

**MAJOR FIELD ASSESSMENT
B. S. BIOLOGICAL SCIENCES
Report on Results and Use
May 20, 2003**

Goal 1

Students taking Biological Science courses will feel that they have had a quality educational experience.

A. Expected Outcome

Students taking Biological Sciences courses will compare the experience favorably to other courses they have taken in the College of Arts and Sciences and in the University in general.

Assessment

a. On the Student Opinion of Teaching (SOT) survey given to each class each semester by the University, students will rate Biological Science classes favorably compared to student rating of classes overall for the college and the University. On the majority of the 24 criteria for teaching effectiveness judged by the SOT, the faculty of the Biology department will rate at least equal to the faculty of the college and university.

Results

For the Spring 2002 Semester, the Departmental SOTs were at or above the College SOTs on 10 of 24 criteria. Of the fourteen where we were below, most (10) were only 0.1 below and four were 0.2 below the average. Since we only were at or above the average on 41% we did not meet the goal of 50% for that semester.

For the Fall 2002 Semester, the Departmental SOTs were at or above the College SOTs on 17 of the 24 criteria or 71%. On the ones below the college, the difference was only 0.1. While this meets the goal set, we would like to exceed this. Before last year the department had higher SOTs and exceeded the college SOTs on almost every criteria.

Use

In looking at what caused the poor outcome in the Spring 2002 semester, it was discovered that of the 46 faculty members who had SOTs, 37 of them meet or

exceeded the Departmental averages on a majority of the 24 criteria measured. Only 9 were below the average but these nine pulled down the whole department below the college because their scores were so low. Some of these were part time instructors who we may be able to replace but most were tenured full-time faculty. A couple of these faculty are near retirement so when they retire that should help improve the SOTs by replacing them with new faculty. In fact, one of the main reasons that the department average improved above the college average in the Fall of 2003 is that one of the low scoring faculty did retire at the end of the Spring 2003 and another faculty member who had very low scores in the spring improved his/her scores in the Fall to almost the average for the department. Some of the faculty with low scores were new faculty. Hopefully their scores will improve as they get more experience in the classroom.

The fact that 37 of the faculty out of 46 scored at or above the average for the department and the college (and university) tells us that overall the department is in good shape as far as excellence in teaching is concerned. We would like to raise the SOTs of all the faculty, especially those who score low. One way that this is occurring is that during annual evaluations, the Department Head is using the SOTs as the main criteria for evaluating individual faculty teaching and merit. Individuals with below average scores are counseled as to steps they can take to improve their scores. Some of the suggestions include getting a mentor, a faculty member who has high scores and allowing that faculty member to sit in on the classes as well as the faculty member sitting in on the mentor's classes. The mentor would then offer suggestions to the faculty member about improving their instruction techniques. Also they could attend workshops held by the Center for Faculty Excellence.

On a question relating to this on the exit survey of graduating senior for 2001-2002, of the 69 students who responded to the question of "Effectiveness of the faculty as teachers", 73.9% were either very satisfied or satisfied and only 4.3% were dissatisfied or very dissatisfied.

Assessment

b. On the SLU exit survey, at least 80% of the graduating seniors surveyed will be satisfied (3 or 4) or highly satisfied (5) with the "Effectiveness of the faculty as teachers" and the "Effectiveness of beginning courses in preparing you for advanced courses" and "Quality of instruction in advanced courses".

Results

On the exit survey of graduating senior for 2001-2002, of the 69 students who responded to the question of "Effectiveness of the faculty as teachers", 95.7% were either very satisfied or satisfied and only 4.3% were dissatisfied or very dissatisfied.

On the question of beginning course effectiveness, 86.9% were positive about this.

On the quality of instruction in advanced courses, 97.1 were at least satisfied and 29% were highly satisfied.

Use

These results show the overall quality of instruction in the department and will be used along with the SOT data to try to improve it even more.

B. Expected Outcome

Graduating seniors will feel they were satisfied with the department and their major.

Assessment

On the Undergraduate Alumni Survey at least 70% of the graduates will indicate they were satisfied or very satisfied with the overall quality of the department and the overall quality of the degree program.

Results

On the latest survey available (2001-2002) 69 students participated. For the question about the overall quality of the department, 18.8% gave a 5; 39.1% a 4, 30.4% a 3; 8.7% a 2; and 2.9% a 1. So the number with 3-5 was 88.3%. Only 11.6 % of the students were negative about the quality of the program. On the question about the overall quality of your degree program the percentages were 5 - 11.6%; 4 - 55.1%; 3 - 23.2%, 2 - 7.2%, and 1- 2.9%.

Use

We are disappointed that the number of students who were highly satisfied was not higher. In looking over the student comments that could relate to quality some of the negative comments were:

"not enough 300 and 400 level courses"

"not enough sections of concentration electives"

"lack of availability of advanced courses"

"wanted to take field zoo, but it was never offered"

"availability of courses"

"quality of teaching skills of the Chemistry professors need to be improved"

"there needs to be more than one section of zoo 301"

"there are some professors in the Biology department that need to update their notes"

"classrooms were cold and dirty"

"classes conflicted with chemistry classes"

"no upper level botany classes offered that semester"
"specimens and models in comparative anatomy need to be replaced with better items"
"I do not feel I received enough hands on experience"
"Please give more funding to histology for better books and microscopes"
"some teachers are more interested in research than teaching"
"office staff is rude and unhelpful"

Some of the positive comments:

"I really enjoyed my major"
"Overall I feel the quality of education was good"
"The best part of my education here were the teachers"
"I feel the biology department is very strong"
"I am very thankful to the Medical Evaluation Committee for helping my application to dental school"
"good professors"
"all my biology professors have been really friendly and willing to provide help when needed"
"I really enjoyed actually going out in the field like we did in ornithology"
"the biology department is very strong"

There really were very few negative comments about the quality of actual courses. Most of the negative comments were about the lack of availability of upper classes and their conflict with other classes. We are attempting to address this problem but it has been difficult because of our large teaching loads in the lower level classes and service courses and graduate courses and the lack of physical space to teach labs in. Hopefully the completion of the new building for next spring will allow us to schedule more and better labs and advanced courses but we still will have the problem of not enough faculty to handle the demands of almost 900 majors plus all the thousands of non-majors we serve.

We have made major changes to the curriculum in the past couple of years which should allow the students more flexibility in the concentration electives and should relieve some of the bottleneck at certain required courses.

C. Expected Outcome

Students who wish to continue their education will be adequately prepared to pursue a graduate degree in a biological or professional field or to obtain a job after college.

Assessment

At least 10% of the graduating seniors will indicate they are enrolled in a graduate or professional program on the SLU Exit Survey. At least 80% of the students will be positive about the outlook for a job or further study in the field.

Results

The survey shows that 7.2% of the students surveyed had been accepted into graduate programs and 66.6% plan on eventually going to graduate/professional school. On the question about "The outlook for a job or further study in your field", 92.1% were either very satisfied or satisfied. 7.9% were dissatisfied or very dissatisfied with the outlook.

Use

We would like to increase the number of students reporting they have been admitted to graduate studies to at least 10%. The Medical Evaluation Committee has put out a major effort to increase the number of students who are admitted to medical or dental school. The faculty will try to increase the awareness of our students to the various graduate programs available. Our ability to mass email our majors should greatly aid this effort.

Goal 2

Biological Sciences students should have a good understanding of the areas of Biology, especially those in their concentration.

Expected Outcome

Senior biology students will have a knowledge of the different areas of biology.

Assessment

In Biology Seminar, all biology majors will be given a standardized multiple choice test with the questions about the main areas of biology including cell biology, cell physiology, biochemistry, genetics, animal diversity, evolution, microbiology, botany, ecology, and anatomy and physiology. At least 50% of the students will achieve a passing grade on the test.

Results

The test given to the students in seminar is a very hard test. It was designed to be given to graduate students as part of their written exams that they have to pass to graduate from the graduate program. Passing for graduate students was 70% and some of them had to retake the test a second time.

For the undergraduates, we set 50% as the passing score. We have data from three recent classes with a total of 41 students. As we get more data we will update the report. Of the 41 students, 31 or 76% got a passing score of 50 or above. Ten (24%) failed to achieve a passing score. Of the ones who passed, 17 (41%) scored above 60 and 6 (15%) scored above 70%.

Use

While we are unhappy that more of our students did not score higher on the test, as mentioned above it is a very hard test and covers the entire field of biology. Also, the student does not have to pass the test in order to pass seminar although it could reduce their grade in the class. We do not expect our undergraduates to do as well overall as our graduate students on the test. The graduate students are highly selected by GPA and GRE scores and many come from major universities though out the United States. Even these top students often have a hard time passing the test and they study very diligently for it.

We will be analyzing the results more closely to see which areas of biology seem to be the weakest. We have made major changes in the curriculum in the last several years that may start affecting the scores in the future. For instance, there is more emphasis on molecular and cell biology throughout the curriculum.

Goal 3

Biology majors will have the skills needed to present Biological research.

Expected Outcome

Senior students will have good written, oral, and electronic communicative skills. These include being able to conduct a literature search (including on the internet), read and interpret scientific literature including charts, graphs, and tables, and present a scientific correct report of their findings.

Assessment

Senior students will present a well organized scientific seminar as part of Biology Seminar. It will include a Powerpoint or other computer slide presentation.

Results

All senior students are now required to present a powerpoint slide presentation as a major part of their grade in Biology seminar.

Use

Most of the students coming into seminar already have the computer skills need to create a good powerpoint presentation. If not they are expected to get help and learn those skills. The other skills have been developed though out their academic career and most of them do an excellent job of creating and presenting the seminar.

Goal 4

Students will feel that the department and university provided adequate resources including computer, library, technology in the classroom, and facilities and equipment.

Expected Outcome

Graduates will have a positive view on the availability and quality of the above resources.

Assessment

On the SLU Exit Survey, at least 80% of the graduating seniors will indicate their satisfaction with the resources they had including resources including computer, library, technology in the classroom, and facilities and equipment .

Results

Satisfaction with resources was as follows (% at least satisfied):

Computer resources	89.8%
Library resources	92.7%
Classroom technology	91.3%
Facilities and equipment	85.5%

Use

Overall the students seem pleased with the level and use of resources. The lowest scores went to facilities and equipment. The opening of the new Biology building with it's state of the art laboratories should greatly improve this.

Goal 5

To foster good faculty/student relationships.

Expected Outcome

Graduating seniors will feel they have a close student/faculty relationship with faculty in their major field.

Assessment

- a. On the SLU Exit Survey, 90% of the graduating seniors will indicate that they are satisfied with the friendliness and helpfulness of faculty.
- b. 90% of students will indicate on the SLU Exit Survey that they are satisfied with opportunities to interact with faculty outside of class.

Results

On the question about the friendliness and helpfulness of faculty it did not specify that the faculty be biology faculty so the students could be judging the faculty in general. 94.2% were either satisfied or very satisfied and 5.8% were dissatisfied. None were very dissatisfied.

On the question about interacting with faculty outside class, 88.4% were satisfied or very satisfied and 11.6 were dissatisfied.

Use

In the Biology department, there are many opportunities for students to interact with faculty outside class. We have undergraduate research programs including the Oscar grants and seminars and other activities. Most students however choose not to participate in these activities. For instance on the exit survey, 68.7% said they did not participate in undergraduate research. We need to find ways to get more students involved. Part of the problem is that we are largely a commuter school and many students work full or part time in addition to going to college and do not want to put in the time needed to participate in these activities. Also the faculty can only handle a few research students at a time.

Goal 6

To encourage a global perspective among Biology majors.

Expected Outcome

Biology students will be aware of other cultures and languages and will have opportunities to travel abroad for study.

Assessment

- a. All graduating biology majors will have taken four semesters of a foreign language.
- c. Biology students will have been provided with opportunities for travel and study abroad.

Results

All Biology majors are required to take four semester of a foreign language. We are one of the few departments on campus that still require a foreign language and one of very few that require four semesters. We feel that it is important for our student to have experience with a foreign language and the cultures it represents.

We have had several courses taught overseas in the last couple years. Last summer we offered an electron microscope course taught in Paris along with some French language and culture classes. We have also offered a course in tropical ecology taught by our faculty in Costa Rica. Many of our students have also taken advantage of the summer programs offered by the foreign language department where they go out of the United States to countries like Mexico to study Spanish and other foreign languages and immerse themselves in the culture.

Use

We will continue to require all our majors to have a global perspective by continuing to require fluency in a foreign language. The department will continue to offer courses taught overseas as often as possible. In many of our courses taught on campus, current events happening world wide are covered.