

## BIO270H1F Course Outline

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**Welcome to BIO270.** Animal physiology is a biological subdiscipline that aims to understand, in physical and chemical terms, how animals work. This course will utilize examples from throughout the animal kingdom in a comparative approach. Our goal is to provide students with a solid grounding in the cellular basis of animal physiology with an emphasis on the physiology of homeostasis and the endocrine system. The laboratory section of the course will allow students to experience firsthand the role that experimentation, data collection, and interpretation of data plays in the nature of the scientific process and ultimately in the development of concepts introduced in lectures. In addition, students will begin to develop a writing approach to communicate effectively within the scientific community.

### Course Office

RW 424E

Tel: 416-978-8608

Email: [peggy.salmon@utoronto.ca](mailto:peggy.salmon@utoronto.ca)

Fax: 416- 978-8532

Please contact Peggy Salmon, the Course Administrator, if you have a general inquiry, administrative problem, or have missed a test/lab. Her office hours are Tuesday 9-11am, Wednesday 2-3pm and Thursday 2-4pm. If you cannot come during office hours, email or telephone to arrange another time.

### Lecturer and Course Coordinator

Dr. Chris Garside

RW 429

Email: [chris.garside@utoronto.ca](mailto:chris.garside@utoronto.ca)

Drop-in hours: TBD. Please refer to the survey posted on Blackboard to choose your preferred time.

If you cannot attend drop-in hours, email to make an appointment. Drop-in hours are subject to change without advance notice. You may also use the discussion board to ask any lecture or lab based content questions.

### Lectures

Wednesdays 3-5pm in Convocation Hall

**Classroom Response System:** Clicker style questions will often be used in lectures. These questions will not be graded, but we encourage you to bring your internet-enabled device to every lecture. Clicker style questions are used to stimulate active learning during lecture and will help you to better engage with the materials and improve your learning. Clicker style questions will not be posted in the course notes and these

questions (or ones very similar to them) may appear on the mid-term or final exams. You are expected to adhere to the University of Toronto Student code of conduct while using the classroom response system <http://www.viceprovoststudents.utoronto.ca/publicationsandpolicies/codeofstudentconduct.htm>.

## Course Website

BIO270 students will access the course website via the UofT Portal. The Blackboard site is your source for pre-lab and lab manuals, pre-lab and lab assignments, course announcements and news, lecture notes, pre-lab quizzes, pre-lab and lab assignment and quiz submission deadlines, lab assignment and quiz submission instructions, and grades.

You can also access the BIO270 Discussion Board. The electronic discussion board enables students to discuss course content with one another and ask lecture-specific questions to Dr. Garside. THE BOARD MAY BE MONITORED BY THE COURSE, but keep in mind that responses from other students may or may not be accurate. Therefore, use information from other students with caution. Common courtesy toward fellow students and BIO270 staff is a requirement for the continued use and availability of the discussion board. We recommend that you visit the blackboard site regularly.

## Required Course Material

**Textbooks:** (both are available at the U of T Bookstore)

- Moyes CD, Schulte PM. 2015. Principles of Animal Physiology. 3<sup>rd</sup> Edition. Toronto: Pearson Benjamin Cummings. 784 p.
  - You may also visit the companion website for this textbook.
- Pechenik JA. 2012. A short guide to writing about biology. 8<sup>th</sup> Edition. Toronto: Pearson. 276 p.

**Lab Manual:** The lab manual is available online only through the course website on Blackboard. Any additional lab readings (if required) will also be available online. Students are expected to bring a hardcopy of the appropriate lab to each lab session.

## Evaluation

Your final mark will be based on 2 pre-laboratories and 2 laboratories, a mid-term test and a final exam.

### 30% Laboratories

Each Laboratory is worth 15%:

2% for the pre-lab quiz

13% for the written laboratory assignments

- 6% for the Pre-lab assignment
- 7% for the Lab assignment

#### **4% Post-lecture Quizzes**

If you complete 8 out of 10 Blackboard lecture reading quizzes with a perfect score by the deadline, you automatically earn 4%.

#### **30% Mid-Term Test** (Date of Mid-Term is Wednesday October 21, 2015, 3-5pm)

Covers lecture material from section 1.

#### **36% Final Exam**

Covers lecture and lab material from sections 1 and 2, however the exam will be heavily weighted to section 2. Date of final exam TBD.

#### **What to bring to the test/exam**

You will need your U of T student photo identification card, a pencil, and an eraser for the multiple choice computer answer sheet. No aids such as calculators are required or permitted.

**Note:** There will be **no** make-up test for the mid-term. If a student misses the test for a valid reason, and provides the appropriate documentation, then the value of their final exam will be increased to 70%. Students who do not provide proper documentation within one week of missing the test will receive a grade of zero for the mid-term. Students must follow the rules of the Faculty of Arts and Science in regards to missing term tests and providing documentation.

[http://www.artsandscience.utoronto.ca/ofr/calendar/Rules\\_&\\_Regulations.html](http://www.artsandscience.utoronto.ca/ofr/calendar/Rules_&_Regulations.html)

**Please also note:** Students who have two term tests scheduled at the same time because they have enrolled in courses that conflict will not be given special consideration under these circumstances by the Department of Cell and Systems Biology.

#### **Mark enquiries**

Mark errors or questions need to be attended to as close to the event as possible. University policy states that enquiries need to be made within two weeks of the return date of the work (Arts and Science Calendar, pp. 696-697 <http://www.artsandscience.utoronto.ca/ofr/calendar/>). Please deal with mark enquiries promptly.

1. Term lab mark enquiries must be made within two weeks of assignment return.
2. Mid-term test mark enquiries must be made within two weeks of the posting of your mark to Blackboard.

***\*It is important to try and make these enquiries as soon as possible. This ensures that any issues with your mark(s) are resolved accurately and promptly.***

**Academic integrity** is fundamental to learning and scholarship at the University of Toronto. Participating honestly, respectfully, responsibly, and fairly in this academic community ensures that the U of T degree that you earn will be valued as a true indication of your individual academic achievement, and will continue to receive the respect and recognition it deserves.

The University of Toronto takes academic integrity very seriously. Please note that assignments intended as individual work such as prelab assignments, lab assignments and lab quizzes must be completed on your own. You should not work with other students on these assignments, nor should you copy from other students (or let them copy from you). Individual work that is submitted and found not to be the work of the student who submitted it, will lead to action at the course level and could lead to academic misconduct proceedings through the Dean's office.

Please Note: All BIO270H1F Assignments must be written in your own words.

Familiarize yourself with the University of Toronto's *Code of Behaviour on Academic Matters* (<http://www.governingcouncil.utoronto.ca/policies/behaveac.htm>). It is the rule book for academic behaviour at the U of T, and you are expected to know the rules.

A useful link on how to avoid academic misconduct is [www.artsci.utoronto.ca/osai/students](http://www.artsci.utoronto.ca/osai/students). Please take a look at the helpful tips found here.

Some examples of academic misconduct:

- To represent as one's own any idea or expression of an idea or work of another in connection with any other form of academic work / Failure to attribute/cite authorship when using any sources such as written or oral work, scientific projects, figures, videos etc. Changing a few words in a copied sentence or reversing the order of sentence clauses without referencing the source - this is not paraphrasing!
- To submit any academic work for which credit has previously been obtained or is being sought in another course or program of study in the University or elsewhere. Note that a repeated course is considered to be a separate course.
- The use of a paper prepared by any person other than the individual claiming to be the author.
- To lend another student an assignment knowing that he or she may copy it for submission.

All suspected cases of academic misconduct/dishonesty will be investigated following the procedures outlined in the *Code of Behaviour on Academic Matters*. If you have any questions about what is or is not permitted in this course, please do not hesitate to contact me. If you have questions about appropriate research and citation methods, you are expected to seek out additional information from me, your TAs, or other available campus resources like the College Writing Centres, the Academic Success Centre, or the U of T Writing Website.

**BIO270 Textbook Reading Quizzes**

We will be providing short textbook reading quizzes on Blackboard. The purposes of these quizzes are to help you to keep on top of the materials that you will be learning in lecture and also to help you prepare for tests and exams. In addition, as the textbook provides a lot of information on many topics, these quizzes will help you to gauge the depth to which the instructor will be expecting you to do the readings. Please bear in mind that the instructor will likely go into more depth on some topics during lecture (and this, as well as the textbook readings, will be examinable), so you will need to review the textbook readings in more depth following the lecture. We reserve the right to include quiz questions on mid-term or final exams.

Each Thursday at 12 pm, a new quiz for the week's assigned readings and lecture will be posted on Blackboard. You will generally have 5 days to complete a quiz, but we encourage you to complete each quiz soon after the lecture to maximize their benefit to your learning.

You need a perfect score on the quiz for it to count towards your mark, but you can take the quiz as many times as you like. The practice quiz will become available on Blackboard on September 17<sup>th</sup>, 2015 at 12 pm. This quiz must be correctly completed before September 22<sup>nd</sup> at 11:59 pm. Quiz 1, the first of 10 quizzes counting towards your textbook quiz mark, will become available on Blackboard September 24<sup>th</sup> at 12pm. On October 1<sup>st</sup>, we will post quiz #2. This approach will continue for the duration of the term (see Table 2 for a full schedule).

To ease you into the routine, the practice quiz will not count for marks. The quizzes will count toward your final grade starting with Quiz 1. You need to obtain a perfect score on 8 out of 10 quizzes to get the full 4% assigned to this portion of your grade. We will pro-rate marks as required. You may use as many attempts as you need before each deadline. Be aware that Blackboard may be busy during peak times (i.e. near the deadline), or your own internet provider may be slow. This is beyond our control and extensions will not be provided, so do not leave quiz completion until the last day.

**Table 2. Textbook Reading Quiz Schedule 2015**

	<b>Upload Date (by 12pm)</b>	<b>Download Date (by 11:59 pm)</b>
<b>Practice Quiz</b>	September 17 <sup>th</sup>	September 22 <sup>nd</sup>
<b>Quiz 1</b>	September 24 <sup>th</sup>	September 29 <sup>th</sup>
<b>Quiz 2</b>	October 1 <sup>st</sup>	October 6 <sup>th</sup>
<b>Quiz 3</b>	October 8 <sup>th</sup>	October 13 <sup>th</sup>
<b>Quiz 4</b>	October 15 <sup>th</sup>	October 20 <sup>th</sup>
<b>Midterm</b>	No quiz	No quiz
<b>Quiz 5</b>	October 29 <sup>th</sup>	November 3 <sup>rd</sup>
<b>Quiz 6</b>	November 5 <sup>th</sup>	November 10 <sup>th</sup>
<b>Quiz 7</b>	November 12 <sup>th</sup>	November 17 <sup>th</sup>
<b>Quiz 8</b>	November 19 <sup>th</sup>	November 24 <sup>th</sup>
<b>Quiz 9</b>	November 26 <sup>th</sup>	December 1 <sup>st</sup>
<b>Quiz 10</b>	December 3 <sup>rd</sup>	December 8 <sup>th</sup>

## Lab Organization

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### Lab Design

Laboratory exercises are designed to give you experience with experimental design, experimental procedures and to illustrate or amplify points made in the lectures. Practical laboratory experience contributes to a fuller understanding and appreciation of physiology. There will be 2 labs in this course. Each lab consists of a (1 h) pre-lab session and the formal 3 h lab either the week following the pre-lab or thereafter, depending on your lab section assignment. During the pre-lab you will receive an introduction to the theory relevant to the practical exercises, and an explanation on how to use the equipment. You will also receive instruction on the effective writing skills you will need to complete the assignment. You must attend the pre-lab to which you have been assigned and attendance will be recorded. Students will complete a short pre-lab quiz posted on Blackboard but the grade will only count if you attended the pre-lab. Ensure that you sign the attendance sheet at all pre-labs and labs as it is the only record of your attendance. Please read all pre-lab and lab instructional materials before coming to your allotted pre-lab and lab session so that you are fully prepared and able to derive the maximum benefit from the experience.

Refer to the course website under the tab 'Quiz' for details on how to complete your pre-lab quizzes electronically, and the submission deadlines for your lab group. Submission deadlines will be strictly adhered to so make sure you are aware of your deadline date and time.

***Remember, students are responsible for bringing a copy of the pre-lab outline to their pre-lab sessions and a copy of the lab outline to their lab sessions.***

### Lab Sections

Each of the 5 lab sections (P0101, P0201...) has been divided into 3 groups: A, B and C. You have been randomly placed into one of these three groups. Your lab group placement determines when you will perform pre-labs and labs. Your lab group designation (e.g. P0201B) will be posted on Blackboard before the first pre-lab. You must attend your assigned lab time. Please refer to the **Pre-lab/Lab Schedule** on the course website. It is **imperative** that you be enrolled in a lab group when the course begins as access to the online quiz is dependent on your lab group designation.

### Lab changes

Students must attend their first lab as scheduled (check BLACKBOARD). Lab changes may be done only during a restricted time of the year. We will only consider fall term direct class conflicts or late enrolment problems. These lab changes may ONLY be done in the BIO270 office (RW424E) from Sept 14<sup>th</sup> – Sept 18<sup>th</sup> during regular office hours. Students should submit a copy of their ROSI timetable as well as a completed lab change request form which will be available at the BIO270 office. We make no guarantees of lab space at times requested. No lab changes/additions will be done after September 18<sup>th</sup>.

## Lab Attendance and Make-up Labs

Attendance at pre-labs and labs is **mandatory**. If you miss a pre-lab or laboratory session you will receive zero for all assignments associated with that pre-lab or laboratory. Grades will not be given for submitted assignments if the pre-lab or lab was not attended. If you miss a lab for an authorized reason (see below), and have the appropriate documentation, you may get approval to attend another lab if space is available.

### You qualify for an alternative lab sitting if:

- You miss a lab due to illness AND have a [University of Toronto Verification of Student Illness or Injury form](#). Your medical note must have been obtained at the time of your absence. Contact the BIO270 office as soon as possible after the missed laboratory.
- You will miss a lab due to a religious holiday. Contact the BIO270 office **before your lab** and provide documentation such as a letter from your religious leader.
- You miss a lab due to a serious family emergency. Contact the BIO270 office as soon as possible and be prepared to provide documentation or a letter from your college Registrar.

We feel that lab work is an integral part of science and of this course, thus we will limit the number of rescheduled pre-labs/labs per student to a maximum of **one**. Extended illnesses will be handled individually.

## Late arrival to the pre-labs and labs

Late arrival to the pre-labs and labs is disruptive, therefore students will not be allowed in the lab if he/she is more than 10 min late. If students cannot do the lab because of late arrival, they will receive the same penalties associated with a missed lab (see above).

## Lab Locations

Lab #1- *Daphnia* Experimental Design Pre-lab and Lab will be held in RW313.

Lab #2- Muscle Contraction Pre-lab and Lab will be held in RW309 and RW313.

## Lab Partners

The relationship you develop as a team will be important to your progress and success in this laboratory. Here are a few tips:

- Discuss practical (theory and tasks) and your understanding of what is expected of you.
- Work jointly; avoid the situation where either partner dominates.
- Ask questions of each other and communicate!
- Meet up outside practical sessions to study and discuss assignments and exams.
  - However, remember that all work handed in in this course must be completed individually. See the section on academic integrity on page 3.

## Written Lab Assignments

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There are two lab assignments for BIO270 (associated with Labs #1 & #2). Each lab assignment is further divided into two sections; the first is a draft and questions worth 6%, and the second is the final draft and questions worth 7%; thus, in total, each lab assignment is worth 13%.

During the pre-lab sessions for both Labs #1 & #2 you will receive instruction on effective writing, and directions on how to complete the written lab assignment. Based on this information, your pre-lab and lab manuals, and your required readings from Pechenik 'A Short Guide to Writing about Biology' you will write your draft assignment, which you will electronically submit prior to the deadline. A TA will then provide comments on your draft that will be returned to you electronically. You will then edit your draft taking into account the feedback provided by your TA and further research and reflection to write your final draft. Note that in addition to your draft many of the assignments will also include a series of questions related to either the pre-lab material or the data you obtain when you conduct the lab.

Refer to the course website under the tab 'Lab Assign Submissions' for details on how to submit assignments electronically, and the assignment submission deadlines and assignment return dates for your lab group ('Lab 1 Assignment Submission and Return Schedule' and 'Lab 2 Assignment Submission and Return Schedule'). Submission deadlines will be strictly adhered to so make sure you are aware of your deadline date and time. Assignments will be accepted up to one day (24 h) late with a 10% late penalty. After this time, students will receive zero.

*How do you view your grades and feedback on your prelab and lab assignments?*

Go to the course website under the tab 'My Grades'. Click on the grade you received for the relevant assignment. Under the Feedback area, the attached file will be your evaluation.

**Required Readings for Assignments:** Prior to attending the Pre-labs students should read the following:

Pre-Lab #1 and Lab #1:

Moyes CD, Schulte PM. 2015. Principles of animal physiology. 3<sup>rd</sup> Edition. Toronto: Pearson Benjamin Cummings. Chapter 4, Cell signaling and endocrine regulation; p. 98 – 151.

Pechenik JA. 2012. A short guide to writing about biology. 8<sup>th</sup> Edition. Toronto: Pearson. Chapter 9, Writing laboratory and other research reports; p. 157 – 164, p. 172 -182.

Pre-Lab #2 and Lab #2:

Moyes CD, Schulte PM. 2015. Principles of animal physiology. 3<sup>rd</sup> Edition. Toronto: Pearson Benjamin Cummings. Chapter 6, Cellular movement and muscles; p. 208 – 255.

Pechenik JA. 2012. A short guide to writing about biology. 8<sup>th</sup> Edition. Toronto: Pearson. Chapter 5, Citing sources and listing references; p. 69 – 79, Chapter 9, Writing laboratory



and other research reports; p. 172 – 182, p. 203 – 211.

## Teaching Assistants

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You will meet different TAs during the course as TAs specialize in particular labs. For advice on writing up your prelab and lab assignments, please see the TA assigned to that lab during their office hours: refer to the **TA Office Hour Schedule** in the 'Schedules' tab on the course website. If you have a question concerning your graded pre-lab or lab assignment, please visit the TA that marked it during their office hours: refer to the **TA Office Hour Schedule** in the 'Schedules' tab on the course website. If you cannot attend those office hours, then please contact that TA by email. TA email addresses can be found on the course website under 'Contacts'.

### **TA Office Hours (RW017, in basement of Ramsay Wright Building)**

Monday 12:00pm to 1:00pm

Tuesday 12:00pm to 1:00pm

Wednesday 12:00pm to 1:00pm

Thursday 12:30pm to 1:30pm

Friday 12:30 to 1:30pm

Attend TA Office hours to ask any questions regarding pre-lab or lab assignments.

## **Lab Safety and Procedures**

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1. Eating/drinking is strictly prohibited in the laboratory.
2. Wear appropriate clothing in the labs; wear a lab coat, safety goggles / glasses, and disposable gloves if chemicals are handled (gloves are provided). Do not wear open-toed shoes in the lab. For example, flip-flops are unacceptable.
3. Do not wear disposable gloves outside the lab.
4. Work cleanly and pay attention to detail throughout all your procedures. This will reduce the risk of contamination of test solutions or of shared equipment.
5. Report any accidents, breakage, or damage of equipment immediately to your instructor.
6. Dispose of any sharp, broken or otherwise dangerous items in the designated containers.
7. Familiarize yourself with the location and operation of the eye-wash stations.
8. Adhere to any health and safety instructions given in the lab outlines or by the teaching assistants or technicians.
9. Advise your instructor of any special health conditions you have that they should know about in the event of an emergency.
10. Do not behave in any way that disrupts the class or endangers the health and safety of other people in the class.
11. Clean up after yourself. Dispose of waste in the appropriate containers. Clean your glassware. Wash your hands before leaving the lab.

## **Lab Etiquette**

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A successful lab experience depends on all of us. Help yourself and others by behaving courteously and using good judgement. Remember that the equipment and instruments you use are shared; somebody else will be using them later. Please treat all equipment with respect, and report any damage or irregularities immediately.

If you encounter problems with any of the equipment, see your Teaching Assistant. If he or she is busy and you need immediate help, see one of the Laboratory Services Staff in the prep room, Room 312. They will do their best to help you. Do not try to fix equipment yourself.

Please use the proper containers to dispose of all trash and other debris generated during the lab. Leave lab benches and research areas clean and orderly.

Respect all experimental animals used in this course. Failure to do so will lead to expulsion from the laboratory and the forfeit of all marks associated with that laboratory.

## How to Succeed in BIO270

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- Although lectures will be delivered as powerpoint presentations and will be available to you prior to lecture, do not make the mistake of thinking that the lectures require little or no effort by way of note-taking. Although this method of delivery may free you from having to copy down large detailed diagrams or tables, you will still need to adapt and add to the lecturer's points (extra details, points of emphasis, and examples). Much of the important detail and especially crucial emphasis will be delivered verbally. In addition, lectures presented in class may be supplemented with additional slides, animations, videos, and illustrative examples.
- Attend class regularly and refrain from using gaming software, social networking programs or any other materials unrelated to the BIO270 course material.
- Respect your fellow classmates and the professor by not talking or making excessive noise during lectures; this will greatly improve your learning experience and make the class more enjoyable for all concerned.
- As soon as possible after each lecture, review your notes, tidy them up and add detail where necessary. Compare your notes with material in the relevant sections of the textbook and correct any inconsistencies. Rewrite and clarify any parts of your lecture notes as needed.
- We will be covering a lot of material over the semester so it is crucial to stay actively engaged and not get behind. I recommend studying at least some every day and most importantly, if you do not understand something, make sure to come see me for help.
- If possible, form study groups with your colleagues. Talking about physiological concepts and processes with others will help show you where your strengths and weaknesses lie and also help to increase your understanding of the material.
- Attend Professor Garside's drop-in hours to ask questions. Always feel free to ask questions and please come see me if you need help or even if you are just curious about something that we talked about in lecture or lab.

# Cell & Systems Biology

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