1. Course Information

Biochemistry 4483E: RESEARCH PROJECT AND SEMINAR
Summer Term 2023

The major laboratory course for the Honors Specialization in Biochemistry and Honors Specialization modules combined with Biochemistry. Lectures on laboratory safety, biosafety, use of animals in research, scientific integrity; an independent research project (topic and advisor chosen by consultation between student and faculty); scientific communication (two seminars and a written report).

Course Weight is 1.50
26 hours per week in research laboratories (Summer Term: May 8th to August 15th)

Prerequisites:
Biochemistry 3380G, Biochemistry 3381A and Biochemistry 3382A, with marks in each of at least 70%, and permission of the department.

See Academic Calendar for Antirequisites.

2. Contact Information

Course Coordinator: Dr. Ken Yeung  Email: kyeung@uwo.ca
Course Administrator: Ms. Megan Luckovich (MSB 342)  Email: mluckovi@uwo.ca

3. Learning Outcomes

The project course is the core of our honours modules. As a course, it is first and foremost a guided educational program in which students work in research labs under the mentorship of faculty and other lab members. Students will learn about the scientific process by participating in it to answer real research questions. Students will also learn about scientific communication through oral presentations and written reports. The goal of the course is to give students the opportunity to participate in science, rather than simply consume it.
4. Expectations and Evaluation

**Expectations.** Students are expected to devote a minimum of 26 hours per week. The actual hours spent, work schedule, and the expectation on the project outcomes should be discussed with the supervisor. Most labs will have group meetings that students should plan to attend. The quality of the output will be highly dependent on the efforts that was put in.

**Lab Safety.** Safety regulations prohibit anyone from working alone in a research laboratory. Therefore, undergraduate research students are only permitted to work in the lab under the supervision of a senior lab member.

The following six training courses must be completed before starting experiments in the lab. Consult with your supervisor if additional training is required. Visit the Human Resources website for additional information [https://www.uwo.ca/hr/learning/required/](https://www.uwo.ca/hr/learning/required/).

- Worker Health & Safety Awareness
- WHMIS 2015 - Workplace Hazardous Materials Information System
- Western Safe Campus Community
- Accessibility in Service
- Laboratory Safety & Hazardous Waste Management
- Biosafety

**COVID Protocols.** When applicable, all personnel working on campus must adhere to COVID protocols and guidelines posted at [https://www.uwo.ca/coronavirus/](https://www.uwo.ca/coronavirus/)

**Research Integrity.** By May 31st (11:55 pm), students are required to complete the following five courses of the CITI program made available by Western Research.

- Research Misconduct
- Data Management
- Writing with Integrity
- Conflicts of Interest
- Using Animal Subjects in Research

Instructions on how to access these courses are available on the Resource page on OWL. The penalty for not completing this by the deadline is a 2% deduction from the course grade.

**Professional Development.** Students enrolled in Summer Biochemistry 4483E are strongly encouraged to take advantage of professional development opportunities through the Western Undergraduate Summer Research Internships (USRI) Workshops. You will need to sign up via email to obtain the Zoom meeting information. See the URL below for details: [https://www.uwo.ca/research/funding/students/usriworkshops.html](https://www.uwo.ca/research/funding/students/usriworkshops.html)
### Evaluation Components

<table>
<thead>
<tr>
<th>Evaluation Component</th>
<th>Dates/Deadlines</th>
<th>% of Course Grade</th>
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<tbody>
<tr>
<td>First Presentation</td>
<td>Fri, June 2 (p.m., tentatively)</td>
<td>8%</td>
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<tr>
<td>First Report</td>
<td>Due Mon, June 12, 8 am</td>
<td>4%</td>
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<tr>
<td>First Assessment by Supervisor</td>
<td>Mid-June</td>
<td>6%</td>
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<tr>
<td>Final Report (Thesis)</td>
<td>Due Mon, August 14, 8 am</td>
<td>50%</td>
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<tr>
<td>Final Presentation</td>
<td>Tue, August 15 (p.m., tentatively)</td>
<td>12%</td>
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<tr>
<td>Final Assessment by Supervisor</td>
<td>Mid-August</td>
<td>20%</td>
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The evaluation forms for the above assessments can be found on OWL under Resources.

**First Presentation:**

The first oral presentation is limited to 10 minutes, followed by 5 minutes for questions, to be held in person. Students should present the research question(s) that their proposal will address, background information and preliminary results, and outline the methods that will be used. Slides should be prepared in PowerPoint or similar. Students should discuss details of content and form with their supervisor prior to preparing their presentations. Students are recommended to rehearse their talks in virtual group meetings to familiarize themselves with using Zoom for presentations.

Presentations will be attended by supervisors and other members of the department. Project students must attend the entire session. All attendees will grade the presentations.

**First Report:**

A written Introduction will be submitted online via the OWL course site. It should be up to 3 pages long (double-spaced), plus references. It should provide an introduction and the background of your project, state your research questions, and summarize your proposed experimental approach. This Introduction will be graded by your supervisor.

**First Supervisor Evaluation:**

Your progress to date in the lab will be evaluated by your supervisor in the following categories: a) understanding of the project, b) time and effort spent on the research project, c) quality of research work, d) record keeping and e) progress to date.

**Final Report (Thesis):**

Final reports will be submitted via the OWL course site. Late reports will lose 10% per day for up to 3 days. Reports will only be accepted with academic consideration after 3 days.

Reports should follow the style of a research paper (e.g., Journal of Biological Chemistry) with an Abstract, Introduction, Methods, Results, Discussion, and References sections. Figures and legends should be prepared as if for publication and appended to the end. References should be handled appropriately. Specific content and style should be discussed with your supervisor.
Reports should not be longer than 20 pages, double-spaced, not including abstract, figures, and references. An outline of your final report is due to your supervisor at least one week prior to the deadline for feedback (not grading).

Your supervisor can give you feedback and guidance on the draft report you prepared, but they will not rewrite any content for you. You are also encouraged to get feedback from other colleagues in the lab. After submission, your paper will be marked by at least two faculty members that are not your supervisor in biochemistry or related disciplines.

A completed and signed Statement of Contribution form (available on OWL, under Resources), stating the project start date and outlining your contribution to the presented research, must be submitted as a separate document to the OWL site. A 1% penalty of the course grade will be applied for failing to submit this form together with your final report. If you have worked previously in the lab where you conduct your current project (e.g., Biochemistry 3383F/G or a summer research assistant position), you must clearly specify the work that was accomplished during your Summer 4483E enrolment, which will be considered in the evaluation of your thesis.

**Final Presentation:**
The first oral presentation is limited to 15 minutes, followed by 5 minutes for questions, to be held in person. Students should present an introduction to their project, rationale, research question(s), and results from the year. Slides should be prepared in PowerPoint or similar. Students should discuss details of content and form with their supervisor prior to preparing their presentations. Again, you are strongly encouraged to prepare your presentation early so you will have time to rehearse it in group meetings.

**Final Assessment by Supervisor:**
At the end of the course, your supervisor will evaluate your overall performance in the lab. This will be based on your commitment, effort, initiative, overall understanding of the project and intellectual contribution and performance.

Keep in mind that different projects can have very different types of outcomes. Negative results are common in scientific research. Often the experiments did not work well as you were still learning how to perform them properly. The excitement of the projects that you are undertaking is that you and your supervisor do not know what the outcome will be, and therefore evaluations are not based necessarily on how much data is produced. All faculty members are experienced in the kind of effort required for any given type of project and this will be taken into consideration at all levels of evaluation. It is most important that you understand the results that you obtained and effectively articulate the findings to your audience.
5. Course Policies and Additional Information

If problems arise in your project or lab, discuss it first with your supervisor. If this does not resolve the issue, contact your course coordinator.

Statement on Academic Offences
Scholastic offences are taken seriously and students are directed to read the appropriate policy, specifically, the definition of what constitutes a Scholastic Offence, at the following website: http://www.uwo.ca/univsec/pdf/academic_policies/appeals/scholastic_discipline_undergrad.pdf

Turnitin and other similarity review software
All required papers may be subject to submission for textual similarity review to the commercial plagiarism detection software under license to the University for the detection of plagiarism. All papers submitted for such checking will be included as source documents in the reference database for the purpose of detecting plagiarism of papers subsequently submitted to the system. Use of the service is subject to the licensing agreement, currently between The University of Western Ontario and Turnitin.com.

Policy on the Rounding and Bumping of Marks
Across the Basic Medical Sciences Undergraduate Education programs and within the Department of Biochemistry we strive to maintain high standards that reflect the effort that both students and faculty put into the teaching and learning experience during this course. All students will be treated equally and evaluated based only on their actual achievement. Final grades on this course, irrespective of the number of decimal places used in marking individual assignments and tests, will be calculated to one decimal place and rounded to the nearest integer, e.g., 74.4 becomes 74, and 74.5 becomes 75. Marks WILL NOT be bumped to the next grade or GPA, e.g., a 79 will NOT be bumped up to an 80, an 84 WILL NOT be bumped up to an 85, etc. The mark attained is the mark you achieved, and the mark assigned. Requests for mark “bumping” will be denied.

Absence from course commitments
If you are unable to meet a course requirement due to illness or other serious circumstances, you must seek approval from the Academic Counselling unit for the absence as soon as possible. An academic counsellor in that office will review and either approve or deny the accommodation request. See the University policy on Academic Consideration for Student Absences for details.

Senate regulation regarding the student’s responsibility regarding requisites:
Unless you have either the requisites for this course or special permission from the Department of Biochemistry to enroll in it, you may be removed from this course, and it will be deleted from your record. This decision may not be appealed. You will receive no adjustment to your fees in the event that you are dropped from a course for failing to have the necessary prerequisites.
Student Accessibility Services
Please contact the course instructor if you require material in an alternate format or if you require any other arrangements to make this course more accessible to you. You may also wish to contact Accessible Education for any specific questions regarding accommodation.

Statement on Student Conduct
Western’s Code of Student Conduct (https://www.uwo.ca/univsec/pdf/board/code.pdf) prohibits assault, harassment, intimidation, threats, or coercion, as well as discrimination based on grounds including race, ethnic origin, sex, sexual orientation, gender identity, and disability. Students in this course are expected to speak and act in ways that maintain an environment in which all people feel safe and respected.

Support Services
Registrarial Services: http://www.registrar.uwo.ca
Academic Support & Engagement: http://academicsupport.uwo.ca
Science & Basic Medical Sciences Academic Counselling: https://www.uwo.ca/sci/counselling/
Student Health Services: https://www.uwo.ca/health/
Mental Health Support: https://www.uwo.ca/health/psych/