

Department of Biology Course Outline

SC/BIOL 3060 4.00 Animal Physiology I
Fall 2022

Course Description

Fundamental concepts in sensory, neural, and behavioural physiology. The biochemical mechanisms whereby nerve cells detect and transmit information and the processes whereby information is integrated in the nervous system and gives rise to the outputs of behaviour.

Prerequisites (strictly enforced)

SC/BIOL 2020 3.00, SC/BIOL 2021 3.00, SC/BIOL 2030 4.00/3.00

Course Format and Requirements

This course consists of mandatory in-person and online components. Students must be able to be able to attend class, tests, and labs in-person (on campus). Students also must have a computer or tablet and access to reliable high-speed internet. Some aspects of the course will involve Zoom video conferencing software. Microsoft Office, including Word, Excel, and Power Point, are strongly recommended (and are freely available to YorkU students).

The lecture component of this course, including tests, will be delivered in-person. Efforts will be made to record and post lectures online. Some lectures may be delivered remotely and/or asynchronously due to illness and other circumstances. Guest lectures will be delivered synchronously (live) via Zoom.

The laboratory component of this course will be delivered in-person and attendance is mandatory. See "Course Policies" section for details on missed laboratories. **Labs are a mandatory component of BIOL 3060.** You MUST attend only the lab section in which you are registered. In-person attendance in and completion of labs is mandatory, even if repeating the course.

Course Instructor and Contact Information

Instructor: Dr. Ryan Schott

- **Email:** schott@yorku.ca. Please include 'BIOL 3060' in the subject line.
- **Virtual Office Hours:** by appointment.

Lab Coordinator: Farwa Sajadi

- **Email:** farwa@my.yorku.ca. Please include 'BIOL 3060 Labs' in the subject line. Main contact for questions regarding the labs.

Copyright Protection of Course Material

All material associated with this course is the intellectual property of the instructor and/or protected under Canadian Copyright Law. All course material, including lecture recordings, activities, tests/exams, problem sets and assignments, are to be used for personal study purposes only.

Unauthorized distribution in any form can lead to a violation under Canadian Copyright Law and/or Academic Misconduct charges under York University Senate Policy. Unauthorized distribution includes sharing and/or uploading of material anywhere and with anyone.

Penalties under Academic Misconduct can include failure in the course, a transcript notation and/or suspension.

Schedule

The course schedule is subject to change with notice.

Lectures: The lectures will be delivered in-person Monday and Wednesday at 1:30pm in ACW 206. Lectures will occasionally take place during the Friday 1:30pm timeslot as well. Generally, the Friday 1:30pm timeslot will be used for review sessions, guest lectures, quizzes, and tests.

Laboratories:

The laboratory component of this course will be delivered in-person and attendance is mandatory. See “Course Policies” section for details on missed laboratories. Laboratories occur every other week with one exception of back-to-back weeks of labs (weeks of Sept. 26 and Oct. 3).

Please refer to the Lab Schedule Calendar on the eClass course website for the specific dates of each lab and attend the lab during the day and timeslot for the lab section you are registered for.

Labs 1, 4, and 6 have lab reports, and Lab 5 has a short assignment. These are due two (2) weeks after your scheduled lab. All labs have pre-lab and/or in-lab assessments.

Labs are a mandatory component of BIOL 3060 and must be attended in-person.

You MUST attend only the lab section in which you are registered.

Evaluation

Lecture Work (60% Total)

Review Quizzes — 6% total

Three (3) Tests — 48% total:

- Lecture Test 1 (Friday, October 7)
- Lecture Test 2 (Friday, November 11)
- Lecture Test 3 (Monday, December 5)

Three (3) Guest Lecturers (Students to complete a short assignment) — 6% Total

- Guest lecture 1 (September 24th)
- Guest lecture 2 (October, day TBD)
- Guest lecture 3 (November, day TBD)

Laboratory Work (40% Total)

Seven (7) Laboratories:

- 7 Pre-lab and/or in-lab assessments – 3% each, lowest dropped (18% total)
- 1 Lab assignment – 3% (Lab 5)
- 3 Written Lab Reports – 4% (Lab 1), 6% (Lab 4), 9% (Lab 6) (19% total)

Important Dates

See Evaluation above and visit the course eClass page for specific due dates for course and laboratory work.

You have within **21 days (3 weeks)** from the start of term (September 7th, 2021) to purchase an access code for the Lt Software (ADInstruments) through the YorkU bookstore in order to have continued access to laboratory content and complete the assignments.

Drop Deadline: November 11, 2022

Course Withdrawal: November 12 to December 7, 2022

(withdraw from course and receive a grade of “W” on transcript)

NOTE: for additional important dates such as holidays, refer to the “Important Dates” section of the Registrar’s Website: <https://registrar.yorku.ca/enrol/dates/2022-2023/fall-winter>

Resources

Textbook (E-book only; Optional but highly recommended):

Animal Physiology: From Genes to Organisms, 2nd Edition

ISBN-10: 0840068654 ISBN-13: 9780840068651

Lt Laboratory Software (Required): Lt Software (ADInstruments) access code must be purchased through the YorkU bookstore within 21 days from the start of the Fall semester (September 8th, 2021). Lt Software includes laboratory manuals, pre-lab assignments, in-lab assignments, and step-by-step guide to data analyses and graphing. **A stable internet connection is required to access the web-based Lt Software.**

Course eClass Website: Recorded lectures and slides will normally be posted to eClass each week on Mondays and Wednesday (approximately 2 hours of lecture per week). Additional resources (e.g. research articles, videos, pictures for laboratories and lectures) may also be posted.

Accessibility: This course has been designed to be accessible. Contact the course director if you have additional needs.

Learning Outcomes

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

1. Describe the basic organization and control processes of the nervous system and explain how this drives muscle movement and sensory perception in a variety of animal phyla.

Assessment: written tests and lab reports/assignment.

2. Measure, analyze, and interpret experimental data and demonstrate in-person laboratory skills in animal anatomy and physiology drawn from both invertebrate and vertebrate examples.

Assessment: Evaluating guest lectures from animal physiology researchers, laboratories and corresponding written lab reports/assignment.

3. Write concise, clear descriptions of physiological processes to communicate experimental data and a theoretical understanding of animal physiology.

Assessment: written tests, laboratory reports/assignment.

Course Content

The following topics will be discussed: cell permeability and exchange; nerve cells, impulses and neural transmission; coding of environmental stimuli by sense organs and physiology of the senses; integration in the nervous system; mechanisms and nervous pathways by which a particular stimulus leads to a particular behavioural response; plasticity in the nervous system, including learning; muscles and movement; hormones and other chemical messengers.

Lecture Organization (subject to change with notice)

Topic 1: Introduction to Animal Physiology; Membranes, Channels, and Transport

Topic 2: Physical Basis for Neuronal Function

Topic 3: Communication Along and Between Neurons

Test 1

Topic 4: Muscles and Animal Locomotion

Topic 5: Structure and Functional Organization of the Nervous System

Topic 6: Sensing the Environment

Test 2

Topic 7: Animal Behaviour: Initiation, Patterns, and Control

Topic 8: Hormones, Glands, and Other Chemical Messengers

Test 3

Course Policies

Online Tests – General:

- Tests will be “open book”; you may consult the course textbook, power point slides, your own lecture notes and the eClass website for the course during a test.
- Tests are strictly individual exercises. Communication of any kind with any person other than the course director (to ask questions via email) during a test is prohibited and will be treated as academic misconduct.
- Consulting websites other than the course website during a test is prohibited and will be treated as academic misconduct.

Policy for Tests:

- There are three (3) tests (Oct. 7, Nov. 11, Dec. 5). The tests are worth 48% total.
- **For those that write all the 3 tests**, at the discretion of the course director the following policy may be applied: the test with the lowest grade is worth 12%, the test with the highest grade is worth 20% and the remaining test is worth 16%.
- **If you do not write 1 test:** of the remaining 2 tests, the test with the lower grade is worth 29% and the test with the higher grade is worth 19%.
- **If you do not write 2 tests**, the single test you write will be worth 29% and you will earn a grade of zero worth 19%.
- **If you do not write ALL 3 tests**, you will earn a zero worth 48%.
- **There are NO EXCEPTIONS to this Policy.** No explanation or documentation is requested or required for missing tests. The Policy will be applied as outlined above.

Policy on Laboratories:

- There are seven (7) in-person laboratory meetings in total and for all seven (7) attendance is mandatory (see the schedule for dates and plan ahead). However, the lowest pre/in-lab assessment mark will not count towards your grade allowing you to miss one session without

penalty, if you complete the associated lab report or assignment (if any).

- If you miss a laboratory meeting you will be provided access to the data from the lab, and you will be permitted to write the associated laboratory report.
- Missing multiple labs will result in a grade of zero worth 3% for that lab and a deduction to the grade of the associated lab report as determined by the course instructor.
- There are NO EXCEPTIONS to this Policy. No explanation or documentation is requested or required for missing laboratories. The Policy will be applied as outlined above.

Policy on Late Lab Reports:

- There are three (3) written laboratory reports (Labs 1, 4, and 6) and one (1) shorter lab assignment (Lab 5).
- You are provided with two (2) weeks from the time you complete the laboratory to the time the report/assignment is due.
- **You MUST submit an electronic version of your report via eClass to the TurnItIn link provided by the due DATE and TIME.**
- If you submit a report AFTER the Due DATE and TIME, 10% of the final earned grade will be deducted for each 24-hour period that it is late.
- **There are NO EXCEPTIONS to this Policy.** No explanation or documentation is requested or required for late laboratory reports. The Policy will be applied as outlined above.

Email etiquette:

Subject line: please begin with "BIOL 3060" followed by a brief, but reasonably detailed, indication of the subject of your email (e.g., "question about lecture 3", etc.)

Body of the email: remember to include your name and student number at the end of every email.

Response time: please allow 2 working days.

Religious observance days:

Should the dates for a test pose a conflict with a religious observance day for your particular religion, you must notify the instructor **at least 3 weeks before the date of the test.**

Some Advice on How to Succeed in This Course:

1) Acquire a copy (or e-copy) of the textbook and use it. You are responsible for all chapters in the textbook indicated and all material in those chapters unless certain pages/sections are explicitly excluded by the instructor.

2) Keep up with lectures and readings. By missing lectures and not doing the readings you will fall behind very quickly. If you try to cram all of the material right before the test, you will struggle to perform well.

3) Attend review sessions.

4) Use the group forums available on eClass to ask, or answer, any questions pertaining to laboratory or lecture material. The course instructor will also use group forums to answer frequently asked questions.

Students who feel that there are extenuating circumstances that may interfere with their ability to successfully complete the course requirements are encouraged to discuss the matter with the Course Director as soon as possible.

Academic Honesty

All students are expected to familiarize themselves with the following information, available on the Senate Committee on Academic Standards, Curriculum & Pedagogy webpage (see Reports, Initiatives, Documents)

<https://secretariat-policies.info.yorku.ca/policies/academic-honesty-senate-policy-on/>

- 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 Standards: Third Party Repository Sites

Numerous students in Faculty of Science courses have been charged with academic misconduct when materials they uploaded to third party repository sites (e.g. Course Hero, One Class, etc.) were taken and used by unknown students in later offerings of the course. The Faculty's Committee on Examinations and Academic Standards (CEAS) found in these cases that the burden of proof in a charge of aiding and abetting had been met, since the uploading students had been found in all cases to be willfully blind to the reasonable likelihood of supporting plagiarism in this manner. Accordingly, to avoid this risk, students are urged not to upload their work to these sites. Whenever a student submits work obtained through Course Hero or One Class, the submitting student will be charged with plagiarism and the uploading student will be charged with aiding and abetting.

Note also that exams, tests, and other assignments are the copyrighted works of the professor assigning them, whether copyright is overtly claimed or not (i.e. whether the © is used or not). Scanning these documents constitutes copying, which is a breach of Canadian copyright law, and the breach is aggravated when scans are shared or uploaded to third party repository sites.

There is also an academic integrity website with comprehensive information about academic honesty and how to find resources at York to help improve students' research and writing skills, and cope with University life. Students are expected to review the materials on the Academic Integrity website at - http://www.yorku.ca/spark/academic_integrity/index.html

Access/Disability

York University is committed to principles of respect, inclusion and equality of all persons with disabilities across campus. The University provides services for students with disabilities (including physical, medical, learning and psychiatric disabilities) needing accommodation related to teaching and evaluation methods/materials. These services are made available to students in all Faculties and programs at York University.

Students in need of these services are asked to register with disability services as early as possible to ensure that appropriate academic accommodation can be provided with advance notice. You are encouraged to schedule a time early in the term to meet with each professor to discuss your accommodation needs. Please note that registering with disabilities services and discussing your needs with your professors is necessary to avoid any impediment to receiving the necessary academic accommodations to meet your needs.

Additional information is available at the following websites:

Counselling & Development Services - <https://counselling.students.yorku.ca>

Counselling & Disability Services at Glendon – <https://www.glendon.yorku.ca/counselling/>

York Accessibility Hub - <https://accessibilityhub.info.yorku.ca>

Religious Observance Accommodation

York University is committed to respecting the religious beliefs and practices of all members of the community, and making accommodations for observances of special significance to adherents. Should any of the dates specified in this syllabus for an in-class test or examination pose such a conflict for you, contact the Course Director within the first three weeks of class. Similarly, should an assignment to be completed in a lab, practicum placement, workshop, etc., scheduled later in the term pose such a conflict, contact the Course director immediately. Please note that to arrange an alternative date or time for an examination scheduled in the formal examination periods (December and April/May), students must complete an Examination Accommodation Form, which can be obtained from Student Client Services, Student Services Centre or online at <https://secure.students.yorku.ca/pdf/religious-accommodation-agreement-final-examinations.pdf>

Student Conduct in Academic Situations

Students and instructors are expected to maintain a professional relationship characterized by courtesy and mutual respect. Moreover, it is the responsibility of the instructor to maintain an appropriate academic atmosphere in the classroom and other academic settings, and the responsibility of the student to cooperate in that endeavour. Further, the instructor is the best person to decide, in the first instance, whether such an atmosphere is present in the class. The policy and procedures governing disruptive and/or harassing behaviour by students in academic situations is available at - <http://secretariat-policies.info.yorku.ca/policies/disruptive-andor-harassing-behaviour-in-academic-situations-senate-policy/>