Assessment Plan

The Department of Forest and Rangeland Stewardship uses a comprehensive outcomes-based assessment plan which assesses student learning, methods of data collection and explains how the information will be used to inform curricula and program revision. The department has developed a new Outcomes Assessment Plan that incorporates 3 three separate elements:

1. Standardized course syllabi including an explicit statement of learning outcomes for each course that are tied to the competencies in the SAF Accreditation Handbook.
2. Evaluation of communications, critical thinking and technical competencies in senior capstone courses and;

**Standardized Syllabi**

Standardized course syllabi are used for all department courses. The template includes statements of learning objectives to be accomplished during each course, as well as clear statements of department and University policies for conduct of courses. Faculty have been provided with tools and information to aid them in the development outcomes for their courses. Faculty are encouraged to tie the competencies detailed in the SAF Accreditation Handbook into the foundations of their learning objectives. These outcomes- based objectives have been reviewed by the Department Head and are included on all course syllabi. Learning outcomes of each of the department’s majors and minors are available in the Colorado State University general catalog (http://www.catalog.colostate.edu/Content/files/2012/ProgramPDF/2.10NATRES.pdf , pages 7 – 16) as well as the Department’s website (http://warnercnr.colostate.edu/frs-undergraduate-study/degree-tracks) . FRS course syllabi are available on the department website (http://warnercnr.colostate.edu/frs-undergraduate-study/curriculum).

**Evaluation of Communication, Critical Thinking and Technical Competencies in a Capstone Course**

The Department uses a set of rubrics to be used in F 421 (Forest Stand Management) to assess outcomes in written and oral communication skills, critical thinking, and technical competencies (Attachment B). This is an experiential learning course, and each semester students work to provide a chosen land manager (e.g. Arapaho Roosevelt National Forest, Pike National Forest or Boulder County Open Spaces) with management recommendations for a specific forest stand. This management plan is developed as a series of assignments throughout the semester, which are then revised and submitted as a full management plan at the end of the semester. The final management plan includes a stand inventory and description, assessment of management
situation, development of treatment alternatives, estimation of stand response to treatment, valuation of timber harvest, financial assessment of management, evaluation of alternatives, management recommendations and an implementation plan. This management plan is also presented to the class and land manager at the end of the semester. The assessment is conducted by department faculty and professional foresters from outside agency personnel to evaluate graduating seniors’ proficiency using a rating of “unacceptable”, “acceptable”, or “exemplary”. An acceptable outcome would be >75% of the sampled students achieving an Acceptable or Exemplary for >75% of the criteria. The results of these assessments will be used to determine if and how changes need to be made in the curriculum leading to the capstone F 421 course. Implementation of the evaluation began in fall 2013.

**Student Self-Assessment**

The self-assessment is designed to track students’ self-perception of abilities in key forestry knowledge areas and skills as they proceed through the curriculum. The self-assessment is administered at strategic points in the curriculum - as sophomores when students begin their field measurements course, as juniors when students take forest biometry (F 322), and as seniors in F 421, the forestry program’s capstone course. With repeated measurement, the department will gain insight on how students identify their knowledge and abilities over time. The survey collects information on perceived level of knowledge and ability in a variety of key areas, including:

- Forestry field techniques
- Forest policy
- Forest management and timber harvesting
- Forest health
- Collaboration and communication skills
- Technology proficiencies

For each key area multiple questions were developed using modified versions of a 5-point Likert scale. For example, questions within the Forestry Field Techniques section of the assessment use a scale of 1 – poor, 2 – fair, 3 – good, 4 – very good, and 5 – excellent. Students are asked to rank their skills in a variety of field techniques, including tree identification, use of GPS, timber cruising, etc.

These findings of self-perception can then be compared to the overall findings of the outcomes assessment rubrics developed for F 421 (Forest Stand Management) to corroborate our assessment in the capstone course. These trends can then provide feedback to the department regarding knowledge and skill areas where the curriculum is succeeding or lacking. Results will assist in changes to the curriculum and/or specific courses. The goal is not to track
individuals, but to follow populations of students. The survey was implemented in the 2013-14 academic year.

**Synthesis**

These three elements will provide a clear picture of how our curriculum is performing in regards to the education of our students in the competencies expected for a professional forester. These elements also give the department an understanding of where curriculum is succeeding, and where it can be improved. The Department Head and department curriculum committee review the outcomes assessment each year. Where deficiencies are apparent, the department will work with faculty to revise course syllabi or add/ substitute courses into the curriculum.