Biochemistry/Chemistry 945 **Seminar—Chemical Biology (Advanced)**
Prof. Helen E. Blackwell Wednesdays @ 4:35–5:25 pm, Room 2373 Chemistry
1 credit, graduate, Spring 2020

SEMINAR GUIDELINES

This seminar meets for one class period per week, with the expectation that everyone attending the class is expected to read the assigned paper beforehand and be prepared to answer **4 discussion** questions. The average out-of-class work will be about 2 hrs/week. These discussion questions will be sent by e-mail to all course participants by **5 PM** of the **Monday** preceding the Wednesday seminar so that everyone has time to think about them. (The course e-mail list is: biochem945-1-s20@lists.wisc.edu)

The assigned papers will be available on the course Canvas site:
https://canvas.wisc.edu/courses/190633

The Canvas site will also include links to tutorials on effective presentations, the class schedule, and the course guidelines.

A variety of faculty members will be facilitating the discussions, with a different faculty facilitator each week, as listed on the class schedule. Helen Blackwell serves as the course organizer, and can be reached at blackwell@chem.wisc.edu. Office hours are by appointment.

The following guidelines should be used to prepare presentations.

1. **Introduction (5–10 minutes).** Summarize briefly the important facts and history needed for an intelligent listener who is not an expert to place the paper in proper context. Typically, the introduction should outline what unsolved issue(s) are being addressed, why the particular approach is being used, and how this approach differs from previous work on the system.
2. **Critical commentary on methods and results (15–20 minutes).** Provide an overview of the methods so that listeners can follow the experiments. For example: “Proteins were separated by SDS-PAGE.” Not: “Five micrograms of protein were dissolved in 0.1 mL of 1% (w/v) SDS, containing 1 mM β-mercaptoethanol...” Whenever possible use a figure to summarize the experimental protocol and/or results. Point out the critical steps and show the kind of data obtained. In discussing results, show the original data. This can be done from a scanned image of the original or by importing the figure directly from a PDF using Adobe Acrobat. It is helpful to put a title on each slide that summarizes the question being asked in the experiment or the experimental result. If the original data involves a complex figure with many curves, label the curves so that the audience need not read the legend to get the information. If specific comparisons within a Table are most important, facilitate those comparisons by color-coding the numbers that should be compared with each other. If a Figure or Table that you are focusing on leads to a clear conclusion, state it at the bottom of the slide. If you think of other interpretations of the data, you can raise these issues as well. The formal part of the seminar should be a critical discussion of no more than 20 minutes. Sometimes students discover that they are using much more time than they had

anticipated. To avoid this problem, practice your talk. Be sure to allow the time for questions and discussion.

3. **Class discussion (15 minutes).** On a slide, the presenter should pose 4 questions to be answered by small groups of students working together in class. **One of the 4 questions must pertain to research rigor or ethics associated with the topic.** The question(s) should address the important issues in the article and provoke lively discussion within the groups.
4. **Recapitulation (10 minutes).** Call upon other students to present their answers to your questions. Use this time to provoke discussion between the small groups, which may have arrived at different answers to the same question.

GRADING
Your grade will be based on your seminar presentation (if relevant), your participation during the class discussion, and your attendance (via a physical sign-in sheet), according to the following guidelines:

For students assigned to give a presentation:
Seminar presentation—33%
Participation—33%
Attendance—34%

For students not assigned to give a presentation:
Participation—50%
Attendance—50%

LEARNING OUTCOMES
Students in Biochem/Chem 945 will:

- *Recognize interesting and important research problems at the chemistry–biology interface*
- *Develop an understanding of the tools used in research at the chemistry–biology interface*
- *Demonstrate understanding of professional and ethical responsibility in research*
- *Evaluate published research reports in terms of importance, rigor, and further applicability*
- *Communicate effectively through oral presentations and leading discussions among scientists with diverse interests and backgrounds*

OFFICIAL COURSE DESCRIPTION
This course will cover, as per the UW–Madison Course Guide, “Recent published research in chemical biology and related areas. Intended for advanced graduate students, and required of all NIH Chemistry–Biology Interface trainees.”

PREREQUISITES
Graduate or professional standing

ACADEMIC INTEGRITY
By enrolling in this course, each student assumes the responsibilities of an active participant in UW–Madison’s community of scholars in which everyone’s academic work and behavior are held to the highest academic integrity standards. Academic misconduct compromises the

integrity of the university. Cheating, fabrication, plagiarism, unauthorized collaboration, and helping others commit these acts are examples of academic misconduct, which can result in disciplinary action. This includes but is not limited to failure on the assignment/course, disciplinary probation, or suspension. Substantial or repeated cases of misconduct will be forwarded to the Office of Student Conduct & Community Standards for additional review. For more information, refer to studentconduct.wiscweb.wisc.edu/academic-integrity/.

ACCOMMODATIONS FOR STUDENTS WITH DISABILITIES

McBurney Disability Resource Center syllabus statement: "The University of Wisconsin-Madison supports the right of all enrolled students to a full and equal educational opportunity. The Americans with Disabilities Act (ADA), Wisconsin State Statute (36.12), and UW-Madison policy (Faculty Document 1071) require that students with disabilities be reasonably accommodated in instruction and campus life. Reasonable accommodations for students with disabilities is a shared faculty and student responsibility. Students are expected to inform faculty [me] of their need for instructional accommodations by the end of the third week of the semester, or as soon as possible after a disability has been incurred or recognized. Faculty [I], will work either directly with the student [you] or in coordination with the McBurney Center to identify and provide reasonable instructional accommodations. Disability information, including instructional accommodations as part of a student's educational record, is confidential and protected under FERPA." http://mcburney.wisc.edu/facstaffother/faculty/syllabus.php

DIVERSITY & INCLUSION

Institutional statement on diversity: "Diversity is a source of strength, creativity, and innovation for UW–Madison. We value the contributions of each person and respect the profound ways their identity, culture, background, experience, status, abilities, and opinion enrich the university community. We commit ourselves to the pursuit of excellence in teaching, research, outreach, and diversity as inextricably linked goals.

The UW–Madison fulfills its public mission by creating a welcoming and inclusive community for people from every background – people who as students, faculty, and staff serve Wisconsin and the world." https://diversity.wisc.edu/

COMMON MISTAKES IN THE 945 SEMINAR

1. **Inadequate introduction** —You must give enough background so that the intelligent listener will know why the work you describe was done, and how the problem was approached experimentally. Do not waste time in introducing too much background: tell your audience what they need to know to understand the paper you are presenting—no more, no less.
2. **Failure to provide the rationale behind a specific experiment**—Before you plunge into a description of a specific experiment, tell the audience why it was done. An effective approach is to say: "the authors next asked, is ATP required for the phosphorylation of glucose? In this experiment, glucose was incubated with and without ATP, and the concentration of glucose-6-phosphate was measured..." This sounds obvious, but it is the most common mistake in seminars and one that is easy to correct. *State the question before describing the answer.*
3. **Poor description of experimental results**—When you show a figure or table, immediately point out what is being measured and state what each axis represents; say explicitly what each column in a table represents. Use the pointer to guide your audience.
4. **Too much information on your slides**—For written slides (as opposed to data slides or graphics slides) write no more than 5–7 lines per slide. You need not write complete sentences; key phrases are adequate. Remember, your slides are visual aids; you do not want your audience focusing its attention on the slides at the expense of listening to you.
5. **Incorrect pace**—Speakers often try to show their absolute mastery of the subject matter by discussing it at high speed. This approach is counter-productive; your listener will stop trying to understand and everyone's time is wasted. If you must err in pacing, err in the direction of going a little too slowly. Do not worry about pausing and not speaking for a few moments. Such pauses allow your audience to process the information and perhaps break in with discussion or questions. If some points are more important than others, it may be worth modulating your tone of voice and/or summarizing these key points during particular stages of the seminar.
6. **Advocacy of authors**—You are under no obligation to defend the authors' conclusions; you did not write the paper. Present the data as objectively as you can. State the authors' conclusions, and state your own reservations or conclusions. The idea is read the paper critically, and you should treat the paper as if you were a referee, not a member of the authors' laboratory. Although you should be critical when appropriate, you also should be mindful of the fact that the authors are not present to rebut your criticisms.
7. **Distracting mannerisms**—When you use a pointer, point at the information you want to highlight (you need not lasso it or emphatically underline it). Turn the pointer off when you are not using it to make a point, and please do not aim it at the audience. Speak to your audience, not the screen. Try to make eye contact with the audience. Speak LOUDLY.
8. **Vague discussion questions** —Make sure that your discussion questions address interesting and important issues that can be discussed. It is probably best if you do not have an "answer" in mind, but ask about an issue that is left unresolved or can be seen from different views. Make sure that your questions are worded clearly.