Department of Biology Course Outline

SC/BIOL 3060 4.00 Animal Physiology I
Fall, 2020/2021

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

Course Instructor(s) and Contact Information

**Course Director:**
Andrea Durant
205 Lumbers Building
adurant@yorku.ca

**Teaching Assistants:**
TO BE ANNOUNCED

Schedule/Course Format

**Delivery mode (Lectures):**

The lecture component of this course will be delivered completely online. Virtual lecture sessions will be asynchronous (recorded), with some synchronous sessions detailed below. Timetabled, synchronous sessions will be used for midterms, review sessions, and guest lectures. **All times in Eastern Daylight Time (EST).**

<table>
<thead>
<tr>
<th>Mode</th>
<th>Lecture Day</th>
<th>Time</th>
<th>Frequency**</th>
<th>Attendance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lectures-Asynchronous</td>
<td>Lectures posted at</td>
<td>Not applicable</td>
<td>See Course Calendar**</td>
<td>Not applicable</td>
</tr>
<tr>
<td></td>
<td>the start of each</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>week</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Midterms-Synchronous</td>
<td>Friday</td>
<td>1:30-2:30pm</td>
<td>See Course Calendar**</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Review Sessions-Synchronous*</td>
<td>Friday</td>
<td>1:30-2:30pm</td>
<td>See Course Calendar**</td>
<td>Optional</td>
</tr>
<tr>
<td>Guest Lectures-Synchronous*</td>
<td>Friday</td>
<td>1:30-2:30pm</td>
<td>See Course Calendar**</td>
<td>Yes</td>
</tr>
</tbody>
</table>

*Virtual synchronous sessions will be recorded for later viewing
**A course calendar with specific dates is available on the course Moodle page

Eastern Daylight Time (EST).
Delivery mode (Laboratories):

The laboratory component of this course will be delivered completely online. Virtual laboratory sessions will be synchronous (live) and attendance is mandatory. See “Course Policies” section for details on missed laboratories. All times in Eastern Daylight Time (EST).

Labs are a mandatory component of BIOL 3060. You MUST attend only the lab section in which you are registered.

Specific laboratory sections are listed under the corresponding day/time below.

<table>
<thead>
<tr>
<th>Time</th>
<th>MON (M)</th>
<th>TUES (T)</th>
<th>WED (W)</th>
<th>THURS (R)</th>
</tr>
</thead>
<tbody>
<tr>
<td>10:00am-1:00pm</td>
<td>4, 5</td>
<td>9</td>
<td>10</td>
<td>11</td>
</tr>
<tr>
<td>2:30pm-5:30pm</td>
<td>1, 6, 12</td>
<td>2, 7, 13</td>
<td>3, 8</td>
<td></td>
</tr>
</tbody>
</table>

Technology Requirements

- Stable internet connection
- Laptop or computer with capabilities of downloading software
- Working microphone
- Working webcam (OPTIONAL, you will NOT be asked to turn on your camera during sessions)

Evaluation

Lecture Work (65% Total):

Three (3) Midterm Tests (60% Total):
- Lecture Test 1 (October 9th)—20%
- Lecture Test 2 (November 13th)—20%
- Lecture Test 3 (December 4th)—20%

Three (3) Guest Lecturers (Students to complete a short evaluation/questionnaire; 5% Total)
- Guest lecture 1 (September 25th)
- Guest lecture 2 (October 30th)
- Guest lecture 3 (November 20th)

Laboratory Work (35% Total):

Six (6) Laboratories (including pre-lab and in-lab assessments, written laboratory reports):
- Laboratory 1 (Sep 14th-18th)—3.5%
- Laboratory 2 (Sep 21st-24th)—7%
- Laboratory 3 (Oct 19th-23rd)—7%
- Laboratory 4 (Nov 2nd-6th)—7%
- Laboratory 5 (Nov 16th-20th)—7%
- Laboratory 6 (Nov 23rd-Nov 27th)—3.5%

Note: There is NO final examination or laboratory examination for this course this semester.
Important Dates

See Evaluation above and visit the course Moodle page for specific due dates of course and laboratory work, and midterm exams.

You have within **21 days (3 weeks)** from the start of term (September 9th, 2020) 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 6th, 2020  
**Course Withdrawal:** November 7th to December 8th, 2020 (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 at [https://registrar.yorku.ca/enrol/dates/fw20](https://registrar.yorku.ca/enrol/dates/fw20)

Resources

**Textbook (E-book only; Optional but highly recommended):**
Animal Physiology: From Genes to Organisms, 2nd Edition  

**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 9th, 2020). Rt 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 Moodle Website:** Recorded lecture slides will normally be posted to Moodle at the beginning of each week (approximately **one** (1) 2 hour-long lecture per week). Recorded videos including important due dates and reminders for that week will be posted at the beginning of each week. Additional resources (e.g. research articles, videos, pictures for laboratories and lectures) may be posted.

**Accessibility:** This course has been designed to be accessible (e.g. closed captioning on lecture videos). 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.

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

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

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

   **Assessment:** written tests, laboratory reports.
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

Topic 1: Introduction to Animal Physiology; Membranes, Channels, and Transport
Topic 2: Physical Basis for Neuronal Function
Topic 3: Communication Along and Between Neurons
(Midterm Test 1)

Topic 4: Muscles and Animal Locomotion
Topic 5: Structure and Functional Organization of the Nervous System
Topic 6: Sensing the Environment
(Midterm Test 2)

Topic 7: Animal Behaviour: Initiation, Patterns, and Control
Topic 8: Hormones, Glands, and Other Chemical Messengers
(Midterm Test 3)

Each topic will be the focus of each weekly lecture, which will be uploaded to Moodle at the beginning of each week.

Other Information

Office Hours: By appointment only. To be scheduled during regular lecture time.

Email communication: Expect at least a 2-day (48 hour) response time to emails from the course instructor and expect even longer email response times during assessment (e.g. midterm test) periods.

Forums on Moodle: Utilize the group forums available on Moodle to ask, or answer, any questions pertaining to laboratory or lecture material. The course instructor may also utilize group forums to answer frequently asked questions.

Netiquette: You are expected to treat your peers and instructors with respect. Strong language, sarcasm, and inappropriate material will not be tolerated. Grammar and spelling matter.

Course Policies

Policy for Midterm Tests:

• There are three (3) tests: October 9th, November 13th, and Dec 4th. The tests are worth 20% each.
• 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 10%, the test with the highest grade is worth 30% and the remaining test is worth 20%.
• If you do not write 1 test: of the remaining 2 tests, the test with the lowest grade is worth 35% and the test with the highest grade is worth 25%.
• If you do not write 2 tests, the single test you write will be worth 30% and you will earn a grade of zero worth 30%.
• If you do not write ALL 3 tests, you will earn a zero worth 60%.
• **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 six (6) synchronous laboratory meetings in total and for all six (6) attendance is mandatory (see the schedule for dates and plan ahead).
- **If you miss a laboratory meeting** you will be provided access to the recorded laboratory session, you will be provided data from the lab, and you will be permitted to write the associated laboratory report; however, **the maximum grade you may receive for the report is 6/10** (if you earn 100% on the written report).
- **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 Laboratory Reports:

- There are four (4) written laboratory reports (specific laboratory write-ups and due dates are on Moodle).
- You are provided with 2 weeks from the time you complete the laboratory to the time the report is due for each of the four (4) laboratory reports.
- **You MUST submit an electronic version of your report on via Moodle 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.

### Policy on Lecture and Laboratory Session Recordings (Audio and/or Video)

- Synchronous sessions in this course, including your participation, will be recorded and may be available to students in the course for viewing remotely and after each session.
- Course videos and materials belong to your instructor, the University, and/or other sources (e.g. lab demonstrators) depending on the specific facts of each situation and are protected by copyright. Do not download, copy, or share any course or student materials or videos without the explicit permission of the instructor.
- Students should note that since audio and video recordings are to be permitted, their voice (and video, if the student chooses) may be recorded during the class. Please speak to the instructor if this is a concern for you.
- For questions about recording and use of videos in which you appear please contact your instructor.
  
  **Note:** You will never be asked, nor required, to use video during synchronous sessions in this course.

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**University Policies**

**Academic Honesty and Integrity**
York students are required to maintain the highest standards of academic honesty and they are subject to the Senate Policy on Academic Honesty ([http://secretariat-policies.info.yorku.ca/policies/academic-honesty-senate-policy-on/](http://secretariat-policies.info.yorku.ca/policies/academic-honesty-senate-policy-on/)). The Policy affirms the responsibility of faculty members to foster acceptable standards of academic conduct and of the student to abide by such standards.

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 -
Important A note from the Faculty of Science Committee on Examinations and Academic Standards: 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 wilfully 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.

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. Student's 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 & Disability Services - [http://cds.info.yorku.ca/](http://cds.info.yorku.ca/)
Counselling & Disability Services at Glendon - [https://www.glendon.yorku.ca/counselling/](https://www.glendon.yorku.ca/counselling/)
York Accessibility Hub - [http://accessibilityhub.info.yorku.ca/](http://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 and submit an Examination Accommodation Form at least 3 weeks before the exam period begins. The form can be obtained from Student Client Services, Student Services Centre or online at [http://www.registrar.yorku.ca/pdf/exam_accommodation.pdf](http://www.registrar.yorku.ca/pdf/exam_accommodation.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-and-or-harassing-behaviour-in-academic-situations-senate-policy/](http://secretariat-policies.info.yorku.ca/policies/disruptive-and-or-harassing-behaviour-in-academic-situations-senate-policy/)