Western Science

Department of Biology

Bio2382b Cell Biology Syllabus – 2025

1. Course Information

The course utilizes **in-person lectures** @ 11:30 AM (section 002) or 1:30 PM (section 001) and **asynchronous online** tutorial lessons. Recorded lectures will not be provided. More information about the recorded online tutorials is explained below. The instructor's office hours will be in-person. Additionally, two TAs will monitor and respond to student questions on course material through online discussion resources.

Prerequisite(s): Either Biology 1001A (or the former Biology 1201A) and either Biology 1002B (or the former Biology 1202B) with a minimum of 60% in each; Chemistry 1301A/B and Chemistry 1302A/B. Integrated Science 1001X with a minimum mark of 60% can be used as a prerequisite in place of Biology 1002B and Chemistry 1302A/B. Unless you have either the requisites for this course or written special permission from your Dean's Designate (Department/Program Counsellors and Science Academic Advisors) 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.

2. Instructor Information

Personnel	Office Location	Email
Dr. Sashko Damjanovski *(Lecture instructor & Course coordinator)*		sdamjano@uwo.ca
Dr. Robert Cumming *(Lecture instructor)*		rcummin5@uwo.ca
Dr. Joshua Pemberton *(Tutorial instructor)*		joshua.pemberton@uwo.ca
Livy Lyon Brad Bork *(Teaching assistants)*	n/a	

Drs. Damjanovski and Cumming will deliver in-person lectures. Dr. Pemberton will deliver the online tutorials, which will be provided as asynchronous recordings via OWL. The TAs will address lecture and tutorial-related questions via the course discussion/forum resources on OWL.

Email Policy

Only email Dr. Damjanovski (Course coordinator) with administrative issues. All course content-related questions must be dealt with through instructor office hours or online website discussion forums and help sessions. Students must use their Western (@uwo.ca) email address when contacting their instructors/TAs. While emergency situations will be dealt with as quickly as possible, a reminder that response to emails, course discussion boards, etc. will be dealt with during regular business hours—typically within 24-48 hrs.

3. Course Syllabus, Schedule, Delivery Mode

Course content will be disseminated through 24 in-person lectures during the term (January 6-April 2)—one each Monday and Wednesday. Additionally, 6 recorded tutorial lessons will be released online during the term—two per month. You are expected to attend and watch these lectures and recordings to learn about the following anticipated topics:

Lecture Topics	Subtopics/Key Concepts
Introduction to Cell Biology	Subcellular structures, mitochondria and peroxisomes.
Protein Synthesis	Vesicular traffic, Protein sorting, Receptor-mediated endocytosis
The Cytoskeleton	Microtubules, microtubule-organizing centers (MTOCs), dynamics, motor proteins, mitotic apparatus and mitosis. Intermediate filaments. Actin and myosin, muscle contraction, cell motility.
The Cell Surface	Cell junctions, cell adhesion and extracellular matrix. Structure and composition of biological membranes. Membrane proteins. Membrane transport.
Cell Signalling & Signal Transduction	Receptor tyrosine kinases (RTKs), G-protein-coupled receptors (GPCRs), apoptosis, and other pathways.
Mitosis & Molecular Regulation of the Cell Cycle	Key phases of mitosis, cell cycle checkpoints, and molecular regulators involved in cell cycle progression.

Tutorial Topics (tentative)	
Imaging	Overview of microscopy methods (light, electron, fluorescence, etc.) Applications of microscopy in cell biology research.
Cell Biology Techniques	Cell culture, organelle isolation, and an overview of common cell biology methods and techniques.
Lipids and Lipid Signalling	Structure and function of lipids and their role in cellular processes.

Course-Level Learning Outcomes

By the end of this course, you should be able to address the following:

1. Distinguish between various cell types and their characteristics when grown in culture.
2. Recognize the appropriate forms of microscopy for visualizing cellular structures and proteins and understand various techniques for isolating and analyzing organelles and proteins.
3. Be able to describe the processes involved in the controlled movement of proteins from the inside to outside of the cell and vice versa.
4. Outline all the steps and regulatory mechanisms involved in ensuring the controlled division of cells.
5. Understand the structure and functions of the three cytoskeletal networks (microfilament, intermediate filaments, microtubules).
6. Be able to explain how the cytoskeleton plays a role in major cellular processes (migration, adhesion, division, organelle trafficking).
7. Be able to describe the major components of the plasma membrane and how they impact overall membrane function.
8. Explain the role of membrane proteins in transport and signalling.
9. Explain how signals from outside of the cell are transmitted to trigger changes within the cell.

Office Hours
Instructors will hold in-person office hours (50 minutes each):

- Drs. Damjanovski and Cumming's are scheduled for Mondays and Wednesdays at 2:30pm to address lecture-related content.
- Dr. Pemberton's is scheduled once-per-week on a rotational basis (schedule posted in Tutorial section on OWL) to address tutorial-related content.

Office hours may be adjusted or expanded depending on student demand. Additionally, instructors are offering limited 10-minute private appointments each week, available in person or via ZOOM. To arrange one, please contact the respective instructor directly. ZOOM meetings require your camera to be on.

TAs Help/Tutorial Sessions
TAs will actively monitor the course discussion board to address questions. TAs may organize live ZOOM help sessions around the dates of the tests if there is sufficient demand. ZOOM meetings require you to turn your camera on.

Key Dates

2025	Classes resume (material will be posted on OWL weekly). Office hours and TA forum monitoring begins.
2025	Spring reading week.
2025	Last day to withdraw from a second-term half (0.5) course, resulting in a grade of 'WDN' (withdrawn, without academic penalty).
2025	Classes end.
2025	Examination period.

4. Course Materials

All course material is copywritten and cannot be shared.

Lecture and Tutorial Resources
All course material will be posted to OWL (https://westernu.brightspace.com/). Lecture material (e.g., PowerPoint slides) will be provided approximately every week before the respective lecture session, under the Dr. Cumming and Dr. Damjanovski Lecture Content links, respectively. Tutorial material (e.g., recordings) will be provided monthly under the Dr. Pemberton Tutorial Content link. Students are responsible for checking the Bio2382 OWL site regularly for news and updates as this is the primary method by which information will be disseminated to all students in the class.

Achieve
This year, we will be using Achieve, an online learning tool that is provided by the publisher of the textbook. Achieve includes a full range of instructional resources meant to enhance and/or supplement learning as well as provide assessments, which will be utilized in tutorials. As a result, Achieve must be purchased; more details are provided within the Textbook and Achieve section described later.

The Achieve portal can be accessed through the OWL course website. Through this portal, the instructor's have curated specific Achieve resources that reflect the weekly lecture topics. For example, Achieve resources (accessed through the OWL portal) will be categorized into "Week 1", "Week 2", etc. that mirrors the lecture content provided within "Week 1", "Week 2", etc. of the Lecture tab of OWL. You will not be tested on lecture-related Achieve material, it is meant to aid you in your understanding. Regarding lecture material, you will only be tested on material provided in the lecture PowerPoint slides.

In contrast, curated Achieve material (accessed through the OWL portal) that is related to the tutorial content **is testable**. Tutorials encompass 2 recordings uploaded monthly—6 tutorials in total for the term—to the Tutorial tab of OWL. Achieve material will be categorized similarly: "January Tutorials", "February Tutorials", and "March Tutorials" that reinforce/supplement the tutorial content. To reiterate, you are expected to understand Achieve material as it relates to Tutorial content as it is testable.

Textbook and Achieve (required):
The textbook used in this course is Molecular Cell Biology, 9th Edition, by H. Lodish et al. (W.H. Freeman & Co.). The following link to the Dellelce Family Bookstore has two options:
https://bookstore.uwo.ca/textbook-search?campus=UWO&term=W2024B&courses%5B0%5D=001_UW/BIO2382B

1. "Molecular Cell Biology eBook Achieve 150 Day Rental" **LIST: $111.00**

2. "Molecular Cell Biology Looseleaf with Achieve 150" **LIST: $178.50**

The *Achieve for Molecular Cell Biology* online module is required. Thus, one of the two above purchase options is required. Both include Achieve, the difference being for $111.00 you get an ebook version of the text that expires, while for $178.50 you get a loose-leaf text that is yours to keep.

Technical Requirements
This course involves remote delivery and requires**:** a computer and a stable internet connection. Additionally, if ZOOM resources are utilized, a webcam and working microphone are also required.

If students need assistance with the course OWL site, they can seek support on the OWL Brightspace Help page https://brightspacehelp.uwo.ca/. Alternatively, they can contact Western Technology Services Helpdesk at 519-661-3800 or ext. 83800. Within the course OWL website should be a link to Achieve (the purchase of which is required for this course). This link to Achieve resources should be active with your purchase of this product from the campus bookstore (see link above under Textbook and Achieve).

5. Methods of Evaluation

Evaluation	Percentage	Date	Time	Format
Lecture Test 1	15%	2025	30 mins	Online
Lecture Test 2 *(non-cumulative)*	15%	2025	30 mins	Online
Lecture Test 3 *(non-cumulative)*	15%	2025	30 mins	Online
Lecture Test 4 *(non-cumulative)*	15%	2025	30 mins	Online
Makeup Test *(cumulative)*	% as needed	2025	30 mins	Online
	***45%**			
Tutorial Quiz 1	7.5%	Written in January	20 mins	Online
Tutorial Quiz 2	7.5%	Written in February	20 mins	Online
Tutorial Quiz 3	7.5%	Written in March	20 mins	Online
	***15%**			
Final Exam *(cumulative)*	**40%**	Scheduled by Registrar.	120 mins	In person

*Selecting best 3 lecture test, and best 2 tutorial quiz marks.

Lecture Tests

There will be 4 online lecture tests consisting of multiple choice and true/false questions administered through OWL Brightspace. Material from tutorials will not be tested on lecture tests. Each test is designed to be completed within 30 minutes during a 12-hour window on the day of the test. Additionally, we will be utilizing universal accommodations. Thus, no one should need to write with Accessible Education. The time for each test will be the maximum needed to cover all accommodations. The additional time that all will receive will be calculated closer to each test date based on the accommodation times offered to students for that assessment. Thus, on tests dates students will have greater than 30 mins to write a test in a planned 12-hour window, likely 10 am to 10 pm of the test date. Tests can only be taken once.

Tutorial Quizzes

At the beginning of January, February, and March, 2 tutorial videos and any associated Achieve online resources will be available to students. Each month you are responsible for watching 2 tutorial videos and associated Achieve material, on which there will be a monthly quiz. These monthly quizzes are available to you for the whole month (you can write the quiz any time that month), and they can be taken up to 5 times. Thus, you can take a quiz, then if you wish you can review the tutorial material again, and take the quiz again, up to 5 times. But the quiz on the January tutorial material must be completed in January, and the quiz on the February tutorial material completed in February etc.

Built-in Flexibility

For lecture tests, the best 3 test marks (15% each) will be used to evaluate 45% of the final grade. For tutorial quizzes, the best 2 quiz marks (7.5% each) will be used to evaluate 15% of the final grade. This flexibility largely eliminates the use of the Student Absence Portal (SAP) and need for academic considerations (see below). A more thorough breakdown of this flexibility is as follows:

Assessment Type	# of assessments you've written	Outcome
Lecture Test	4 of 4	Top three grades count and will be worth 45% of your final grade.
	3 of 4	All three grades count and will be worth 45% of your final grade. No SAP or documentation needed for the one missed test. No Makeup Test will be written.
	2 of 4	Both grades count and will be worth 30% of your final grade. You must provide a **documented** SAP or similar for one missed test. If approved, you will write a 15% cumulative Makeup Test on 2025.
	1 of 4	The single grade counts and will be worth 15% of your final grade. You must provide a **documented** SAP or similar for two missed tests. If approved, you will write a 30% cumulative Makeup Test on 2025.
	0 of 4	You must provide a **documented** SAP or similar for three missed tests. If approved, you will write a 45% cumulative Makeup Test on 2025.

Makeup Test	–	If you miss the required Makeup Test on 2025, You must provide a **documented** SAP or similar for the missed makeup. If approved, the value of the Makeup Test will be transferred to the final exam.
Tutorial Quiz	3 of 3	Top two grades count and will be worth 15% of your final grade.
	2 of 3	Both grades count and will be worth 15% of your final grade. No SAP or documentation needed for the one missed quiz.
	1 of 3	The single grade counts and will be worth 7.5% of your final grade. You must provide a **documented** SAP or similar for one missed quiz. If approved, the value of your missed quiz (7.5%) will be transferred to the final exam.
	0 of 3	You must provide a **documented** SAP or similar for two missed quizzes. If approved, the value of your missed quizzes (15%) will be transferred to the final exam.

Final Exam
The cumulative Final Exam will be scheduled by the Registrar's Office (www.registrar.uwo.ca). It will be in person! Content from all lectures and all tutorial material is testable on the final exam.

If you miss the Final Exam, please contact your faculty's Academic Counseling Office as soon as you can do so. They will assess your eligibility to write the Special Exam (the name given by the university to a makeup Final Exam). You may also be eligible to write the Special Exam if you are in a "Exam Conflict Situation" (http://www.registrar.uwo.ca/examinations/exam_schedule.html). The only makeup for the Final Exam will be written the week of May 2025 (tentatively May 8) and will be organized by the Faculty of Science. If you cannot complete the makeup Final Exam, you will have to take the final when the course is offered next (with academic counselling approval).

Evaluation review
Once evaluation results are returned to you, please wait 24 hours before inquiring about the results. Additionally, there is a 2-week window after an evaluation is returned to petition for alternate answers.

6. Additional Statements

Religious Accommodation
When conflicts with a religious holiday that requires an absence from the University or prohibits certain activities, students should request an accommodation for their absence in writing to the course instructor and/or the Academic Advising office of their Faculty of Registration. This notice should be made as early as possible but not later than two weeks prior to the writing or the examination (or one week prior to the writing of the test). Please visit the Diversity Calendars posted on our university's EDID website for the recognized religious holidays: https://www.edi.uwo.ca.

Accommodation Policies
Students with disabilities are encouraged to contact Accessible Education, which provides recommendations for accommodation based on medical documentation or psychological and cognitive testing. The policy on Academic Accommodation for Students with Disabilities can be found at:

https://www.uwo.ca/univsec/pdf/academic_policies/appeals/Academic_Accommodation_disabilities.pdf.

Academic Policies
The website for Registrar Services is https://www.registrar.uwo.ca/.
In accordance with policy (https://www.uwo.ca/univsec/pdf/policies_procedures/section1/mapp113.pdf),

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.

Scholastic offences are taken seriously and students are directed to read the appropriate policy, specifically, the definition of what constitutes a Scholastic Offence, at the following Web site:

https://www.uwo.ca/univsec/pdf/academic_policies/appeals/scholastic_discipline_undergrad.pdf.

Support Services
Please visit the Science & Basic Medical Sciences Academic Advising webpage for information on adding/dropping courses, academic considerations for absences, appeals, exam conflicts, and many other academic-related matters: https://www.uwo.ca/sci/counselling/.
Students who are in emotional/mental distress should refer to Mental Health@Western (https://uwo.ca/health/) for a complete list of options about how to obtain help.

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.

Learning-skills counsellors at Learning Development and Success (https://learning.uwo.ca) are ready to help you improve your learning skills. They offer presentations on strategies for improving time management, multiple-choice exam preparation/writing, textbook reading, and more. Individual support is offered throughout the Fall/Winter terms in the drop-in Learning Help Centre, and year-round through individual counselling.

Additional student-run support services are offered by the USC, https://westernusc.ca/services/.