

Department of Biochemistry
Biological Macromolecules (Biochem 3381A)

Course Syllabus for Fall 2026



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

3-button Mouse

2. Course Overview:

My goal in delivering Biochemistry 3381A is to 'NOT BORE YOU' with disjointed facts that will likely be memorized and then quickly forgotten soon after examination periods. Instead, I want to get you TURNED ON to the amazing world of proteins and for you to walk away from this course with a set of KEY CONCEPTS that govern a true understanding and appreciation of why it is that PROTEINS RULE! In addition, these concepts will serve you well for your future courses and research within Biochemistry and Biomedical Sciences. Students will be exposed to these concepts in both traditional lecture and small group inquiry environments. Some of the key concepts I want you to take away, include: 1) understanding basic protein structure and the forces that govern its formation, 2) methods for protein structure prediction and analysis, 3) protein folding, 4) enzyme mediated chemical reactions and their associated kinetic parameters, and 5) how proteins govern regulator networks.

3. Contact Information

Instructor	Contact Information	Office Hours
Murray Junop	mjunop@uwo.ca Please ask questions during class, at office hours and/or through the Bright Space Discussion forum . I come to class early and try to stick around after as well – I love to chat with students. Only use my email for personal matters.	<u>Thurs. 5:30-6:30 – Zoom: Sept 17 to Dec 3</u> (https://westernuniversity.zoom.us/j/94614201719)

Note: office hours will be held by Zoom – they will be recorded & posted to Bright Space.

Teaching Assistants	Contact Information
Sina Ramezani	srameza2@uwo.ca
Karling Frankel	kfranke2@uwo.ca
Kenan Elayan	kelayan@uwo.ca
Athena Ma	ama228@uwo.ca
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Tahir Nasir	tnasir6@uwo.ca
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Inquiry Facilitator	Inquiry Group
Sina Ramezani	A 1-7
Karling Frankel	B 1-7
Kenan Elayan	C 1-7
Athena Ma	D 1-7
Nancy Sun	E 1-7
Tahir Nasir	F 1-7
Adriana Ortiz	G 1-7
Reshika Rohan	H 1-7

4. Course Design and General Information

Lectures: MWF 12:30 - 1:20 pm in . In-person lectures. Lecture notes will be posted on Bright Space under 'Lectures' each Friday for the following week's classes. Class lectures will be recorded and posted within 24 hr under 'Lectures'.

Important Dates:

September 17, 2026: Last day to add or drop a Fall 12-week course

September 30, 2026: National Day for Truth and Reconciliation; non-instructional day

November 30, 2026: Last day to withdraw from a Fall 12-week course without academic penalty

NOTE: the first lecture will be held on Sept 11.

NOTE: Wednesday September 30 is National Day for Truth and Reconciliation and is a non-instructional day. No class or tutorial activities are scheduled.

Tutorials: W 5:30 - 6:20 pm. Tutorials will be pre-recorded and provided for students to access asynchronously. **Please note six tutorials have been scheduled: Sept 16 and 23; Tutorial 3 will be released asynchronously on Sept 28; Oct 21 and 28; and Nov 11 (see info below),** but more may be added if required. Tutorials will be recorded and uploaded to Bright Space under Tutorial and Resources (Tutorial). See overall course calendar below.

NOTE: Tutorial information is essential to complete assignments.

Requisites: A minimum mark of 65% in either Biochemistry 2280A or 2288A; a minimum mark of 60% in either Chemistry 2213A/B or 2273A; It is recommended, but not required, that either Chemistry 2223B or 2283G be taken previously.

Unless you have either the requisites for this course or written special permission from your Dean 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.

Requests for special permission, including missing prerequisites or timetable conflicts, should be directed to the Biochemistry academic counsellor, Derek McLachlin (dmclach3@uwo.ca).

All course material will be posted to Bright Space: Any changes will be indicated in the Announcements of the Bright Space site. **Please pay close attention to course notifications arriving through Bright Space.**

Textbooks: No textbooks or other course materials are required. Required course materials cost: \$0.

Biochemistry, First Canadian Edition by Garrett, R.H., Grisham, C.M., Andreopoulos, S., Willmore, W.G., and Gallouzi, I.E., published by Nelson Education (2013).

Writing in the Biological Sciences 3rd Edition by Angelika Hofmann., published by Oxford Press 2019.

NOTE: Although these texts may serve as a reference, the content is not required or directly tested. The material you are 'responsible for' will come from lectures and tutorials. If you wish to get either of the books, you can check for hardcopies in the UWO bookstore, an electronic edition can be purchased from Nelson at <http://www.nelsonbrain.com/shop/search/9780176502652> for a reduced cost.

Copyright 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.

Electronic Devices: Electronic devices are permitted during lectures and tutorials when used to support learning. During in-person tests or examinations, the BMSUE Cell Phone and Electronic Device Policy below applies.

AI Use in the course: Within this course, students are permitted to use AI tools exclusively for information gathering and preliminary research purposes. These tools are intended to enhance the learning experience by providing access to diverse information sources. However, it is essential that students critically evaluate the obtained information, exercise independent thinking, and engage in original research to synthesize and develop their own ideas, arguments and perspectives. The use of AI tools can serve as a starting point for exploration, with students expected to uphold academic integrity by appropriately attributing all sources and avoiding plagiarism. Assignments, presentations and reports should reflect the students' own thoughts and independent written work. By adhering to these guidelines, students contribute to a responsible and ethical learning environment that promotes critical thinking, independent inquiry and allows them to produce original written contributions. You may use AI tools to help polish writing, grammar, figure preparation and formatting.

Instructor use of generative AI: The instructor remains responsible for all course materials and feedback. Generative AI will be used as appropriate.

Turnitin and other similarity review software: All required papers will 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](https://www.turnitin.com).

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

[Google Chrome](#) or [Mozilla Firefox](#) are the preferred browsers to optimally use Bright Space; update your browsers frequently.

Recording of Lectures:

Some students like to personally record lectures — if you intend to do so you must:

- 1) Email Dr. Junop stating that you would like to record lectures and accept points 2 and 3 below:
- 2) All class recordings **may not be distributed** in any way without permission of the instructor.
- 3) At the request of the instructor, you are obliged to share the recording with a student who is missing a number of classes due to extended illness or injuries.

5. Course Syllabus

Biochemistry 3381A covers three areas: Protein Structure, Enzyme Function and Regulation, and Protein-Protein Interactions and Dynamics. No lecture material will be taken from the text. It may be useful as a reference, however.

Tutorial sessions (conducted by Dr. Junop) will be used for three major purposes: 1) to provide guidance into the use of web- or personal computer-based programs for the analysis of protein sequences and the viewing/analysis of macromolecular structures, 2) clarification of issues arising

from lectures, and 3) guidance and instruction in the solution of problems similar to those on assignments.

6. Course Objectives

The objectives of the Proteins section are to develop an in-depth understanding of protein structure, of how protein conformation and stability depend on the environment. The relationship of amino acid sequence and function to the extraordinary diversity of protein structures will be explored. A large number of tools are available for analysis and comparison of protein sequences, and application of such tools is often useful in inferring the properties or functions of a polypeptide, just from its sequence. However, analysis of protein structure by instrumental techniques in the laboratory remains essential to the discovery of protein structure and function. Newly synthesized proteins must fold to achieve their functional conformations, while misfolding of some proteins causes disease states.

The objective of the Enzymes section is to provide an understanding of how proteins behave as both individual molecules and ensembles, and how enzymatic (and by extension, biological) systems are governed. Enzymes interact with other molecules to effect chemical change, but this process is essentially a series of binding events. To highlight this, a detailed analysis of the individual steps in selected enzymatic reactions will be covered. This will include the chemical mechanisms involved which will be related to the energies of the individual steps and the relationship of these energetic changes to the rate of the reaction. The nature of “energy” in biochemical systems, and the roles that energetic changes play in determining the rate and direction of biochemical reactions will be a major theme of this section. The lectures end with a discussion of allosteric systems. The idea here is that the mechanistic and energetic principles governing single enzyme catalysis can be scaled and used to understand intermolecular interactions in larger systems.

The Protein-protein interaction section will build on concepts covered in the other sections of the course to reveal how protein surface structure and dynamics regulate interactions with networks of other proteins and small molecules responsible for mediating complex biological processes. The section will begin with an overview of the principles of protein-protein interactions and how interfaces are analyzed to identify hot spots that may be targeted for disruption by small molecules. This section will also introduce protein NMR and demonstrate how it can be used in applications such as structure-based drug design.

Learning Outcomes:

At the conclusion of Biochemistry 3381A students should be able to:

1. Demonstrate knowledge of the structures and functions of proteins, methods used in the purification and characterization of proteins, and the physical forces that determine stabilities of the folded and unfolded states
2. Demonstrate knowledge of the chemical mechanisms, thermodynamics, kinetics, and regulation of enzymatic catalysis
3. Demonstrate knowledge of the chemical logic or principles that govern regulation of metabolic reactions and the integration of pathways into regulatory protein networks

4. Relate the folded structures, functions, and regulatory features of protein molecules to their amino acid sequences, and make plausible predictions of the effects of mutations
5. Formulate experimental approaches for the purification of proteins, and for the analysis of their structures and regulatory/catalytic functions
6. Critically evaluate and interpret data from primary research papers relating to enzyme kinetics and the regulation/integration of metabolic and cellular pathways

7. Evaluation

All marks will be posted on Bright Space.

7 weeks (weeks 1-3, 5, 6, 8 and 9) will be lecture format. Weeks 4, 7 and 10 (ie. weeks starting Oct 5, Nov 2 and Nov 23) are being made available for students to undertake inquiry-based learning. During these three weeks, students will work in groups of 7 and be given the opportunity to ask and answer questions regarding aspects of proteins that have, or have not, been already touched on during lectures. Inquiry courses emphasize both process and content, and therefore a secondary objective of this course is to develop your inquiry skill set. Throughout this course, with guidance from your inquiry facilitators, you will refine your verbal and written communication skills, your ability to find and critically evaluate information, and your ability to work effectively as a member of a group. Starting Nov 30th time will be dedicated to each group presenting the findings of their inquiry project to the class.

I. Quizzes (15%) Each Friday of a lecture week (starting Sept 18 and ending November 20) you will have a quiz to complete that is worth 2.5% of your final mark. Since the lowest mark will be dropped, the final mark will be the result of 6 weeks x 2.5% per quiz = 15% of final mark. Because the lowest quiz mark is dropped, this built-in flexibility covers one missed quiz. Academic consideration will not be granted for a missed quiz. **Quizzes are expected to take no more than 15 minutes to complete (there will only be 5 multiple choice questions for each quiz); however, students will be allotted 30 minutes. Quizzes will be conducted on Bright Space, between 1 pm and finishing at 10 pm. You MUST complete the quiz during this time.**

II. Assignment 1 (2.5%) Due Monday October 5

III. Assignment 2 (20%) Due Monday October 26

IV. Assignment 3 (20%) Due Monday November 16

V. Inquiry (42.5%)

- * Inquiry Group Reflection and Working Agreement: (2.5% of final mark)
- * Inquiry Update Reports: (3% of final mark; 1% for each of three reports).
- * Final Group Presentation: (5% of final mark).
- * Final Written Report: Wed. December 9th. (25% final).
- * Peer Evaluations: individual contribution to your group (7% of final mark).

NOTE: The final grade for group inquiry work will be multiplied (weighted) by a factor established through peer evaluation (see below).

Important Details:

1. Weekly Quizzes: Each Friday starting Sept 18th, we will be having a short quiz. Students will have 30 min to complete the quiz on Bright Space, anytime between 1-10 pm. You will have 5 multiple-choice questions to answer. Marks will be posted on Bright Space and answers will be taken up during the following lecture. Please note that material covered in each quiz will be **cumulative** throughout the entire course, meaning that you will be responsible for all material covered from the start of the course up to and including the class preceding the Friday quiz (ie. not material covered on the day of the quiz). There will be a total of 7 quizzes, the last being Nov 20. Only the results from the best 6 quizzes will be counted toward your final mark (ie. $6 \times 2.5\%$ per test = 15% of final mark). **Because the lowest quiz score is dropped, academic consideration will not be granted for a missed quiz.**

2. Inquiry: During lecture weeks, students will be exposed to different fundamental aspects of proteins. In order to make this course as interesting and engaging as possible, students will choose a preferred area of interest in keeping with the content of the course in which they would like to carry out a more in-depth, small group, inquiry based study. Students will be placed into groups of 7 students. Final group assignments will be posted on Bright Space Monday Sept 14th. Although designated inquiry will not begin until the week of Oct 5th, it is **ESSENTIAL** that you begin IMMEDIATELY -- use the time to orient yourselves with your other group members and start considering a common question for your group to explore. Each group will be assigned a facilitator and will be expected to meet with them once a week for 15 minutes during scheduled class or tutorial times in weeks 4, 7 and 10 (see details for individual group schedules below). There will be 56 groups, assigned A1-7, B1-7, C1-7, D1-7, E1-7, F1-7, G1-7 and H1-7. Students will be required to choose their own inquiry topic. More information will be provided in class about how to go about choosing a good inquiry question.

Initial Inquiry Group Reflection and Working Agreement: This is a single group submission worth 2.5%, due at 11:59 pm on September 26th. The suggested length is approximately 2 to 3 pages, including one compact role and task plan. Point form is acceptable. One member will submit the final document to Bright Space after all members have reviewed it.

Progress Meetings with TAs: During weeks 4, 7 and 10, groups will be scheduled to meet with their facilitator for 15 minutes to report on their recent work, review progress and set/refine direction. **Exact meeting times are provided in a table at the end of this document.** To ensure that facilitators have enough time to help students during those 3 short meetings, each group is **REQUIRED** to email a report, summarizing their progress, with questions etc, **to their assigned facilitator one day prior to their designated meeting.** **Reports should be clear and easy to follow.** Point form is fine. I would expect 2 pages of text (not including figures, tables and references) to be a reasonable length. Each report is worth 1% of your final grade. You should come prepared to **show evidence** of your research and learning, ie. be prepared to discuss key papers and review articles that have guided you, as well as the analysis you have performed. The report and any key articles will be placed in your group's file to track your progress. More information on what to put into reports will be provided during class. Meetings will be informal and held during scheduled class or tutorial times (see table below). Because the success of the group depends on the **full participation of all members**, **attendance at all meetings is mandatory**. An absence not covered by approved academic consideration will result in an automatic zero for group peer evaluation (worth 7% of the final grade).

Group Process Check: Each inquiry update report must also include three brief points: (1) what is working well in the group process, (2) whether the current workload and opportunities to contribute are equitable, and (3) one change the group will make before the next checkpoint.

Final Group Presentations: Starting Monday Nov 30, each group will deliver a final pre-recorded presentation through Zoom. One or two people from the group will prepare a pre-recorded presentation. Following the presentation, all members of the group will be responsible to answer questions from the audience through Zoom. It is therefore very important to make sure every member in the group is ready! The presentation **CANNOT** exceed 7 minutes total. This will leave enough time for a few questions. The format should follow a typical presentation style that mirrors the written presentation. Roughly 1/3 of the presentation should focus on the background and ~2/3 on answering the 'Question' your group decided to pursue. Be sure to use references appropriately. Any information (including figures) or ideas that are not your own, must be referenced to the primary source (not a general textbook or review article). **You must submit your presentation file by 9:00 am on the day of the presentation.** The order of the presentations is indicated in the schedule near the end of the course outline. Marks will be given based on the following criteria:

CONTENT

- Was the background material appropriate, not excessive, and helped the audience's comprehension of the topic?
- Did the group demonstrate creativity in their approach to the question?
- Did the group use adequate results from original research to support their contention?
- Did the group demonstrate an understanding of basic biochemical principles?
- Did the group critically evaluate the literature, integrate and reconstruct the new knowledge?

ORGANIZATION AND FORMAT

- Was the format of the presentation well organized and presented in a logical, easy-to-follow sequence?
- **Was the presentation indicative of a clearly defined set of objectives?**
- Was the use of visuals appropriate and legible?

CLARITY AND DELIVERY

- Clear, appropriate use of scientific language, terminology
- Was the speaker clear and audible?
- Did the speaker remain attentive and enthusiastic throughout the presentation to make it rewarding for the audience and sustain interest?
- Was the delivery practiced and smooth?

POST-PRESENTATION

- Ability to answer questions
- Demonstrated knowledge of Biochemistry

Final Written Report: Each **group** will write a final report on their inquiry project. The report should demonstrate a logical progression from the question, through to the conclusion. The format should be similar to what is used in a standard scientific Journal such as “The Journal of Biological Chemistry”. Any information or ideas that are not your own, must be referenced to the primary source (not a general textbook). Figures must be your original work, unless copyright permission is obtained from the original source (ie. Journal). Do not provide a bibliography, but a proper reference section (see journals like the Journal of Biological Chemistry, etc... www.asbmb.org). The final report should be approximately 10 pages (this is just an estimate and not a hard number), 1.15-spaced. Figures and tables should be included within the main text, or included within a Supplemental Information section, and do not count toward the final page count. Reports should be in 12-point Times New Roman font, with one-inch margins and handed in to Bright Space on **Wed December 9th. More information will be provided during class and tutorials on how to properly prepare the final report.**

Marks will be assigned as follows:

- Overall Structure (2 marks): organization and logical flow
- Figures and Tables (3 marks): good use of figures and tables
- Background (4 marks): description and background of relevant material for setting up the question
- Analysis (6 marks): level of depth and analysis in addressing question
- Summary (3 marks): clear and concise, including future directions
- Referencing (2 marks): proper use of references

Peer Evaluations: You will be asked to reflect on each member’s participation and preparation, knowledge acquisition, group dynamics and overall contribution to **all aspects** of the inquiry group work. Keep these important aspects in mind throughout

the term as you work within your group. At the conclusion of the term, each student will be required to assess contributions made by individual group members, excluding themselves. Each student will need to submit their evaluation (to B.S.) **on Dec 9th**. A template will be provided closer to the end of term. The form must list all members (names and student numbers) of the group and an individual score that is calculated as follows:

- Multiply 10 by the number of other students in your group. For a group of 7, this will give you a total of 60 points that you can assign to the other 6 members of your group.
- If you think each member contributed equally, then you would give each person 1/6 of the total points, which would equal a final score of 10 for each of the other 6 members.
- Once we have all the evaluations for your group, I will average the scores for each member and divide by 50. This number will be added to 0.8 to give a weighting factor that will be applied to all group inquiry work.
- If you do not submit evaluation scores for your team members, they will be given a score of 10.
- Here is an example: Tom's six group members assign him peer evaluations of 12, 12, 11, 11, 11 and 11, resulting in an average of 11.33. Dividing 11.33 by 50 and adding to 0.8 results in a weighing factor of 1.0266. If his inquiry group report received a score of 20 out of 25; Tom's final grade for the report would be $20 * 1.0266 = 20.532$ out of 25
- This weighting will be applied to all Inquiry group-based marks.
- NOTE: it is possible to get scores over 100%

IMPORTANT: Questions regarding the marking or addition of tests and assignments must be brought to the attention of the TA within **ONE** week of their return to you.

Quizzes:

To be held between 1-10 pm on Bright Space:

- September 18, 25; October 2, 23, 30; and November 13, 20

Assignments:

Assignment 1 – Deadline: Monday Oct 5 in Bright Space

Assignment 2 – Deadline: Monday October 26th in Bright Space

Assignment 3 – Deadline: Monday November 16th in Bright Space

Posting of Assigned Inquiry Group Members:

Posted on Bright Space Sept 14th

Inquiry Group Reflection and Working Agreement:

Deadline – September 26th at 11:59 pm in Bright Space

Progress Meetings with TAs: (See schedule at end of course outline)

Final Group Presentations (to be held during regular class and tutorial time):

- Groups A1-6 – Monday Nov 30th at 12:30
- Groups A7 and B1-5 – Wednesday Dec 2nd at 12:30
- Groups B6-7, C1-7 and D1-4 – Wednesday Dec 2nd at 5:30
- Groups D5-7 and E1-3 – Friday Dec 4th at 12:30
- Groups E4-7 and F1-2 – Monday Dec 7th at 12:30
- Groups F3-7 and G1 – Wednesday Dec 9th at 12:30
- Groups G2-7 and H1-7 – Wednesday Dec 9th at 5:30

Final Written Inquiry Report and Peer Evaluations:

Deadline: Wednesday December 9th – submitted to Bright Space.

8. Course Content and Schedule

~ September 2026 ~						
Sun	Mon	Tue	Wed	Thu	Fri	Sat
6	7	8	9	10	11 Intro Class	12
13 Week 1 Dr. Junop→	14 Group Members Posted to BrightSpace	15	16 Tutorial 1	17	18 Quiz #1	19
20 Week 2 Dr. Junop→	21	22	23 Tutorial 2	24	25 Quiz #2	26 Group Reflection
27 Week 3 Dr. Junop→	28 Tutorial 3 Asynch. release	29	30 National Day for Truth and Reconciliation No class or tutorial	Oct 1	2 Quiz #3	3
~ October 2026 ~						
Sun	Mon	Tue	Wed	Thu	Fri	Sat
4 Week 4 INQUIRY→	5 Assignment #1 Progress Mtgs Groups A-H (1-3)	6	7 Progress Mtgs Groups A-H (4-5)	8	9 Progress Mtgs Groups A-H (6-7)	10
11 READING WEEK→	12 THANKSGIVING READING WEEK	13 READING WEEK	14 READING WEEK	15 READING WEEK	16 READING WEEK	17
18 Week 5 Dr. Junop→	19	20	21 Tutorial 4	22	23 Quiz #4	24
25 Week 6 Dr. Junop→	26 Assignment #2	27	28 Tutorial 5	29	30 Quiz #5	31
~ November 2026 ~						
Sun	Mon	Tue	Wed	Thu	Fri	Sat
Nov 1 Week 7 INQUIRY→	2 Progress Mtgs Groups A-H (1-3)	3	4 Progress Mtgs Groups A-H (4-5)	5	6 Progress Mtgs Groups A-H (6-7)	7
8 Week 8 Dr. Junop→	9	10	11 Tutorial 6	12	13 Quiz #6	14
15 Week 9 Dr. Junop→	16 Assignment #3	17	18	19	20 Quiz #7	21
22 Week 10 INQUIRY→	23 Progress Mtgs Groups A-H (1-3)	24	25 Progress Mtgs Groups A-H (4-5)	26	27 Progress Mtgs Groups A-H (6-7)	28
~ December 2026 ~						

29 Week 11→	30 Presentation A1-A6	Dec 1	2 Presentation A7; B1-B5 Tutorial B6-B7; C1-C7; D1-D4	3	4 Presentation D5-D7; E1-E3	5
6 Week 12→	7 Presentation E4-E7; F1-F2	8	9 Presentation F3-F7; G1 Tutorial G2-G7; H1-H7 Inquiry Report and Peer Evaluation	10	11	12

TA Progress Meeting Schedule

Group	Oct 5	Oct 7	Oct 9	Nov 2	Nov 4	Nov 6	Nov 23	Nov 25	Nov 27
A-1	12:30-12:45pm			12:30-12:45pm			12:30-12:45pm		
A-2	12:45-1:00pm			12:45-1:00pm			12:45-1:00pm		
A-3	1:00-1:15pm			1:00-1:15pm			1:00-1:15pm		
A-4		5:30-5:45pm			12:30-12:45pm			12:30-12:45pm	
A-5		5:45-6:00pm			12:45-1:00pm			12:45-1:00pm	
A-6			12:30-12:45pm			12:30-12:45pm			12:30-12:45pm
A-7			12:45-1:00pm			12:45-1:00pm			12:45-1:00pm
B-1	12:30-12:45pm			12:30-12:45pm			12:30-12:45pm		
B-2	12:45-1:00pm			12:45-1:00pm			12:45-1:00pm		
B-3	1:00-1:15pm			1:00-1:15pm			1:00-1:15pm		
B-4		5:30-5:45pm			12:30-12:45pm			12:30-12:45pm	
B-5		5:45-6:00pm			12:45-1:00pm			12:45-1:00pm	
B-6			12:30-12:45pm			12:30-12:45pm			12:30-12:45pm
B-7			12:45-1:00pm			12:45-1:00pm			12:45-1:00pm

Group	Oct 5	Oct 7	Oct 9	Nov 2	Nov 4	Nov 6	Nov 23	Nov 25	Nov 27
C-1	12:30-12:45pm			12:30-12:45pm			12:30-12:45pm		
C-2	12:45-1:00pm			12:45-1:00pm			12:45-1:00pm		
C-3	1:00-1:15pm			1:00-1:15pm			1:00-1:15pm		
C-4		5:30-5:45pm			12:30-12:45pm			12:30-12:45pm	
C-5		5:45-6:00pm			12:45-1:00pm			12:45-1:00pm	
C-6			12:30-12:45pm			12:30-12:45pm			12:30-12:45pm
C-7			12:45-1:00pm			12:45-1:00pm			12:45-1:00pm
D-1	12:30-12:45pm			12:30-12:45pm			12:30-12:45pm		
D-2	12:45-1:00pm			12:45-1:00pm			12:45-1:00pm		
D-3	1:00-1:15pm			1:00-1:15pm			1:00-1:15pm		
D-4		5:30-5:45pm			12:30-12:45pm			12:30-12:45pm	
D-5		5:45-6:00pm			12:45-1:00pm			12:45-1:00pm	
D-6			12:30-12:45pm			12:30-12:45pm			12:30-12:45pm
D-7			12:45-1:00pm			12:45-1:00pm			12:45-1:00pm
E-1	12:30-12:45pm			12:30-12:45pm			12:30-12:45pm		
E-2	12:45-1:00pm			12:45-1:00pm			12:45-1:00pm		
E-3	1:00-1:15pm			1:00-1:15pm			1:00-1:15pm		
E-4		5:30-5:45pm			12:30-12:45pm			12:30-12:45pm	
E-5		5:45-6:00pm			12:45-1:00pm			12:45-1:00pm	
E-6			12:30-12:45pm			12:30-12:45pm			12:30-12:45pm

Group	Oct 5	Oct 7	Oct 9	Nov 2	Nov 4	Nov 6	Nov 23	Nov 25	Nov 27
E-7			12:45-1:00pm			12:45-1:00pm			12:45-1:00pm
F-1	12:30-12:45pm			12:30-12:45pm			12:30-12:45pm		
F-2	12:45-1:00pm			12:45-1:00pm			12:45-1:00pm		
F-3	1:00-1:15pm			1:00-1:15pm			1:00-1:15pm		
F-4		5:30-5:45pm			12:30-12:45pm			12:30-12:45pm	
F-5		5:45-6:00pm			12:45-1:00pm			12:45-1:00pm	
F-6			12:30-12:45pm			12:30-12:45pm			12:30-12:45pm
F-7			12:45-1:00pm			12:45-1:00pm			12:45-1:00pm
G-1	12:30-12:45pm			12:30-12:45pm			12:30-12:45pm		
G-2	12:45-1:00pm			12:45-1:00pm			12:45-1:00pm		
G-3	1:00-1:15pm			1:00-1:15pm			1:00-1:15pm		
G-4		5:30-5:45pm			12:30-12:45pm			12:30-12:45pm	
G-5		5:45-6:00pm			12:45-1:00pm			12:45-1:00pm	
G-6			12:30-12:45pm			12:30-12:45pm			12:30-12:45pm
G-7			12:45-1:00pm			12:45-1:00pm			12:45-1:00pm
H-1	12:30-12:45pm			12:30-12:45pm			12:30-12:45pm		
H-2	12:45-1:00pm			12:45-1:00pm			12:45-1:00pm		
H-3	1:00-1:15pm			1:00-1:15pm			1:00-1:15pm		
H-4		5:30-5:45pm			12:30-12:45pm			12:30-12:45pm	
H-5		5:45-6:00pm			12:45-1:00pm			12:45-1:00pm	

Group	Oct 5	Oct 7	Oct 9	Nov 2	Nov 4	Nov 6	Nov 23	Nov 25	Nov 27
H-6			12:30-12:45pm			12:30-12:45pm			12:30-12:45pm
H-7			12:45-1:00pm			12:45-1:00pm			12:45-1:00pm

9. Assessment Policies and Flexibility

Designated Assessment: No assessment has been designated as requiring supporting documentation to receive academic consideration.

Flexibility in assessment: The best six of seven quizzes count toward the final grade. Academic consideration will not be granted for a missed quiz because the lowest quiz score is dropped. A missed quiz receives a grade of zero and may serve as the dropped quiz.

Assignments: This course employs a 72-hour no late penalty period for Assignments 1, 2, and 3. Students are expected to submit each assignment by the deadline listed above. If illness or extenuating circumstances arise, an assignment may be submitted up to 72 hours after the deadline without a late penalty. An assignment submitted more than 72 hours after the deadline without approved academic consideration will receive a grade of zero. Requests for academic consideration supported by documentation must be submitted within 48 hours of the original deadline. The instructor reserves the right to deny an academic consideration request where the 72-hour flexibility applies. Students with a long-term academic consideration or disability-related accommodation that allows greater flexibility should contact the instructor at least one week before the posted deadline.

Group presentation: The scheduled group presentation is not covered by the 72-hour no late penalty period because presentations occur during assigned class or tutorial times. A student who cannot participate should submit an academic consideration request through the Student Absence Portal and contact the instructor as soon as possible. The instructor will determine an appropriate alternate arrangement.

- All assignments are due at 11:55 pm EST unless otherwise specified
- Written assignments will be submitted to Turnitin (statement in policies below)
- Students will be allowed multiple submissions to Turnitin
- Students are responsible for ensuring that the correct file version is uploaded; incorrect submissions, including corrupt files, could be subject to late penalties or a grade of zero.
- Rubrics will be used to evaluate assignments, inquiry update reports, the group presentation, and the final written report, and will be posted with the instructions.
- A student might not receive the same grade as their group members if it is determined that the distribution of work was not equal.
- After an assessment is returned, students should wait 24 hours to digest the feedback before contacting their evaluator. To ensure a timely response, students must raise a concern within 7 days.
- Assessment re-grading could result in the mark increasing, decreasing, or remaining the same.
- Prior to filing a written request for relief, students must attempt to resolve the concern regarding a mark or grade through informal consultation with the instructor. If the student is dissatisfied with the decision of the instructor or does not receive a decision, a written request for relief must be submitted to the Department Chair within three (3) weeks from the date the mark was issued.

10. Professionalism & Privacy:

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

- Students are expected to follow online etiquette expectations provided on Bright Space
- All course materials created by the instructor(s) are copyrighted and cannot be

sold/shared

- Recordings are not permitted (audio or video) without explicit permission
- Permitted recordings are not to be distributed
- Students will be expected to take an academic integrity pledge before some assessments
- All recorded sessions will remain within the course site or unlisted if streamed

Zoom sessions for this course will be recorded. Participants in this course are not permitted to record the sessions, except where recording is an approved accommodation, or the participant has the prior written permission of the instructor.

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](#) and [Non-Discrimination/Harassment Policy – Administrative Procedures](#).

Upon registration, students accept the rights and responsibilities associated with membership in the University's academic and social community. This responsibility includes respecting the rights, property, and well-being of other members of the University community and visitors to the campus and not engaging in conduct that could reasonably be seen to endanger or adversely affect the health, safety, rights, security or property of the University, its members and visitors. The academic and social privileges granted to each student are conditional upon the fulfillment of this responsibility and students must familiarize themselves with the University regulations and the conduct expected of them while registered at the University.

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

INC (Incomplete Standing): If a student has been approved by the Academic Advising Office (in consultation with the instructor/department) to complete term work at a later date, an INC will be assigned, which could impact program progression. 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 Advising 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 Advising 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 does not have a makeup for the final exam or the student misses the makeup for reasons approved by the Academic Advising Office, the student will write the exam the next time the course is offered, which could impact program progression. Outstanding SPCs will reduce the course load for the term the exam is deferred as outlined in the [Definitions of Types of Examinations policy](#). If a student misses an SPC exam and is approved for academic consideration, they will be withdrawn from the course without academic penalty. If a student misses an SPC exam and is not approved for academic consideration, they will receive a grade of zero on the exam.

11. Western Academic Policies and Statements

Absence from Course Commitments

Medical, Compassionate, or Extenuating Circumstances

Students missing course work for medical, compassionate, or extenuating circumstances can request academic consideration by completing a request at the [Student Absence Portal](#). Students are permitted one academic consideration request per course per term without supporting documentation. Note that supporting documentation is always required for academic consideration requests for examinations scheduled by the Office of the Registrar (e.g., December and April exams) and for practical laboratory and performance tests (typically scheduled during the last week of the term). Students should also note that the instructor may designate one assessment per course per term that requires supporting documentation. This designated assessment is described elsewhere in this document. Academic consideration requests may be denied when flexibility in assessment has already been included. Examples of flexibility in assessment include when there are assessments not required for calculation of the final grade (e.g., 8 out of 10 quizzes) or there is flexibility in the submission timeframe (e.g., a 72-hour no late penalty period).

Please note that any academic considerations granted in this course will be determined by the instructor of this course, in consultation with the academic advisors in your Faculty of Registration, in accordance with information presented in this course syllabus. Supporting documentation for academic considerations for absences due to illness should use the Student Medical Certificate or, where that is not possible, equivalent documentation by a health care practitioner.

Policy: [Academic Consideration – Undergraduate Students in First Entry Programs](#)

Procedures: [Student Medical Certificate](#)

Religious Holidays

Students should review the policy for Accommodation for Religious Holidays. Where a student will be unable to write examinations and term tests due to a conflicting religious holiday, they should inform their instructors as soon as possible but not later than two weeks prior to writing the examination or term test. In the case of conflict with a midterm test, students should inform their instructor as soon as possible but not later than one week prior to the midterm.

Policy: [Accommodation for Religious Holidays](#)

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 Examination dates.

Policy: [Definitions of Types of Examinations](#)

Academic Appeals and Scholastic Offenses

Students can file a request for relief from academic decisions if the request is based on one or more grounds listed in the policy. Requests for relief generally fall into three categories, which are also listed in the policy. All requests for relief must be supported by evidence. A request for relief from academic decisions process was formerly referred to as an appeal. Refer to the policy and procedures for further details and timelines.

Policy: [Requests for Relief from Academic Decisions](#)

Procedures: [Undergraduate Student Academic Requests for Relief](#)

Scholastic offences are taken seriously, and students are directed to read the appropriate policy, specifically the definition of what constitutes a scholastic offence.

Policy: [Scholastic Offences](#)

Procedures: [Undergraduate Scholastic Offences](#)

Students may appeal some academic and scholastic disciplinary decisions by a Dean or their designate to the Senate Review Board Academic (SRBA).

Policy: [Senate Review Board Academic Appeals](#)
Procedures: [Senate Review Board Academic Appeals](#)

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.

Policy: [Academic 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 their official university address is attended to in a timely manner.

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.

Policy: [Undergraduate Course Credit](#)

Procedures: [Discovery Credits](#)

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 or jacket at the front of the room and MUST NOT be at the test or 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 and this will be documented as a Scholastic Offence. 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 materials produced by faculty are 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 in this course are rounded to the nearest whole number based on the first decimal place. For example, a grade of 74.49 or lower will be rounded to 74, whereas 74.50 or higher will be rounded to 75.

Marks WILL NOT be arbitrarily increased to the next grade or GPA, e.g., a 79 will NOT be increased to an 80, and an 84 WILL NOT be increased to an 85. The mark attained is the mark achieved and assigned; requests for arbitrary mark increases will be denied. Marks will be assigned based on the assessments in the syllabus, and no extra work or tasks will be assigned to increase a mark.

Course grade rounding provisions, as described above, differ from cumulative and term averages. Cumulative and term averages will be calculated to two decimal places and rounded to the nearest whole number with .45 rounded up, for the purposes of admission to and progression in modules, scholarship retention, and Dean's Honour List.

12. Support Services

The following links provide information about support services at Western University. Students who are in emotional or mental distress should refer to Mental Health @Western <https://www.uwo.ca/health/> for a complete list of options about how to obtain help.

Statement on Gender-Based and Sexual Violence

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 Advising \(Science and Basic Medical Sciences\)](#)

[Learning Development and Success](#)

[Office of the Registrar](#)

[Wellness & Wellbeing](#)

[Western USC Services](#)

13. Land Acknowledgement

The Biochemistry Dept. acknowledges that Western University is located on the traditional lands of the Anishinaabek (Ah-nish'-in-a-bek), Haudenosaunee (Ho'-den-no-show-nee), Lūnaapéewak (Len-ah'-pay-wuk) and Chonnonton (Chun-ongk'-ton) Nations, on lands connected with the London Township and Sombra Treaties of 1796 and the Dish with One Spoon Covenant Wampum.

With this, we respect the longstanding relationships that Indigenous Nations have to this land, as they are the original caretakers.

We acknowledge historical and ongoing injustices that Indigenous Peoples (First Nations, Métis, and Inuit) endure in Turtle Island (aka Canada), and we accept responsibility as a public institution to contribute toward revealing and correcting miseducation, as well as renewing respectful relationships with Indigenous communities through our teaching, research, and community service.

14. Equity, Diversity, Inclusion, and Decolonization

The Dept. of Biochemistry recognizes and values equity, diversity, and inclusion (EDI) principles across all aspects of its functioning. We are committed to fostering an inclusive environment that celebrates diversity and provides equitable outcomes for our students, post-doctoral scholars, staff, and faculty. We are also committed to promoting

decolonization (D) within our teaching. More info about EDID in the Biochemistry Dept. can be found on our EDID website:

https://www.schulich.uwo.ca/biochem/about_us/equity_diversity_and_inclusion.html

Non-discrimination and Non-harassment Policy

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 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).