

Department of Biochemistry  
Biological Macromolecules (Biochem 3381A)

Course Syllabus for Fall 2023



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:

Our 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 we 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 we 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	<a href="mailto:mjunop@uwo.ca">mjunop@uwo.ca</a> Ask questions during class, tutorials or through the owl forum. <b>Only</b> use email for personal matters (not relevant to the class).	<hr/> <hr/> 

**Note: office hours will be held by zoom – they will be recorded and posted to owl.**

Teaching Assistants	Contact Information
Nicoletta Basilone	nbasilo@uwo.ca
Karling Frankel	Kfranke2@uwo.ca
Bri Kaplanis	bkaplani@uwo.ca
Tedson Nie	znie25@uwo.ca
Sina Bajgiran	srameza2@uwo.ca

Inquiry Facilitator	Inquiry Group
Nicoletta Basilone	A 1-8
Karling Frankel	B 1-8
Bri Kaplanis	C 1-8
Tedson Nie	D 1-8
Sina Bajgiran	E 1-8
Murray Junop	F 1-8

## 4. Course Design and General Information

**Lectures:** In-person lectures. Lecture notes will be posted on OWL under Resources before these times. Lectures will be recorded and posted within 24 hr on Owl.

**NOTE: the first lecture will be held on Sept 8.**

**Tutorials:** W 5:30 - 6:20 pm via zoom (<https://westernuniversity.zoom.us/j/92538455107>). **Please note** 6 tutorials have been scheduled (see info below), but more may be added if required. Tutorials will be recorded and uploaded to OWL under Tutorial and Resources (Tutorial). See overall course calendar below.

**NOTE:** Tutorial information covered 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; and a minimum mark of 60% in either Chemistry 2223B or 2283G

**All course material will be posted to OWL:** <http://owl.uwo.ca>. Any changes will be indicated on the OWL site. **Please pay close attention to course notifications arriving through OWL.**

**Textbooks:** Textbooks are **not** required.

**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** 3<sup>rd</sup> 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:** Not restricted - please feel free to use them as much as possible to help with your learning.

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.

[Google Chrome](#) or [Mozilla Firefox](#) are the preferred browsers to optimally use OWL; 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 OWL.

7 weeks (weeks 1-3, 5-6, and 9 & 10) will be lecture format. Weeks 4, 7, 11 (ie. weeks starting Oct 2, Oct 23, Nov 20) are being made available for students to undertake inquiry-based learning. During these three weeks, students will work in groups of 5 or 6 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 27<sup>th</sup> 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 15** and ending **November 17**) 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. The one quiz that will be dropped is to cover **emergencies etc.** that prevent a student from being present; therefore, no excuses for missing more than one Friday quiz will be accepted. **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 OWL, between 1 pm and finishing at 10 pm. You MUST complete the quiz during this time.**

**II. Assignment 1 (5%)** Due **Monday October 2 – copy submitted to OWL.**

**III. Assignment 2 (20%)** Due **Monday October 16 – copy submitted to OWL.**

**IV. Assignment 3 (20%)** Due **Monday November 13 – copy submitted to OWL.**

**V. Inquiry (50%)**

- \* 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 8<sup>th</sup> (Submit to OWL)** (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 15<sup>th</sup>, we will be having a short quiz. Students will have 30 min to complete the quiz on OWL, anytime between 1-10 pm. You will have 5 multiple-choice questions to answer. Marks will be posted on OWL 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 17. Only the results from the best 6 quizzes will be counted toward your final mark (ie. 6 x 2.5% per test = 15% of final mark). **Since one test will be dropped no excuses will be accepted for missed tests.**

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 5 or 6 people.** Final group assignments will be posted on OWL Monday Sept 11<sup>th</sup>. Although designated inquiry will not begin until the week of Oct 2<sup>th</sup>, 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 in class during weeks 4, 7 and 11 (see details for individual group schedules below). There will be 48 groups, assigned A1-8, B1-8, C1-8, D1-8, E1-8 and F 1-8. 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.

**Progress Meetings with TA**: During weeks 4, 7 and 11, 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 normal class times (see table below). Because the success of the group depends on the full participation of all members, **attendance at all meetings is mandatory.** Failure to provide documentation for absence will result in an automatic zero for group peer evaluation (worth 7% of final).

**Final Group Presentations**: Starting Monday **Nov 27**, 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). **You must submit your presentation file to OWL 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](http://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 OWL on **Wed December 8<sup>th</sup>**. **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
- 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

**Peer Evaluations:** You will be asked to reflect on each member's participation and preparation, knowledge acquisition, group dynamics and overall contribution to the **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 OWL) **on Dec 8<sup>th</sup>**.

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 6, this would give you a total of 50 points that you can assign to the other 5 members of your group.
- If you think each member contributed equally, then you would give each person 1/5 of the total points, which would equal a final score of 10 for each of the other 5 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 group members assign him peer evaluations of 12, 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 1-5 pm on OWL:**

- September 15, 22, 29; October 13, 20; and November 10, 17

### **Assignments:**

Assignment 1 – Deadline: **Monday October 2<sup>nd</sup> in OWL**

Assignment 2 – Deadline: **Monday October 16<sup>th</sup> in OWL**

Assignment 3 – Deadline: **Monday November 13<sup>th</sup> in OWL**

### Posting of Assigned Inquiry Group Members:

Posted on OWL Sept 11<sup>th</sup>

### Progress Meetings with TA's: (See schedule at end of course outline)

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

- Groups A1-5 – Monday Nov 27th at 12:30
- Groups A6-8 and B1-2 – Wednesday Nov 29th at 12:30
- Groups B3-8 and C1-5 – Wednesday Nov 29th at 5:30
- Groups C6-8 and D1-2 – Friday Dec 1 at 12:30
- Groups D3-7 – Monday Dec 4 at 12:30
- Groups D8 and E1-4 – Wednesday Dec 6 at 12:30
- Groups E5-8 and F1-3 – Wednesday Dec 6 at 5:30
- Groups F4-8 – Friday Dec 8 at 12:30

### Final Written Inquiry Report and Peer Evaluations:

Deadline: **Wednesday December 8<sup>th</sup> – submitted to OWL.**

**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.

## 8. Course Content and Schedule

~ September 2022 ~						
Sun	Mon	Tue	Wed	Thu	Fri	Sat
3	4	5	6	7	8 <b>Intro Class</b>	9
10 Week #1 Dr. Junop→	11 Group Members Posted to OWL	12	13 Tutorial 1	14	15 Quiz #1	16
17 Week #2 Dr. Junop→	18	19	20 Tutorial 2	21	22 Quiz #2	23

<b>24</b> Week #3 Dr. Junop →	<b>25</b>	<b>26</b>	<b>27</b> Tutorial 3 6:30 office hours	<b>28</b> No office hours	<b>29</b> Quiz #3 NDR – no class	<b>30</b>
~ October 2021 ~						
<b>Sun</b>	<b>Mon</b>	<b>Tue</b>	<b>Wed</b>	<b>Thu</b>	<b>Fri</b>	<b>Sat</b>
<b>Oct 1</b> Week #4 → <b>INQUIRY</b>	<b>2</b> Assignment #1 Progress Mtgs Groups A-F (1-3)	<b>3</b>	<b>4</b> Progress Mtgs Groups A-F (4-6)	<b>5</b>	<b>6</b> Progress Mtgs Groups A-F (7-8)	<b>7</b>
<b>8</b> Week #5 Dr. Junop →	<b>9</b> THANKSGIVING 	<b>10</b>	<b>11</b> Tutorial 4	<b>12</b>	<b>13</b> Quiz #4	<b>14</b>
<b>15</b> Week #6 Dr. Junop →	<b>16</b> Assignment #2	<b>17</b>	<b>18</b> Tutorial 5	<b>19</b>	<b>20</b> Quiz #5	<b>21</b>
<b>22</b> Week #7 → <b>INQUIRY</b>	<b>23</b> Progress Mtgs Groups A-F (1-3)	<b>24</b>	<b>25</b> Progress Mtgs Groups A-F (4-6)	<b>26</b>	<b>27</b> Progress Mtgs Groups A-F (7-8)	<b>28</b>
~ November 2021 ~						
<b>Sun</b>	<b>Mon</b>	<b>Tue</b>	<b>Wed</b>	<b>Thu</b>	<b>Fri</b>	<b>Sat</b>
<b>29</b> <b>READING WEEK ☺</b> Week #8	<b>30</b>	<b>31</b>	<b>Nov 1</b>	<b>2</b>	<b>3</b>	<b>4</b>
<b>5</b> Week #9 Dr. Junop →	<b>6</b>	<b>7</b>	<b>8</b> Tutorial 6	<b>9</b>	<b>10</b> Quiz #6	<b>11</b>
<b>12</b> Week 10 Dr. Junop →	<b>13</b> Assignment #3	<b>14</b>	<b>15</b>	<b>16</b>	<b>17</b> Quiz #7	<b>18</b>
<b>19</b> Week #11 → <b>INQUIRY</b>	<b>20</b> Progress Mtgs Groups A-F (1-3)	<b>21</b>	<b>22</b> Progress Mtgs Groups A-F (4-6)	<b>23</b>	<b>24</b> Progress Mtgs Groups A-F (7-8)	<b>25</b>
<b>26</b> Week #12 →	<b>27</b> Presentation A 1-5	<b>28</b>	<b>29</b> Presentation A6-8 and B1-2 Tutorial B3-8; C1-5	<b>30</b>	<b>Dec 1</b> Presentation C6-8 and D1-2	<b>2</b>
~ December 2021 ~						

<b>3</b> Week #13	<b>4</b> Presentation D3-7	<b>5</b>	<b>6</b> Presentation D8 and E1-4 Tutorial E5-8 and F1-3	<b>7</b>	<b>8</b> Presentation F4-F8 Inquiry Report and Peer Evaluation	<b>9</b>
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## TA Progress Meeting Schedule

Group	Oct 2	Oct 4	Oct 6	Oct 23	Oct 25	Oct 27	Nov 20	Nov 22	Nov 24
<b>A-1</b>	12:30-12:45pm			12:30-12:45pm			12:30-12:45pm		
<b>A-2</b>	12:45-1:00pm			12:45-1:00pm			12:45-1:00pm		
<b>A-3</b>	1:00-1:15pm			1:00-1:15pm			1:00-1:15pm		
<b>A-4</b>		12:30-12:45pm			12:30-12:45pm			12:30-12:45pm	
<b>A-5</b>		12:45-1:00pm			12:45-1:00pm			12:45-1:00pm	
<b>A-6</b>		1:00-1:15pm			1:00-1:15pm			1:00-1:15pm	
<b>A-7</b>			12:30-12:45pm			12:30-12:45pm			12:30-12:45pm
<b>A-8</b>			12:45-1:00pm			12:45-1:00pm			12:45-1:00pm
<b>B-1</b>	12:30-12:45pm			12:30-12:45pm			12:30-12:45pm		
<b>B-2</b>	12:45-1:00pm			12:45-1:00pm			12:45-1:00pm		
<b>B-3</b>	1:00-1:15pm			1:00-1:15pm			1:00-1:15pm		
<b>B-4</b>		12:30-12:45pm			12:30-12:45pm			12:30-12:45pm	
<b>B-5</b>		12:45-1:00pm			12:45-1:00pm			12:45-1:00pm	
<b>B-6</b>		1:00-1:15pm			1:00-1:15pm			1:00-1:15pm	
<b>B-7</b>			12:30-12:45pm			12:30-12:45pm			12:30-12:45pm
<b>B-8</b>			12:45-1:00pm			12:45-1:00pm			12:45-1:00pm
<b>C-1</b>	12:30-12:45pm			12:30-12:45pm			12:30-12:45pm		
<b>C-2</b>	12:45-1:00pm			12:45-1:00pm			12:45-1:00pm		
<b>C-3</b>	1:00-1:15pm			1:00-1:15pm			1:00-1:15pm		

<b>C-4</b>		12:30-12:45pm			12:30-12:45pm			12:30-12:45pm	
<b>C-5</b>		12:45-1:00pm			12:45-1:00pm			12:45-1:00pm	
<b>C-6</b>		1:00-1:15pm			1:00-1:15pm			1:00-1:15pm	
<b>C-7</b>			12:30-12:45pm			12:30-12:45pm			12:30-12:45pm
<b>C-8</b>			12:45-1:00pm			12:45-1:00pm			12:45-1:00pm
<b>D-1</b>	12:30-12:45pm			12:30-12:45pm			12:30-12:45pm		
<b>D-2</b>	12:45-1:00pm			12:45-1:00pm			12:45-1:00pm		
<b>D-3</b>	1:00-1:15pm			1:00-1:15pm			1:00-1:15pm		
<b>D-4</b>		12:30-12:45pm			12:30-12:45pm			12:30-12:45pm	
<b>D-5</b>		12:45-1:00pm			12:45-1:00pm			12:45-1:00pm	
<b>D-6</b>		1:00-1:15pm			1:00-1:15pm			1:00-1:15pm	
<b>D-7</b>			12:30-12:45pm			12:30-12:45pm			12:30-12:45pm
<b>D-8</b>			12:45-1:00pm			12:45-1:00pm			12:45-1:00pm
<b>E-1</b>	12:30-12:45pm			12:30-12:45pm			12:30-12:45pm		
<b>E-2</b>	12:45-1:00pm			12:45-1:00pm			12:45-1:00pm		
<b>E-3</b>	1:00-1:15pm			1:00-1:15pm			1:00-1:15pm		
<b>E-4</b>		12:30-12:45pm			12:30-12:45pm			12:30-12:45pm	
<b>E-5</b>		12:45-1:00pm			12:45-1:00pm			12:45-1:00pm	
<b>E-6</b>		1:00-1:15pm			1:00-1:15pm			1:00-1:15pm	
<b>E-7</b>			12:30-12:45pm			12:30-12:45pm			12:30-12:45pm
<b>E-8</b>			12:45-1:00pm			12:45-1:00pm			12:45-1:00pm

<b>F-1</b>	12:30-12:45pm			12:30-12:45pm			12:30-12:45pm		
<b>F-2</b>	12:45-1:00pm			12:45-1:00pm			12:45-1:00pm		
<b>F-3</b>	1:00-1:15pm			1:00-1:15pm			1:00-1:15pm		
<b>F-4</b>		12:30-12:45pm			12:30-12:45pm			12:30-12:45pm	
<b>F-5</b>		12:45-1:00pm			12:45-1:00pm			12:45-1:00pm	
<b>F-6</b>		1:00-1:15pm			1:00-1:15pm			1:00-1:15pm	
<b>F-7</b>			12:30-12:45pm			12:30-12:45pm			12:30-12:45pm
<b>F-8</b>			12:45-1:00pm			12:45-1:00pm			12:45-1:00pm

- 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
- Late assessments with self-reported absences should be submitted within 24 hours of the end of the 48-hour period.

## 9. 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 OWL
- 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](#).

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, (e.g., sexism, racism, transphobia, homophobia, islamophobia, xenophobia, antisemitism, or ableism) or non-human rights-based (personal harassment or workplace harassment)

## 10. Western Academic Policies and Statements

### 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](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**

All assignments 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. Students will be able to view their results before the final submission. 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](#).

## **Academic Policies and Statements**

### **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., 74.4 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.

## 11. 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](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](mailto:support@uwo.ca).

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

[Appeal Procedures](#)

[Registrarial Services](#)

[Student Development Services](#)

[Student Health Services](#)