

Chemistry 353

Undergraduate Research

Spring 2020 Syllabus

Prof. Dugan Hayes • Beaupre 374E • dugan@uri.edu • 401-874-5516

UPDATES AS OF 03/19/2020:

In light of the transition to online course instruction beginning March 23rd, students will no longer be able to perform hands-on lab work for the foreseeable future. Consequently, I will be making individual arrangements with each student to determine a remote research project that may be completed. As an example, a student may be assigned a literature topic related to their current research. The length of the research assignment will depend on 1) the number of credits for which the student is registered, and 2) the number of hours in the lab the student has already completed. As a guideline, a student will be required to find two papers in the literature and write an eight-page summary and analysis of those papers per full credit remaining (double-spaced, 11pt font, 1" margins). For example, if a student is registered for one credit and has worked half the required 39 hours for the semester already, they will be required to identify one paper and write four pages. Alternatively, students working on computational projects may continue to work remotely, and students who have already collected sufficient data may be permitted to spend the remainder of the semester analyzing that data. Students will be expected to meet either with me or with their graduate student mentor via teleconference at least once a week to discuss progress on their project. They will also still be required to give a final presentation at the end of the semester, which they will give to the group remotely via teleconference.

Overview:

This course provides either an introduction to research in an academic chemistry research lab or provides a continuation of an active research project. You will spend the semester working on a research project assigned by me, either closely with a graduate student or semi-independently, depending on your level of proficiency in the relevant laboratory techniques. You will also gain experience presenting your work by giving an oral presentation to our research group at the end of the semester.

Hours and grading:

You will be required to work in the lab for 3 hours per credit hour each week. You are welcome to register for 1 to 3 credits for your first semester in our group, but after that you will be required to register for at least 2 credits (unless you have reached your maximum number of total credits for CHM 353). This is to ensure that you are in the lab for enough time to be productive and become independent. Before the semester begins, you should arrange a mutually agreeable schedule with your graduate student mentor. Although you may not be able to stick to this exact schedule every single week, **you should make a concerted effort to do so as much as possible so your mentor can plan your activities in the lab.** If you cannot work in the lab at your usual time during a particular week, you should let your mentor know as long in advance as possible, and you must then find a time to make up those hours. Your mentor will keep track of your hours throughout the semester, and your final grade will be determined from the total number of hours you worked as follows:

- A: ≥ 39 hours/credit
B: 30-38 hours/credit
C: 20-29 hours/credit
D: 10-19 hours/credit
F: < 9 hours/credit

Do not fall behind on your hours as the semester progresses! It is **not** your mentor's responsibility to work with you for long hours or at odd times at the end of the semester to get your hours up at the last minute. **NOTE:** these grade cutoffs are your *maximum* possible grade. I reserve the right to lower your grade as I see fit if your mentor reports irresponsible or unsafe conduct in the lab or if I deem your final presentation to be insufficient.

Final presentation:

Near the end of the semester, I will reach out to all students registered for CHM 353 in our group to schedule presentation times. In the case that you are working on the same project as another student, I may suggest that you give a single presentation as a team. You (or your team) will be expected to present ~10 minutes of material per credit.

You **must** rehearse with your mentor **at least** once before you give your final presentation to the group, preferably several days in advance. Your mentor will provide you *and me* with written feedback to help you improve your presentation and correct any errors. You will not be allowed to give your final presentation until I have received this feedback from your mentor. I also suggest rehearsing several times on your own, as well as in front of some of your outside classmates to get more diverse feedback.

Your oral delivery for your presentation should be clear, confident, and professional. If you are nervous about public speaking, you may find that you need to rehearse more than others. Your presentation must also look professional and be easy to read. There is no "right" way to give a seminar, but there are certainly an infinite number of "wrong" ways! A very good introduction to the subject of preparing scientific talks aimed at graduate students may be found here:

<http://www.cyto.purdue.edu/Education>

I am happy to go through slides with you at any point to discuss how to make them more effective, but some general tips to keep in mind are:

- ALWAYS attribute all figures, text, and results that are not your own.
- Aside from broad introduction/summary slides, do not crowd many individual figures into a single slide. Remember, there is a limit on time but not on the number of slides, so let the figures have their own space unless you need to compare them directly.
- Similarly, aside from summary/conclusion slides, do not use long bulleted lists or large blocks of text. The reader should not be reading long passages; instead, it is your job to verbally explain the information contained in the slide.
- Keep fonts, font sizes, font colors, and text block positions as consistent as possible. Be sure to use easily readable fonts, and keep your font size sufficiently large.
- Animations **can** be helpful if used to provide the audience a visual aid in putting a particular piece of content in the context of other content. But otherwise, they are just distracting!

- When at all possible, figures should be displayed as high-resolution images. Figures should be positioned logically within their slides and displayed at an appropriate (i.e. readable) size.
- You should almost never spend more than a minute or two on any particular slide.
- Never put anything in a slide that you cannot explain, as you may be asked to do exactly that!
- Always keep your audience in mind – their familiarity with the material, their interests that overlap with the topic, etc.

Plagiarism of any kind and to any degree will not be tolerated. Even a single missing attribution of figures, text, and/or results can and will be considered plagiarism. Plagiarism also includes substitutional paraphrasing of EITHER text or figures, i.e. rewriting a direct quote by substituting with synonyms or simply rearranging parts of the sentence, **or copying the concept of a figure when making your own.** If you do feel the need to make a figure based upon someone else's (e.g. if the published resolution is too low, you want to overlay data from different figures, etc.) you **must** attribute the original by saying, "Figure adapted from [citation]." If I determine that any part of a presentation or abstract is plagiarized, I will give you a failing grade for the course and pursue further disciplinary action.