Physiology: doctorate, CIP Code: 51.2503

The mission of the Department of Anatomy and Physiology encompasses instruction, research and continuing education by the disciplines of Gross and Microanatomy, Cell and Systemic Physiology, Pharmacology and Neuroscience, all of which are central to the education of veterinarians for Kansas and the nation, to the education and training of graduate students for biomedical careers in teaching, research, and industry, and to the fulfillment of the University's mission to conduct basic and applied research important for the diagnosis and control of animal and human disease. The American Physiological Society defines Physiology as the: *"the study of life. Physiologists answer key questions ranging from the workings inside single cells to...how a particular enzyme contributes to the functions of a specific cell or sub-cellular organelle...Physiology is important because it is the basis upon which we expand our knowledge of what 'life' is, how to treat disease, and how to cope with stresses imposed...by new environments."* (Statement from The American Physiological Society website). Thus, by training Doctoral students in the discipline of Physiology, the Department of Anatomy and Physiology is central and key to the success of health professionals in the College, University and State. The Graduate Program in Physiology is one of two doctoral programs in the College of Veterinary Medicine and it is the only graduate program on campus, or within the state that provides opportunities for graduate study in veterinary physiology.

Students in the Veterinary Physiology Program published 15 papers in Peer-reviewed journals in 2003, 21 in 2004, 30 in 2005, 28 in 2006, and 16 in 2007. In addition, these students have received awards at the local, statewide and national level. Graduates from the Veterinary Physiology Program are in high demand in industry and academic positions. Over the last 3 years (2005-2007), 9 Ph.D. students have graduated and have accepted entry-level university and industry positions.

The cost of providing the Veterinary Physiology Program relative to the benefits of the program is extremely low. The infrastructure that is used to train students is not dependent on student enrollment; rather, it is required for faculty members to meet the obligations of their funding agencies. Similarly, financial support for students is provided almost exclusively by external funding agencies. Faculty member time required to teach graduate courses in the Veterinary Physiology program is low, as most student training is conducted in the laboratory. Therefore, the cost-effectiveness of the Veterinary Physiology Program is high.

Summarized Assessment of Student Learning – Ph.D.

Student Learning Outcomes (SLOs):

1) Ability to formulate research questions, design and conduct appropriate experiments, analyze and interpret data, and disseminate research outcomes; 2) Professional and technical expertise in chosen discipline; 3) Critical thinking and interpretation of information presented; 4) Effective use of oral and written communication skills. Measures used are a combination of direct (e.g., seminars presented, publications) and indirect (evaluation by Major Professor).

Results:

Assessments were completed for 8 Knowledge and 45 Skill outcomes (n = 8 Ph.D. Students). The faculty developed a list of criteria to evaluate each SLO based on a scale of 4 (exemplary) to 1 (failed to meet expectations).

- 45 measures of Knowledge and Skills had improved outcomes.
- 3 measures showed no change and tended to have been scored quite high in the initial reporting year (2.5/3: 2=partly proficient, 3=completely proficient).
- 5 measures showed declines, although two of the items were only slightly reduced by 0.06, from 2.56 to 2.50 and from 2.44 to 2.38.
- Collectively, analysis of the learning outcome assessment data indicates that faculty members in the Ph.D. program are providing a learning environment that consistently improves the students' proficiency in fundamental characteristics and behaviors of professional training.

Actions/Revisions:

Adjustments were made to the data gathering process by revising the SLOs and the graduate student annual assessment evaluation forms. Faculty members are in the process of creating new course titles to address areas that were identified as needing attention (e.g., Participation in Journal Clubs, Knowledge of Guidelines and Institutional Policies, etc.). Faculty will review how the assessment process can be more

easily completed (e.g., an on-line annual assessment form will be implemented prior to May 2009). Guidance to faculty and students will be provided by comparisons of year-to-year individual reports and it is expected that faculty review will identify mechanisms by which the graduate education process can be improved.