**BIO 271H1S – ANIMAL PHYSIOLOGY II**

24L, 9P

**This course has a lab fee of $10.**

**Lecturer:**

TBA

**Course Coordinator:**

Prof. C. Garside [chris.garside@utoronto.ca](mailto:chris.garside@utoronto.ca)

**Course Administrator:**

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**Prerequisite:** BIO270H1

Animal physiology is a biological sub discipline that aims to understand, in physical and chemical terms, how animals work. Physiologists focus on the principles, processes, and mechanisms involved in biological systems, including the systems of molecular interaction at the cellular level and systems of interacting cells and tissues at the organismal level. They investigate the way that these functions are determined by the organism’s evolutionary heritage, by its environment, by its size, shape, and structure, and by physical and chemical laws. The shared goal of physiologists is to understand the integrated functioning of the whole organism and the processes by which regulation of physiological functions occur.

Physiology applies a variety of conceptual and experimental approaches and this introductory course will endeavour to reflect this scope and to convey the excitement of physiological research. This course will utilize examples from throughout the animal kingdom in a comparative approach. Our goal is to give students a solid grounding in neurophysiology and in the cardiovascular & respiratory systems of animals. The course will also discuss the environmental factors, constraints, and adaptations associated with these systems. Moreover we will strive to illustrate the role of experimentation in developing our understanding of living animals.

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 working scientific vocabulary and writing approach to communicate effectively within the scientific community.

A brief (tentative) outline of the lecture and laboratory topics is listed below:

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| **Section** | **Lecture Topics** | **Laboratory Exercises** |
| 1. Sept - Oct | Neurophysiology; Synaptic transmission; Sensory physiology. | Electrophysiological recording of conduction velocity and sensory adaptation; Written communication – Results. |
| 1. Oct – Dec | Respiratory physiology; Circulatory physiology. | Oxygen equilibrium curve of haemoglobin – Bohr effect; Written communication – Discussion. |

**Required Texts:**

Moyes, CD, Schulte, PM. 2015. Principles of animal physiology. 3rd Edition. Toronto: Pearson Benjamin Cummings. 750 p.

Pechenik, JA. 2015. A short guide to writing about biology. 9th Edition. Toronto: Pearson. 262 p.

Lab Manual: The lab manual is available online only through the course website. Any additional lab readings (if required) will also be available online.

Classroom Response System:

Please bring your internet-enabled device to lectures.

**Evaluation (tentative)**

* Lecture Participation and Quizzes (4%)
* Mid-term test (30%), final exam (36%)
* Two lab assignments (15% each) = 30% (2 Pre-labs + 2 Lab sessions per term)

**Relationship to Department of Cell and Systems Biology Curriculum**

This course has been planned for students intending to take further courses in physiology as well as those terminating at one course. It is primarily intended for students in their second year who have already taken BIO150Y1/BIO120H1 and 130H1 or their equivalents, and BIO270H1F.

BIO 271H1S is an ideal introduction to all aspects of physiology and related fields of experimental biology. It is an excellent preparation for upper level physiology and related courses such as CSB 325H1, 332H1, 343H1, 345H1, 346H1, 348H1, 426H1, 432H1, 445H1 and 447H1.

**\*\*Student Schedule Planning Tips\*\*:**

* Please note that if you have a course conflict with a BIO270H lab, you need to keep trying to resolve these until lab enrolment closes. Check frequently because spots may open up at any time. If you still cannot enroll in a lab that fits your schedule you may come to the BIO230H office during specified times (refer to Quercus for dates and times) and we will do our best to assist you. If you do require assistance with obtaining a lab, please make sure that when you visit the course office that you bring your timetable and have multiple lab times to avoid disappointment.