

CHEM529: Current Topics in the Biochemical Sciences

Instructor: Dr. Jason C. Hurlbert
Office: Sims 301B
Office hours: M 10:30 – 11:30AM, T 5:00-6:00PM, R 12:30-1:30PM
Phone: 323-4928
E-mail: hurlbertj@winthrop.edu

Course Meeting Time: Fridays 2:00 – 3:00 via Zoom

Course Website:

http://bohr.winthrop.edu/faculty/hurlbert/link_to_webpages/courses/chem529/chem529home.html

Course Goals:

This course is designed to give advanced junior and senior level students the opportunity to select, analyze and critique recent scientific articles of interest. Participating students will select and distribute an article of their choice from a peer reviewed journal to students and faculty involved in the course and then lead a thirty minute presentation/discussion on the article. Articles will be selected from leading journals in the fields of molecular biology, biochemistry, biophysics and bioorganic chemistry.

The student-led discussions will require that each presenter give a thorough background of the selected topic, fully explain the methods used to answer the scientific question at hand, explain the data and results obtained as well as justify the conclusions made with those data. The selected articles must be from within the previous calendar year and be approved with the instructor prior to distribution to the rest of the class.

The course is graded as S/U.

Course Specifics:

The course will meet every Wednesdays in Sims 113C from 12:30 - 1:20.

Students will give 2 presentations during the course of the semester. The first presentation will be a 15 minutes in length and will cover a specific scientific technique. During this short talk, students will be expected to give the theory behind the technique, specific details and applications of the technique and explain representative data generated with the technique.

Each short talk will be recorded and students will be given a copy of the recording for them to evaluate their own work. The week after the last of the short presentations is given, a class session will be devoted to self-critique of each student's short presentation. Each student will be expected to discuss the things that they felt they did well and things that they felt that they could improve on. You will be expected to offer each other

constructive feedback and take the suggestions made into consideration as you prepare your second presentation.

The second presentation will be a 30-40 minute talk on a selected scientific paper followed by a question and answer session involving the audience. All non-presenting students will be expected to contribute to the discussion following the presentation.

The second presentations must address the following:

- Enough experimental background to frame the goals of the work presented
- The goals of the research presented
- The techniques used as well as their theoretical basis
- Experimental data obtained and interpret the results
- Conclusions, future work and relevance to the experimental field

It is the responsibility of each presenter to have his or her selected paper approved by the instructor. **Papers for discussion will be disseminated to students at least a week before the date they are to be presented via email or downloaded from the course website.** Non-presenting students are expected to download, read and analyze each paper before each scheduled meeting. The success of the course not only relies on the presentations given for each article, but also the discussions resulting from them.

Student Learning Outcomes

Upon the completion of this course, students will:

- 1) Understand modern methodologies and experimental approaches in chemical research.
- 2) Be able to better read and interpret scientific research articles.
- 3) Be able to communicate scientific concepts by verbal and written means.

These learning outcomes mesh well with the four University Level Competencies (ULCs) that describe the skills Winthrop faculty have outlined for students to develop during their tenure here. These include:

Competency 1: Winthrop graduates think critically and solve problems.

As you read through the scientific literature covered in the course, you will apply what you have learned in many of your other science classes to help you understand the system under study and the approaches used to probe that system.

Competency 2: Winthrop graduates are personally and socially responsible.

You will be expected to listen to and offer constructive criticisms of your work and that of your peers.

Competency 3: Winthrop graduates understand the interconnected nature of the world and the time in which they live.

Very few scientific papers published in peer-reviewed journals will involve a single technique or a single aspect of a system. You will be expected to select articles that use multiple approaches to study a scientific problem and understand the importance of the system under study in the world in which we live.

Competency 4: Winthrop graduates communicate effectively.

Your primary assignment in this class is to design and deliver oral presentations of your analyses of current scientific literature. No task is more important to a scientist than being able to effectively communicate their research findings and its relation to specific problems and as young scientists, but it takes practice. This course is intended to give you that practice.

Grading:

You will be graded in this course on an “S/U” basis. Since you are taking this course in order to prepare for similar courses you will encounter in graduate and professional schools, I do not expect participation to be a problem. However, in order to obtain a grade of “Satisfactory” you will need to do the following:

- Select an article 7 to 10 days before your scheduled presentation date
- Adequately research any necessary background information and include it in your presentation
- Analyze the chosen article completely and summarize the results
- Identify possible applications/future studies of the research contained within the chosen article.

In addition, when not presenting, you are expected to read the articles each week, complete the article discussion worksheet, engage in the discussions sparked by the presentations and evaluate the speaking habits of the presenters.

Your final grade will be dependent on how well you accomplish all of the course objectives. There is no final exam for this course.

Students taking the course for graduate credit

Any student taking the course for graduate credit will be required to prepare a final paper (7-10 pages) critiquing the paper they presented. This paper must clearly discuss the scientific hypotheses tested, background behind the instrumentation used, the experiments performed, the results obtained and interpret the conclusions reached by the authors. This paper will be considered with the presentation when determining the final grade for the course.

Syllabus Change Policy

Should any changes be made to this document or to the course itself, students will be notified via email, in person and on the course website.

Students with Disabilities

Winthrop University is dedicated to providing access to education. If you have a disability and require specific accommodations to complete this course, contact Services for Students with Disabilities, at 323-3290. Once you have your official notice of accommodations from Services for Students with Disabilities, please inform me as early as possible in the semester.