

[Anatomy and Cell Biology]
[Discovery-based Cell Biology 1 ACB 4411B]

Course outline for Winter 2022



Although this academic year might be different, Western University is committed to a **thriving campus**. We encourage you to check out the [Digital Student Experience](#) website to manage your academics and well-being. Additionally, the following link provides available resources to support students on and off campus: <https://www.uwo.ca/health/>.

1. Technical Requirements:



Stable internet connection



Laptop or computer



Working microphone



Working webcam

2. Course Overview and Important Dates:



| Delivery Mode | Dates | Time |
|---------------|-----------------------|---------------------------------|
| In person | Mondays Wednesdays | 12:30-2:30 pm 10:30-11:30 am |

| Classes Start | Reading Week | Classes End | Study day(s) | Exam Period |
|---------------|--------------|-------------|---------------|-------------|
| January 3 | Feb. 19-27 | April 1 | April 2 and 3 | April 4-30 |

* March 7, 2022: Last day to drop a second-term half course without penalty

3. Contact Information



| Course Coordinator | Contact Information |
|--------------------|----------------------------|
| Dr. Dale W. Laird | Dale.laird@schulich.uwo.ca |

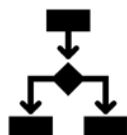
| Instructor(s) or Teaching Assistant(s) | Contact Information |
|--|--------------------------------|
| Dr. Silvia Penuela | Silvia.penuela@schulich.uwo.ca |
| Dr. Patrick Lajoie | Plajoie3@uwo.ca |
| Dr. Nathalie Berube | nberube@uwo.ca |
| Brooke O'Donnell (T/A) | Bodonne3@uwo.ca |
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| | |

4. Course Description and Design

This course focuses on cell specialization, the cell biology of aging and cell signaling. Students will also be trained in effective grant writing, abstract writing and scientific presentations focusing on a Nobel Laureate.

Prerequisite(s): Biology 3316A/B or Physiology 3140A (minimum mark of 70%)
or Biology 3309 (minimum mark of 75%)
Co-requisite(s): none
Anti-requisite(s): none

| Mode | Dates | Time | Frequency |
|----------------------|---------------------|---------------------------------|------------------|
| In person | Monday Wednesday | 12:30-2:30 pm 10:30-11:30 pm | Weekly Weekly |
| Virtual asynchronous | N/A | As requested | Weekly |



- Asynchronous pre-work must be completed prior to relevant synchronous sessions
- Attendance at sessions is required
- Missed work should be completed within 24 hours
- A recording may be provided for some synchronous sessions at the discretion of the instructor
- Closed captioning will be provided on audio or video recordings as requested

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

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. Students interested in evaluating their internet speed, please click [here](#).

NOTE: In the event of a COVID-19 resurgence during the course that necessitates moving away from face-to-face interaction, all remaining course content will be delivered entirely online, either synchronously (i.e., at times indicates in the timetable) or asynchronously (e.g., posted on OWL for students to view at their convenience). The mode of course delivery will be decided by the instructor at the time of the disruption. The grading scheme will not change. Any remaining assessments will also be conducted online at the discretion of the instructor.

5. Learning Outcomes

Overview of Course: This advanced experimental cell biology courses is targeted primarily to senior cell biology students and is designed to be taken after ACB4410, but ACB 4410A is not a required prerequisite. Collectively, these two courses will be taught in 6 units (3 per term). These courses have two objectives: a) to present students with current information and the state of knowledge in specific

area(s) of cell biology from the viewpoint of experimental research and discovery, and **b)** to teach students research skills on how to review, criticize, write, discuss and present experimental results.

Introduction to the course: Dr. Laird

A: Cell Signaling and Human Disease: Dr. Lajoie (~4 weeks)

- a) Ligands, signals, receptors and relationship to human health
- b) Stress response pathways and protein folding diseases
- c) Studying human diseases in model organisms

Research Skill = Students will be expected to research and present the pathway leading to a scientist being awarded the Nobel Prize

B: Cell biology of aging and senescence: Dr. Berube (~4 weeks)

- a) Cell senescence
- b) Telomere attrition and nuclear architecture
- c) Nutrient sensing and autophagy

Research skill = Students will be expected to organize data into effective abstracts for inclusion as part of a research paper

C: Cell Specialization: Dr. Penuela (~4 weeks)

- a) Models of cell differentiation in skin and adipose tissue
- b) Stem cell biology
- c) Transgenic approaches to cell specialization
- d) Cellular reprogramming and cell specialization

Research skill = Students will be expected to write a short research grant proposal on an assigned topic.

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

- Discuss how protein misfolding can lead to disease
- Understand how animal and cell models are used to investigate diseases
- Discuss features and genetic changes that occur to cells as they age
- Understand how cells specialize to meet specific tissue needs
- Communicate research discoveries of Nobel Laureates
- Understand the basics of abstract and grant writing



6. Course Content and Schedule

Introduction: **Introduction to the course (Laird)**
Jan. 3, 2022

Module 1: **Cell Signalling and Human Diseases (Lajoie)**
Begin: Wednesday Jan 5th and finished Monday Jan 30 (4 Mon, 4 Wed)
Research Skill: Presentation of Nobel Laureates

Test: take home

Module 2: **Cell Senescence and Aging (Berube)**
Begin: Wednesday Feb. 2nd and finished: Monday March 7th (4 Mon, 4 Wed)
Research Skill: Abstract writing
Reading week: Feb 19-27th
Test: Time test

Module 3: **Cell Specialization (Penuela)**
Begin: Wednesday March 9th and finished Wednesday March 30 (4 Wed, 3 Mon)
Research Skill: Oral Presentation + Grant Writing

Test: Take home

Last day of class is April 1st

7. Online Participation and Engagement



- Students are expected to participate and engage with all synchronous content
- Students can participate by asking questions about asynchronous content
- Students can also participate by interacting in the forums with their peers and instructors as requested

8. Evaluation

| Component Mark | Date Mark Available | % of Final |
|---|---------------------------------------|------------|
| 3 intra-term Modules of equal weighting | ~2 nd week of; February | 33.3% |
| | March | 33.3% |
| | April | 33.4% |

Further details on the marking scheme for each module will be provided at the beginning of each module.

Final exam: none

- All assignments are due at the times specified by the Instructor
- Written assignments will be submitted to Turnitin (statement in policies below)
- Students will have unlimited submissions to Turnitin
- Rubrics will be used to evaluate assessments and made available at the discretion of the Instructor
- After an assessment is returned, students should wait 24 hours to digest feedback before contacting their evaluator; to ensure a timely response, reach out within 7 days

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



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

Information about late or missed evaluations:

- Late assessments without illness self-reports will be subject to a late penalty at the discretion of the Instructor
- Late assessments with illness self-reports should be submitted within 24 hours of submission of the last illness self-report
- An assessment cannot be submitted after it has been returned to the class; an alternate assessment will be assigned
- If a make-up assessment is missed, the student will receive an INC and complete the task the next time the course is offered

9. Communication:



- Students should check the OWL site every 24 – 48 hours
- Course updates will be provided on the OWL announcements as needed
- Emails will be monitored daily; students will normally receive a response in 24 – 48 hours
- This course will use ZOOM for synchronous sessions
- This course will use the OWL forum for discussions
- Students should post all course-related content on the discussion forum so that everyone can access answers to questions
- The discussion forums will be monitored daily/weekly by instructors or teaching assistants

10. Office Hours:



- Office hours are at the discretion of each instructor and normally set-up on demand
- Students will be able to sign up for an appointment using email

11. Resources



- All resources will be posted in OWL

12. Professionalism & Privacy:

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



- 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
- Any permitted recordings are not to be distributed
- Students will be expected to take an academic integrity pledge before some assessments

13. How to Be Successful in this Class:

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



1. Invest in a planner or application to keep track of your courses. Populate all your deadlines at the start of the term and schedule time at the start of each week to get organized and manage your time.
2. Make it a daily habit to log onto OWL to ensure you have seen everything posted to help you succeed in this class.
3. Take notes as you go through the lesson material. Treat this course as you would a face-to-face course. Keeping handwritten notes or even notes on a regular Word document will help you learn more effectively than just reading or watching the videos.
4. Connect with others. Try forming an online study group and try meeting on a weekly basis for study and peer support.
5. Do not be afraid to ask questions. If you are struggling with a topic, check the online discussion boards or contact your instructor(s) and or teaching assistant(s).
6. Reward yourself for successes. It seems easier to motivate ourselves knowing that there is something waiting for us at the end of the task.

14. Western Academic Policies and Statements

Absence from Course Commitments

[Policy on Academic Consideration for Student Absences](#)

If you are unable to meet a course requirement due to illness or other serious circumstances, you must seek approval for the absence as soon as possible. Approval can be granted either through a **self-reported absence** or via the **Academic Counselling** unit. Students have two self-reports to use throughout the academic year; absence from course commitments including tests, quizzes, presentations, labs, and assignments that are worth 30% or less can be self-reported. Self-reported absences cover a student for 48 hours (yesterday + today or today + tomorrow). Your instructor will receive notification of your consideration; however, you should contact your instructor immediately regarding your absence. Students are expected to submit missed work within 24 hours of the end of the 48-hour period. Please review details of the [university's policy on academic consideration for student absences](#).

If you have used both their self-reported absences or will miss more than 48 hours of course requirements, a Student Medical Certificate (SMC) should be signed by a licensed medical or mental health practitioner and you should contact academic counselling. Academic Counselling will be operating virtually this year and can be contacted at scibmsac@uwo.ca.

Accommodation for Religious Holidays

The policy on Accommodation for Religious Holidays can be viewed [here](#).

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](https://www.turnitin.com).

15. BMSUE Academic Policies and Statements

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

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

Copyright and Audio/Video Recording Statement

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

Rounding of Marks Statement

Across the Basic Medical Sciences Undergraduate Education programs, we strive to maintain high standards that reflect the effort that both students and faculty put into the teaching and learning experience during this course. All students will be treated equally and evaluated based only on their actual achievement. **Final grades** on this course, irrespective of the number of decimal places used in marking individual assignments and tests, will be calculated to one decimal place and rounded to the nearest integer, e.g., 74.4 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.

16. Support Services

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

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

[Appeal Procedures](#)

[Registrarial Services](#)

[Student Development Services](#)

[Student Health Services](#)