

Assessment for the B.S. degree in Biology

- **Have formal learning outcomes been developed?**

Formal learning outcomes were approved by the Department of Environmental and Health Sciences in March 2005 and are listed below.

The B.S. in the biology program seeks to produce graduates who:

- Demonstrate basic knowledge: Students will understand the fundamental concepts of each of the following biological disciplines and the relationships among them: organismal biology, ecology, cellular/molecular biology, and evolution.
- Apply the scientific method: Students will design and carry out a research study that incorporates the major steps in the scientific method of investigation.
- Communicate in science: Students will communicate effectively both in scientific writing and oral presentations.
- Have values and ethics: Students will apply ethical guidelines in professional and societal behavior.

- **Where are these learning outcomes published?**

- JSC Undergraduate catalog (published annually).
- On the Department of Environmental and Health Science's college web site at: <http://www.jsc.edu/Academics/CourseCatalogues/2009UGradCatalogue/index.htm>
- Selected learning outcomes are included in course syllabi.

- **Other than GPA, what data/evidence is used to determine that graduates have achieved the stated outcomes for the degree?**

- Course specific assessments evaluating basic knowledge in selected core courses (Bio 3220, Bio 2340, and any course in Set 3 of electives (Organismal Biology) in the B.S. degree program.
- Grades on research projects embedded in upper level courses (Bio3140, Bio 3220, Bio 3280, and Bio 3260) and/or final grade on senior research projects.
- Internship site supervisor evaluation.
- External evaluation of student poster presentations by scientists not affiliated with JSC.
- Track the percent of students who complete internships, research projects, participate in science clubs/organizations, and present at regional/national conferences.

- **Who interprets the evidence? What is the process?**

- Evidence is evaluated by full time faculty in biology. Currently the College has two biologists, Drs. Robert Genter and Elizabeth Dolci.
- Recommendations are made to the department which then evaluates and makes a final recommendation.

- **What changes have been made as a result of using the data/evidence?**

- To highlight the importance of experiential learning and offer students opportunity to communicate their scientific achievements, each Fall and Spring students present the results of their internships and research projects to fellow students, faculty, and administration in a seminar format.

- To incorporate all of the learning objectives the EHS department initiated a department-wide research project on the Lamoille River Watershed in 2008.
- Renovations of the science building are in progress that will increase the number of student/faculty laboratories and classrooms.
- Faculty are preparing an S-STEM proposal for submission to NSF in August 2010 which, if awarded, will assist in recruitment and retention. The award offers up to \$10,000 per year in scholarship monies to students.
- **Date of most recent program review.**
 - Policy 101 in 2007 was the last external review of the program.