

**School of Animal Systems
In the College of Agriculture and Life Sciences (CALs)**

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This White Paper was based on the report presented to the Dean of the College of Agriculture and Life Sciences by a committee on Biological Sciences. The committee membership and the process are described in the text.

Units to be Reorganized:

Department of Animal Sciences
Department of Veterinary Science and Microbiology

Justification

The proposed merger between the Department of Animal Sciences and the Department of Veterinary Science and Microbiology will create a School of Animal Systems with separate divisions of Animal Sciences, Veterinary Science and Microbiology, and the Veterinary Diagnostic Laboratory. At present the Department of Animal Sciences is composed of 17 faculty members, including 4 instructors. The Department serves approximately 175 undergraduate students majoring in Animal Sciences and 20 graduate students (MS and PhD) with majors in Animal Sciences. Three to 5 additional graduate students are advised by Animal Sciences faculty members through various GIDPs (Physiologic Sciences, Biomedical Engineering, Nutritional Sciences). Major research focus areas are Environmental Physiology, Animal Nutrition and Metabolism, Reproduction and Fetal Development, Food Safety, and Muscle Biology. Outreach activities, through Cooperative Extension and through direct outreach activities of faculty members include the following: animal health/well being and biosecurity, range livestock and dairy production, food safety/meat science, youth livestock programs, equine programs, and livestock and equine extension on Arizona reservations.

The Department of Veterinary Science and Microbiology has 10 tenured or tenure track faculty members and 2 new tenure track faculty members that will join the Department in January 2009 plus 5 continuing track faculty assigned to the Arizona Veterinary Diagnostic Lab (AVDL). The Department of Veterinary Science and Microbiology has two undergraduate majors, Veterinary Science (298 majors) and Microbiology (268 majors). Two graduate programs are administered through the Department, Pathobiology (11 students) and Microbiology (16 students). Key Research Areas are in Animal Health/Disease, Zoonotic Diseases, Food Safety, and Diagnostics. Major outreach responsibilities are conducted through the AVDL with over 9,000 diagnostic accessions per year and through the state's only veterinary extension specialist with programs in animal health and biosecurity.

How will the reorganization strengthen the unit's teaching, research and service in accordance with the University Strategic Plan?

This section will not describe all of the programs in instruction, research and service that exist in the two departments, but will focus on programmatic overlap and areas that are complementary in which efficiencies can be achieved and existing strengths can be enhanced. Reorganization fulfills the 2009-2013 University Strategic Plan in instruction by engaging and graduating students who can contribute to the state, nation and world by providing core skills in Microbiology, Animal and Veterinary Sciences. Currently several undergraduate classes in the Department of Animal Sciences are already cross-listed with Veterinary Sciences. In addition, one curriculum option within the Animal Sciences undergraduate major has significant overlap with the Veterinary Science undergraduate major; a single major may be developed that will accommodate the needs of both sets of students. The Department of Veterinary Science and Microbiology is exploring the development of a Professional Veterinary School, referred to as the 2 + 2 Program. If this program is developed, Arizona students would be admitted to the program and would take the first two years of professional veterinary school curriculum at the University of Arizona, followed by 2 years of clinical studies with a cooperating veterinary school in another state. Oklahoma State University Veterinary School has expressed an interest in partnering with the University of Arizona. The advantage for the State is in being able to prepare and select our own students with an eye on meeting critical state needs for rural and large animal veterinarians. If we are able to develop this professional veterinary school program, a pre-veterinary curriculum could provide an excellent foundation for students entering the professional program by taking advantage of expertise in Veterinary Science and Microbiology and the Veterinary Diagnostic Laboratory combined with the expertise and resources of the Animal Sciences department. This program would enhance the probability of increasing the number of veterinarians to meet the State's needs. Greater integration of animal health and animal

production will also improve the education of students that will enter agribusiness in the production or service sector.

Research synergies will be enhanced in fulfillment of strategic directions outlined in the University Strategic Plan under categories of Bioscience and Biotechnology, Climate and Environmental Sustainability, and Biomedical and Behavioral Health. The integration of basic physiology and animal health in studying how animals adapt and remain productive under our harsh environmental conditions is a focus area that will be strengthened by merging these programs. The Parker Agricultural Research Complex is a powerful and unique facility with experimental chambers large enough for 6 adult cows in which investigators can re-create any day of the year in Southern Arizona or similar environments around the world, with respect to temperature, humidity and solar radiation. In stressful environments animal health and physiology cannot be separated, and a team that can comprehensively study biological responses to hot, arid environments will be pulled together in a single academic unit in the proposed School.

A second major thrust of the new unit will be in food safety. Currently collaborations between faculty members in both departments are gaining momentum, and a merger will greatly strengthen these efforts. A unique food safety and food biosecurity program can be created by integrating production agriculture and animal health (preharvest) with food microbiology in the food processing, handling, storage and marketing sectors (postharvest). The Department of Animal Sciences has meat animal production and harvesting facilities (ranch, feedlot, and meat science laboratory) and expertise in these links of the food chain, and the Department of Veterinary Science and Microbiology has significant expertise in animal disease and food microbiology. Federal grant funding for collaborations between scientists in both departments currently exists. Faculty members are organizing an interdisciplinary Food Safety Consortium to include vegetable and animal products, and the proposed School could provide a single academic home from which to launch this important research, teaching and outreach venture. Most food safety programs focus only on post-harvest issues and do not have the breadth of scientific expertise that has been assembled to address this important area here at the University of Arizona. Furthermore, we are uniquely situated geographically to address the issue of food safety and security. During certain times of the year, much of the country's produce passes through the border from Mexico into Arizona, and large numbers of cattle from Mexico come north to feedlots in the US on a regular basis.

In the realm of service, existing collaborations between the two departments have developed a unique state-wide, rapid response network for detecting and responding to potential animal disease threats. This program, which is becoming a national model, is a first step in development of a comprehensive biosecurity program. As pointed out in the previous paragraph, our proximity to an international border places the University and the newly reorganized unit in a position to provide national leadership in service and research related to this critical area. In other areas of animal health and production, closer coordination will also increase our effectiveness.

How will the reorganization raise the unit's and the University's ranking or reputation?

A critical mass will be achieved in the area of Food Safety and Biosecurity. This is a newly emerging area of research and service. The combination of a strong extension program, veterinary diagnostic laboratory and basic food animal and microbiology research positions us to make significant contributions to the state and nation. The second area of excellence is in environmental physiology. With the new one-of-a-kind large animal environmental research facility and excellent faculty, we are rapidly becoming the research leader in environmental physiology in the animal sciences. Greater integration of animal health would further strengthen our position.

Description of the process of consultation with deans, heads, faculty, staff, appointed professionals, and students and extent of support from those affected.

The following steps describe the process through which the Biological Sciences Committee in the College of Agriculture and Life Sciences arrived at its recommendations. The committee was composed of the following members: Ron Allen, Chair, Peder Cuneo, Glenn Duff, Molly Hunter, Raina Maier, Carl Olson, Sandy Pierson, Mark Riley, Donato Romagnolo, Charles Sterling, Valerie Teetor, Rod Wing. First, the committee met to become familiar with the departments involved through the presentation of a brief sketch of each department by representative members; information included numbers of faculty and students, undergraduate and graduate majors, primary research focus areas within the department, key collaborations across departments and colleges, and outreach activities. Second, departments were invited to provide position papers on reorganization that were reviewed and discussed by the committee. Many departments held faculty meetings to develop position papers. Staff and students were brought into the process at the discretion of each department, but due to time constraints, students were not included in the deliberations of this committee. Third, the committee considered position papers, ideas conveyed through representative committee members and committee discussion in arriving at a set of recommendations. The recommendations were presented to the Dean for dissemination to the CALS via the Dean's web page, and an open forum was held for the College to get additional input. The White Paper for a School of Animal Systems was developed by Vice Dean Kaltenbach and Biological Sciences committee chair Ron Allen following the College-wide open forum.

Budget savings:

Marginal savings will occur. Possible consolidation of support staff could result in small savings, but the new school cannot be consolidated into a common space, thus some duplication of support staff will continue to exist. Potential annual savings are estimated at \$49,000.