Zoology Department Program Outcomes Assessment Plan
September 2001

Degree Programs: B.S. in Biological Sciences, Physiology, Wildlife and Fisheries Ecology, and Zoology
M.S and Ph.D in Wildlife and Fisheries Ecology, and in Zoology

Objectives of the Degree Programs

General: Upon completion of any of the degree programs, students will

(1) understand basic biological principles and appreciate the interdependence of the natural world;
(2) understand the scientific method and its application to biology;
(3) have a working knowledge of mathematics and the physical sciences as related to biological phenomena;
(4) be capable of critical thinking and oral and written communication of scientific information;
(5) be proficient at problem solving;
(6) understand how scientific knowledge grows, and is organized, evaluated and disseminated;
(7) be prepared for admission into graduate study, professional programs, or the job market in related areas;
(8) have respect for truth, tolerance for the ideas and opinions of others, and a desire to improve society and the lives of others.

Specific Student Outcomes for the Degree Programs

B.S.

Biological Sciences graduates will

(1) be able to explain and apply the principles of cell and molecular biology, genetics, ecology and evolution
(2) be able to explain and apply selected principles of botany, microbiology, molecular genetics, and zoology.
(3) be prepared to successfully compete in job placement, graduate school programs, and related endeavors

Physiology graduates will

(1) Understand the major regulatory systems of organisms from the subcellular to the organismal level
(2) Understand general mechanisms of drug or toxin action
(3) be prepared for admission to and success in professional health-related degree programs and graduate programs

Wildlife and Fisheries Ecology graduates will

(1) demonstrate basic organismal and ecological knowledge of fish and wildlife resources and competence in related field and laboratory techniques
(2) have basic knowledge of management of fish and/or wildlife
(3) be prepared to successfully compete in job placement, graduate school programs, and related endeavors

Zoology graduates will

(1) comprehend and apply accurately and creatively the principles of cellular and molecular biology, genetics, ecology and evolution, the general characteristics, anatomy, physiology (regulatory systems), behavior, and evolutionary adaptations of major taxa of plants and animals
(2) be skilled in asking relevant critical questions regarding animals and their ecological associations as well as finding, comprehending and summarizing relevant information on zoological topics.
(3) be prepared to successfully compete in job placement, graduate school programs, and related endeavors

M.S. Wildlife and Fisheries Ecology graduates will demonstrate philosophical and technical maturity in

(1) basic organismal and ecological knowledge applied to fish and wildlife resources
(2) advanced applications of the scientific method and use in the applied and basic zoological sciences
(3) use of critical thinking, oral, and written communication skills
(4) completion of a research thesis/report

Ph.D. Wildlife and Fisheries Ecology graduates will demonstrate high levels of independent research competence through

(1) advanced training in wildlife and fisheries management theory and practice, advanced field and laboratory techniques and conservation biology
(2) development of critical thinking, oral and written communication skills along with specific research/technical skills in at least one area of specialization
(3) completion of an original research project in wildlife or fisheries ecology of quality suitable for publication in a refereed journal

M.S. Zoology graduates will demonstrate philosophical and technical maturity in

(1) advanced applications of the scientific method and use in the applied and basic zoological sciences
(2) comprehending the diversity of animal life as revealed by studies ranging from the subcellular to the ecosystem level of organization
(3) use of critical thinking, oral, and written communication skills
(4) completion of a research thesis/report

Ph.D. Zoology graduates will demonstrate high levels of independent research competence through

(1) appropriate course work, seminars, and an original research experience involving problem solving and hypothesis testing
(2) development of critical thinking, oral and written communication skills along with specific research/technical skills in at least one area of specialization
(3) completion of an original research project in zoology of quality suitable for publication in a refereed journal

Methods for Evaluation of Student Achievement

Alumni Surveys of B.S. graduates bi-annually will assess success in admission to graduate study, professional study and jobs (General Objective 7; Student Outcome 3) and alumni perceptions of quality of preparation for these pursuits. Assessment of satisfaction with quality of instruction in specific areas will help us assess our instructional success in Student Outcomes 1 and 2.

Student achievement in courses that are part of the undergraduate majors will be assessed bi-annually by examining grade distributions of seniors in key courses and by surveys that address the perceptions of student understanding held by faculty members who teach these courses. Assessment of the extent of understanding of seniors at the close of those courses will be focused on content areas described in Student Outcomes 1 and 2 for each of the majors.

Additional surveys of students and faculty members will be developed to assess the extent of student engagement in learning, which is central to application of conceptual knowledge and development of critical thinking skills. We plan to develop questions similar to some used in the National Survey of Student Engagement.

Retention data for each major will be collected bi-annually to look for patterns of retention and loss of students over the three-year period beyond junior status ($\geq$ 60 hrs. completed) among declared majors within the department.

The Graduate Student Satisfaction Surveys bi-annually will assess satisfaction with the academic program quality, advisors and committees. This information provides alumni commentaries on issues, which affect all of the Student Outcomes for the graduate degree programs in the Zoology Dept.

Student achievement of graduate students will be assessed bi-annually by faculty survey that addresses quality of performance of master's students in the thesis final examination and doctoral students in the qualifying and final examinations (Outcomes 1-4 for M.S. students and 1-3 for Ph.D. students). Oral communication outcomes will be assessed by faculty judgment of the quality of professional presentations. Journal publications of graduate student research will be examined bi-annually as well. Grants and awards to graduate students also will be considered as a part of assessing student achievement.

Exit interviews annually are planned to provide specific student satisfaction assessments. Samples of graduating seniors in all the majors and all graduate students who are finishing degrees will be interviewed.

Integration of Assessment Results into Program Improvement

Summaries of assessment results will be distributed to all faculty members in these programs and curriculum review, including discussion of assessment results will be held bi-annually for each program.