**Course:** BIOL 3030 4.0 PHYSIOLOGY OF THE INVERTEBRATES

**Term:** Winter 2010

**Prerequisite / Co-requisite:** BIOL 2030 4.0

**Course Instructor**

Dr. Andrew Donini  
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**Laboratory Teaching Assistant**

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Office Hours: TBA

**Time and Location**

Lectures  
Tuesday & Thursday: 8:30 - 10AM in FRQ 020

Laboratory Group 1  
R: 2:30 - 5:30 PM in LB 118

Laboratory Group 2  
R: 6:30 - 9:30 PM in LB 118

**Expanded Course Description**

The invertebrates are a medically, economically and ecologically important group of animals. A number of invertebrates act as pathogens or vectors of disease. Malaria is one of the most important diseases in the world and is caused by a protozoan that is transmitted by anopheline mosquitoes. Economically speaking, invertebrates can be detrimental, serving as pests that destroy crops, but can also benefit us by serving as sources of food (eg. shrimp, lobster). Ecologically, invertebrates are an integral part of the food chain and can be utilized as bioindicators. Therefore it is in our best interest to study and understand the unique physiological processes of each phylum. In addition to lectures, groups of students will write a paper on a physiologically relevant topic and will present the hi-lights of their paper to the class. The laboratories will consist of hands-on experiments which demonstrate physiological mechanisms in the invertebrates. The majority of lab exercises will utilize insects because they are cheap to obtain and make convenient models for studying these processes.
**Course Learning Objectives**

Through this course students will gain an appreciation for the importance and impact of invertebrates on our society. Students will understand and be able to describe invertebrate adaptations to important physiological processes.

**Specific Learning Objectives**

- develop an awareness of specific invertebrates that are important to our society from an economic standpoint, and/or from a health perspective.
- understand and be able to describe the morphology and associated physiology of invertebrate adaptations to locomotion, feeding, the maintenance of solute balance, extreme temperature tolerance and the processing of sensory information through the nervous system.
- acquire knowledge of various experimental techniques and how to apply them to solve physiological questions.
- development of scientific writing skills and oral presentation skills.

**Course Text / Readings**

There is no text book for the course. Readings are periodically assigned from books on reserve in the library or from journals.

**Evaluation (in the order of due date)**

- Report Outline (Due February 2nd, 2010) - 2%
- Formal Laboratory Report 1 (Earthworm) (February 4th, 2010) - 7%
- Midterm Exam (February 23rd, 2010, in class) - 20%
- Results Section 1 (Daphnia) (February 25th, 2010) - 3%
- Formal Laboratory Report 2 (Nitrogen) (March 11th, 2010) - 7%
- Report and Presentation (Due March 25th, 2010) - 18%
- Results Section 2 (Cricket) (March 25th, 2010) - 3%
- Final Exam (Formal Exam Period, April 7 to 23) - 40%

**Grading, Assignment Submissions**

**Lateeness Penalties and Missed Exams**

**Grading:** The grading scheme for the course conforms to the 9-point grading system used in undergraduate programs at York (e.g., A+ = 9, A = 8, B+ = 7, C+ = 5, etc.). Assignments and tests will bear number grade (e.g. A+ = 90 to 100, A = 80 to 90, B+ = 75 to 79, etc.) (For a full description of York grading system see the York University Undergraduate Calendar - [http://calendars.registrar.yorku.ca/pdfs/ug2004cal/calug04_5_acadinfo.pdf](http://calendars.registrar.yorku.ca/pdfs/ug2004cal/calug04_5_acadinfo.pdf))

**Report and Presentation Due Date Rules:** Proper academic performance depends on students
doing their work not only well, but on time. Accordingly, the report for this course must be received on **March 25th at the beginning of the laboratory time** and all individuals must be prepared to present their work on **March 25th** in lab. **A late penalty of 10% of the final grade, per day will apply.** (example: if a group is given 70% for the report and presentation but, the report was handed in on March 26th then their final grade for the report and presentation will be 63%. (Exceptions to the lateness penalty for valid reasons such as illness, compassionate grounds, etc., may be entertained but will require supporting documentation, example, a doctor’s letter). **NO EXTENSIONS WILL BE GIVEN.**

**Lab Reports Due Date Rules:** Proper academic performance depends on students doing their work not only well, but on time. Accordingly, the formal lab reports and results sections must be handed in on the due dates. **A late penalty of 10% of the final grade, per day will apply. NO EXTENSIONS WILL BE GIVEN.**

**Missed Midterm Exam:** Students with a documented reason for missing the midterm exam, such as illness, compassionate grounds, etc., which is confirmed by supporting documentation (e.g., doctor’s letter) may be permitted to write a make-up test no later than 1 week after the scheduled test date. Further extensions or accommodation will require students to submit a formal petition to the Faculty.

**Other Important Considerations:**

1. All students are expected to familiarize themselves with the following information, available on the Senate Committee on Curriculum & Academic Standards webpage (see Reports, Initiatives, Documents) - [http://www.yorku.ca/secretariat/senate_cte_main_pages/ccas.htm](http://www.yorku.ca/secretariat/senate_cte_main_pages/ccas.htm)
   - York’s Academic Honesty Policy and Procedures/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

2. 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 Prof. Donini **as soon as possible.**

3. Students with physical, learning or psychiatric disabilities who require reasonable accommodations in teaching style or evaluation methods should consult with the Office for Persons with Disabilities (OPD) and ensure that requests for appropriate accommodations are arranged with Prof. Donini early in the term.