1. Student Learning Outcomes

Students will:

1. Know and understand the basic principles of applied animal biology.
2. Understand the fundamental tenets of animal science disciplines including genetics, growth and development, meat science and muscle biology, comparative nutrition, feeds and feeding, anatomy, basic and environmental physiology, endocrinology and reproduction.
3. Apply this knowledge to the basic understanding and application of appropriate husbandry best practices to animals of economic value.
4. Read and be able to analyze scientific or technical papers critically.
5. Communicate clearly both orally and in writing.
7. Understand the importance of good citizenship in both personal and professional habits.
8. Understand the scientific method and design of experiments to test hypotheses and as such experience the process of discovery.
9. Explore the relationship between applied animal biology and society, including contemporary ethical issues raised by animal research, the use of animals by humans, and the role and impact of animal agriculture and applied animal biology on the planet.

2. Student Learning Outcomes are not yet published since they are being clarified during our current review of the curriculum.

3. Mapping of Student Learning Outcomes onto the curriculum.

1. Applied animal biology starts with a strong background in the basic sciences including chemistry, physics and biology. The basic knowledge obtained is applied to animal biology throughout the courses offered in the department.
2. Fundamental tenets of animal science disciplines provide the basic structure of the curriculum, with courses offered focusing on the different disciplinary areas.
3. Knowledge is applied to husbandry practices in the livestock and aquaculture production courses, and in the internship course.
4. In the senior year students are expected to read and analyze scientific papers (reproduction, meat science and muscle biology, etc.) and technical papers (production courses and internship).
5. Written communication is emphasized in writing intensive courses offered at each level of the curriculum. Oral communication is learned throughout the curriculum.
in many courses which require oral presentation or other oral work. At this time the department does not have an “O” focus course, but is planning to develop such a course from the “Journal Clubs” which are currently offered in ANSC 499.

6. Problem solving is learned throughout the curriculum. An example is the internship class, in which students develop their own learning objectives, actions to attain them, time-lines and assessment.

7. Good citizenship is learned in the general education core (global and multicultural perspectives), in the internship experience, and in extracurricular and service activities (e.g. Pre Vet Club, Leadership Camp). The ability to build effective interpersonal relationships is learned in many team projects throughout the curriculum.

8. The scientific method is learned in the required statistics class and through reading articles in peer-reviewed journals. The process of discovery is experienced in the many laboratories and projects within the curriculum.

9. Issues and ethics are introduced at the 200 level through the course Humans, Animals and Agriculture, and explored in greater depth in the E focus course on Humans, Food and Animals: Ethics, Issues and Controversies.

4. Methodologies used to collect data

1. Capstone course: A capstone course (ANSC 492 Internship) is required in the senior year and is offered in both the Spring and Fall semesters. The course is restricted to majors. In their final reports at the end of the semester, students assess the Animal Sciences program, reflect on its value in preparing them for their internship experience, and make suggestions for change in response to the question:

   “Evaluate the preparation provided to you in the department curriculum for the type of work you did in your field experience or plan to do in the future. Discuss how you integrated your academic training into the performance of your work site responsibilities. Include suggestions for changes in the curriculum and a rationale for such changes.”

This structure provides perceptual/attitudinal data from all graduating seniors. The open-ended structure of the questions results in a variety of responses and suggestions. The written report is followed by an exit interview which allows for clarification and follow-up for student comments. The faculty member in charge of the course compiles all the responses by themes, including specific course references, skill areas, comments on faculty, strengths and weaknesses of the program and suggestions for change.

2. Supervisor evaluation (see attached): All students in the ANSC 492 Internship course are evaluated by their supervisors in the workplace. Students are rated on a list of performance indicators that are provided to the supervisors. The population covered is the same as in the capstone course described in A. The faculty member in charge of the course compiles the data. Because many of the same supervisors are included every year, rolling averages can indicate change in performance over time.
3. College graduating student survey. All students in the College of Tropical Agriculture and Human Resources are required to fill out a web-based survey at the time that they apply to graduate. The CTAHR Office of Academic Affairs conducts the survey and compiles the results. Survey results can be compared from year to year and with other departments in the College.

4. Department survey of alumni (see attached). In 2004 all students graduating from the program in the last five years were surveyed by mail with a follow-up by email or telephone. The response rate was 24%. Results were tabulated by a student assistant and reviewed by faculty.

5. Success of applicants to veterinary schools. Faculty advisors keep track of students applying to veterinary and medical schools. (The CTAHR exit survey keeps track of those going to graduate school.) This data is important because students do not need to complete the BS degree to be accepted to professional schools, but such students are not drop-outs from the program. Success rates of our students can be compared to national averages. This year three of our graduates were accepted to veterinary school and one to medical school, so we were well ahead of the national average.

5. Use of assessment data to improve the program.
   1. Course changes. Because our current students have little interest in farm animals, the traditional courses are being changed to be more comparative and to include examples from a wide variety of species. For example, ANSC 244 was revised and renamed from Feeds and Feeding to Comparative Animal Nutrition. The Livestock Handling course was dropped from the curriculum.

   2. Advising changes. Instead of having one undergraduate advisor, advising has been divided among three advisers. If students do not get along well with one advisor, they now have the option of going to a different advisor.

   3. New positions. The department is in the process of hiring an Assistant/Associate Specialist (Veterinarian) to strengthen the pre-veterinary advising program. This program is based in the department, but is available to students throughout the campus. The veterinarian will be able to offer a new hands-on course in veterinary techniques.

   4. Curriculum revision. The faculty are in the process of reviewing and revising the animal sciences curriculum to be more consistent with new approaches in other animal sciences departments, to provide more flexibility to students, and to include more aquaculture classes.

   5. Ethics course. Traditionally we have required ethics at the 200 level. A new issues and ethics course has been added at the 300 level so that students can continue to meet this requirement within the major.

   6. Cross-listing. In order let students benefit from the combination of disciplines within the department, some courses, such as the ethics, Comparative Animal Nutrition, and Internship courses have been cross-listed between the Animal Sciences and Food Science and Human Nutrition majors.
6. General Education Assessment within the major.

1. Information-accessing and information-processing methods. These skills are integrated within several courses in the curriculum. Projects and papers requiring students to research a topic are used in courses at every level. An example is the comparative nutrition course, in which general principles of nutrition are covered and then students are required to research the nutritional requirements of selected species and provide written and oral reports. By the senior year students are expected to be able to independently read and analyze the peer-reviewed journals in the field.

2. Problem-solving and oral communication. These skills are integrated throughout the curriculum through case studies, projects and presentations. There is room to improve here because employers are giving about half of our students a “B” in these areas, as compared to giving three quarters of the students an “A” in most areas.

3. Modes of inquiry and analysis. Students get hands-on practice both in labs and in the field, take a statistics course, read and analyze published articles, and perform internships.