

Student Outcomes Assessment Case Study The Forestry Program, Department of Natural Resources

Background

The B.S. in Forestry at UNH is a professional degree accredited by the Society of American Foresters (SAF) since 1959. It is one of only four accredited undergraduate forestry programs in New England. This program represents a vital element of the land-grant mission of UNH because the state has 84% of its land base in forest cover. The forestry sector contributes \$3.9 billion annually in direct and indirect revenue to the economy of the state, or 12% of the gross state product. The undergraduate forestry program and its faculty reflect the investment by UNH in research and professional management of New Hampshire's forest ecology and economy.

Accreditation is critical for the legal standing of graduates of the program to practice in the profession, to attract and retain faculty, and to maintain the identity and existence of the program. Accreditation institutes curriculum standards and program expectations. As part of the accreditation process, the forestry program and its curriculum undergo both internal and external review about every five years. Current standards of the SAF can be accessed at <http://www.safnet.org/educate/acchandbk.doc>. In addition to general and preparatory education requirements, the standards require that the program provide adequate depth, breadth, and balance among four major areas: 1) ecology and biology, 2) measurement of forest resources, 3) management of forest resources, and 4) forest resource policy and administration. Several sub-competencies that reflect significant professional capability are expected of all graduates.

Program and Assessment

The academic mission and success of the Forestry Program are structured and evaluated, in part, by integrating SAF accreditation standards I, II, and V (i.e., Goals, Curriculum, and Students). Academic goals include professional education, effective advising, multi-disciplinary approaches, and leadership and service. The curriculum consists of general education requirements, departmental core courses, core courses in forestry, and an option in forest management or forest science. Enrollment, academic performance, advising, job experience, career planning and placement, and job placement are central to assessing student/program performance.

Curriculum development and assessment is accomplished by matching courses to accreditation goals and competencies. Coursework is highly varied ranging from biology (Forest Ecology), to economics (FOR 643), to skill-related courses such as Forest Biometrics (FOR 544). Most departmental and program courses include projects and laboratories related to professional competencies. As students advance through the program and mature professionally, they are forced to integrate their skills and knowledge. For example, external client reviews of service projects and public presentations occur in two capstone courses, a professional Forest Management course (FOR 745), and the multi-disciplinary Senior Project (NR 775).

Faculty and external evaluations in these senior courses provide excellent student outcomes assessment at the culmination of the degree. Essentially, assessment occurs at multiple levels because students, faculty, external professionals, and the public are able to recognize student knowledge, abilities, and limitations in a practical setting. Such assessment has resulted in the restructuring of Natural Resource Perspectives (NR 401) in 2002 to train all Natural Resource students in discipline-integrated field and laboratory skills.

Assessment of program goals, curriculum, and student outcomes occurs every five years in a major self-evaluation report to the SAF. These assessments, in conjunction with five-year departmental curriculum retreats, have provided positive feedback and focus to the program historically. For example, the SAF recognized the academic advantages of the program and its students existing within the well-established, interdisciplinary Department of Natural Resources, versus isolation in a forestry-only department. Conversely, the SAF noted a lack of modern field technology (e.g., GIS, GPS, data logging) and computing in instruction. These accreditation concerns were subsequently brought forth in a departmental curriculum retreat, and the department supported creation of a course to train all departmental students in these new technologies.

Throughout their matriculation, students receive individual academic advising from Forestry faculty. Their academic performance is tracked, discussed in advising sessions, and evaluated for interim accreditation reports every 2-3 years. Forestry faculty provide structured sessions to assist students in obtaining seasonal employment and career placement. The program faculty also advise two student organizations that provide excellent opportunities for leadership and service.

A year following their graduation, students are surveyed to evaluate employment statistics and graduate school enrollment. This post-graduate survey provides an excellent format for student outcomes assessment because graduates are in a more informed position to reflect upon their academic preparation to enter the forestry profession or graduate school. The survey, which is an SAF accreditation requirement, is one tool used to assess the Forestry Program's success in producing professional foresters. A check off-type postcard survey is mailed to the last known home address of each student one year after graduation (Figure 1, Appendix).

The most recent results of the survey suggest that job placement statistics have been reasonably stable during the past decade (Table 1). Among those that responded to the survey (admittedly, a relatively low 25-35% rate of return), more than 60% work and/or study in the profession. To address the low response rate and its increased enrollment (25 to 80 students from 1990 to 2000), the Forestry Program has enlisted the UNH Alumni Office to assist with a five-year survey of graduates in preparation for the next site visit by the SAF.

Table 1. Employment statistics of Forestry Program students at one year post-graduation, 1993-1997.

Job Category	Percent
Forestry, full-time	35%
Forestry-related, full-time	30%
Other, full-time	17%
Forestry, part-time	4%
Graduate study	9%
Armed Forces	4%

Summary

Society has displayed a recent and rapid ability to place increasingly diverse demands on our forest resources, and forestry professionals must respond to this challenge. The success of the professional response depends upon an adaptable educational system that measures change, demand, and use of the resource, recognizes the need for and institutes relevant academic change, and performs self-evaluation to ensure that it produces students who will contribute positively to the profession. The Forestry Program at UNH appears well situated to adapt academically to professional demand because of its regular use of curriculum review, professional external input, and student outcomes assessment to meet accreditation standards.

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Appendix

Job Category	6 months post-graduation	Current employment
Forestry	<input type="checkbox"/>	<input type="checkbox"/>
Forestry-related	<input type="checkbox"/>	<input type="checkbox"/>
Graduate Study	<input type="checkbox"/>	<input type="checkbox"/>
Armed Forces	<input type="checkbox"/>	<input type="checkbox"/>
Peace Corps	<input type="checkbox"/>	<input type="checkbox"/>
Other	<input type="checkbox"/>	<input type="checkbox"/>
Job Type		
Full-time (>30hr/wk)	<input type="checkbox"/>	<input type="checkbox"/>
Part-time (<30hr/wk)	<input type="checkbox"/>	<input type="checkbox"/>

Figure 1. Postcard survey used to assess job statistics and graduate school placement of Forestry Program students one year after graduation.