

Form E-1-A for Boston College Core Curriculum

Department/Program: Chemistry 2019

- 1) **Have formal learning outcomes for the department's Core courses been developed? What are they?** (What specific sets of skills and knowledge does the department expect students completing its Core courses to have acquired?)

The department's learning outcomes for chemistry core courses are in line with those that are established by the University Core Committee for the natural science core requirements. The Core Requirement Rationale can be found on the natural science core curriculum website via the following link: https://www.bc.edu/bc-web/schools/mcas/undergraduate/core-curriculum/core-requirements.html#2_courses_in_natural_science

- 2) **Where are these learning outcomes published? Be specific.** (Where are the department's expected learning outcomes for its Core courses accessible: on the web, in the catalog, or in your department handouts?)

The learning outcomes can be found on the Chemistry Department website from a link to Core Courses on the Academics – Undergraduate page:

<https://www.bc.edu/bc-web/schools/mcas/departments/chemistry/academics/undergraduate/core-courses.html>

- 3) **Other than GPA, what data/evidence is used to determine whether students have achieved the stated outcomes for the Core requirement?** (What evidence and analytical approaches do you use to assess which of the student learning outcomes have been achieved more or less well?)

Similar to data gathering that was done in 2016-17, the students in Chemistry and Society (CHEM1105) completed an anonymous questionnaire that assessed their attitudes toward chemistry at the end of the semester (December, 2018). Many of the questions were written to address concerns that arose from the 16-17 results.

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? When does this occur?)

Professor William Armstrong, who teaches Chemistry and Society, provided an Analysis Report that summarizes the student responses. He and Lynne O'Connell, Director of Undergraduate Studies, evaluated and interpreted the results.

- 4) **What were the assessment results and what changes have been made as a result of using this data/evidence?** (What were the major assessment findings? Have there been any recent changes to your curriculum or program? How did the assessment data contribute to those changes?)

While in 2016-17 students taking Chemistry and Society had indicated that chemistry was more exciting, comprehensible and beneficial than they had previously thought, their perception about the usefulness of chemistry did not change significantly and attitudes regarding whether chemistry was “fun” versus “scary” also remained the same. The results of the December 2018 survey now show that more than half of the students perceive chemistry to be more fun than they had realized. Almost all students (92%) agree that chemistry is involved in their everyday lives, and a significant majority (72%) agree that they will apply chemical principles when reading relevant news stories, including how chemistry relates both to the environment and healthcare.

The above improvements in attitudes towards chemistry can be attributed to Professor Bill Armstrong’s efforts to fully engage students in the material. He seeks out current news articles related to the course content and asks a question about each article on his exams. He has also increased the number of examples that illustrate the importance of chemistry to everyday life in his Power Point presentations.

6) Date of the most recent program review. (Your latest comprehensive departmental self-study and external review.)

A Periodic Report is required by the ACS for certification of our majors program every 5 years. A report was filed in May of 2015, and notification was received in June of 2016 that all the requirements of the ACS Guidelines are being met by the department’s program for the major, with several items being cited as “commendable” (support for renovations, high quality of instrumentation, vast array of in-depth course selection and outstanding student research).