2016
Elements of the Assessment Process
Form E-1-A for Boston College Biology Department

Biology CORE

1) **Have formal learning outcomes been developed? What are they?** (What specific sets of skills and knowledge does the department expect its majors to have acquired before they graduate?)

Students completing the Natural Science Core will:

1. expand their understanding of the principles, body of knowledge and investigative strategies that comprise science and its technological applications;
2. develop a scientific literacy that will promote curiosity, respect for the scientific method, and general awareness of the limitations of scientific conclusions;
3. recognize the role of scientific discovery, past, present and future, in interrelated topics such as human health, societal well-being and planetary sustainability; and
4. appreciate the role of science in defining their relationship with the natural world and their position within the cosmos.

2) **Where are these learning outcomes published? Be specific.** (Where are the department’s learning expectations accessible to potential majors: on the web or in the catalog or in your department major handouts?)

Arts and Science CORE Website

3) **Other than GPA, what data/evidence is used to determine whether graduates have achieved the stated outcomes for the degree?** (What do you use to assess which of the student learning outcomes are being achieved more or less well?)

Evaluation of student work: Faculty teaching in the non-major core courses will agree upon a particular core outcome with which to assess student work. The assessment strategy will be customized for each of the courses.

In 2016, each of the three non-major core courses (BIOL 1420, 1440, 1701) was assessed for the student’s understanding of the role of science discovery in societal well being. BIOL 1440 and 1701 each asked students to describe specific examples where scientific discovery has defined and/or shaped their own responsibilities for societal well-being. Responses were scored 1-5 with a 5 being always/excellent/high. The collective average for these two courses were 4.26 and 4.3 respectively. The same question was evaluated in BIOL 1420 based on group projects and presentations involving genes in the popular press. The average grade for this activity was an A-.

Student survey. A set of common questions will be added to the course evaluations of science core classes for non-majors. Students will be asked to evaluate their experience with the natural science core class and their achievement of the stated learning outcomes.

In 2016, the following three questions were added to each of the core course student evaluations. Students responded on a scale of 1-5, with 5 (strongly agree) and a 1 (strongly disagree) The questions and the collective average from all three classes is below.
1. This course has changed my understanding of the role of science in modern life. 
AVE = 4.22 Agree
2. This course has helped me understand my relationship with the natural world. 
AVE= 4.26 Agree
3. This course has helped me recognize the role of scientific discovery in societal well-being. 
AVE= 4.38 Agree

4) **Who interprets the evidence? What is the process?** (Who in the department is responsible for interpreting the data and making recommendations for curriculum or assignment changes if appropriate?)

Faculty teaching in the non-major core courses will submit their assessment strategy and tabulate their assessment results. The group will agree on a summary statement and determine if the collective results are indicative of a successful outcome or if curricular changes in the individual courses are warranted.

**SUMMARY:** For 2016, the Committee summarizes and interprets the above data as follows

**Student Work:** Collectively the students were able to identify specific scientific discoveries that benefited society and have impacted their awareness of individual responsibilities.

**Student Perception:** Students in all three of the classes AGREED that their courses all showed them that science is important in modern life, helped them to understand their relationship with the natural world, and that scientific discovery is important for societal well being.

**INTERPRTATION:** Based on these data, the Committee believes that these core courses are successfully introducing the students to the role of science and discovery in modern life at the personal, national and international level. As such, we do not propose any specific change to the course content or teaching style.

**FUTURE:** For 2017, the Committee will either delve into the 2016 topic in more detail such as (can the students describe the details of specific discoveries) or examine another aspect of the core learning outcomes. This will be determined prior to the beginning of the semester.