

Bio3316b: Advanced Cell Biology 2023-2024

General Course, Instructor & TA Information

Instructor: **Dr. Gregory Kelly**

Office Location: TBA

Email: gkelly@uwo.ca

Lecture: TBA

Office Hours: TBA.

Teaching Assistants:

Josh Bulfango

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MaKayla Driedger

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Land Acknowledgement

1. Describe and identify the fundamental signaling pathways involved in cell fate and cell proliferation.
2. Analyze a given experiment and predict the outcome given the knowledge of cell signaling pathways acquired through lecture.
3. Summarize and interpret primary literature in the form of an oral presentation.
4. Link together concepts from multiple disciplines, including cell biology, biochemistry, genetics, and developmental biology.

Course Materials

Textbook: Lodish et al. Molecular Biology of the Cell, 8th Edition or later (recommended).

Students are responsible for checking the course OWL site (<http://owl.uwo.ca>) on a regular basis for news and updates. This is the primary method by which information will be disseminated to all students in the class. All course material will be posted to OWL: <http://owl.uwo.ca>

If students need assistance with the course OWL site, 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.

Evaluation

Electronic devices are NOT allowed during midterms or final examinations. Phones, tablets, or laptops must be off or switched to Airplane mode during exams. Scholastic offences are taken seriously, and students are directed to read the appropriate policy, specifically, the definition of what constitutes a Scholastic Offence, at this website:

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

Lecture midterm 1 (**non-cumulative**) - **15%** In the event of missing this midterm, the weight

Lecture Topics and Schedule (tentative schedule only, topics may change)

Introduction to Cell Signaling pathways
Hydrophobic signaling pathways Retinoic Acid
GPCRs, light vision, Cre-lox and RTK signaling
EGF signaling, <i>C. elegans</i> vulva differentiation and cell cycle
AKT signaling in cell proliferations and apoptosis
Apoptosis and Ca ²⁺ signaling
Protein degradation pathways and canonical Wnt signaling
Non-canonical Wnt signaling
Autophagy
mTOR signaling
Hedgehog signaling
Signaling through the primary cilia
Hippo and Notch signaling
Neurodegenerative diseases
Insulin signaling
ROS and redox signaling
Redox signaling in the context of other signaling pathways
Pathogens and their

summarizing, interpreting, and critiquing a primary research article discussing a topic in cell biology. In the event of a tutorial having an odd

(e.g., more than 2 exams in a 23-hour period, more than 3 exams in a 47-hour period).

Academic Consideration by Instructor for work worth less than 10% of the overall grade in a course

Instructors are encouraged, in the first instance, to arrange participation requirements and multiple

Please contact the course instructor if you require lecture or printed material in an alternate format or if any other arrangements can make this course more accessible to you. You may also wish to contact Accessible Education if you have any questions regarding accommodations.

http://academicsupport.uwo.ca/accessible_education/index.html

Learning-skills counsellors at the Student Development Centre (<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.

Western University is committed to a thriving campus as we deliver our courses in the mixed model of both virtual and face-to-face formats. We encourage you to check out the Digital Student Experience website to manage your academics and well-being:
<https://www.uwo.ca/se/digital/>

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

This course is supported by the Science Student Donation Fund. If you are a BSc or BMSc student registered in the Faculty of Science or Schulich School of Medicine and Dentistry, you pay the Science Student Donation Fee. This fee contributes to the Science Student Donation

the Fund have allowed for the purchase of equipment integral to teaching this course. You may opt out of the Fee by the end of September of each academic year by completing the online form

process of awarding grants from the Fund or how these grants have benefitted undergraduate education in this cour

Council at ssc@uwo.ca.

Emailing Policy

Students are encouraged to use the OWL Forum as their primary way of asking questions related

Whenever possible, students who require academic consideration should provide notification and documentation in advance of due dates, examinations, etc. Students must follow up with their professors and their Academic Counselling office in a timely manner.

Documentation from Family Physicians/Nurse Practitioners and Walk-In Clinics

A Western Student Medical Certificate (SMC) is required where a student is seeking academic consideration. This documentation should be obtained at the time of the initial consultation with the physician/nurse practitioner or walk-in clinic. An SMC can be downloaded at http://www.uwo.ca/univsec/pdf/academic_policies/appeals/medicalform.pdf.