Southern Utah University
Biology Department
Report of Assessment Plans for 2001-2002

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Assessment Criteria and Activities

1. Course embedded activities that require students to demonstrate their levels of learning, skills, and communication, evaluated using departmental criteria.

   Was this assessment criterion implemented ? **Yes, at the activity level, but departmentally standardized criteria have not been developed.**

   Was this assessment criterion achieved ? **Not to the extent that departmentally standardized criteria were developed.**

   What were the results ? Abstracts, laboratory reports, term papers, role playing exercises, student demonstrations and oral reports are typical in the department's courses, but standardized criteria have not been developed. Course embedded service learning is becoming a common requirement in several biology and agriculture courses. Students receive credit for demonstrating and applying skills, and communication ability to structured cooperative education activities for academic credit outside the traditional classroom. Three of the Intended Outcomes/Objectives from the Biology Department Mission Statement have been addressed. These would include #1, "Students will demonstrate an understanding of the dynamics of interactions and adaptations within biological/agricultural systems," #3 "Students will be able to use appropriate tools to carry out investigations in their chosen field" and #4, "Students will be able to communicate effectively in oral and written formats."

   How will the results be used to improve the curriculum and/or pedagogy of the program ? Ideas and concerns pertaining to this criterion have been brought to the departmental forum over the past year. Improved intradepartmental dialog has provided opportunities for students to demonstrate their learning, skills, and communication to a broader audience of faculty and student peers from outside the course of record. Post-prioritization and accreditation discussions have strengthened departmental awareness of content and skills flow from introductory courses through advanced courses.

2. Written and/or oral reports reflecting research done in courses or independently through undergraduate research and independent study courses.

Was this criterion implemented ? **Yes**

Was this criterion achieved ? **Yes**

What were the results ? Mission Statement #4, "Foster productive scholarship by students and faculty," and #5. "Create a collegial atmosphere and free exchange of ideas in the department," and Intended Outcome/Objective #4, "Students will be able to communicate effectively in oral and written formats" are specifically satisfied by achieving this assessment criterion. This year, there were four formal on-campus opportunities for students to present research. These included the departmental symposia, campus-wide undergraduate scholarship day, and the College of Science Open House. At each event, students were required to follow prescribed protocols for presenting posters, giving demonstrations/oral presentations and, where applicable, integrating appropriate presentation software. Each venue was open to anyone from the campus or community and, in the case of the Open House, distinguished visiting scholars visited laboratories and observed projects, and interviewed students. Twenty biology students presented 11 projects at the at the annual faculty-student scholarship day. Projects were recognized with a 1st place and a 3rd place award. Students were required to defend their work, answer questions and propose future related studies. The were also invited to present their work to their peers as visiting undergraduate researchers in other classes and laboratories. It is anticipated that there will be opportunities to present this year's work at various professional society meetings.

How will the results be used to improve the curriculum and/or pedagogy of the program ? Investigative protocols and techniques are being integrated into an increasing number of courses. Advanced students are working under the direction of faculty members as peer mentors assisting those who are doing their first projects. The department plans to appoint or elect an undergraduate research committee, early in AY 2002-2003.

3. The senior major (ETS) field exam where applicable.

Was this assessment criterion implemented ? **Yes**

Was this assessment criterion achieved ? **Yes**

What were the results ? The exam was completed in 2002 b*y* 39 students who achieved a mean scaled score of 158 which is the 68th percentile nationally based upon the current *Comparative Data Guide and Description of Reports.*

How will the results be used to improve the curriculum and/or pedagogy of the program ? The success of our students indicates that the curriculum is providing good coverage of the field with effective pedagogy. This was the 11th year of administering the test and this year's results are the highest for our institution over the past three years, which is the coverage period of the most current *Comparative Data Guide.* Secured subset information is kept in the department chair's office for the purpose of analysis of student achievement and curriculum adequacy in 1) Cell Biology, 2) Molecular Biology and Genetics, 3) Organismal Biology, and 4) Population Biology, Evolution, and Ecology. Pertinent information can be communicated to appropriate faculty as well as considered more broadly in departmental forum as part of the ongoing dialog regarding content area flow.

4. A senior exit/interview survey (developed in relation to departmental goals)

Was this assessment criterion implemented ? **Yes**

Was this assessment criterion achieved ? **Yes** The College of Science exit interview survey was administered through he dean's office and a department-specific instrument was developed and administered in key senior level classes.

What were the results ? The results have not yet been analyzed.

How will the results be used to improve the curriculum and/or pedagogy of the program ? Analysis from the dean's survey will be focused on student post-graduation goals, interests and plans. The departmental survey asked students which courses were effective in helping them achieve the following learning objectives: 1) Use appropriate tools to conduct scientific investigations, 2) Have basic knowledge of interactions and adaptations within biological/agricultural systems, 3) Write with clarity and use proper form and organization, 4) Have effective verbal presentation and communication skills, 5) Understand the ethical roles of science within society, 6) Apply mathematics in problem-solving and scientific investigation, 7) Understand the philosophical nature of science and the conventions of scientific explanation, 8) Understand scientific inquiry and its relationship to the development of scientific knowledge, 9) Participate in regional service partnerships in the field, and 10) Prepare for post-baccalaureate plans. The information will be used to keep courses and curriculum current and consistent with student goals, interests and needs.

5. An alumni survey at intervals post-graduation 3, 6, and 10 years.

Was this assessment criterion implemented ? **No**

Was this assessment criterion achieved ? **No**

What were the results ?

How will the results be used to improve the curriculum and/or the pedagogy of the program ? This information, along with the exit survey [#4 above] can provide some valuable insights from external sources familiar with the SUU biology program to assist in keeping the courses and curriculum current and consistent with student goals, interests and needs.

6. Ongoing advisory committees to ensure relevant curriculum opportunities (e.g., industry contacts and community members for agriculture, faculty committee to assess preparedness for medical-related fields, teaching observations for teaching majors, undergraduate research oversight committee)

Was this assessment criterion implemented ? **Yes**

Was this assessment criterion achieved ? **Yes**

What were the results ? The agriculture advisory committee met to hear reports on the agriculture division's activities and plans. The committee considered reports from agriculture personnel and returned responses and suggestions. The pre-professional committee interviewed every medical student and several dental and optometry students. As components of their pre-professional portfolio, student records, written interest surveys, self-reports, and appropriate entrance scores are reviewed by the committee. To the greatest extent possible, the department chair distributed the most up-to-date information on health career preparation to the appropriate advisor. This year, representatives from Washington State University College of Veterinary Medicine and the University of Utah-Creighton dental education program visited SUU to recruit and advise interested students. The preveterinary advisor is a member of the statewide advisory committee. Teaching majors gave demonstration presentations in the methods course which were evaluated by the biology education advisor. The undergraduate research oversight committee is scheduled to be set up as soon as the new tenure track cellular and molecular biology professor is on campus.

How will the results be used to improve the curriculum and/or pedagogy of the program ? These results cannot be considered apart from student exit surveys, exit exam results, and alumni reports in keeping the curriculum up-to-date and relevant to student interests and needs. Specifically, agriculture faculty respond to advisory committee recommendations and report back on an annual basis. The pre-professional committee communicates informally with colleagues on changes in admission requirements to professional schools and gains insights on student preparation by a thorough review each candidate's application credentials. Specific content requirement changes are brought to the departmental forum. After each pre-professional student interview, the committee discusses strengths and weaknesses of each candidate in purview with his or her demonstrated levels of learning, skills, and communication acquired through the biology curriculum and associated experiences.

The biology teacher education advisor uses student teacher observations to reflect upon areas which might need greater emphasis in the methods course.