

**Assessment Plan**  
**Biotechnology-Animal Systems Option**  
**Revised 3/30/2007**

**Major: Biotechnology-Animal Systems Option**  
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**Assessment Management Structure**

1. The Assessment Coordinator will be responsible for developing and revising the assessment instruments (advising survey, exit survey) and annually collating the results of these instruments.
2. The Department Head and/or Assessment Coordinator will conduct senior exit interviews to discuss the program.
3. On an annual basis, the Department Head and Assessment Coordinator will review the assessment data obtained and prepare a summary for the faculty.
4. All assessment information will be summarized and presented annually by the Assessment Coordinator at a faculty meeting for discussion and evaluation of corrective action, as needed.

**Degree Objectives**

Prepare students to use their training in biotechnology to solve agricultural, engineering, natural resource and social problems in a creative and humane fashion. Graduates should be equipped to work in agricultural, industrial or pharmaceutical industries where biotechnology is used as part of the development and production processes. They will also be capable of working in agricultural, forensic, medical, and academic research laboratories.

**Expected Competencies**

**Discipline-Specific Knowledge**

General (all options): Modern chemistry including the general principles of organic and biological chemistry; proficiency in mathematics through calculus and applications of mathematics to science including physics; general biological principles; microbiological methods, including genetics, and the technologies associated with recombinant DNA.

Animal Option: Animal physiology including reproductive physiology; diseases affecting animal health, anatomy, and endocrine physiology; advanced training in biochemistry and biochemical methods; modern animal cell methods including cell culture, immunology, microscopy, immunocytochemistry, and advanced methods in animal genetics. Ethical practice of science will be integrated throughout all courses as well as being the focus of an upper division course.

**Communication Skills**

Biotechnology majors should be able to learn scientific processes through seminar and professional presentations as well read technical and scientific articles at a high level of

comprehension. These same skills should also enable students to understand written and oral instructions given by laboratory supervisors. Students should be able to explain basic laboratory procedures to peers and work study students. They should be able to organize their thinking and observations into professional and scientific articles and reports. Students should be able to present oral presentations in both seminar and professional formats.

### **Problem-Solving Skills**

Highest priority is a creative approach to problem solving. Students will be able to develop an analytical approach for the solution of a given problem. Their analytical skills will draw upon their understanding of gene cloning techniques including how genetic material is transferred to enable them to select and prepare reagents necessary to isolate target compounds. They should also understand the ethical ramifications of their proposed solutions.

### **Curriculum Assessment Plan**

#### **Evaluation of Teaching**

The Biotechnology-Animal Systems courses will be evaluated through current student feedback, Knapp/Aleamoni forms, feedback from internship supervisors, and student performance in the senior capstone course. The results of the Knapp/Aleamoni forms will be discussed at the annual faculty evaluation interview carried out by the Head of Department.

#### **Evaluation of Advising**

VMB faculty members take an active role in advising undergraduate students. VMB is responsible for advising students in the pre-veterinary option and students enrolled in the Biotechnology degree. Advising will be assessed with a biannual written survey of the advisees in the Spring semester.

#### **Curriculum Review**

Specific strengths and weaknesses of the curriculum will be determined through feedback from internship supervisors and the results of a graduate exit survey. In addition, entry rates into professional or graduate schools and employment success will be monitored.

#### **Plan for Utilizing Data**

Information obtained from the assessment instruments will be reviewed by the Department Head and Assessment Coordinator (see above). This information will then be compiled and presented once a year at a faculty meeting. An overall assessment of student outcomes and the corresponding strengths and weaknesses of the program will be presented. Inadequacies of the curriculum, facilities, or internship opportunities will be identified for discussion and corrective action. A written summary of the discussion will be maintained on file. Any curriculum changes will be integrated into the program and catalog.