Department of Biology Course Outline

SC/BIOL 4150 Section M Cellular Regulation 3.0
Winter 2022 Remote/In-Person

Course Description

A detailed examination of molecular, cellular, and physiological processes associated with the action of peptide hormones, neurotransmitters, and growth factors. Emphasis is on cell receptors and signal transduction mechanisms from the membrane to the nucleus.

*Please note that lectures will be delivered remotely as per York University Guidelines from January 10, 2022 to January 31, 2022.
**Please continue to check for updates on Better Together (yorku.ca)

Prerequisite

1. SC/BIOL 2020 3.0; SC/BIOL 2021 3.0; SC/BIOL 2070 3.00.

2. SC/BIOL 3010 3.00; SC/BIOL 3110 3.00 (Prerequisites or corequisites strongly recommended)

Course instructor and Contact Information

Dr. Nezeka Alli
Email: nezeka3@yorku.ca
Please write 'BIOL 4150' in subject line for all emails

Virtual Office Hours: Fridays 2:00 PM – 3:00 PM – Zoom (registration required)
See eClass page for registration link for office hours.

Schedule

Lectures:
Monday, Wednesday, Friday 9:30 AM – 10::30 AM

Location:
Remote delivery via Zoom (please use Zoom link found on eClass page)
In-Person in LSB 105.

Technical requirements for taking the course

In addition to stable, higher-speed Internet connection, students will need a computer with webcam and microphone, and/or a smart device with these features. Quizzes and exams must be done via desktop or laptop computer. To determine Internet connection and speed, there are online tests, such as Speedtest,

Useful links for computing information, resources, and help:
Student Guide to Moodle
Zoom@YorkU Best Practices
Zoom@YorkU User Reference Guide
Computing for Students Website
Student Guide to eLearning at York University

Organization of the course

The lectures will be delivered in person and submission of assignments, participation/discussion, and test-taking (quizzes), will take place on the course eClass page, unless otherwise indicated by course instructor. The final exam will be in person and the date and time will be determined by the Registrar's Office.

Synchronous Mode of Delivery
-Monday, Wednesday, Friday - Zoom meeting/in-person during scheduled times determined by the Registers Office. Expected to meet at scheduled time, however, all live sessions will be posted on eClass.

-lectures are broken into two-20 min segments each followed by Q and A period (please allow flexibility with these times).

-PPT slides and primary literature papers will be posted on eClass prior to class
-Group work done in Zoom breakout rooms during class time (see course Calendar)
-Quizzes – on eClass during class time (See course Calendar for dates)
-Submission of assignments and final paper – on eClass (see course calendar for due dates).
-Final Exam – in-person

Expanded course description

Detailed analysis of cellular regulation by examining major signaling pathways that operate in cells and how these function in various cellular processes such as cell growth and division, cell movement, metabolism, development, reproduction, the nervous system, and immune function. Diseases will be discussed in relation to these cellular processes.

Course objectives/purpose and learning outcomes

Statement of Purpose:
The purpose of this course is to assist students in developing a critical overview of the regulation of cellular components while examining specific pathways and related diseases.

Learning Outcomes:
- Understand the processes of cellular regulation, including cell signalling, signal transduction, and regulation of molecular targets.
- Post-translational modifications of signalling proteins and transcription factors.
- Link cellular regulation to advances in cell and molecular biology to give a better understanding of diseases.
- Group Topic, enhance scientific communication skills via discussion and writing.

Course Topics:
Unit 1 – Introduction to Cellular Regulation
Unit 2 – Destruction Complexes in Cellular Regulation
Unit 3 – NF-κB and Immune Receptor Signaling
Unit 4 – Ca2+ Signaling
Unit 5 – Aging
Unit 6 – Rett Syndrome and Huntington's Disease

Course approach and readings

PowerPoint presentations will be used to present material. There is no textbook. Primary literature and various online resources can be found from the sites below:

Pubmed (https://www.ncbi.nlm.nih.gov/pubmed/)

Bookshelf (https://www.ncbi.nlm.nih.gov/books)

Journals (Cell.com, Nature.com, Science.com)

Experiential Education and E-Learning

E-Learning components:
• eClass Website, synchronous lectures, and office hours via Zoom
• Online assignments and Quizzes
• Collaborative writing project
• Group discussion of primary research papers and topics

Evaluation

Quizzes (25%)
• Five, worth 5% each.
• To begin at 10:00 AM sharp, 4 questions, 20 minutes total allowed time.
• Quizzes will be short answer (1-5 words). Quizzes will be sequential.

Reading/Writing Assignment (30%)
• Three primary research papers will be assigned, each with a writing assignment (10% each)
-Read the paper and discuss it with your group. Each student writes a short summary of the paper (see written assignment pdf for details).

Group Project
• You will have the opportunity to select a group from Wednesday January 12, 2022, at 6:00 PM to Monday January 17, 2022, at 6:00 PM. There are 10 groups and a maximum of 10 students/group. Groups will be further divided into two sub-groups (5 students/group). This will be your project group. Class time will be allocated to discuss assignment papers, your group topic, and to work on written assignments and papers.

Review Paper on Group Topic (20%)
• Your group must write a short review paper (5 pages max doubled spaced) on your topic (see group paper pdf on eClass for details).
• The paper will include a graphical abstract/summary from your topic (see guidelines posted on eClass). Summaries will be posted on eClass for independent review by class, and material will be tested on the final exam.

Final Exam (25%)
• A 2-hour exam comprised of short answer and long answer questions on eClass. The exam material can include anything covered in the course, including primary research papers.

See Couse Calendar for all due dates.

Course Policies

Grading
Please see the link below for York University's grading system.
Academic Information - Grades and Grading Schemes | 2012-2013 Undergraduate Calendar (yorku.ca)

Missed Quizzes – If you have a valid reason (extenuating circumstance), please contact me ASAP (no later than days (48h) after the missed quiz), otherwise you will receive a grade of zero.
Late Assignments and Final Paper – Penalty of 10% per day late, up to a maximum of 5 days, after which you will receive a grade of zero.

Academic Integrity Senate Policy on Academic Dishonesty
All students are expected to familiarize themselves with the following information, available on the Senate Committee on Academic Standards, Curriculum & Pedagogy webpage.
Please consult the websites below for more details:
http://www.yorku.ca/academicintegrity/students.htm
Academic Honesty, Senate Policy on | Secretariat Policies (yorku.ca)
https://secretariat.info.yorku.ca/files/CourseInformationForStudentsAugust2012-.pdf
• Senate Policy on Academic Honesty and the Academic Integrity Website
• Ethics Review Process for research involving human participants
• Course requirement accommodation for students with disabilities, including physical, medical, systemic, learning, and psychiatric disabilities
• Student Conduct Standards
• Religious Observance Accommodation

Academic honesty and integrity
In this course, we strive to maintain academic integrity to the highest extent possible. Please familiarize yourself with the meaning of academic integrity by completing SPARK's Academic Integrity module at the beginning of the course. Breaches of academic integrity range from cheating to plagiarism (i.e., the improper crediting of another's work, the representation of another's ideas as your own, etc.). All instances of academic dishonesty in this course will be reported to the appropriate university authorities, and can be punishable according to the Senate Policy on Academic Honesty.

Turnitin
To promote academic integrity in this course, students will be normally required to submit their written assignments to Turnitin (via the course eClass/Moodle) for a review of textual similarity and the detection of possible plagiarism. In so doing, students will allow their material to be included as source documents in the Turnitin.com reference database, where they will be used only for the purpose of detecting plagiarism. The terms that apply to the University's use of the Turnitin service are described on the Turnitin.com website.

Other Policy Information

Student Rights & Responsibilities
Academic Accommodation for Students with Disabilities

Guidelines for posting recording of Live Zoom Meeting on Course eClass

Guidelines for the Taking and Use of Photographs, Video and Audio Recordings by Employees | Information and Privacy Office (yorku.ca)

Please note:
• The recordings are used for educational purposes only and as a means for enhancing accessibility.
• Students do not have permission to duplicate, copy and/or distribute the recordings outside of the class (these acts can violate not only copyright laws but also FIPPA).
• All recordings will be destroyed after the end of classes.