Expected Outcome 1: Demonstrate information literacy in the genre and the ability to think critically.

Students will be able to read, understand, and critically review scientific papers in the field of Cellular/Molecular/Microbial Biology. They will also be able to effectively locate, evaluate, and summarize information relevant to a topic in Cellular/Molecular/Microbial Biology.

Assessment Method 1: Evaluate Annotated Bibliography assembled by student on topic in Cellular/Molecular/Microbial Biology

Assessment Method Description

All students in this major complete BIOL 4950: Undergraduate Seminar. In this course, students research and prepare an Annotated Bibliography on a particular research topic in the field of Cellular/Molecular/Microbial Biology. Their ability to complete this assignment effectively measures their ability to locate, evaluate, and summarize information relevant to a topic in Cellular/Molecular/Microbial Biology. The annotated bibliography generated by each student was assessed using a standardized rubric (see below).
Findings
Data were obtained from 26 students from the Fall 2013 and Spring 2014 sections of BIOL 4950. Student mean scores were 20 out of 25 points, or 88% of total points possible. These data show a high level of ability of
students on this assignment, pointing to good ability to locate, evaluate, and summarize information relevant to a topic in Cellular/Molecular/Microbial Biology.

How did you use findings for improvement?

Data from this assessment will be shared with faculty in a departmental Assessment Mini-Retreat held in October 2014. Faculty will be invited to discuss how assignments in their courses, which are taken earlier in students’ curricula, can help prepare students to improve their scores in this capstone course.

Additional Comments

Assessment Method 2: Evaluate student-generated Synopses of original research papers in Cellular/Molecular/Microbial Biology

Assessment Method Description

All students in this major complete BIOL 4950: Undergraduate Seminar. In this course, students read, understand, and write Synopses of several original research articles in the field of Cellular/Molecular/Microbial Biology. In these sections, students wrote Synopses for two articles during the semester. The Synopses were due at different times during the semester so that a time period was available to compare student improvement. The Synopses are assessed using a standardized rubric (see below).
Findings
Data were obtained from 26 students from the Fall 2013 and Spring 2014 sections of BIOL 4950. Students performed at an overall mean score of 89%, showing a high level of ability to read, understand, and write Synopses of original research articles in the field of Cellular/Molecular/Microbial Biology.
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<th>Almost no errors in punctuation, capitalization, and/or spelling.</th>
<th>Many errors in punctuation, capitalization, and/or spelling.</th>
<th>Several distracting errors in punctuation, capitalization, and/or spelling.</th>
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**Expected Outcome 2: Effective communication**

Communicate effectively in the oral and written genres common to the discipline of Cellular/Molecular/Microbial Biology.

**Assessment Method 1:** Evaluate oral powerpoint presentation of scientific research paper

**Assessment Method Description**

BIOL 4950 Undergraduate Seminar is a required course for all students majoring in one of the undergraduate degree programs administered by the Department of Biological Sciences. The course is taught both Fall and Spring semesters and has 18 or fewer students/section. We offer four sections per semester and typically most students in a section are in the same major and are juniors or seniors.

The purpose of BIOL 4950 is to provide experience in the professional written and oral communication genres used in the biological sciences. Each student presents a scientific paper using PowerPoint in a format typical of that used at professional scientific meetings. A rubric common to all sections is used by the instructor to assess each student’s presentation (see below).
Findings

Data were obtained from 26 students from the Fall 2013 and Spring 2014 sections of BIOL 4950. The overall mean score from the powerpoint presentation evaluation rubric was 91%. Scores in the major rubric categories of Language Use and Delivery, Organization and Preparation, and Content were all in the Exceeds Standard or Meets Standard areas, except for 1 or 2 student...
scores falling into the Nearly Meets Standard category. No student scores were in the Does Not Meet Standard area. These results show students have effective oral (and written in the context of the powerpoint slides) communication skills in the discipline.

How did you use findings for improvement?

At the September meeting there was discussion of student strengths and weaknesses. Strengths include a relatively high general competency of students for the major tasks involved in this course. Weaknesses included students who have trouble thinking thematically, and need for students to improve their information literacy skills. These results will be shared with departmental faculty at an Assessment Mini-Retreat to be held Oct. 16, 2014.

Additional Comments

Expected Outcome 3: Preparation for professional advancement

Completing the major has prepared students for entry-level positions in the field or to successfully enter graduate or professional programs

Assessment Method 1: Student self-reported survey of outcome

Assessment Method Description

Students respond to questions included in a graduation exit survey regarding their participation in undergraduate research, internships, study abroad and their future plans for graduate/professional school or employment in Cellular/Molecular/Microbial Biology.

Specific survey items relevant to this outcome are:
1) Participation in undergraduate research (yes or no)
2) Participation in internship (yes or no)
3) Overall, I feel that my education has prepared me well for further education or a career in biological sciences (evaluated as Strongly Agree, Agree, Neutral, Disagree, Strongly Disagree).
4) Acceptance into a graduate program, professional program, or job (students report if they have achieved this next step yet)

Findings

Data from 14 respondents were available from Spring and Summer
2014 graduates. Findings for each survey item are presented below.

1) Participation in undergraduate research. Ten of the 14 (71%) participated in undergraduate research.
2) Participation in internship. Two of the 14 (14%) participated in an internship during their curriculum.
3) Overall, I feel that my education has prepared me well for further education or a career in biological sciences. This was evaluated as Strongly Agree=1, Agree=2, Neutral=3, Disagree=4, Strongly Disagree=5. The mean score for the ten students was 1.6 (a little on the Strongly Agree side of Agree). No students selected Disagree or Strongly Disagree. This result is encouraging but does leave room for improvement due to the four respondents who selected “Neutral” in answer to this question.
4) Acceptance into a graduate program, professional program, or job. None of the students reported having a job, but six of the 14 (43%) students reported entry into professional/graduate school at the time of their taking the survey.

**How did you use findings for improvement?**

Data from this assessment will be shared with faculty in a departmental Assessment Mini-Retreat held in October 2014. Strategies for increasing student participation in undergraduate research and internships will be discussed, as well as how we can improve self-reported scores on student preparation for further education or a career in Cellular/Molecular/Microbial Biology.

**Additional Comments**