

Departmental Base Budget Overview

Department **Agriculture Dean's Reserve**

Executive **Provost**

Index **412011**

Program **01**

Base Budgets:

1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	10-Year % Change
0	72,056	13,100	57,128	55,868	104,304	0	2,185	23,057	36,695	46,612	

The mission of the College is to provide an engaging and innovative learning experience for undergraduate, graduate students and post docs. Our programs serve as the conduit for revitalizing agriculture, effectively managing natural resources, and for economic development in the state, region, and Nation. Instructional programs in the College are evolving and will meet the demands of a changing society in Montana, the region and the Nation.

This account is a holding account for the College activities at the administrative level. There are no specific positions budgeted. Funds for personal services are received and disbursed to college departments according to faculty lines that are predominantly funded by the Montana Agricultural Experiment Station and supplemented by these academic funds. Operating funds at the College level are held for the same reason – to provide support to departments if an unexpected or unbudgeted situation occurs. In addition, funds have been disbursed to support College recruitment/retention functions, graduation, extra sections, spring honors banquet, dues payment to NASULGC, distance education courses and teaching improvement activities. These are the only flexible funds in the College budget to support unexpected or unbudgeted situations that would not be supported by the University.

Departmental Base Budget Overview

Department **Ag Economics & Economics**

Executive **Provost**

Index **412100**

Program **01**

Base Budgets:

1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	10-Year % Change
861,798	828,661	833,157	866,729	767,801	821,848	912,147	915,388	938,786	1,003,387	1,042,961	21.02%

The Department of Agricultural Economics and Economics (DAEE) at Montana State University (MSU) ascribes to the highest academic standards and is dedicated to education and research that develops human capital to enhance private and public decision making. Faculty members are highly productive scholars who conduct research in Agricultural Economics and Economics, with an applied microeconomic emphasis and a focus on high quality publications in leading refereed journals. DAEE faculty members regularly publish in the top journals in the discipline, earn prestigious research awards, and mentor graduate students toward award-winning theses. Over 50% of the DAEE faculty members have won national research awards. The economics website econphd.net (<http://www.econphd.net/rankings.htm>) ranks the DAEE sixth *worldwide* in Agricultural Economics based on quantity and quality of publications. This ranking places the DAEE research output in this area above that in programs at California-Berkeley, Harvard, Chicago, Yale, and Cornell, among others. DAEE interdisciplinary research includes work with statistics, accounting, education, law, political science, and history.

The Department provides high quality teaching and outreach programs. Undergraduate degrees are offered in Economics and in Agricultural Business. DAEE courses also play substantial service roles for other programs in the University. The Department offers a very rigorous, highly respected Master's degree in Applied Economics. DAEE teaching is innovative and consistently of very high quality. Examples of such innovations include the "Conception to Consumption," course, which in 2007 traveled to Europe to study Montana's global beef industry. The DAEE is committed to providing unbiased, research-based outreach education. DAEE faculty members respond to numerous information and analytical requests from State Legislators, U.S. Congressmen, Senators, and their staffs. A large DAEE outreach program is collaborative with the Montana Tribal Colleges to support research and education of American Indians in Montana. The DAEE's typical yearly outreach efforts include more than 150 separate presentations delivered to participants in Montana, and more than 30 to participants outside of Montana. Nine DAEE faculty members have won national awards for outstanding Extension and outreach programs and/or careers.

In 2006, the department underwent a thorough external academic review. The review concluded that, "The Department of AEE is fundamentally a strong and central unit within Montana State University. It is an important source of talent and expertise for the State. It is also a well-respected contributor to high-quality scholarship and policy advice within the state as well as nationally and internationally. Members of the department publish in the top journals in Agricultural Economics and Economics. Faculty members have also served in prominent positions in government and in professional organizations." With respect to teaching, "The quality of instruction offered to both undergraduates and Masters' candidates is high. ...The result is that the students are well-trained and highly successful." With respect to research, "the quality and productivity of published research is exceptional for a department that does not maintain a large graduate program or offer a PhD." With respect to outreach, "The outreach programs of the department are generally of high quality, timely, topical, visible, and well-received. They have high impact in the state."

Departmental Base Budget Overview

Department **Plant Sciences & Plant Pathology**

Executive **Provost**

Index **412300**

Program **01**

Base Budgets:

1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	10-Year % Change
88,740	540,743	624,180	598,206	590,058	570,818	577,686	582,547	611,508	602,942	620,745	599.51%

The Plant Sciences and Plant Pathology Department (PSPP) was formed in 1999 with faculty from three departments. In 2005, we added 2 faculty from the disbanded Entomology dept. and we had another Entomology position assigned to our department in FY2008. Our mission is to provide leadership and expertise in plant sciences, plant pathology and crop-related entomology in undergraduate and graduate student training, research programs, and outreach/service activities. The department plays a crucial role in the Land Grant mission of the university and is the only unit in the state focused primarily on plants, their pathogens and pests. We are the largest collection of plant biologists in the region.

As PSPP was formed in 1999, the “10-yr % change” figure is misleading. The PSPP budget is now essentially back to FY2000 levels, despite adding 4 tenure-track faculty FTE (from UPBAC FY06 KPI data). The bulk of the increases in base budget in recent years can be accounted for by the salaries of Entomology faculty members reassigned to PSPP and raises.

PSPP trains undergraduates in the fields of crop science, horticulture, landscape design, plant biology, plant pathology and plant biotechnology. We have the second largest number of undergraduate student majors in the College. The department also contributes considerably to the instruction of undergraduate biology and biotechnology at MSU. We are responsible for teaching half of Biol 102 and Biol 213 every semester they are taught. We teach all of the genetics (Biol 301) and evolution courses on campus (Biol 403 is co-taught with LRES). We have responsibility for teaching many of the biology courses that involve plants and insects, including Biol 106, Biol 430, Biol 434, Biol 435, Biol 436, Biol 437, and Biol 501. We also have responsibility for the Introductory Biotechnology course (PS 101) and a 5 credit biotech laboratory (PS 212) for Biotechnology majors. We advise all of the Biotechnology majors during their freshman and sophomore years.

PSPP faculty are very research active. Departmental research expenditures for FY07 were \$3,153,408. Our faculty produce, evaluate and release varieties of crop plants (unique in the state); investigate organisms producing diseases in plants and the control of such diseases (unique in the state); explore plant production methods and various aspects of horticulture (unique in the state), and research basic aspects of plant and plant pathogen biology, including activity in the fields of systematics, physiology, molecular biology, genetics, and natural products. We have active graduate programs in Plant Sciences, Plant Genetics, Plant Pathology and Entomology, currently with 20 students.

The department serves an important role in outreach/extension, with every member of the faculty expected to communicate his/her research findings to the citizens of Montana outside a formal classroom setting. We house several units that serve the state agricultural community, including the Seed Potato Certification Program, the Cereal Quality Lab, the Seed Testing Lab, Seed Certification Program, Foundation Seed and the Disease and Insect Diagnostic Clinics (funded in part by the Department of Homeland Security). Our presence is felt in every corner of the

state. Our extension specialists emphasize interactions with grain, potato and sugar beet growers, as well as retailers, wholesalers and producers of horticultural products and landowners.

Departmental Base Budget Overview

Department **Animal and Range Sciences**

Executive **Provost**

Index **412400**

Program **01**

Base Budgets:

1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	10-Year % Change
492,562	437,052	525,778	533,143	513,412	537,114	564,712	570,434	617,501	628,418	636,371	29.20%

The mission of the Department of Animal and Range Sciences is the scholarly discovery and dissemination of science and technology supporting livestock, rangelands, and other renewable natural resources in socially-acceptable, and economically- and ecologically-sustainable systems. The Department strives to be a regional leader in applied, integrated range livestock education, research, and service.

Goals of the Department's academic programs are defined by the characteristics desired of graduates. Besides mastering subject matter relevant to their major, successful graduates should possess a solid foundation in the basic sciences (physical, biological, and social), demonstrate proficient written and oral communication skills, be adept at synthesis and problem-solving, and have an awareness of regional and global issues (technical, ethical, and societal) involving animal agriculture, rangelands, and other renewable natural resources. These programs are necessary for the University to meet the current and future needs of its clients – i.e., students, parents, employers, and society as a whole.

The Department provides the following services to the University: we deliver B.S. degree programs in Animal Science and Range Science, M.S. and Ph.D. programs in Animal and Range Sciences, and courses that serve degrees offered by the Department and other units across campus. Further, we recruit, advise and mentor students.

The goal of research programs within the Department is to address meaningful scientific questions and develop technology relevant of animal agriculture, rangelands, and renewable natural resources. Problems pertinent to Montana, the Northern Great Plains, and the Northern Rocky Mountains are emphasized. The Department eagerly looks forward to greater partnerships with USDA-ARS in the area of genomics/proteomics research.

Through extension education and outreach/service programs the Department seeks to be a trusted partner with its clients in the livestock industries and natural resource management, and to serve as their gateway to MSU.

Recent increases in expenditures reflect the refilling of one faculty vacancy and the employment of adjunct professors related to our new Equine Option in Animal Science. Enrollment in this option (approved summer 2002) is currently 56. Enrollment in our natural resources-range program has increased 12% since we changed the degree name from "Range Science" to "Natural Resources and Rangeland Ecology" last year.

Departmental Base Budget Overview

Department **Entomology**

Executive **Provost**

Index **412500**

Program **01**

Base Budgets:

1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	10-Year % Change
68,993	70,165	78,276	76,233	88,231	93,925	109,234	109,990	0	0	0	

As of FY 06 there is no longer a department of Entomology. The faculty of Entomology are now in other departments in the College of Agriculture.

The Department of Entomology has the sole responsibility for entomological research, education, and outreach in the Montana University System. It is our responsibility to conduct research and offer educational programs relating to insects and other arthropods that significantly impact agriculture, natural resource systems and public health. The departmental foci include recruiting and educating a diverse student body, maintaining the efficiency and health of agriculture systems, as well as inventorying, protecting, and improving natural resource environments.

The department offers a minor and MS degree in entomology because specific training or a degree in entomology is often required for employment. In AY 03-04, the entomology instructional FTE (1.15) was distributed over seven faculty. While the instructional emphasis is on graduate training, (13 courses were taught), faculty teach three undergraduate courses serving approximately 175 undergraduates coming from various campus departments and colleges. Because the department's resident instruction emphasis is graduate education, our specialized graduate courses cater to training graduate students in our discipline and closely related fields, thus enrollment in some of our graduate classes was limited to entomology students.

Research faculty (5.0 MAES distributed over eight faculty) and graduate students work in areas such as integrated pest management in small grains, forages, and stored grain, cropping systems, chemical ecology, insect behavior, biocontrol of weeds, rangeland insects, veterinary entomology, systematics and biodiversity. During the 2003 calendar year, 15 papers appeared in referred journals and numerous abstracts and presentations at professional meetings. All faculty were successful in receiving competitive grants in 2002 with the total number of dollars received approximately \$1.6million. This figure reflects grants from state, regional, national and international sources and represents an excellent blend of funding agencies for the research programs the department has on-going.

Each faculty member contributes time and expertise to the departmental outreach and extension mission. Approximately 100 meetings were conducted by faculty on insect pest management on small grains and forages, updates on entomological issues, livestock insect management, biological control of weeds, pesticide policies and registration issues, and 4-H. Audiences for these programs included students in elementary and secondary schools, agricultural practitioners and businessmen, members of non-profit organization, etc. Several extension programs are coordinated through the department: IPM, pesticide applicator training, pesticide impact assessment, and crop pest management.

Faculty were represented on numerous college and university committees, served as reviewers of scientific publications, received appointments to national grants panels, elected to professional society offices, and selected for editorial boards. Appointments to these offices and panels are an acknowledgment of the regional and national recognition the faculty has earned.

Departmental Base Budget Overview

Department **Agricultural Education**

Executive **Provost**

Index **412600**

Program **01**

Base Budgets:

1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	10-Year % Change
0	0	0	10,000	173,417	198,283	201,309	201,864	205,110	212,828	216,142	

Agricultural Education (AgEd) programs provide students and agricultural professionals with innovative and comprehensive instruction on leadership, technology, science, and educational activities basic to the land-grant mission and that engage students in the profession of agricultural education (K-adult). These programs are grounded in scholarly activities aimed at creating new knowledge to enhance professional and technical skills of teachers and leaders who work with the agricultural industry, which is expanding in machinery, processes, and pedagogical sophistication.

The Division of AgEd offers BS degrees in Ag Ed and in Agricultural Operations Technology (AOT) and MS in AgEd. There are approximately 65 undergraduate majors in these two programs and 5 graduate students. In AY06-07, 2.0 FTE plus adjuncts instructed 22 courses plus seminars and special research projects. The division offers one university core course, which is also required by several other majors in the College of Agriculture. Ag Ed majors have two options from which to choose: Broadfield Teaching and Extension. Alumni play an important role in recruiting students.

The division serves students who seek careers common in Montana and elsewhere. A distinction of this program is its high percentage (80%) of division graduates who find professional employment in Montana, which contributes to the Montana agriculture sector and economy. These statistics apply to M.S. graduates as well. Agricultural Education majors are prepared to fulfill careers as agricultural education teachers, county extension agents, and agricultural communications specialists. Employment opportunities for Agricultural Operations Technology students exist on farms and ranches, with agribusinesses, agricultural industry, and government agencies.

Agricultural Education students have excelled in service and academic related activities. Since 1994, five agricultural education graduates have been named "Outstanding College of Agriculture Senior Student" at Montana State University. National 4-H and the National Association of Agricultural Educators have awarded Agricultural Education and Agricultural Operations Technology student national scholarships. In the past four years, two AgEd students, Heather McCartney and Mary Anne Anderson, were awarded an internship at ACDI/VOCA in Moscow, Russia through a U.S. State Department Educational Partnership program.

Services provided: (1) International Cooperative Business Training Program focuses on improving the management and strategic planning of agricultural cooperative leaders from other countries. Work on this initiative has been conducted in Poland, Russia, and Croatia; (2) Montana State FFA Convention: Every year over 1,000 FFA members attend the State FFA Convention in one of three cities in Montana cities: Billings, Bozeman, and Great Falls. This is the largest youth organization event in the state of Montana. The MSU Agricultural Education division and its student organization (Collegiate FFA) sponsor all of the state FFA competitions in early April of every year.

Departmental Base Budget Overview

Department **Land Resources & Environmental Science**

Executive **Provost**

Index **412700**

Program **01**

Base Budgets:

1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	10-Year % Change
452,139	205,631	281,220	292,406	397,411	420,360	425,622	428,933	549,833	546,608	557,960	23.40%

The Land Resources and Environmental Sciences (LRES) Department was created through restructuring of the larger (former) PSES department during 1998; thus 1999 marks the first true year for our base budgets. The 2006 28% budget increase is due to addition of about one-half the former Department of Entomology. The 10-year-percent-change figure (i.e., 2008/1998 base budgets) therefore bridges these events. The LRES mission is “the generation and dissemination of objective, scientifically-based knowledge about land resources through integrated multi-disciplinary approaches to understanding and managing landscapes”. LRES is a core component of the MSU land grant mission, providing excellent on- and off-campus instruction, research, extension, and outreach. Our 19 tenurable faculty members provide scholarship, leadership, and professional service in integrated agricultural, biological, and physical sciences of high relevance to Montana and the nation. LRES faculty are highly productive in securing extramural research funds from a variety of sources, mentor about 40 MS and 20 PhD graduate students, and are nationally and internationally recognized in their disciplines. Research and other sponsored programs expenditures in FY07 were \$5.4M, exceeded by only three MSU academic units. We have been among the top 5 MSU research expenditures departments in each of the past 5 years. LRES research programs integrate and bridge scales and disciplines from microbial to landscape. Faculty and staff actively collaborate with other departments, colleges, research centers, institutions, and agencies. Our faculty consistently earn very good to excellent instructional reviews from our undergraduate majors and other supported majors from across campus. Of the 23 undergraduate courses offered through LRES (excluding 270, 290, 470, 476, 490, etc.), 20 are taught by faculty and 3 by instructors; all 16 graduate courses are taught by tenurable faculty. We are developing several new Water Resources courses to better address this critical need at MSU. LRES faculty contribute to BIOL service courses, CLS Seminars, CORE 2.0 and other core institutional efforts. About 70% of our courses provide supplementary hands-on laboratory/field experiences. Our faculty were early adopters of the undergraduate research model, and continue as strong participants. Nonresident student enrollment is currently 38% for undergraduate majors, and 24% for graduate students. These proportions could be further increased through targeted recruiting and by adding additional quality components to our curricula. Continued ability to grow in these areas will be constrained by new faculty hires and instructional FTE. Of 17 teaching faculty, 13 have split (MAES, ES, College) funding, with departmental mean of 0.315 instructional component per teaching faculty. Of these, two senior faculty joined LRES from CLS with substantial instructional FTE (1.44 FTE; 23% of the LRES total) but with very small teaching loads negotiated outside the department. We continue to teach at roughly 2X the credit rate of peer-department faculty on campus, per unit instructional FTE. Because of limited teaching resources, we focus on excellent upper-division undergraduate and graduate instruction. While this effectively serves MSU students, lack of instructional FTE to provide high-enrollment lower-division service courses strongly impacts total student credit hours and related indices.

LRES is a truly comprehensive, diverse, highly relevant, and extremely productive department that is central to MSU’s current and future role as THE land grant university situated in the Greater Yellowstone Ecosystem. We are uniquely positioned to take advantage of student interests, and rapidly expanding research and employment opportunities in the environmental sciences.

Departmental Base Budget Overview

Department **Vet Molecular Biology**

Executive **Provost**

Index **412800**

Program **01**

Base Budgets:

1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	10-Year % Change
82,021	83,458	114,688	115,484	117,951	126,551	161,209	161,812	166,740	172,532	176,283	114.92%

The primary mission of Veterinary Molecular Biology (VMB) is to perform basic and applied research to achieve a better understanding of livestock, wildlife, and human health and disease for the ultimate benefit of Montana, the Nation, and society in general. VMB fulfills this mission through instruction, research, and service, as outlined below.

Faculty members teach 20 different classes representing 44 class credit hours per year (not including 470, 476, 489/490, 500, 570, 589, and 690 credit hours). Faculty members contribute to the undergraduate Biotechnology degree by teaching most of the upper-division courses in the Animal Option. VMB also offers M.S. and Ph.D. degrees. VMB has a total teaching FTE of 1.74, and faculty average 25-30 credits taught per FTE, excluding hours spent directing graduate and undergraduate students in research. Faculty members also take an active role in advising undergraduate and graduate students.

VMB is responsible for advising students in the pre-veterinary option (130-150 students annually) and students enrolled in the Biotechnology degree (20-30 annually). Faculty members also advise graduate students and serve on numerous thesis committees. VMB has developed one of the premier infectious disease research programs in the Northwest, as demonstrated by the success of our faculty in competing nationally for extramural grant funds and publishing high-impact papers. Researchers in VMB currently address important infectious disease issues relevant to all animals. Indicative of the success of the research effort, faculty increased research grant and contract expenditures to approximately \$12 million in FY2007. In addition, faculty members publish in high quality journals and are invited to national and international locations to present their research findings.

VMB faculty members serve on numerous committees at all levels, including several major university committees such as the Institutional Animal Care and Use, Human Subjects, Biosafety, and Radiation Safety Committees, and the MSU Graduate Council. Faculty members are also involved in numerous grant and manuscript review panels and serve on MAES project reviews.