

Chemistry 95 C, Chemistry Scholars Workshop

University of Vermont, Fall Semester, 2016

General Information

Instructor: Prof. Chris Landry

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Meeting Time: Tuesdays/Thursdays, 11:40 am – 12:55 pm

Office: Cook A-205

Phone: 656-0270

Meeting room: Cook A229

The instructor reserves the right to change everything, with notice.

Course Description

Educational goals: The primary goals of this course are to introduce you to the research currently being performed in the Department of Chemistry, and to start your research career at the University of Vermont. The mechanism for accomplishing these goals is to have you listen to research presentations by the chemistry faculty and undergraduates throughout the semester. We will also talk about how chemical research is performed, learn about how results are usually presented in the form of posters, presentations at meetings, and publications, and we will discuss how to perform online searches of the chemical literature. By the end of the semester, you will select a faculty member to work with on a research project in the spring. Hopefully, this person will be your research advisor for the rest of your four-year undergraduate career at UVM.

As Chemistry Scholars, you are also guaranteed a paid summer research experience at some point during your time at UVM. That can happen through a variety of pathways: (1) a competitive fellowship offered by UVM; (2) a non-competitive fellowship sponsored by the Department of Chemistry or the Undergraduate Biochemistry Program; (3) payment directly from the Department of Chemistry, if one of the fellowship opportunities is not available. We will discuss these opportunities as part of the course.

Course structure: We will meet on selected Tuesdays and Thursdays each month. On most days, we will finish by 12:30pm, but on days when faculty are giving presentations we may run longer. Because you may not yet have the chemical background required to completely understand the topics, I will also spend some time "checking in" throughout the faculty presentations, to answer your questions and to break down faculty research in more detail. I also think it would be useful for you to hear from some of our current upper-level undergraduates about how they chose their research advisors and what they are currently doing, so some sessions will be devoted to this activity.

Assessment: Although the main purpose of this course is for you to make a match with a research advisor, it is worth thinking critically about how scientists come up with research topics in general. Consequently, at the beginning of the semester, you will be asked to identify the hypothesis in an assigned research article. After you choose a research advisor, you will obtain one of their research articles and identify the hypothesis in it. Finally, you will meet with your advisor to formulate a hypothesis for your research project. Each component will be worth 25 points; another 25 points will be devoted to class participation, and meetings with faculty. Your grade will be determined by your score out of the 100 points.

Textbook: There is no textbook for this class. We will use some online resources, and most class time will be devoted to talking about research or listening to research talks.

Tuesday	Activity	Thursday	Activity
8/30	Introduction of course, students introduce themselves; hypothesis-driven research	9/1	Hypothesis-driven research
9/6	ACS and RCS websites; structure of research articles; examples of journal articles Identify the hypothesis in a given research article	9/8	Discuss research article assignments in class; explain how you arrived at hypothesis
9/13	No class (faculty meeting)	9/15	Presentations by undergraduates who are already doing research
9/20	Faculty presentations: Prof. Chris Landry Prof. Rob Hondal	9/22	Faculty presentations: Prof. Bill Geiger Prof. Rory Waterman
9/27	review of concepts in faculty presentations	9/29	Faculty presentations: Prof. Adam Whalley Prof. Severin Schneebeli
10/4	Faculty presentations: Prof. Matthias Brewer Prof. José Madalengoitia	10/6	Review of concepts in faculty presentations
10/11	Faculty presentations: Prof. Giuseppe Petrucci Prof. Dwight Matthews	10/13	Faculty presentations: Prof. Jianing Li Prof. Willem Leenstra
10/18	No class (faculty meeting)	10/20	Review of concepts in faculty presentations
10/25	Who do you want to work for and why?	10/27	No class; meet with faculty members to discuss research
11/1	No class; meet with faculty members to discuss research	11/3	Discuss choice of research advisor Obtain article from advisor and identify hypothesis
11/8	Discuss hypothesis in advisor's article Formulate hypothesis with advisor	11/10	No class; meet with advisor to discuss hypothesis
11/15	No class (faculty meeting)	11/17	Discuss proposed research hypothesis Begin research project – end of class