

Department of Biochemistry Course Syllabus for Fall 2023
3383F Introduction to Biochemical Research, 0.5 credits



Western University is committed to a **thriving campus**; therefore, your health and wellness matter to us! The following link provides information about the resources available on and off campus to support students: <https://www.uwo.ca/health/> Your course coordinator can also **guide you** to resources and/or services should you need them.

The Department of Biochemistry recognizes diversity of identity and experience as a source of strength that promotes excellence, innovation, flexibility and adaptability in our discipline. We embrace, nurture, value and celebrate this diversity.

1. Technical Requirements:



Stable internet connection



Laptop or computer



*Working microphone - Optional



*Working webcam - Optional

*This is an in-person course that may have a few optional online components

2. Important Dates:



Classes Begin	Reading Week	Classes End	Study day(s)	Exam Period
Sept. 7	Oct. 30– Nov. 5	Dec. 8	Dec. 9	Dec. 10–22

* November 13, 2023: Last day to drop a first-term half course without penalty

** September 29, 2023 is National Day for Truth and Reconciliation and is a non-instructional day

3. Contact Information



Course Coordinator	Contact Information	Office
Dr. Brian Dempsey	brian.dempsey@uwo.ca	MSB 389

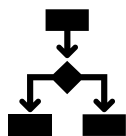
Biochemistry Program Administrator	Contact Information	Office
Ms. Megan Luckovitch	mluckovi@uwo.ca	MSB 342

4. Course Description and Design

Delivery Mode: IN-PERSON

Students carry out a research project under the direction of a faculty member, gaining practical experience in a biochemistry research laboratory. Experimental design, critical thinking, and scientific communication will be emphasized, and students will develop skills at reading and reviewing primary scientific literature.

The objective of the course is to have students gain practical experience in a research laboratory with evaluations that emphasize writing and critical thinking skills. The major component of the course will involve 5 hours per week of independent research. The laboratory project should be a well-defined sub-project of a larger effort in the lab, feasible within a 12-week time frame. The course will involve reading selected manuscripts relevant to the project. This will provide an opportunity for the student to critically assess experimental approaches and outcomes, develop his or her writing ability, and recognize how specific research projects contribute to a larger body of understanding.



Prerequisites/Corequisites:

Prerequisite: Permission of the department.

Pre- or Corequisite(s): Biochemistry 3381A and Biochemistry 3382A.

Timetabled Sessions

Component	Date(s)	Time
Lab work on project goals	M/T/W/Th/F	Scheduled with project lab

Any course material or communications will be posted to OWL: <http://owl.uwo.ca>. Any changes will be indicated on the OWL site and discussed with the students and supervisors.

If students need assistance, they can seek support on the [OWL Help page](#). Alternatively, they can contact the [Western Technology Services Helpdesk](#). They can be contacted by phone at 519-661-3800 or ext. 83800.

5. Learning Outcomes



Upon successful completion of this course, students will be able to:

1. Perform biochemical, molecular or bioinformatics experiments independently and follow safety guidelines.
2. Conduct literature review in a topic in biochemistry.
3. Prepare a scientific manuscript.
4. Prepare and present a scientific talk.
5. Critically analyze scientific data and defend conclusions that are made from the data.

6. Course Content and Schedule

September 7, 8, 11, 12

- Students meet with their supervisor and receive the topic for their projects and 2-3 articles that introduce the key aspects of the project.
- Complete WHMIS training, Lab Safety training, Biosafety training, and any additional safety training required by your supervisor. See website for access - <https://www.uwo.ca/hr/learning/required/index.html>
- Contact Boun Thai (boun.thai@schulich.uwo.ca) for questions on safety training.

Wednesday, September 13, by 8:00 am

- All safety training must be completed. Research experiment begins.
- 3383F/G students must be supervised whenever working in laboratories.

Monday, September 25, by 8:00 am

- Submit your "Introduction of research topic" (Assignment 1) by emailing a pdf file to brian.dempsey@uwo.ca and copying it to your supervisor.

Wednesday, October 11, by 8:00 am

- Submit your "Description of research methods" (Assignment 2) by emailing a pdf file to brian.dempsey@uwo.ca and copying it to your supervisor.



Monday, October 23, by 8:00 am

- Submit your "Preparation of scientific figure" (Assignment 3) by emailing a pdf file to brian.dempsey@uwo.ca and copying it to your supervisor.

Wednesday, November 8, by 8:00 am

- Submit your "Detailed outline of scientific report" (Assignment 4) by emailing a pdf file to brian.dempsey@uwo.ca and copying it to your supervisor.

Any day Before December 8 (last day of classes)

- Give a 20-minute presentation to your research group members on the background, goals and accomplishments of your project.
- Answer questions from the audience for up to a total of 5 minutes.
- Have at least 4 members (including your supervisor) completing the evaluation forms provided. Ask your **supervisor to collect the completed forms** and email them to brian.dempsey@uwo.ca.

Friday, December 8, by 11:55 pm

- Submit your "Final report" (Assignment 5) by emailing a pdf file to your supervisor and copying the email to brian.dempsey@uwo.ca.

7. Participation and Engagement



- Students are expected to participate and engage with their lab work as needed to fulfil their project goals.
- Students should also engage with their project supervisors and any lab personnel that the supervisor designates to train them.

8. Evaluation

Below is the evaluation breakdown for the course. Any deviations will be communicated. All required safety and other training courses that must be completed before working in the lab. Labs can be hazardous places. Ask your supervisor or senior members of your lab what the hazards are and learn how to handle them safely. You are not permitted to work in the lab unsupervised in the evening or on weekends.

Evaluation % of Course Grade

Supervisor assessment (knowledge, lab performance, lab notebook) 30%

Introduction of research topic (Assignment 1) 5%

Description of research methods (Assignment 2) 5%

Preparation of scientific figure (Assignment 3) 5%

Detailed outline of scientific report (Assignment 4) 10%

Oral Presentation 10%

Final Report (Assignment 5) 35%



Additional Information

You are permitted and encouraged to share drafts of all your assignments with your colleagues and lab-mates for editing purposes. To allow time for editing and revision, you need to finish your assignment well in advance of the deadline, so plan ahead when completing your work.

Email submission of reports must be sent from your “@uwo.ca” account.

Assignment 1: Introduction of research topic (250-word limit)

Provide a title for your project. Provide a summary introducing your area of research, defining your goal and any relevant hypothesis, and stating the significance of your project. Be concise and specific. Specify the word count at the end of document. Inclusion of literature citations outside of the word limit is allowed and recommended.

Assignment 2: Description of research methods (no word/page limit)

Provide a written description of the principal methods you are using in your project. The method should be written out in full as it would appear in a published scientific manuscript. If it is adapted from an existing source, that source should be clearly indicated. Include literature citations when applicable.

Assignment 3: Preparation of scientific figure

Provide one important figure from your work that is likely to appear in your final report. In most cases, this is a graph derived from data, but it can also be a model or schematic. Provide a detailed caption for the figure. Figure legend should also be included to identify all of the components necessary to understand the figure. Follow the format of a scientific journal.

Assignment 4: Detailed outline of scientific report (2-page limit, single-spaced)

Provide a detailed outline that you will use to write your final report. Divide into the major headings: Introduction, Materials and Methods, Results and Discussion. Provide bullet points on the content under each heading, and the name of the figures or tables will be inserted. Do not insert the actual figures/tables or any literature citation.

Assignment 5: Final Report (2000-word limit; not including: abstract, references, figures)

The final report should be written as a manuscript format for a scientific paper. You are encouraged to have your lab-mates and colleagues to proof-read your final report.

It is recommended that you review published scientific literature for a reference on how to prepare your final report. It is expected that you will need to read scientific literature for your 3383F project. So these papers should help you get an idea of how an experimental paper is composed.

The following sections should be included:

Abstract (recommended to be 250 words or less)

The abstract serves as a summary of your report. You should describe the research problem that you are tackling, and the main results and conclusion of your work.

Introduction (a revised and updated version of Assignment 1)

Provide background information sufficient for your audience to understand the project. This should start with the general big picture problem and end with to the specific problem you are addressing. It should define the research question, describe in brief the experimental approaches used in your work and summarize the key results obtained.

Materials and Methods (an updated version of Assignment 2) You should describe the experimental procedures in sufficient details that other researchers can repeat your experiments.

Results

Results of your experiments should be presented in a logical order, and in a clear and objective manner. Use tables and figures to better organize your data in addition to text. In fact, it is recommended to frame your results section around the figures. Figures included in your report should be of high quality. Make sure the figure legends convey enough information for the reader to understand the data without referring to the main text.

Discussion

This section should include your interpretation of the results. Discuss whether the results obtained answer the research question you are trying to address. If not, suggest possible ways to improve the current experiments. Discuss your work in the context of other literature.

References

The references listed should follow the format of one of the journals in the Biochemistry field (e.g., Journal of Biological Chemistry, Biochemistry, Journal of Molecular Biology).

Figures/tables

Provide figures (with caption and legends) and tables (with titles) as required.

Evaluation Criteria (rubrics will be posted to the 3383F/G OWL site)

Assignments 1, 2 and 4 will be evaluated on: (a) format and style, (b) organization of materials, (c) quality of writing, and (d) citation to literature where appropriate.

Assignment 3 will be evaluated on: (a) format and style, (b) clarify of the information, and (c) quality of illustration.

Assignment 5, final report, will be graded based upon the following criteria:

- (a) Writing quality including spelling, grammar, and organization
- (b) Background: sufficient and appropriate to understand the research aims, appropriate reference to the literature
- (c) Clear exposition of hypothesis and aims
- (d) Methods: sufficient detail for a knowledgeable worker to repeat the experiments, appropriate reference to the literature
- (e) Results: clear and logical explanation of results obtained
- (f) Proper interpretation and discussion of results
- (g) Level of scientific accomplishment

Assignments 1-4 will be graded by the 3383F/G coordinator, and Assignment 5 will be graded by the supervisor.

The **oral presentation** will be graded by those attending your talk using the following criteria: (a) background, (b) organization, (c) objective, (d) presentation skills, and (e) responses to questions.

Information about late or missed evaluations:

Late assignments can be submitted up to 48 hours past the due date, but 10% will be deducted for every 24 hours an assignment is late.

If a student has a suitable reason for late submission and the assignment is worth 10% or more of their final course grade they must obtain an academic consideration. If an academic consideration is obtained, the student must immediately contact Dr. Dempsey to discuss a revised due date. The project supervisor will be informed of an approved changes to submission due dates for the student they are supervising.

If a student is not able to submit an assignment by the due date and the assignment is worth less than 10% of their final course grade they should contact Dr. Dempsey to discuss how to proceed.

- Students are responsible for ensuring that the correct file version of their assignment submissions are emailed; incorrect submissions including corrupt files could be subject to late penalties or a mark of 0
- Rubrics will be used to evaluate assessments and will be posted with the instructions
- After an assessment is returned, students should wait 24 hours to digest feedback before contacting their evaluator; to ensure a timely response, reach out within 7 days
- Any grade appeals on must be received by the evaluator within 1 week of the grade being posted.

Click [here](#) for a detailed and comprehensive set of policies and regulations concerning examinations and grading. The table below outlines the University-wide grade descriptors.

90-100	One could scarcely expect better from a student at this level
80-89	Superior work which is clearly above average
70-79	Good work, meeting all requirements, and eminently satisfactory
60-69	Competent work, meeting requirements
50-59	Fair work, minimally acceptable
below 50	Fail

INC (Incomplete Standing): If a student has been approved by the Academic Counselling Office (in consultation with the instructor/department) to complete term work at a later date, an INC will be assigned. Students with INC will have their course load in subsequent terms reduced to allow them to complete outstanding course work. Students may request permission from Academic Counselling to carry a full course load for the term the incomplete course work is scheduled.

SPC (Special examination): If a student has been approved by the Academic Counselling Office to write a Special Examination and the final exam is the only outstanding course component, an SPC will be assigned. If the class has a makeup exam, the student is expected to write the makeup exam. If the class doesn't have a makeup exam or the student misses the makeup exam for reasons approved by the Academic Counselling Office, the student will write the exam the next time the course is offered. Outstanding SPCs will reduce the course load for the term the exam is deferred as outlined in [Types of Examinations](#) policy.

9. Communication:

- Students should check their UWO email every 24 hours for course communications
- Students should email Dr. Dempsey and their supervisor using their UWO email account
- Emails will be monitored daily; students will receive a response in 24–48 hours



10. Office Hours:



- Meetings with Dr. Dempsey can be arranged by email or drop-in
- Students should contact their supervisor to discuss their preference for arranging meetings.

11. Resources



- Students should discuss with their supervisor and other lab personnel regarding scientific papers and other resources that are appropriate to their project.

12. Professionalism & Privacy:



Western students are expected to follow the [Student Code of Conduct](#). Additionally, the following expectations and professional conduct apply to this course:

- All course materials created by the instructor(s) are copyrighted and cannot be sold/shared (e.g., Must Knows Facebook group, Course Hero, Chegg, etc.)
- Recordings are not permitted (audio or video) without explicit permission
- Permitted recordings are not to be distributed

Western is committed to providing a learning and working environment that is free of harassment and discrimination. All **students**, staff, and faculty have a role in this commitment and have a responsibility to ensure and promote a safe and respectful learning and working environment. Relevant policies include Western's [Non-Discrimination/Harassment Policy](#) (M.A.P.P. 1.35) and [Non-Discrimination/Harassment Policy – Administrative Procedures](#) (M.A.P.P. 1.35).

Any **student**, staff, or faculty member who experiences or witnesses' behaviour that may be harassment or discrimination **must report the behaviour** to the Western's [Human Rights Office](#). Harassment and discrimination can be human rights-based, which is also known as EDI-based, (sexism, racism, transphobia, homophobia, islamophobia, xenophobia, antisemitism, and ableism) or non-human rights-based (personal harassment or workplace harassment).

13. How to Be Successful in this course:



Students enrolled in this class should understand the level of autonomy and self-discipline required to be successful.

1. Invest in a planner or application to keep track time you should be in the lab. Make sure you arrange lab times so that appropriate supervision is available.
2. Prepare for your time in the lab in advance. Read over protocols and think through the method. Make notes of questions you might have and look up details that are unclear.
3. Make it a daily habit to log onto OWL to ensure you have seen everything posted to help

- you succeed in this class.
4. Follow weekly checklists created on OWL or create your own to help you stay on track with your project and assignments.
 5. Connect with others in the lab. There are many knowledgeable personnel in most labs. Talk with them and ask questions. They are usually happy to provide advice, but you must give them time and realize that they also have a schedule. So ask for help well in advance so that time can be found to meet.
 6. Do not be afraid to ask questions. If you are struggling with a part of your project check with others in your lab.
 7. Reward yourself for successes. It seems easier to motivate ourselves knowing that there is something waiting for us at the end of the task.

14. Western Academic Policies and Statements

Absence from Course Commitments

A. Absence for medical illness:

Students must familiarize themselves with the [Accommodation for Illness Policy](#).

A student seeking academic accommodation for any **work worth less than 10%** must contact the instructor or follow the appropriate Department or course specific instructions provided on the course outline. Instructors will use good judgment and ensure fair treatment for all students when considering these requests. You are not required to disclose details about your situation to your instructor; documentation is not required in this situation, and you should not send any pictures to your instructor.

If you are unable to meet a course requirement for any **work worth 10% or greater** due to illness or other serious circumstances, you must provide valid medical or other supporting documentation to the Academic Counseling as soon as possible and contact your instructor immediately. It is the student's responsibility to make alternative arrangements with their instructor once the accommodation has been approved and the instructor has been informed. Please note that the format of a make-up test, exam, or assignment is at the discretion of the course coordinator.

A student requiring academic accommodation due to illness should use the Student Medical Certificate when visiting an off-campus medical facility or request a Record's Release Form (located in the Dean's Office) for visits to Student Health Services. The form can be found at: http://www.uwo.ca/univsec/pdf/academic_policies/appeals/medicalform.pdf

B. Absence for non-medical reasons:

Student absences might also be approved for non-medical reasons such as religious holidays and compassionate situations. Please review the policy on [Accommodation for Religious Holidays](#). All non-medical requests must be processed by Academic Counselling. Not all absences will be approved; pay attention to the academic calendar and final exam period when booking any trips.

C. Special Examinations

A Special Examination is any examination other than the regular examination, and it may be offered only with the permission of the Dean of the Faculty in which the student is registered, in consultation with the instructor and Department Chair. Permission to write a Special Examination may be given on the basis of compassionate or medical grounds with appropriate supporting documents. To provide an opportunity for students to recover from the circumstances resulting in a Special Examination, the University has implemented Special Examinations dates. These dates as well as other important information about examinations and academic standing can be found [here](#).

Academic Offenses

Scholastic offences are taken seriously, and students are directed [here](#) to read the appropriate policy, specifically, the definition of what constitutes a Scholastic Offence.

Accessibility Statement

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 (AE) at 661-2111 x 82147 for any specific question regarding an accommodation or review [The policy on Accommodation for Students with Disabilities](#)

Correspondence Statement

The centrally administered **e-mail account** provided to students will be considered the individual's official university e-mail address. It is the responsibility of the account holder to ensure that e-mail received from the University at his/her official university address is attended to in a timely manner. You can read about the privacy and security of the UWO email accounts [here](#).

Discovery Credit Statement

Students are permitted to designate up to 1.0 Discovery Credit course (or equivalent) for pass/fail grading that can be counted toward the overall course credits required for their degree program. The details of this policy and the deadlines can be found [here](#).

Turnitin and other similarity review software

Assignments 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 Western University and [Turnitin.com](#).

15. BMSUE Academic Policies and Statements

Cell Phone and Electronic Device Policy (for in-person tests and exams)

The Schulich School of Medicine & Dentistry is committed to ensuring that testing and evaluation are undertaken fairly across all our departments and programs. For all tests and exams, it is the policy of the School that any electronic devices, e.g., cell phones, tablets, cameras, smart glasses, smart watch or iPod are strictly prohibited. These devices **MUST** be left either at home or with the student's bag/jacket at the front of the room and **MUST NOT** be at the test/exam desk or in the individual's pocket. Any student found with one of these prohibited devices will receive a grade of zero on the test or exam. Non-programmable calculators are only allowed when indicated by the instructor. The program is not responsible for stolen/lost or broken devices.

Copyright and Audio/Video Recording Statement

Course material produced by faculty is copyrighted and to reproduce this material for any purposes other than your own educational use contravenes Canadian Copyright Laws. You must always ask permission to record another individual and you should never share or distribute recordings.

Rounding of Marks Statement

Across the Basic Medical Sciences Undergraduate Education programs, 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., 74.45 becomes 74, and 74.50 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.

16. Support Services

The following links provide information about support services at Western University.

Western is committed to reducing incidents of gender-based and sexual violence and providing compassionate support to anyone who has gone through these traumatic events. If you have experienced sexual or gender-based violence (either recently or in the past), you will find information about support services for survivors, including emergency contacts at

https://www.uwo.ca/health/student_support/survivor_support/get-help.html.

To connect with a case manager or set up an appointment, please contact support@uwo.ca.

[Academic Counselling \(Science and Basic Medical Sciences\)](#)

[Appeal Procedures](#)

[Registrarial Services](#)

[Student Development Services](#)

[Student Health Services](#)