process used to arrive at the final product. Evaluation is conducted by the studio instructor as well as student peers and outside reviewers.
Creative problem-solving is a basic skill for all art majors and is assessed at every level from freshman through senior year studio courses.

Assessment Results

Discipline-Specific Knowledge
Students in the School of Art develop a high level of competencies in creating finished works of art and design. The quality of work in the BFA Graduation Exhibition demonstrates success and knowledge of art-making skills and
abilities. Students win awards in exhibitions, are successful in seeking employment with their design portfolios, and have a high rate of acceptance into graduate programs across the country. Finished works of art demonstrate competence in technical skills, and understanding of processes and materials. Some of the areas of strength in this category are drawing, three-dimensional skills and abilities, and graphic design concepts.

Communication Skills
The level of communication skills in the form of written research papers are generally good. Art History majors have an especially high level of success in Undergraduate Scholars Conference, and success in graduate school acceptance. Studio art students need improvements in their ability to communicate and defend their statements during group and individual critiques. The School of Art needs to better prepare students to understand the theory of criticism both for individual understanding of one’s own artwork, and to discuss the work of their peers. To this end The School of Art has made three significant changes to the Foundations Program. First, while keeping common course numbering and portability of credits in mind, and in an effort to bring the curriculum fully into the 21st century we began breaking down the walls between 2D and 3D foundations by using assignments which move from 3D to 2D or vice versa, and even to 4D sometimes.

The Montana State University (MSU) School of Art first year (foundations) art experience is branded as F.A.C.T.S.: Foundations Are Critical to Success. As the Foundations Coordinator Assistant Professor Dean Adams is responsible for the three studio components of the curriculum, which are Visual Language: Drawing (ARTZ 105: 3 credits); Visual Language: 2D Foundations (ARTZ 106: 4 credits); and Visual Language: 3D Foundations (ARTZ 108: 4 credits).

The mission statement for the MSU FACTS area is: “The Montana State University School of Art Foundations Program provides beginning students with the fundamental skills, knowledge and experiences essential to their development as visual arts professionals.”

The guiding philosophy is: “Professional success in the visual arts requires knowledge of past and present accomplishments in the field, an ability to make interdisciplinary connections, and a strong sense of self-direction. In the Foundations Program, students will be encouraged to develop and enhance their technical skills, develop their critical judgment, refine their personal goals, and expand their understanding of history and culture. The FACTS Friday lecture series will offer an introduction to a range of visual arts professions and practices, and will help prepare students to choose an undergraduate course of study.”

Current curricular goals are: After successful completion of the foundations year, students will have achieved a professional disposition, as demonstrated by:

1. An ability to develop and solve visual problems using various strategies for idea generation;
2. An ability to creatively translate ideas into visual terms using a range of art media and design processes;
3. A capacity to think critically, and write and speak clearly about the visual arts;
4. An understanding of the wide range of contemporary and historical visual culture and its role in society;
5. A work ethic that reflects integrity, teamwork, dedication to professional growth, social responsibility and the confidence to take risks.”

The Friday lecture is the recitation component of ARTZ 106 and 108. It is intended as an introduction to a range of visual arts professions and practices, and to help prepare students to choose an undergraduate course of study. Faculty, graduate and upper-level undergraduate students have been very generous with their time and knowledge by delivering lectures and workshops to foundations students during the Friday lecture as supplements to the regular lectures. Fall 2011 the lecture was divided in half for eight weeks of the semester so small groups (15) of students could have authentic studio experiences in printmaking, ceramics, metals, and sculpture. These activities allowed freshman to experience facilities, processes, and faculty which are generally out of reach until later in the students’ academic program and allowed for a better sense of community among the participants. Finally, several Friday lectures were delivered by non-foundations art/design faculty, as well as faculty from outside the School of Art, enhancing the foundations students’ experience.
Generally, written material in journals and in written examinations demonstrates a solid but basic understanding of a student’s own work and works of art in a historical and stylistic context.

**Problem-Solving Skills**

Student competencies in the area of problem-solving skills are high in the area of technical skills for studio majors, and average in the ability to analyze works of art and evaluate them critically. Art and design students are generally confident in their decision of making skills as they relate to design concepts. Some levels of improvement are needed in criticism and analytical synthesis of creative problem solving in the first year of foundation studies.

As devised by the Foundations Chair/Coordinator in consultation with Curriculum Committee, Student Consultation Committee for Foundations and the Director of the School; the most recent iteration of the spring portfolio review takes place over four days, allowing for more convenient timing for both students and faculty. Students mostly present their portfolios during their scheduled ARTZ 108 (3D) class. During the 2013 review 66 students were reviewed by a minimum of three people each. The reviewers consisted of tenure track and NTT faculty from all areas of the School of Art, all GTA’s, as well as three former faculty from the community, and three upper-level undergraduate students from the program. Foundations students received formative and summative feedback and were scored assessed using the foundations assessment sheet in the appendix of this document. Including upper level students in the process allows for a recycling of the energy of our student community. Because the FACTS portfolio review does not represent a gate, it is appropriate to include the diverse group of reviewers. The review allows us to celebrate and acknowledge the hard work required of students participating in our program. It also permits the School to consider the effectiveness of GTA’s and NTT faculty through learner results. The review provides a window into the individual assignments and how they are being taught. Finally, prior to this change; students were required to present the exact same assignments. While this has the advantage of standardization, it does not necessarily allow students to put their best work forward. Current portfolio requirements are representative of learning outcomes, such as understanding of perspective, effective composition, ideation strategies, craftsmanship, and communication skills.

Transfer students and students who are off cycle and unable to participate in the FACTS portfolio review during the spring semester turn in a portfolio for evaluation just before classes begin in August or during finals week of fall semester. A small committee, including the Foundations Coordinator, reviews the work and students receive a short written assessment of strengths and areas for improvement reflected in the portfolio. While students do not receive the same type of formative feedback as during the spring review, the process helps ensure these students are properly prepared to succeed in our program.

**What Data Were Collected**

Assessment is a key part of communicating the success of students and curriculum to all parties involved in the process. The Chair of Foundations and Director of the School of Art regularly seek input from all School of Art faculty concerning the foundations curriculum. During the portfolio presentation we ask reviewers to look for successful and less successful assignments. We seek feedback from upper-level students and ask them to recall what parts of the foundations curriculum stick out in their memory as relevant. GTA’s provide critical evaluation of the assignments they are teaching. Finally, we use the Foundations Student Consultative Committee to listen to and act on needed improvements to the program or facilities.

Curricular assessment is concerned with all aspects of the program. First, to ensure our curriculum is designed to provide students with relevant and meaningful skillsets and knowledge appropriate to the classes we offer. Second, the curriculum must be deliverable by/with the allocated resources, including time and space. Third, the delivery of the content must facilitate learning and discovery. Finally, each assignment is designed with specific learning outcomes, which, when aggregated meet the curricular goals and mission and vision of MSU and comply with CORE 2.0 requirements. ([http://www.montana.edu/wwwcat/requirements/reqs4.html](http://www.montana.edu/wwwcat/requirements/reqs4.html))

Equally important is foundational curricular assessment by the faculty who teach beyond the freshman year. Since a foundations curriculum is irrelevant if the faculty teaching sophomores, juniors, and seniors are not building on the knowledge and skills learned in the freshman year, it is imperative that all faculty have input concerning the foundations curriculum. We continue to seek input from all School of Art faculty concerning the effectiveness of the
foundations curriculum based on their experiences. Also, the Director of the School regularly assesses the curriculum, using his expertise in art and design education to help evaluate the effectiveness of the program. Since all of the MSU foundations art classes are CORE 2.0 *Ways of Knowing* courses, we also rely on the MSU CORE committee assessment of the curriculum in their re-assessment of MSU CORE 2.0 classes, as directed in Metric L.1.2 of the academic strategic plan. Additionally, we evaluate the effectiveness of the teaching handbook in communicating the CORE 2.0 designation and ramifications to the people who deliver the curriculum.

**What Was Learned**

Through the self-assessment process involving faculty, students, the Directors office and NASAD accreditation self-study the area of primary concern that became evident is the required credits for graduation for the BFA in studio and Graphic Design. As the curriculum has evolved over the years we have been afflicted with ‘credit creep’ where now we have 117 mandated credits in a 120-credit program in graphic design for example. This exceedingly high requirement is a significant problem that directly affects class scheduling, graduation rate and timely four year graduation. It is an area under review by the faculty for 2013/14 as this is a designated catalog revision year for the University.

Looking to the future we will continue to foster a curriculum with the ideal ‘collision of the digital and physical.’ This juxtaposition of combining cutting edge ideas with traditional methods is only in its third year of implementation and has even more potential as a pedagogical model. There is additional possibility for this concept to yield unexpected outcomes. In regards to staffing we will continue to ask the administration for an additional tenure track faculty line in Graphic Design. Other goals in the future include the continued improvement of the studio environment. This includes appropriate ventilation for a safe and healthy learning environment. It also includes the evolution of technological advancements in state of the art computer connectivity though wireless connections and the best implementation of resources to create active learning digital environments. The final goal will be to continue to improve career placement of graduates locally, regionally, nationally and internationally. With half our graduates staying in Montana and the other half leaving the state, we must always be mindful that our curriculum outcomes are in step with those in the creative and scholarly profession. This goal has far reaching implications at all levels of the BFA curriculum and requires a team effort by both the faculty and administration to successfully be achieved. While the majority of the aspects of communication on the scoring rubric scored at or above our threshold values, we identified a weakness in students’ ability to research relevant contemporary art and design practices. Student competencies in the area of problem-solving skills are high in the area of technical skills for studio majors, and average in the ability to analyze works of art and evaluate them critically. Art and design students are generally confident in their decision making skills as they relate to design concepts. Some levels of improvement are needed in criticism and analytical synthesis of creative problem solving in the first year of foundation studies (Art 110 and 111) and across and sophomore classes.

**How We Responded**

Additional emphasis on research of historical and contemporary art and design practices; and organization of student time management will be covered and integrated in our foundation and sophomore classes.

Our assessment indicated that no changes are needed regarding learning outcome and assessment criteria.

Faculty review will address the issue of more complicated questions being offered through the curriculum at junior and senior year within the graphic design program.