New Undergraduate Course Approval Cover Form
Montana State University

This four-page form collects basic information about the proposed new course, provides information on the approval process, and includes all required approvals. Additional information (see INFO sheet) is also required as part of the New Course Packet.

Proposed New Course Information

Requested Rubric, Course Number, Core Designation (if needed):

Example: PHL 361 RH

Course Title:

GPS Mapping Service Learning Component

Abbreviated Course Title (≤30 chars):

GPS Mapping Service Learning

First Semester to be Offered:

Fall 2013

Submitted by:

Diana Cooksey
406-994-5684
dcooksey@montana.edu

Instructor:

Diana Cooksey

Department:

Land Resources and Environmental Sciences

College:

Agriculture

Check here if “Special Topics” x91 course:

New Course Review Process

Instructor completes the New Course Packet, with Core Information if a Core designation is requested.
Instructor checks for “equivalent” course in the MUS system and recommends a common or unique course number.

Department Head's signature indicates that course has been approved by the process used within the Department.

The Chair of the College Curriculum Committee signs to indicate College academic approval.

The College Dean signs to indicate that adequate resources are available to offer the course. Supporting information (Dean’s Statement) is typically required.

The New Course Packet (as PDF) is uploaded to the Provost’s Office server for distribution to other committees.

Course requests are sent to Curriculum and Program Committee (CPC). Core reviews are sent to appropriate Core subcommittee. Committees work in parallel when possible to speed approval process. Special topics courses (291,491) skip the CPC review (limited to two years.)

Provost’s Office reviews the new course request. New courses are submitted to MUS for Common Course Number (CCN) review. Dean and Department informed upon approval.

Approved new course sent to Registrar for inclusion in the Catalog and Schedule of Classes

APPROVALS

Submitter *
Diana Cooksey 11/22/2013

Department Head *
Jay M. Story 11/22/2013

Chair, College Curriculum Comm.

Dean *

Chair, Core Subcommittee (if app.)

Chair, CPC

Assoc. Provost *

Note: This diagram illustrates the typical flow path, but at any review step there can be a request for additional information or modifications. Careful review in early steps is the best way to speed the overall process.

* Special topics courses (x91) require fewer signatures, but cannot be offered more than two times without committee review.
INFORMATION NEEDED FOR COMMON COURSE NUMBERING

The process for identifying a common course number for a new course is as follows:

1. Course learning outcomes are prepared for the new course.
2. The person submitting the new course request looks at the CCN website to see if a course with similar outcomes already exists in the MUS system.
   
   www.mus.edu/Qtools/CCN/ccn_default.asp
   
   - If a course exists with at least 80% of the same outcomes, the course is considered “equivalent” to the proposed new course, and the new course should use the existing rubric and course number.
   - If no “equivalent” course is found, the person submitting the new course request should identify a unique course number that has not been used by any other course in the MUS system.
3. The requested rubric and course number are submitted as part of the new course packet.
4. The Provost’s Office submits the learning outcomes and the requested rubric and course number to the MUS to have a course number assigned to the course. (This will typically be the requested course number, but it could be changed.)
5. The assigned common course number is reported back to the person submitting the new course request.

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Requested Rubric, Course Number, Core Designation (if needed):

Course Title:

Abbrev. Course Title (≤ 30 char):

Credits:

Department Offering Course:

College:

Is this course “equivalent” to a course in the MUS System?:

[ ] Yes    [ ] No

Learning Outcomes for the Course:

Students will be able to

- Plan and implement a real-world GPS mapping project
- Apply GPS mapping knowledge and skills in a service-learning context
- Evaluate learning through structured reflection activities
**INFORMATION REQUIRED BY THE REGISTRAR**

The data needed to enter the new course into the MSU Catalog and Schedule of Classes is collected on this page. Once the new course has been approved, this page is automatically forwarded to the Registrar for data entry.

<table>
<thead>
<tr>
<th>Assigned Rubric, Course Number, Core Designation (if needed):</th>
<th>GPHY 358</th>
</tr>
</thead>
<tbody>
<tr>
<td>Course Title (for Catalog):</td>
<td>GPS Mapping Service Learning Component</td>
</tr>
<tr>
<td>Course Title (for Schedule of Classes, <strong>30 characters, max.</strong>):</td>
<td>GPS Mapping Service Learning</td>
</tr>
<tr>
<td>First Semester to be Offered:</td>
<td>Fall 2013</td>
</tr>
<tr>
<td>Restricted Entry/Consent of Instructor Required:</td>
<td>Yes</td>
</tr>
<tr>
<td>Instructor’s GID (last 4 digits only):</td>
<td>1820</td>
</tr>
<tr>
<td>Department Offering Course:</td>
<td>Land Resources and Environmental Sciences</td>
</tr>
<tr>
<td>College:</td>
<td>Agriculture</td>
</tr>
<tr>
<td>Is the requested course number available? (x4155 to check):</td>
<td>Yes</td>
</tr>
<tr>
<td>Frequency of course offering:</td>
<td>Annually</td>
</tr>
<tr>
<td>Semester(s) offered (check all that apply):</td>
<td>Summer</td>
</tr>
<tr>
<td>Summer Options (check all that apply):</td>
<td>First 6 weeks</td>
</tr>
<tr>
<td>Credits by mode of instruction:</td>
<td>Lecture:</td>
</tr>
<tr>
<td></td>
<td>Seminar:</td>
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<tr>
<td></td>
<td>Independent Study:</td>
</tr>
<tr>
<td></td>
<td>Lab/Studio:</td>
</tr>
<tr>
<td></td>
<td>Recitation/Discussion: 1</td>
</tr>
<tr>
<td>TOTAL CREDITS:</td>
<td>1</td>
</tr>
<tr>
<td>Primary Mode(s) of Delivery:</td>
<td>Face-to-face</td>
</tr>
</tbody>
</table>

**Time and Location** – Call the Registrar’s Office at x4155 to find a time and location for the course.

| Assigned Day(s):    | M       |
| Assigned Time(s):   | 4:10-5:00 PM, Sec 1 Mon, Sec 2 Wed |
| Assigned Building:  |         |
| Assigned Room:      |         |
| Capacity (room capacity, or enrollment “cap”):             | 20       |

**Co- and Pre-Requisites** – Courses numbered 200 and above are normally expected to have prerequisites. When listing multiple prerequisites, please separate courses with “and” if both are required, or “or” if only one is required.

| Prerequisite(s): | |
| Co-Requisite(s): | |

**Course Description** – Provide a course description of 40 words or less for the MSU Catalog.

GPHY 357

Participation in one of two established GPHY 357 service-learning projects: E-911 mapping of high density housing developments to aid in emergency response (section 1); AGAI canal mapping to update the Gallatin Valley inventory of water resources (section 2).
February 4, 2013

**DEAN’S STATEMENT** The reviewing committees are being asked to take a closer look at the resources required for each proposed new course. In many cases new courses will replace existing courses and the new course request is effectively resource neutral, however that is not always the case. For example, a new elective course that would result in distributing an existing student population across a larger number of courses would represent a significant increase in expenditures for the new course, and no increase in total student credit hours. A funding mechanism for such a course would need to be identified. The Dean’s Statement is the place to document how the costs of the proposed new course will be covered.

GPHY 358 will be a single-credit, service-learning course offering taught as part of the instructor’s (Diana Cooksey’s) expected teaching load. Furthermore, students’ participation in GPHY 358 aligns with two established projects: E-911 mapping of high density housing developments (to aid in emergency response) and AGAI canal mapping to update the Gallatin Valley inventory of water resources. Mapping sites are either within Bozeman city limits or within 15 miles of Bozeman; GPHY 358 would otherwise replace Diana’s GPHY 491 (GPS Mapping Service) offered in Fall ’12 (17 students enrolled).

As such, no additional funding mechanism is necessary, nor requested.

Please do not hesitate to contact me with any further questions:

N.C. Smith, Ph.D.
Assistant Dean for Academic Programs

cc: Jeff Jacobsen, Dean and Director
    Tracy Sterling, LRES Dept. Head
Please provide the following information in narrative format. Substantive responses to all criteria are required. Although not required, a draft syllabus can also be helpful to the committee in understanding the details of the proposed course.

General Course Information
1. Requested Rubric, Course Number, and Core Designation (if any)
   
   > GPHY 358

2. Course Title
   
   > GPS Mapping Service Learning

3. Provide a general description of the course explaining the need for the course, its goals, and its overall structure. This is the most important part of the application and should offer a good sense of what students will experience by taking this class.
   
   > For nearly 10 years, service learning1 projects have been incorporated into GPHY 357: GPS Fundamentals and Applications in Mapping. Students participating in the E-911 mapping project use GPS and GIS to map high density housing developments in the City of Bozeman to aid in emergency response. Students participating in the Association of Gallatin Agricultural Irrigators (AGAI) canal mapping project are helping to inventory water resources in the Gallatin Valley. The MSU Office of Community Development encourages instructors with qualifying courses to apply for service learning designation. Because not all students in GPHY 357 are required to participate in the service learning projects, I have not been able to fully incorporate structured reflection assignments (an essential element of a service learning course), and therefore have not sought service learning (SL) designation for this course.

   This new course enhances the service learning component of GPHY 357 by providing a 1-credit add-on to the existing course for the students who choose to participate in one of the service learning projects (17 students during Fall semester 2012 when it was offered as a special topic (GPHY 491)). SL designation will be sought for this 1-credit add-on. The course incorporates structured reflection activities, meetings with cooperators, field trips, and other activities in support of the projects. It benefits the SL project students by providing sufficient time to thoroughly

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1 “Students learn and develop through active participation in thoughtfully organized service that is conducted in and meets the needs of the community. It is integrated into and enhances the academic curriculum and includes structured time for the students and participants to reflect on the service experience.” (Corporation for National Service, 1994)
plan and implement their projects, and alleviates the need to take regular class time for AGAI and E-911 project organization. It also provides the benefit of structured time for students and cooperators to reflect on their experiences and learning in an academic setting.

4. Based on what types of student work (e.g., tests, homework assignments, papers, performances, etc.) will grades be determined?

> Grades are based on service learning structured reflection assignments.

5. Provide a course content outline containing all major topics plus a brief description of the material to be covered under each major topic heading.

> This course is designed to serve students who are interested in participating in one of the service learning projects offered through GPHY 357: E-911 mapping of high density housing developments or AGAI mapping of water resources. Students will be split into two groups depending on their project choice. For both groups, the course includes project planning meetings with cooperators, weekly meetings with students and the instructor to work on project tasks, update meetings with cooperators throughout the semester, and an end-of-semester debriefing meeting with the cooperators. The course also includes field trips and other activities in support of the projects, and students complete fieldwork on their own or with a partner. All meetings include structured reflection activities to engage the students in reflecting on and evaluating their learning. Students also learn the purpose of reflection in service-learning and complete reflection assignments throughout the semester.

6. List required texts or other required references.

> Required readings are relevant to service learning in general and the structured reflection assignments in particular. They are normally short papers from experts in the field explaining service learning topics and the importance of reflection, and are delivered to students via D2L.

7. What are the estimated enrollment and student credit hour (SCH) production?

[SCH = (enrollment * credits)]

> The anticipated enrollment is 15-20 students per semester. Estimated SCH production is 18.

8. Will there be an enrollment cap that restricts enrollment below the level of student demand? If so, what is the enrollment cap and why is it necessary?

> The cap will be set at 20 – it would be difficult to manage more than 20 students working on two different service learning projects in one semester.

9. Will course be a “restricted enrollment” course? If so, why is restricted enrollment necessary?

> The course will not be “restricted entry” but students must be enrolled in GPHY 357 concurrently to participate in this course.
10. Describe how the success of the course will be evaluated? (“End-of-semester student evaluations” is not the answer to this question. How will the instructor determine if the learning outcomes are being met, and how will the department determine if the course is fulfilling its intended purpose?)

> The success of the course will be evaluated based on end-of-semester structured evaluation instruments and activities carried out by students and cooperators, with the instructor as facilitator.

11. Is the instructor a member of the regular faculty (i.e., tenured or tenure-track)? If no, please describe the instructor’s qualifications, attach a Vita, and provide a separate letter of support, signed by the department head (or appropriate unit director), addressing the instructor’s qualifications to teach this course.

> The instructor has been teaching spatial sciences courses in the Department of Land Resources and Environmental Sciences since 1998. She has been working with GPS, GIS and remote sensing technologies for the past 20 years, including working on projects, providing technical support to researchers and graduate students, taking educational courses and attending workshops, and instructing students in spatial sciences theory and application. She has also participated in several teaching workshops, seminars and discussion groups over the last ten years including many on service learning. Please see attached CV and letter of support.

Level of Offering
12. Has the course been offered previously under 280/291 or 480/491? If so, when? Under what number? What was the enrollment? What level of students took the course?

> The course was offered Fall semester 2012 as GPHY 491 with an enrollment of 17 students, all juniors and seniors.

13. Justify the level of course offering.

> The level of course offering is the same as the companion course, GPHY 357.

Relationship to other Courses, Curricula, and Departments
14. Does this course build on or interrelate with other courses in your curriculum or related curricula? If so, which ones?

> This new course will be taken concurrently with GPHY 357 – it cannot be taken alone because it interfaces closely with material taught in 357.

15. Do the topics in the proposed course duplicate or reiterate those in other courses in this or any other department? If so, how do the coverage and educational experience differ and how is this duplication or reiteration justified? Also, what liaison (which is expected in cases of apparent overlap) has been conducted with other departments? Report reactions, both favorable and unfavorable.

> There are no other service learning courses in our department. This course is specifically designed to support the service learning project opportunities offered in conjunction with GPHY 357.
16. What programs (departments, colleges) will be impacted by the SCH production of this course? That is, where do you think the SCH in the proposed course are likely to come from? If the expected SCH production of the proposed course is greater than 1000, and the SCH are expected to come from other colleges, what steps have been taken to make the other units aware of the potential loss of SCH? Report reactions, both favorable and unfavorable.

> Students taking GPHY 357 are from a wide variety of disciplines including Geography, Biology, Environmental Studies, Land Resources, Ecology, Range Science and Engineering. Since this is a 1-credit course with a maximum of 20 students there will not be a substantial impact on other departments.

17. If this proposed course has a significant interdisciplinary component, please explain briefly. Otherwise, indicate n/a.

> N/A

**Students Served**

18. Does the proposed course serve majors only? Non-majors only? Both majors and non-majors? What other majors might be interested in this course? State areas or disciplines to be served and indicate the specific efforts that will be made to make the course material relevant to all disciplines served.

> Students taking GPHY 357 are from a wide variety of disciplines including Geography, Biology, Environmental Studies, Land Resources, Ecology, Range Science and Engineering. Depending on their interests and career goals, students taking GPHY 358 will have the choice of participating in one of two well-established service learning projects: one with more of an agricultural flavor and one with an urban focus.

**Resources**

19. What additional resources (e.g., additional instructional FTE, required technologies), if any, will be required to offer this course? Are there any resource issues for the students who will take the course (e.g., required technologies, travel, on-line access requirements)? Will there be an additional fee charged to students taking this course? Please explain.

> No additional resources are required. Students are required to travel to the mapping sites which are either in-town or within 15 miles of Bozeman. There is no additional fee for this course.

20. What existing information resources – print (books, journals, documents), audiovisual (videos, DVDs, CDs or other), and/or electronic (e-books, databases, electronic journals and web sites) – provided by the MSU Libraries will be used by students in this course? Provide examples as well as descriptive information. If additional information resources are necessary, please discuss those acquisitions with the library (x6549 Collection Development) at least three months prior to the beginning of the semester in which this course will be taught.

> All materials provided in this course are acquired by the instructor so no involvement of the MSU Libraries is required.

**Other Supporting Material**

21. Include any additional information you feel is needed to support this request.
The pilot for this course, offered as GPHY 491 in Fall of 2012, was rated as highly successful by both students and cooperators. Students appreciated the focused planning and debriefing time with the instructor and cooperators, and recognized the value of structured reflection activities in which they participated. Cooperators also appreciated the interaction with students and were impressed with the quality of the end products. All parties provided suggestions for improvement and the course promises to be even better next time. The course syllabus is attached.
**GPHY 358: GPS Mapping Service Learning Component**  
Fall 2013, 1 credit

**Instructor:** Diana Cooksey: Office hours – by appointment, dcooksey@montana.edu, 994-5684, 245 Leon Johnson Hall  
**Section 1:** Mon 4:10-5:00 PM (E-911 Mapping Group)  
**Section 2:** Wed 4:10-5:00 PM (AGAI Mapping Group)  

**Co-requisite:** GPHY 357

**Learning outcomes:** Students will be able to  
- Plan and implement a real-world GPS mapping project  
- Apply GPS mapping knowledge and skills in a service-learning context  
- Evaluate learning through structured reflection activities

**Service Learning:** Service learning at MSU is defined as a teaching method that utilizes student involvement in community service to meet instructional objectives of a course. Students apply information from a class in authentic settings while addressing real needs of the community that have been identified by the community.

Service learning is *not* adding on “volunteer” activities to a course. It is integrating service in such a way that students apply the knowledge and skills they are learning in class to meet community needs. The service activity is incorporated as part of the “out-of-class” work expected of each student registered in the course. The students’ learning experience is graded and is measured through prearranged reflection activities. Reflection is an essential element of a service learning course. It is a structured time for students to recount their experiences and the learning acquired in the community setting. It can be accomplished in a number of different ways, depending upon the instructor’s preference. Some common forms of reflection include writing in journals, answering specific questions posed through a class listserv, or classroom / small group discussions. ([http://www.montana.edu/engagement/academic-service-learning/designation.php](http://www.montana.edu/engagement/academic-service-learning/designation.php))

**Service Learning Projects:** For nearly 10 years, service learning projects have been incorporated into GPHY 357: GPS Fundamentals and Applications in Mapping. Students participating in the E-911 mapping project cooperate with the City of Bozeman GIS Dept. and use GPS and GIS to map high density housing developments to aid in emergency response. Students participating in the Association of Gallatin Agricultural Irrigators (AGAI) canal mapping project cooperate with the Gallatin County GIS Dept. and local irrigators to inventory water resources in the Gallatin Valley. Past student participants report enhanced learning and engagement in their project work. Working on a real-world project that actually benefits the community motivates students to do their best. The knowledge that their work will actually be used by someone makes it more meaningful. The opportunity to work with local professionals is an added bonus. And, students can include service learning projects in their resumes and portfolios.
How the course works: The E-911 and AGAI mapping groups will meet separately. Class time will be used for project planning, meeting with cooperators, field trips, and other activities in support of the projects. The class will incorporate group and personal structured reflection activities, in which students and cooperators reflect on their experiences and learning in an academic setting. There will be no textbook for this course – all required materials will be posted on D2L.

Course Desire2Learn site: This course will have an online component using Desire2Learn (D2L). Your Desire2Learn username and password are the same as your My Portal Username and Password.

Detailed information about course content and grades can be found in the Content area of the class D2L site. Assignments are available in the Dropbox and important news items will be posted on the main page. The D2L calendar will be used extensively (see information below). Consider the D2L site your guide to succeeding in this course and visit at least once each day!

Graded Assignments:
- Reflection Journal, 75%
- Class Participation, 25%
- Total, 100%

Student Conduct:
Montana State University expects all students to conduct themselves as honest, responsible and law-abiding members of the academic community and to respect the rights of other students, members of the faculty and staff and the public to use, enjoy and participate in the University programs and facilities. For additional information reference see MSU’s Student Conduct Code at: [http://www2.montana.edu/policy/student_conduct/cg600.html](http://www2.montana.edu/policy/student_conduct/cg600.html)

Collaboration
University policy states that, unless otherwise specified, students may not collaborate on graded material. Any exceptions to this policy will be stated explicitly for individual assignments. If you have any questions about the limits of collaboration, you are expected to ask for clarification.

Plagiarism
Paraphrasing or quoting another’s work without citing the source is a form of academic misconduct. Even inadvertent or unintentional misuse or appropriation of another's work (such as relying heavily on source material that is not expressly acknowledged) is considered plagiarism. If you have any questions about using and citing sources, you are expected to ask for clarification.

Academic Misconduct
Section 420 of the Student Conduct Code describes academic misconduct as including but not limited to plagiarism, cheating, multiple submissions, or facilitating others’ misconduct. Possible sanctions for academic misconduct range from an oral reprimand to expulsion from the university.
**Academic Expectations**
Section 310.00 in the MSU Conduct Guidelines states that students must:

A. be prompt and regular in attending classes;
B. be well prepared for classes;
C. submit required assignments in a timely manner;
D. take exams when scheduled;
E. act in a respectful manner toward other students and the instructor and in a way that does not detract from the learning experience; and
F. make and keep appointments when necessary to meet with the instructor.

**Students with Disabilities**
If you have a documented disability for which you are or may be requesting an accommodation(s), you are encouraged to contact your instructor and Disabled Student Services as soon as possible.

**Email Policy**
I expect that you will check your university email at least once every day.

**Student Educational Records**
All records related to this course are confidential and will not be shared with anyone, including parents, without a signed, written release. If you wish to have information from your records shared with others, you must provide written request/authorization to the office/department. Before giving such authorization, you should understand the purpose of the release and to whom and for how long the information is authorized for release.
Education

M.S. 2002, Montana State University, Land Resources and Environmental Sciences
B.S. 1980, Colorado State University, Landscape Horticulture, Concentration: Nursery and Landscape Management

Experience

1991-present GPS Lab Manager / Spatial Sciences Instructor, Department of Land Resources and Environmental Sciences, Montana State University-Bozeman (MSU-Bozeman). Manage MSU-Bozeman Global Positioning System (GPS) Laboratory and base station facility. Provide GPS, GIS and remote sensing research/teaching/outreach support to MSU students and researchers. Develop and maintain WWW sites and Internet map server applications for GPS Lab programs and courses.
1991-2002 Montana Noxious Weed Survey and Mapping System project coordinator and Montana Cooperative Agricultural Pest Survey (CAPS) program coordinator, MSU-Bozeman
1986-1991 Montana Cooperative Agricultural Pest Survey (CAPS) program coordinator and Extension IPM Assistant, MSU-Bozeman

Teaching

Teaching focus – student-centered learning through interactive activities, projects related to student interests, and service learning

2011-2012 ENSC 458: Teaching Applications in LRES, Spring and Fall semesters, 5 students
2011-2012 GPHY 262: Spatial Sciences Technology and Application, Spring semester, 32 students
1998-2011 GPHY 357: Global Positioning System (GPS) Fundamentals and Applications in Mapping, Spring and Fall semesters, 32 students
2004-2011 GPHY 457: Advanced GPS Mapping for GIS, Fall semesters, 12 students
1998-2011 GPS and Geographic Information Systems (GIS) lectures in various courses throughout the University; GPS mapping workshops for small groups

Workshops Presented

GPS Mapping for GIS (Trimble-certified course)
GPS Basics
GPS Applications in Agriculture
Montana Noxious Weed Survey and Mapping System (invasive plant mapping, GPS and GIS)

Refereed Publications


Other Publications


Web Sites

Montana State University Global Positioning System (GPS) Laboratory www.montana.edu/gps.

Awards

MSU-Bozeman (D. Cooksey) and City of Bozeman Fire Department (G. Clutter, C. Winn), International Association of Fire Chiefs, 2005, Award for Excellence in the Fire Service, E-911 Mapping Project.


Certifications

2000-2012 Trimble Certified GPS Mapping Trainer
January 14, 2013

To whom it may concern:

I fully support the development of GPHY 358 as a 1-credit service learning course by Diana Cooksey. I asked Ms. Cooksey to create a formal outlet for the service learning components she already employs in GPHY 357 – approving this request will serve that purpose. A service learning designation will be sought for this 1-credit course, creating a formal service learning opportunity for students across a wide variety of disciplines including Geography, Biology, Environmental Sciences, Land Rehabilitation, Ecology, Range Science, and Engineering. Given the large interest for the offering in Fall 2012 as a Special Topics course, it is likely to be very successful.

Ms. Cooksey has been a strong and valued instructor for the LRES department, providing essential research and teaching contributions in the spatial sciences to our undergraduate and graduate students for over a decade. She consistently receives very good to excellent student evaluations and incorporates service learning projects into her courses. She regularly attends teaching improvement activities and maintains the websites for her classes. Additionally, she has successfully garnered funding to update the GPS equipment so necessary for the ‘hands-on’ learning that her courses offer. She also manages the GPS laboratory and related facilities and equipment through serving as Trimble Certified Trainer representative and other activities. Her commitment to MSU students is impressive.

Clearly, Ms. Cooksey’s twenty years of experience in spatial sciences and her teaching abilities poise her to effectively create and instruct this needed course. Please let me know if you need additional information.

Sincerely,

Tracy M. Sterling
Professor and Department Head