

## General chemistry revamp working group

As part of our self-study and external review last year, the chemistry department has committed to changing our general chemistry courses in order to better serve a more diverse student population. Our immediate plan is to offer themed general chemistry courses, which will allow students to see chemistry through the light of a field of the student's choice. This will allow students across varied backgrounds to connect with the material more deeply, and help them better contextualize the importance of course to their desired major and future. This will also help break down the silos that chemistry is often viewed through, and help students see the interdisciplinary nature of chemistry and many other fields in the sciences.

Over the course of the past semester, our working group developed the topics and a new course description for the classes. This was submitted to acknowledge by APPC. We then focused on developing new topics lists, choosing a textbook, and reworking the lab schedules for both semesters. The themes for each section and overall course descriptions, as sent to APPC, are below.

### CHEM-107 Chemical structure and bonding

Study of fundamental chemical principles focusing on properties of matter and theories of chemical bonding, atomic and molecular structure and chemical reactions. This material will be taught through the lens of a specific theme and highlight applications to convey how chemistry is used to resolve current questions in science. Laboratory experiments are designed to offer a hands-on familiarity with the principles discussed in the lectures. Three lecture hours and one laboratory.

- A – Chemistry on your walls (art)
- B – Chemistry of your stuff (consumer products)
- C – Chemistry of drugs (medicine)
- D – Chemistry of the earth, sea, and sky (the environment)
- E – Chemistry around you (the environment)
- F – Chemistry of drugs (medicine)

### CHEM-108 Chemical reactivity

Covers the fundamental principles of chemical reactivity, including kinetics, equilibrium, electrochemistry and thermodynamics. This material will be taught through the lens of a specific theme and highlight applications to convey how chemistry is used to resolve current questions in science. Laboratory work is designed to illustrate and complement materials discussed in class. Three lecture hours and one laboratory.

- A – Chemistry on your walls (art)
- B – Chemistry of stuff (materials)
- C – Chemistry of you (biochemistry)
- D – Chemistry around you (the environment)
- E – Chemistry around you (the environment)

As part of these discussions, we reworked the topics lists for both courses in order to allow more space for days devoted to the topics. This also meant that we needed to rework the lab schedules for both semester in order to be sure the labs reinforced the topics covered in the lectures, which we did.

As we moved through these changes, and thought about ways to make these courses more inclusive and accessible, we also discussed the financial burden of purchasing textbooks. We spent one of our lunchtime meetings discussing the possibility of moving to an open source textbook, as well as moving to an online homework system. We determined that this was feasible to do through the bookstore and less financially taxing to students, so we will continue to discuss this option over the summer.