

The Biology Department reviewed its learning outcomes and goals prior to the assessment activity. They are as follows:

Goal 1: The student will develop the ability to understand biological principles and their implications from the molecular to the ecosystem levels of organization.

Outcome 1a: At each level of organizations, students will demonstrate an understanding of the interrelationships of parts and processes specific to the system under study

Outcome 1b: At each level of organization, students will demonstrate an ability to critically analyze and clearly articulate elements of contemporary issues related to the system under study.

Goal 2: The student will develop the ability to study, analyze experimentally, and interpret biological problems.

Outcomes: 2a – The student will demonstrate an ability to generate lab reports containing all of the elements of a formal research paper – abstract, introduction, methods and materials, results, and discussion.

2b. Students will demonstrate mastery of techniques specific to the investigation of each major level of organization of life – the cell, the organism, and the ecosystem.

2c. Students will demonstrate an ability to analyze data and interpret research across levels of organization.

Goal 3: Students will effectively communicate orally and in written form about biological matters. (For purposes of assessment, this goal is also considered an outcome)

For the assessment activity, 6 papers were selected at random from the senior independent studies submitted in Spring of 2015. Also 5 papers were selected at random from the senior seminar courses that were submitted in Fall of 2014. The scoring rubric was simple: Each professor read each of the 11 papers and determined whether each of the above outcomes was met, marking each as “yes” or “no”. Drs. Balas, Palé, Swerdlow and Abi Abdallah participated in the scoring.

A) The following lists the action plan from 13-14, implementation that occurred in 14-15, the assessment activity from 14-15, and reflection of that activity in 14-15. The overall action plan for 15-16 will be addressed below each of these individual assessment points.

1. Having a consistent format for students to employ on the senior research papers regardless of which faculty member is directing the project. To implement this change we changed the syllabus to add the following directions **“The format of the paper must include the follow sections: Title page, Abstract, Introduction, Methods, Results, Discussion and References.”** We assessed the papers using the same rubric as 13-14. Our conclusion based on that assessment is that introducing the change resulted in the papers have a more consistent format. Action for next year is to continue to remind students of proper formatting for the paper.
2. Using senior seminar papers to assess Goal 1: The student will develop the ability to understand biological principles and their implications from the molecular to the ecosystem levels of organization. To implement this change this year were added 5 papers from the senior seminar courses in Fall 2014 to the assessment process. We assessed the papers using the same rubric as 13-14 that was utilized for assessing the Senior Research projects. Our conclusion based on that assessment is that the senior seminar papers did not address goal 1 as currently written. However, for our action plan for next year

we can use the papers or lab reports from other classes possibly Animal Systematics or Cellular Biology where the assignment is more in line with being able to assess this goal.

3. Shifting our emphasis on experimental design to the Junior Research Seminar help students better understand the relationship between hypothesis, experimental design and statistics. To implement this change students registered for Junior Research Seminars with the faculty member they planned on performing their senior research project. Students had the option of any member in the department but only two Junior Research Seminars were held one section with Dr. Balas and the other with Dr. Swerdlow. The department will not be able to assess if the students have a better understanding until these papers are assessed at the end of the students' senior year in 15-16.

B) Action plan for Fall 2015 and Spring 2016 based on assessment during Spring 2015.

1. The department would like to change the rubric used to assess the papers so that the language is simplified and can include cross disciplinary levels instead of across all levels of organization. We believe that this will better allow the students to reach the assessment goal since many of the papers did have cross disciplinary levels but did not address all levels of organization as stated in SLO1.
2. The department would like to discuss the use of other papers, lab reports, or presentations from not only our senior courses to assess our departmental goals. However, the samples although not taken from senior courses would still be from those students who have achieved senior status.

C) No additional resources are required to make these changes to the departmental assessment and goals at this time.