Chemistry 790
Analytical, Biological, Inorganic, Organic, and Physical Chemistry Seminar (ABIOP)
Spring 2023

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Course time: 1:00 p.m. – 1:50 p.m., Fri., GMCS 308

Office hours: Call or e-mail to make an appointment, OR Drop by my office or lab (EIS 21)

The course:

Open to graduate students in Chemistry & Biochemistry.

Course description-The purpose of this course is to give students mentored practical experience in reading the scientific literature and making scientific seminar presentations.

Each student enrolled in the 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 Monday, two weeks prior to your presentation date. The instructor will distribute the .pdf files to the rest of the participants by e-mail one week prior to your presentation date.

Every student in the class must read and become familiar with the paper prior to its presentation in class.

Your grade for the course will be based upon:

1) Your own oral presentation (60%)

2) Your critiques of other speakers' presentations (40%). This is due to the instructor one week after any Ph.D. or Master's student seminar presentation. 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. These critiques will be shared with the presenter, so please keep your criticisms constructive in nature.

Attendance is required and absences will negatively affect your grade.

Some guidelines for your oral presentation:

1) Together with your thesis advisor, choose a journal article to present. It should be a recently published paper, *not over a year old*. The paper cannot be from your own research group.

2) E-mail a .pdf file of the chosen paper to the instructor by Monday, two weeks prior to your presentation date. The instructor will take responsibility for distributing your paper and 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 for your presentation. Therefore, if given without interruptions your presentation should last approximately 35-40 minutes 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 (preferably in GMCS 305 when it is not occupied). Check to make sure that your presentation slides can be projected correctly and that any animations that plan to show are functional. Make sure that the length of the presentation is appropriate. You will lose credit if your presentation is unreasonably short or unreasonably long.

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. That way you will not be stumbling around and boring your audience. This seems like a tedious task, but there is no substitute for having thought carefully through an entire presentation. It is better to read than to be fumbling around trying to think about what you want to say. 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 in your seminar.

5) 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 experiments and draw logical conclusions with you. Although you should give some general background as an introduction, you must avoid the temptation to share everything you know about the topic with your audience. Most of the time of the talk should be devoted to a discussion of the paper at hand and the data within it.

6) Even though everyone should have a copy of the paper in front of them, you must use Powerpoint or equivalent software for your presentation. Use of the images helps to keep people oriented. Make sure that you have everything set up well ahead of time so that the beginning of class is not delayed. Last minute computer problems are not

an excuse; you should plan that such problems will occur and allow yourself time to fix them.

Hint: When you download images from the on-line version of a published paper, you often have a choice of a high-resolution image or a lower-resolution image. You will want to download the high-resolution image for adequate resolution on the large screen or else your image will be blurry.

7) Items to talk about:
   A) Introduction—What information will your audience need ahead of time to make sense of the experiments that were performed? What problem does the paper address?
   B) Methods—What technical approaches have been employed to address the problem? This may or may not be presented separate from the experimental results section.
   C) Results—What experiments were performed and what were the results? This is the heart of the paper and should be the major part of your presentation.
   D) Discussion—What conclusions can we draw from the experimental data produced in the study? How well do the experimental results substantiate the author's conclusions? What is the significance of the paper? What would you do differently? What would you propose to do in the future?

      Hint: When you present a data figure on the screen for discussion, it is <u>not</u> 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.