Departmental Base Budget Overview

Department **Agriculture Dean's Reserve** Executive **Provost**

Index **412011** Program **01**

Base Budgets:

2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	10-Year % Change
57,128	55,868	104,304	0	2,185	23,057	36,695	46,612	87,058	201,545	252.80%
									49,828	Payroll Benefits
									251,373	Total

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. Instructional programs in the College are evolving and will meet the demands of a changing society in Montana, the region and the globe.

This account is a holding account for the College activities (e.g. vacant position) at the administrative level. The sharp increase from 2009 to 2010 includes a department head FTE and several faculty FTE that are currently being nationally advertised. 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. 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:

2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	10-Year % Change
866,729	767,801	821,848	912,147	915,388	938,786	1,003,387	1,042,961	1,011,203	1,044,381	20.50%
									305,371	Payroll Benefits
									1,349,752	Total

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. Two-thirds of DAEE faculty members have won national research awards. DAEE faculty produce an average of 15 refereed journal publications per year, several books and book chapters, plus dozens of scientific presentations and MAES/ES publications. 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, land resources and environmental studies, plant science and plant pathology, 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 Follow the Grain (provides an integrated view of the science, technology, production practices, product handling, product marketing, and end uses for wheat and barley, the two most important crops grown in Montana), with trips to Taiwan in 2006, China in 2008 and Chile in 2010; Conception to Consumption (similar to Follow the Grain, but with emphasis on Montana cattle and beef), with a trip to Europe in 2007; and Follow the Democracy (teaches the relationships between Property Rights, Economic Performance, and the Origins of Democracy), with a trip to Greece in 2009. 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 of 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:

2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	10-Year % Change
598,206	590,058	570,818	577,686	582,547	611,508	602,942	620,745	636,041	569,164	-4.85%
									171,263	Payroll Benefits
									740,427	Total

The Plant Sciences and Plant Pathology Department (PSPP) formed in 1999 with faculty from three departments. In July 2005, we added 2 faculty (with 20% CoA appointments) from the disbanded Entomology department. Our mission is to provide leadership and expertise in plant sciences and plant pathology in undergraduate and graduate student training, research programs, and outreach/service activities. The department plays a crucial role in the overall mission of the university as a land grant institution and is the only unit in the state focused primarily on plants and their pathogens. We are the largest collection of plant biologists in the region.

Over the last 10 years, the PSPP base budget has increased only 5.8% (excluding the $105,531 added to the 2010 budget for benefits), despite a 20% increase in total FY SCH taught, a 39% increase in total SCH taught per faculty FTE and a 20% increase in total FY FTE taught (from FY09 KPI data). This increase is obviously even less than the amount allocated in raises during this time.

PSPP trains undergraduates in the fields of crop science, horticulture, landscape design, plant biology, plant pathology, plant biotechnology and sustainable crop systems. Our horticulture program has 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 FY06 were $2,902,153. 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 21 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 and Foundation Seed. 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:

2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	10-Year % Change
533,143	513,412	537,114	564,712	570,434	617,501	628,418	636,371	662,251	547,486	2.69%
									163,984	Payroll Benefits
									711,470	Total

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 in Natural Resources and Rangeland Ecology (formerly Range Science), M.S. and Ph.D. programs in Animal and Range Sciences, and courses that serve degrees offered by the College of Agriculture 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 to 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.

Enrollment in our Equine Science Option within the B.S. in Animal Science program has grown from 42 shortly after it was created in 2002 to 65 Fall Semester in 2009. Forty percent of these students are non-residents. Enrollment in our renamed range science degree program, now Natural Resources and Rangeland Ecology (effective Fall 2006), has increased from 35 in 2005 to 69 in 2009. A national search for a permanent department head is currently open.

Departmental Base Budget Overview

Department **Entomology** Executive **Provost**

Index **412500** Program **01**

Base Budgets:

2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	10-Year % Change
76,233	88,231	93,925	109,234	109,990	0	0	0	0	0	-100.00%
									0	Payroll Benefits
									0	Total

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:

2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	10-Year % Change
10,000	173,417	198,283	201,309	201,864	205,110	212,828	216,142	233,622	239,699	2296.99%
									71,302	Payroll Benefits
									311,001	Total

Agricultural Education (AgEd) programs provide students and agricultural professionals with innovative and comprehensive instruction on leadership, ag 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 use of new machinery, new processes, and pedagogical sophistication.

The Division of AgEd offers a BS degree in Ag Ed and an MS in AgEd. There are approximately 60 undergraduate majors in these two programs and 5 graduate students. In AY09-10, 3.0 FTE 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: Teaching and Relations. Alumni and ag teachers in secondary education play important roles in recruiting students.

The division serves students who seek careers in Montana and around the country. A distinction of this program is its high percentage (80%) of division graduates who find professional employment in Montana, which contributes greatly and intrinsically 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 or on farms and ranches, with agribusinesses, agricultural industry, and government agencies such as BLM and NRCS.

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 students national scholarships. In the past several 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. Other students have studied in Australia, Mali, Croatia, and Japan.

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 each year.

Departmental Base Budget Overview

Department **Land Resources & Environmental Science** Executive **Provost**

Index **412700** Program **01**

Base Budgets:

2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	10-Year % Change
292,406	397,411	420,360	425,622	428,933	549,833	546,608	557,960	581,005	568,811	94.53%
									156,467	Payroll Benefits
									725,278	Total

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. Budget increases are due to addition of about one-half the former Department of Entomology in 2006 and adding benefits to the base budget in 2010; the 10-year-percent-change figure (i.e., 2010/2000 base budgets) therefore bridges these events. The LRES mission is to generate and disseminate objective, scientifically-based knowledge about land resources and environmental management. The Department brings together disciplines related to soils, plants, insects, microbes, and water to achieve an integrated multi-scale, multi-disciplinary approach to understand and manage ecosystems. LRES is a core component of the MSU land-grant mission, providing excellent on- and off-campus instruction, research, extension, and outreach. Our 22 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 members are highly productive in securing extramural research funds from a variety of sources, mentor about 18 MS and 30 PhD graduate students, and are nationally and internationally recognized in their disciplines. Research and other sponsored programs expenditures in FY09 were $4.7 M, exceeded by only four MSU academic units. We have been among the top 5 MSU research-expenditure departments in each of the past 5 years. LRES research programs integrate and bridge scales and disciplines from microbial to landscape, addressing issues critical to Montanans, the nation and world. 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 27 undergraduate courses offered through LRES (excluding 270, 290, 470, 476, 490, etc.), 24 are taught by faculty and 3 by instructors; all 17 graduate courses are taught by tenurable faculty. LRES faculty members 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 and field experiences. Our faculty members were early adopters of the undergraduate research model, and continue as strong participants. Nonresident student enrollment is currently 38% for undergraduate majors, and 34% for graduate students. These proportions could be further increased through targeted recruiting which highlights the quality components of our curriculum, 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, topics our curriculum committee is exploring. Of the 21 teaching faculty in LRES, 19 have split (MAES, ES, College) funding, with departmental mean of 0.3227% instructional component per teaching faculty. Of these, two senior faculty joined LRES from CLS with substantial instructional FTE (1.44 FTE; 22% of the LRES total) but with very small teaching loads negotiated outside the department. To fulfill our teaching mission, we continue to teach at a rate above what our teaching split suggests would be commensurate with peer-departments on campus. 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:

2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	10-Year % Change
115,484	117,951	126,551	161,209	161,812	166,740	172,532	176,283	181,678	172,135	49.06%
									44,446	Payroll Benefits
									216,581	Total

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). On the average, 835 student credit hours are taught annually by VMB faculty members. 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 College teaching FTE of 1.74, and faculty average 20-30 credits taught per FTE, excluding hours spent directing graduate and undergraduate students in research. Additionally, VMB faculty members also teach in the WWAMI medical program (0.4 FTE), providing instruction in immunology, infectious disease, and pathology. Faculty members also take an active role in advising undergraduate and graduate students.

VMB is responsible for advising students in the pre-veterinary option (average of 134 students annually over the past 3 years) and students enrolled in the Biotechnology degree (average of 25 students annually over the past 3 years). 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 this research effort, VMB averaged over $11 million for annual research expenditures in the past three years (FY2007-FY2009). 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 Committee, Human Subjects Institutional Review Board, Biosafety Committee, Radiation Safety Committee, and the MSU Graduate Council. Faculty members also serve on several scientific journal editorial boards (e.g., Journal of Immunology, Journal of Biological Chemistry, Journal of Leukocyte Biology), as manuscript reviewers for numerous journals, and as grant reviewers for a number of agencies (e.g., National Institutes of Health, National Science Foundation, U.S. Department of Agriculture).