Chemistry 791
Research Seminar
Spring 2024

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Course time: Friday 1:00 to 1:50 p.m. (or until 2:50 p.m., if needed)

Office hours: By appointment

The course:

Open to graduate students in Chemistry & Biochemistry.

The purpose of this course is to give students an opportunity to practice speaking and present their original research findings and future plans. Students should enroll in Chem 791 after they have defined and begun their thesis research project and acquired some preliminary data that demonstrates its feasibility. Your thesis advisor should be able to help you decide when you are ready to enroll in this course.

Students will give a full, 50 minute presentation about their current research and future research plans. Prior to this presentation, you must prepare an approximately 1-page summary that describes your research project. This summary must be pre-approved by your thesis advisor. e-Mail your approved research summary to the instructor two weeks prior to your scheduled Chem 791 presentation. The instructor will review it and share it with the class as well as advertise your seminar to the rest of the department.

In your presentation, you should give some background and history of the overall question or problem you intend to investigate, state the specific aims of your research, and then describe the experimental plan and methods you have been and will be using to achieve your research goals. You should work closely with your thesis advisor in preparing and practicing your 791 presentations.

In the weeks you are not speaking you will attend the presentations of other students enrolled in Chem 790 or 791. After every presentation you will write a one-page critique in which you briefly summarize the presentation and point out what you liked about it as well aspects of the presentation that you feel could be improved upon. Comments of the actual presentation will be shared with the presenter, so please keep your criticisms constructive in nature. Critiques are due within a week after a presentation.

Participation in Chem 790.

Besides making your research presentation, participation in Chem 790 is also mandatory for all students enrolled in Chem 791.

Each student enrolled in the Chem 790 course will give an oral presentation on an original research paper (journal article) from the scientific literature. The student should select an appropriate paper together with his/her research advisor. The paper chosen must be emailed as a .pdf file to the instructor by two weeks prior to your presentation. The instructor will share these files with the rest of the members of the class.

Every student in the class must familiarize themselves with the seminar topic by reviewing the paper prior to each presentation.

In the weeks you are not presenting you are expected to attend the seminars of other students enrolled in Chem 790 or 791. After every presentation you will write a one-paragraph summary of the presentation topic AND a one-paragraph critique of the presentation (comment on what was effective and where there might be room for improvement). Presentation critiques will be shared in a redacted (anonymous) form with the presenter, so please keep your criticisms constructive in nature. Critiques are due within 72 hours (by Monday evening) after a presentation and should be e-mailed as text (please not as a .pdf file) to Dr. Huxford at <thuxford@sdsu.edu>.

Grading

1. Your own presentation: 66 points – Successful completion of your seminar presentation on its scheduled date will earn you 66 points.
2. Your critiques of other speakers' presentations: 34 points – Students will earn 3 points for every seminar they attend and submit a summary/critique. Therefore, you can miss two seminars and still score a 94/100 points and earn an A. If you miss three seminars, then the best you can score is 91/100 points, which is an A-, and so on.

Some guidelines for your oral presentation:

1. You should work closely with your thesis advisor in preparing and practicing your 791 presentations.

2. E-mail a the 1-page abstract to the instructor two weeks prior to your presentation date. The instructor will take responsibility for advertising your seminar.

3. It is important as a seminar speaker that you know your allotted time and don't go over it. You have 50 minutes total for your presentation. This includes time for questions after you are finished speaking. Therefore, if given without interruptions your presentation should last no more than about 30-35 in length. This will permit time for interruptions during the talk and for discussion afterwards. Be sure to practice out loud ahead of time, several times. Check to

make sure that your presentation slides can be projected correctly and that any animations that you plan to show are functional.

4. If you have not done this type of presentation before, it is a good exercise to write out beforehand every word that you wish to speak. This may seem like a tedious task, but there is no substitute for having thought carefully through an entire presentation. As you become more experienced at giving science presentations then you might attempt to work from an outline. List the important points that wish to make over the course of the presentation and then work on the transitions that get you from one to the next. Knowing where you are headed will greatly influence what you share with your audience and improve the logical flow of the arguments you make during your seminar.

5. Do not bring overly extensive notes to your presentation because this may tempt you to read your notes. Ideally you will be pointing to items on your slide or watching your audience to see how well your message is being received.

6. Slides should contain a title and data, a schematic diagram, or, as needed list of bullet points. If a slide contains a good deal of text then take the time to read it out loud to the audience so that they can keep up with you. But as much as possible, you should avoid having the actual words of your seminar printed out on your slides. Rather, your slides should provide the visual support for your message and function to guide you through your presentation, reminding you about what comes next.

7. Any good story has a beginning, a middle, and an end. Like a story, you need to give enough background information at the beginning of your seminar so that your audience will be able to make the journey through the information you choose to present and draw logical conclusions with you. Although you will give some general background as an introduction, you should avoid the temptation to share the whole history of science or everything you know about the topic with your audience. Rather, keep the introduction as concise as possible so that most of the time of the seminar is devoted to a presenting the experimental data that reveal new understanding and lead us all to arrive at the conclusions of the presentation.

8. Science is best communicated using the following sequence:
    a. Introduction—What are you planning to do? What question does it address? Why is this project interesting or important?
    b. Methods—How are you going to address the problem you are investigating.
    c. Results—What experiments have you done and what are the interpretations?
    d. Discussion—What conclusions can we draw from your studies thus far? What do you propose to do in the future?
    e. Hint: When you present a data figure on the screen for discussion, it is not sufficient to say "As you can see, Figure 1 shows *such and such*." It is usually necessary to go through the figure lane by lane (if it shows a gel for example) or line by line (if it shows a table) or curve by curve (if it shows a graph), etc. Consider instead to say something like, "Here is a Western Blot in which antibody X was used to detect protein Y in Z cells," or "In this

graph, the total enzyme activity is plotted as a function of increasing inhibitor concentration." Then you are ready to give your interpretation of what the data suggest. In short, you must demonstrate and explain to the audience how the data shown in the figure leads to the conclusions being drawn.

Remember, a good seminar takes the audience on a journey of discovery. A good seminar tells a good story. And everyone loves a good story.