

## Unit Plan for Assessing and Improving Student Learning in Degree Programs

Unit: Natural Resources and Environmental Sciences

Unit Head approval: \_\_\_\_\_ Date: \_\_\_\_\_

### SECTION 1: PAST ASSESSMENT RESULTS

**Brief description of changes or improvements made in your unit as the result of assessment results since 2000.**

#### **Undergraduate:**

The major in Natural Resources and Environmental Sciences was significantly revised in 2003, which included discontinuing the Forestry major and combining into Natural Resources and Environmental Sciences as the Forest Science concentration. The Horticulture major was revised in 2003.

#### **Graduate:**

The Graduate Student Handbook and Graduate Advisor Handbook were edited repeatedly in response to assessment. Following an assessment of graduate student publication records, the department changed the format requirements for the M.S. thesis to be more consistent with publication expectations in hopes of increasing the publication rate of M.S. students.

### SECTION 2: REVISED ASSESSMENT PLAN

(a) **PROCESS:** Brief description of the process followed to develop or revise this assessment plan.

The Assessment Coordinator, who is also the Student Services Coordinator, gathered input from the Interim Department Head, Teaching Coordinator, the Graduate Coordinator, the curriculum revision committees, and the faculty, as a whole, to develop this plan. Both the NRES and Horticulture majors are currently undergoing revision. In those conversations, faculty have been discussing the objectives of the curricula and having assessment conversations about what needs to be improved. The Assessment Coordinator incorporated the consensus from those conversations into this plan.

(b) **STUDENT OUTCOMES:** List Unit's student learning outcomes (knowledge, skills, and attitudes).

The Department of Natural Resources and Environmental Sciences offers the following degree programs:

- B.S. in Horticulture (with three concentrations: Horticultural Science, Production and Management, and Urban Forestry)
- B.S. in Natural Resources and Environmental Sciences (with five concentrations: Fish and Wildlife Conservation, Forest Science, Human Dimensions of the Environment, Resource Ecology, and Soil and Water Science)
- M.S. and Extramural M.S. in Natural Resources and Environmental Sciences
- Joint J.D. of Law and M.S. in Natural Resources and Environmental Sciences
- Ph.D. in Natural Resources and Environmental Science

The undergraduate programs educate students for entry-level positions with government agencies, private firms, and non-governmental organizations and for graduate or professional studies. The M.S. programs train students for professional careers and further graduate study. The Ph.D. program prepares students to perform as independent researchers, succeed as teachers, and develop a leadership role in their area of expertise.

The faculty seek to provide curricula, courses, experience, and resources that help both undergraduate and graduate students achieve the following learning outcomes:

- Outcome 1.** Mastery of the core knowledge of their major field of study.
- Outcome 2.** Command of specialized knowledge related to their concentration/specialization.
- Outcome 3.** Understanding the logic of science, including the philosophy of science and research design.
- Outcome 4.** Facility with research/production tools and techniques relevant for their major and concentration/specialization.
- Outcome 5.** Comprehension of quantitative methods and skills in using appropriate computer tools relevant for their major and concentration/specialization.
- Outcome 6.** Well-developed problem solving abilities, with an emphasis on critical thinking and decision-making.
- Outcome 7.** Strong communication skills in conversation, presentation, and writing, particularly scientific/technical writing.
- Outcome 8.** Ability to function well professionally, with good leadership skills and ethical thinking.

In addition to the eight outcomes listed above, NRES graduate training helps Ph.D. students develop the ability to function effectively as an independent researchers and as college/university teachers.

**(c) MEASURES AND METHODS USED TO MEASURE OUTCOMES:**

Results from the relevant sections and questions of the following existing surveys:

- College of ACES Senior Survey
- Chancellor's Senior Survey of the Undergraduate Experience
- Alumni Surveys Conducted by the University Office for Planning and Budgeting (available at [www.pb.uillinois.edu](http://www.pb.uillinois.edu))
- Surveys conducted by other disciplinary/professional organizations relevant for the programs, such as the Green Industry Survey, the National Research Council Assessment of Research-Doctorate Programs in the U.S., and the American Geophysical Union Survey of Recent Graduates

Institutional data:

- Instructor and Course Evaluation System results (including individual faculty/course results, List of Teachers Ranked as Excellent, and lines 9500-9860 of the Campus Profile provided by the Division of Management Information)
- Retention rates in the undergraduate major or graduate program
- Review of student grades in courses typically taken in freshman year

Departmental activities:

- Tri-annual review of departmental course syllabi to evaluate the coverage of core and specialized knowledge across the curriculum.
- Annual meeting of the Department Head with undergraduate and graduate students.
- Tri-annual focus groups with undergraduate non-majors who demonstrate (through student organization membership) interests related to the Department's majors.
- Annual Review completed by graduate students and their advisors (includes assessment of publications, presentations, and awards).
- Exit survey of graduating graduate students.
- Periodic review of publication record of current and former graduate students via faculty vitae.
- Annually review employment and graduate admissions statistics.
- Tri-annual survey of employers.
- Annually address assessment questions to the faculty at the final faculty meeting of the year—including:
  - In what areas do our graduate students appear to be particularly strong/weak based on preliminary and final examinations?
  - In what areas do our incoming undergraduates seem to need additional support?
  - Considering the graduating seniors that you know, in what areas do you perceive them to be strong and weak?
- Develop culminating assignments for capstone courses planned for the revised undergraduate curricula to be evaluated by teams of faculty in terms of the Department's desired learning outcomes.

### **SECTION 3: PLANS FOR USING RESULTS**

**(a) PLANS: Brief description of plans to use assessment results for program improvement.**

The expectation is that these assessment efforts will be used to pursue continual improvement in the quality of both the undergraduate and graduate programs of the department. This will be especially important as a major restructuring of the department is under consideration. Student learning is core to the mission of department and the faculty, and assessment results will be vital in guiding decisions that must be made as a result of the restructuring.

**(b) TIMELINE FOR IMPLEMENTATION:**

Assessment is guiding current efforts to revise the undergraduate majors in Horticulture and Natural Resources and Environmental Sciences. We expect these revisions to be submitted for University approval in the fall and take effect in fall 2009. Beyond those revisions, the Department strives to use assessments consistently to identify areas in need of improvement and to weigh the costs and benefits of opportunities to make the best use of available resources to provide the best educational environment possible for our students.