Introduction to Teaching Chemistry Lab
01:160:499
(3 credits)

Instructor: Michael Vitarelli
Phone: (848)445-2618
Email: mvitarel@rutgers.edu
Department: Chemistry and Chemical Biology
Location: Wright Labs - Room 126

Course Description

This course provides outstanding science majors with the opportunity to teach at the undergraduate level. Under the direction of a senior faculty member, Participants will supervise a section of a first-year chemistry laboratory. They will be responsible for maintaining a safe, clean and productive working environment, guiding students through the assigned experiments, helping students understand both the mechanics and fundamentals of chemical experimentation, and evaluating their performance on quizzes and lab reports.

Assessment

The Participants will learn about the performance standards expected at the TA Training seminar at the beginning of the semester. Early in the semester the Participant will be videotaped while presenting their 10 minute prelab lecture. This video will serve as a tool for Participants to critically evaluate themselves and implement strategies to improve their performance. In addition, the students in the lab will be asked to provide a critical analysis of the Participant’s teaching skills and finally, at the end of the course, each participant will be evaluated by the senior faculty member. Students who participate in Chem499 will also receive a traditional course evaluation through the Center for Teaching Advancement and Assessment Research.

Learning Outcomes: Relevance to the Core Curriculum

Chem499 provides undergraduates with an opportunity to gain firsthand professional teaching experience under the direction of an experienced chemistry faculty member. It enhances a number of skills stressed in the areas of inquiry section of the core curriculum. First, there is no better way to truly understand fundamental principles of chemistry than to be required to teach them to others. Teaching a lab offers a unique opportunity to apply principles in a new way, by asking the Participant to help students explain why an experiment did NOT work. This provides the Participant with an alternative method for assessing the relationships stressed in Areas of Inquiry, one that will be useful to the students either in graduate school, where they will be responsible for trying to establish why their experiments did not work, or when they obtain their first managerial position, where they will be responsible for guiding technicians and interpreting the data these technicians obtain.
Chem499 is also relevant to the Cognitive Skills core: directly, with a strong emphasis on lecturing and leading scientific conversations, and indirectly, by asking the Participants to critically evaluate the scientific writing of their students. Further, Quantitative and Formal Reasoning skills are sharpened as the Participant helps develop these skills by engaging with the students in his lab.

**Introduction to Teaching Chemistry Lab**  
**CHEM499 Syllabus**

The undergraduate participant is assigned as the instructor of a Freshman Chemistry Lab with ca. 20 students.

**Duties include:**

- Attending a weekly TA meeting, which will consist of targeted pedagogical instruction and a discussion of the upcoming experiment including all safety concerns.
- Attending the General Chemistry lecture course
- Training in Scientific Ethics using available online resources
- Preparing a weekly 10 minute prelab lecture.
- Supervising a three hour lab.
- Insuring that the lab is in appropriate condition at the end of the class.
- Grading lab reports, maintaining grade records and proctoring hourly and final exams.
- Enforcing all safety regulations.
- Providing pertinent feedback to the course instructor.
- Maintaining one office hour weekly.
- Submitting a written report at the end of the semester describing what the most beneficial aspects of the course were.

**Qualifications:**

- Must have completed Freshman and Organic chemistry, with laboratories
- Must have cumulative and chemistry GPAs of 3.5 or higher
- Must have completed at least 90 credits
- Must make a firm commitment to complete the course.

**How to Apply:**

Students who are interested in registering for CHEM499 should use the following link to submit an online application:

[http://chem.rutgers.edu/undergraduate-student-application-teaching-chemistry-lab](http://chem.rutgers.edu/undergraduate-student-application-teaching-chemistry-lab)

Enrollment will be on a first-come, first-served basis. Students who apply and are accepted will receive an email of acceptance from Ms. Nelson, who will also take care of registering students for the course.