



Department of Biology Course Outline

Summer 2025 BIOL3060, Animal Physiology I, 4.0 credits

Course Instructor: Marishia Agard (PhD Candidate)

How to address me: Marishia

Personal Pronouns: (she/her)

Email: mar68@yorku.ca

Note: If you have a question or would like to talk with me, you can send an email, visit me during student hours (see below), or approach me after class.

Student Hours: Friday, 9:30-10:30am or zoom

What are 'Student Hours'?

Student hours are dedicated times through the week for the course instructor to meet with YOU. Pop in to introduce yourself, ask questions about the course, or discuss content from the course.

Note: If these times don't work for you, email me and we can arrange an alternate time to meet.

Course Format: All lectures & labs are held in-person. Lectures will be recorded. PDF of lecture slides are posted on eClass in advance. Students are welcome to take audio recordings of lectures for personal use.

Prerequisites: SC/BIOL 2020 3.00, SC/BIOL 2021 3.00, and SC/BIOL 2030 4.00.

Office Location: Lumbers 221

[Click here for visual directions.](#)

Class Times: Monday, Wednesday & Friday, 8:30am – 9:30 am

Class Location: Life science building 105 (LSB 105)

[Click here for visual directions.](#)

Laboratory Times: Monday @ 10am-1pm, Wednesday @ 10am-1pm, Thursday @ 10am-1pm

Laboratory Locations: Lumbers 109

[Click here for visual directions.](#)

Study Spaces on Campus:

<https://currentstudents.yorku.ca/study-spaces>

Laboratory TAs:

Jessie Ly (jessiely@yorku.ca)

Dana Sherrard (danasher@yorku.ca)

Taegan Perez (tjmperez@yorku.ca)

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Land Acknowledgement

York University recognizes that many Indigenous Nations have longstanding relationships with the territories upon which York University campuses are located that precede the establishment of York University. York University acknowledges its presence on the traditional territory of many Indigenous Nations. The area known as Tkaronto has been care taken by the Anishinabek Nation, the Haudenosaunee Confederacy, and the Huron-Wendat. It is now home to many First Nation, Inuit, and Métis communities. We acknowledge the current treaty holders, the Mississaugas of the Credit First Nation. This territory is subject of the Dish with One Spoon Wampum Belt Covenant, an agreement to peaceably share and care for the Great Lakes region.

Welcome to this Course!

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.

Grade Breakdown*

COMPONENT	GRADE VALUE	
MIDTERM EXAMS (X2)	30% (15% each)	Lecture Component (60% Total)
ACTIVITY GRADE	10%	
FINAL EXAM	20%	
PRE-LAB/IN-LAB (X7)	18% (3% each, lowest dropped)	Lab Component (40% Total)
LAB REPORTS (X3)	19%	
LAB ASSIGNMENT (X1)	3%	

*Final course grades may be adjusted to conform to Program or Faculty grades distribution profiles at the discretion of the course director.

Important Dates

Drop Deadline: July 7, 2025 (last day to drop without receiving a grade on transcript)

Course Withdrawal Deadline: July 8 – August 5, 2025 (withdraw from a course and receive a grade of “W” on transcript)

Learning Materials

- **Textbook (not required, but recommended):**

Animal Physiology: From Genes to Organisms, 2nd edition

Sherwood L., Klandorf H., Yancy P.H., 2013, Brooks/Cole, Cengage Learning

- **Alternative Textbook Options:**

Randall D.J et al “ Eckert Animal Physiology: Mechanisms and Adaptations” 5th Edition

- **iclicker (Activity Grade):** make sure to join the course to receive activity grade

<https://join.iclicker.com/QELI>

- **Lt Laboratory Software (Required):** Lt Software (ADInstruments) is available immediately for a trial time, but an access code **must** be purchased through the **YorkU bookstore** for continued use (<https://campus.bookstore.yorku.ca/CEB-Access-Code-for-LT-Lab-Software-for-BIOL3060> (**link also found on e-class**)). 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.






- **Laboratory Materials (Required) –** all available from the Bookstore:

- Laboratory Coat
- Protective Glasses/Goggles
- Dissection Kit (must include scissors and forceps)
- Lab notebook (for hand written lab notes during labs)
- USB key (for saving data)

- **Lab Manual:** All lab manuals will be posted on eClass.

- **Other resources:** McMillian V. “Writing Papers in the Biological Sciences” (Resource providing tips and guidance for writing different biology reports)

Technology Checklist:

 <p>An internet-enabled computer to access eClass and materials</p>	 <p>Zoom software installed on computer</p>	 <p>Access to reliable internet</p>	 <p>Webcam</p>	 <p>Microphone</p>
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Note: If you don't have access to a computer, webcam, microphone, consider [borrowing a laptop from York U](#), [financial aid from York](#), and [single workspaces available for student use on campus at the library](https://www.library.yorku.ca/web/ask-services/printing-and-computing/computing/public-computers-labs/). (<https://www.library.yorku.ca/web/ask-services/printing-and-computing/computing/public-computers-labs/>)

Course Learning Outcomes

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

1. Develop an improved understanding of the fundamental concepts and principles of animal physiology;
2. Gain a deeper understanding of the relationship between structure and function at the molecular, cellular, system, and organismal levels;
3. Understand the basics of membrane permeability, hormonal communication, action potential propagation of nerves, mechanisms of sensory physiology, skeletal muscle activity and kinetics;
4. Demonstrate proficiency in experimental design, data collection, statistical analysis, and interpretation of scientific results;
5. Improve both oral and written scientific communication skills;
6. Cultivate the ability to work as a productive member of a team.
7. Assessments: written tests, activities, and lab reports/assignment.

Course Content

This course will provide an overview of the basic principles of animal physiology – they explore how animals function. The physiology of different animals will be compared within an evolutionary context, with a slight focus on vertebrates.

In general, the courses will be organized by physiological systems. Biol 3060 will examine basic cell physiology, the endocrine system, the nervous system (including motor and sensory branches), and the muscular system.

Although the course is organized by systems it is important to remember that the systems function together as a whole, and therefore an integrative approach will be employed throughout. The labs complement and enhance material from lectures, with which they are integrated. They allow you to apply your knowledge and develop an understanding of how physiology is studied.

Topics Covered

- Unifying principles in physiology (e.g. homeostasis)
- Cellular basis of physiology
- Chemistry, biochemistry and cytology of intra- and intercellular communication
- Endocrinology, hormones and regulated behaviour
- Neuronal signalling, conduction and operation of synapse
- Electrical and pharmacological operations of neurons

- Organization of the two nervous systems
- Learning and memory of the brain
- Sensory systems: General and chemoreception, mechanosensing and hearing, etc.
- Neuromuscular junction anatomy and muscle function
- Actin and myosin; sliding filaments, regulation of contraction and muscle diversity
- Muscle fibre types, energy metabolism, and perfusion
- Basic animal behaviours

See the course schedule for detailed information about course content, including readings, due dates, and concurrent labs

Course Policies

In-class Activities:

- Activities will be completed throughout the term. They are varied and designed to support your learning.
- Many of the items in this category will include points for participation/completion. This can include iclicker questions, weekly reading quizzes and/or in-class exercises that are utilized to promote engagement and learning of different topics.
- Note: The lowest 10% of your activity points (including zeroes) will be dropped from your Activity Grade to help address any unexpected absences/events and/or technological issues.

Tests – General:

- Tests occur during class time, in-person (on campus) on **Friday June 6** and **Monday July 14** (see Evaluation section above). The tests will be based exclusively on lecture (with lab-related topics when relevant overlap in content occurs). You will have the full 50-minute class period to complete them.
- Room assignments will be provided closer to the test dates.
- Test format will be discussed closer to each test date.
- No electronics in any capacity are permitted. All electronics including cell phones, watches and related devices must be stored in a bag and not on ones self.
- Tests and the exam are strictly individual exercises. Communication of any kind with any person other than the Course Director or invigilator during a test is prohibited and will be treated as academic misconduct. York University Academic Honesty Policies apply ([Linked here](#))

Test Weighting and Missed Test(s):

- There are two (2) tests (**Friday June 6** and **Monday July 14**), each weighted 15% of the course total.
- There are no make up opportunities for a missed test, however, the lowest Test grade (including a zero for a missed test) will be automatically replaced by the Final Exam grade only if this results in a higher grade. No explanation or documentation required for missed tests.
- Policy will be applied as follows:
 - If Lecture Test 1 and Lecture Test 2 are written: The lowest Test grade will be automatically replaced by the Final Exam grade only if this results in a higher grade.
 - If one Lecture Test is missed and one Lecture Test is written: The missed test will earn a grade of zero, however, as this will be the lowest Lecture Test grade, it will be replaced by the Final Exam grade.
 - If Lecture Test 1 and Lecture Test 2 are both missed: The Final Exam grade will be applied to only one test (15%). A zero will be earned for the other test (15%).
- **The final Exam is cumulative.**

Test Feedback:

- While we will do our best to provide grades to students in a timely manner. Your patience is appreciated. Learning happens best when people actively engage material on a consistent basis, and that is why we have high standards in this course. We are confident that, with appropriate effort, you all can meet those standards. When possible, we also try to reduce unintentional bias in grading by, for example, grading assignments one question at a time (grading all of question 1 before grading any of question 2), grading anonymously, and using rubrics. These also help improve consistency in marking.

Policy for a Missed Final Exam:

- If you miss the final exam you must petition for deferred standing. Information and instructions with forms can be found at <https://myacademicrecord.students.yorku.ca/deferred-standing>
- **You Must hand the deferred standing form to the course director within 7 days of missing the exam along with an explanation for the reasons for missing the exam.**
- The format for a deferred final exam may be different from the original format of the exam.

Laboratories:

There are seven (7) in-person laboratory meetings and for all seven (7) **attendance is mandatory** (please see the lab schedule on eClass and plan ahead). **7 Pre-lab and/or in-lab assessments: 3%**

each, lowest dropped (18% total). Pre-lab must be completed before attending the lab session. Both the pre-lab and in-lab assignments will be available on Lt. 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 one is associated with the lab).

- If you miss a laboratory meeting contact the course director (Marishia – mar68@yorku.ca). This is within 24 hours of missing the lab, no later.
- You will be provided the opportunity to complete a possible makeup lab or write the associated laboratory makeup assignment.
- Missing multiple labs will result in a grade of zero on the pre/in-lab assessment for the missed labs and a deduction to the grade of the associated laboratory report or assignment (if one is associated with the lab) as determined by the Course Director.
- There are no exceptions to the above policy. No explanation or documentation is required. The policy will be applied as outlined above.
- **Note: students arriving to lab after the pre-lab talk will not be permitted to stay as this is a safety issue. Contact the course director (Marishia – mar68@yorku.ca) immediately.**

Laboratories – Student Code Conduct and Safety Agreement:

- Students must agree to the “Laboratory Student Code of Conduct and Safety Agreement” and the Academic Honesty Policies before entering the laboratory for their first lab (**due May 9th, 2025 via e-class**). Both to be completed via eClass. See eClass for details.

Lab Reports:

- There are three (3) written laboratory reports (Labs 1, 4, and 6) and one (1) shorter lab assignment (Lab 5). **1 Lab assignment: 3% (Lab 5) + 3 Written Lab Reports: 4% (Lab 1), 6% (Lab 4), 9% (Lab 6) = 22% total.**
- You are provided **two (2) weeks** from the start of your lab session to complete the laboratory report. Note that additional time is already incorporated into this timeline, but if needed, an additional 24-hour no-penalty extended submission time (from your original due date and time) is in place.
- You **must** submit an electronic version (in the appropriate format) of your report, via eClass to the Turnitin link, by the due date and time.
- If you submit a report **after** the due date, **10%** will be deducted per day. If you submit the report after your lab has started (10am), it is considered late. In the event you are having trouble with the Turnitin submission link on eClass, you must immediately email the report to your TA and copy the course director (**before the deadline**).

- There are no exceptions to this policy. No explanation or documentation is requested or required for late laboratory reports.

Academic Honesty and Integrity: Laboratories:

- Students are expected to follow York University's policies regarding academic integrity. Please consult the following website below for more details:
<https://www.yorku.ca/secretariat/policies/policies/academic-conduct-policy-and-procedures/>
- You are expected to complete laboratory assignments and reports on your own (unless otherwise stated) and in your own words. Unauthorized collaboration is an academic offense, so ensure that individual lab submissions are your own.
- If you are taking the course again you cannot submit the identical report(s) submitted previously for grade. It is an Academic Offence to submit work yourself, or another individual, has previously submitted for grade.
- Any student who resubmits the same report for grading, a report written by anyone/thing other than themselves, or commits plagiarism will earn a zero on their lab report and could potentially face charges relating to academic dishonesty.
- **Note: ChatGPT and similar AI programs may not be used for the composition of any material in this course, including laboratory reports.** You must personally organize, write and edit all your work (this is how you learn and develop your writing abilities).
- You must agree to adhere to Academic Honesty Policies. Please see eClass to do so.

Reappraisal Requests:

If you believe that a course evaluation component (e.g. laboratory report) was graded incorrectly, you may request a grade reappraisal for the work.

For reappraisal of lecture material you must submit a written rationale for a reappraisal request that is based on academic grounds* to Marishia – mar68@yorku.ca within 7 days (one week) of the material being made available to you. If it is determined that you have provided sufficient academic grounds, the material will be regraded by the Course Director.

Note: Regrading can result in the grade being raised, confirmed or lowered.

For reappraisal of laboratory material

- You should first consult with your TA. It must be a specific questions regarding TA comments or portions of the report. Must provide academic reasons why you feel you should earn a higher grade.
- If it is not resolved after meeting with your TA, please contact the course director, Marishia – mar68@yorku.ca for a potential independent reappraisal (if academic grounds are met).

- All reappraisal requests must be submitted within 7 days (one week) of the work being made available to you. Please note that the entire report/assignment is reappraised. *Regrading can result in the grade being raised, confirmed or lowered.*

*Academic grounds means you make an academic rationale for why your answer is correct

Learning Environment

Everyone learns more effectively in a respectful, safe, and equitable learning environment free from discrimination or harassment. I invite you to work with me to create a classroom space—both real and virtual—that fosters and promotes values of human dignity, equity, non-discrimination and respect for diversity. These values and practices are in accord with York Universities policies on equity and inclusion promoted by the Centre for Human Rights, Equity and Inclusion (<https://rights.info.yorku.ca/>).

Behaviour and Conduct

- Students are expected to ensure that the classroom and laboratory learning environments are inclusive, respectful, peaceful, and safe.
- Interactions and relationships with instructors and other students (in person, online, in email, etc.) within the academic context should be professional and characterized by integrity, courtesy and mutual respect.
- Lectures should be interactive - please get engaged in the material and ask as well as answer questions!
- I fully encourage a reduction in the use of paper but if you bring your laptop to take notes, please refrain from using the internet in class (otherwise you will be banned from bringing your computer).
- Please be considerate in lectures and refrain from talking as it will disturb the learning environment.
- Students are expected to attend all lectures and labs.

Email Policies and Etiquette

I will try to respond to email within **24 hours**, but this is not always possible especially during times of high demand, so your patience is greatly appreciated. Please avoid repeatedly emailing the same message in a short span of time as this increases triage time and thus response time.

Emails that do not meet the requirements below will not be answered:

1. Use your @my.yorku.ca email address when emailing instructors and others within the university. Email from other sources may be filtered out and not reach the intended recipient.
2. SUBJECT LINE - Include the course code, and a brief indication of topic.

3. Lecture email example: BIOL 3060 – question regarding action potentials
4. Include your **name** and **student number** at the end of each email. We need it to identify you to retrieve the right information and maintain confidentiality.
 - Remember that **tone** can be misinterpreted through written means as we do not have physical cues to help guide us. Avoid using all capitals (which can represent yelling) and multiple exclamation marks (which can also represent yelling). Consider this an opportunity to practise professional correspondence which you will use throughout your career.
 - Please use full sentences, proper grammar, no text or message or social media lingo. Please begin your message appropriately: “Dear Professor XXXX”; not “Hey Miss” or “Hey Prof”

Who do I ask what?

The **Course Director** (Marishia Agard) will be teaching the course and is the person to ask any questions pertaining to the lectures and labs. However, you are encouraged to first ask your TA about lab related material.

University Policies

Grading Scheme

In accordance with the York University Undergraduate Calendar Regulations, the letter grades assigned in undergraduate courses at York conform to the descriptions and grade ranges shown here: <https://calendars.students.yorku.ca/2023-2024/grades-and-grading-schemes>

Academic Honesty and Integrity

Academic misconduct undermines the values of honesty, trust, respect, fairness, and responsibility that we expect in this class. York University provides supports such as academic integrity workshops to ensure that all students understand the norms and standards of academic integrity that we expect you to uphold.

York students are required to maintain the highest standards of academic honesty and they are subject to the Senate Academic Conduct Policy and Procedures (<https://www.yorku.ca/secretariat/policies/policies/academic-conduct-policy-and-procedures/>).

The Policy affirms the responsibility of faculty members to foster acceptable standards of academic conduct and of the student to abide by such standards. Please review and familiarize yourself with the policy.

There is also an academic integrity website with comprehensive information about academic honesty and how to find resources at York to help improve your research and writing skills, and cope with University life. Students are expected to review the materials on the Academic Integrity website:

Examples of actions that do not adhere to York’s Academic Integrity Policy include:

- Plagiarism (passing off someone else's work as your own)
- Accessing unauthorized sites for assignments or tests
- Unauthorized collaboration on assignment and exams
- Uploading work to third party repository sites (e.g., Course Hero, One Class, etc.)
- Scanning, sharing, uploading, or publishing exams, tests, or scholarly work

For more information on what academic integrity is and why it is important see:

<https://spark.library.yorku.ca/academic-integrity-what-is-academic-integrity/>. Information on the process of investigations into breaches of academic honesty:

<https://spark.library.yorku.ca/academic-integrity-breach-of-policy-on-academic-honesty/>

Important Note from the FSc Committee on Examinations & Academic Standards (CEAS):

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. Whenever a student submits work obtained through an external site (e.g., Course Hero, Chegg), the **submitting student will be charged with plagiarism** and the **uploading student will be charged with aiding and abetting**. To avoid this risk, students are urged not to upload their work to these sites.

Assistance for Students (Academic and Well-Being)

Academic Advising*: <https://www.yorku.ca/science/academic-advising/> * Departments also offer program-specific advising. Check with your Department's Undergraduate Office.

Centre for Human Rights, Equity, and Inclusion: <https://rights.info.yorku.ca/>

Centre for Indigenous Students Services: [Centre for Indigenous Students Services link](#)

Food Access, Funding, & Supports/Resources: <https://students.yorku.ca/food>

Good2Talk 24-hour Ontario Student Helpline: 1-866-925-5454 /Text: GOOD2TALKON to 686868

Keep.meSAFE: <https://myssp.app/keepmesafe/ca/home>

Learning Commons (general academic learning supports including library research, time management, study skills, career planning, etc.): <https://learningcommons.yorku.ca/>

Peer Assisted Study Sessions (PASS): <https://www.yorku.ca/colleges/bethune/get-help/pass/>

Peer Tutoring: <https://www.yorku.ca/colleges/bethune/help/tutoring/>

Sexual Violence Response and Support: <https://thecentre.yorku.ca>

Student Counselling, Health & Well-being: <https://counselling.students.yorku.ca/>

Support Services for International Students: <https://yorkinternational.yorku.ca/international-student-support/>

Writing Services: <https://www.yorku.ca/colleges/bethune/get-help/writing/>

York University Student Well-being Resources: <https://www.yorku.ca/well-being/resources/students/>

Accessibility

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

If you are in need of these services, please register with accessibility 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 accessibility 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:

Student Accessibility Services: <https://accessibility.students.yorku.ca>

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

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. To arrange an alternative date or time for an examination scheduled in the formal examination periods (December and April/May), students must complete and submit an accommodation request form at least 3 weeks before the exam period begins. <https://secure.students.yorku.ca/pdf/religious-accommodation-agreement-final-examinations.pdf>

Student and Instructor 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/>.

Academic accommodation refers to educational practices, systems and support mechanisms designed to accommodate diversity and difference. The purpose of accommodation is to enable students to perform the essential requirements of their academic programs. At no time does academic accommodation undermine or compromise the learning objectives that are established by the academic authorities of the University.

University rules regarding registration, withdrawal, appealing marks, and most anything else you might need to know can be found on the university's website, here:

<https://calendars.students.yorku.ca/policies-and-regulations>

Copyright Policy

All material associated with this course is the intellectual property of the instructor and/or protected under Canadian Copyright Law. All material associated with this course, including lecture recordings, activities, quizzes and laboratories, 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. Please see the "University Policies" section below for further information.