

## Department of Biology Course Outline

### BIOL 4340 3.00 Fish Biology Winter 2018

#### Course Description

A study of fish biology (ichthyology), including anatomy, systematics, physiology, behaviour and ecology of freshwater and marine fishes. Special emphasis is placed on the unique features of fishes and their functional adaptation to aquatic environments. Three lecture hours. One term. Three credits.

#### Prerequisites

SC/BIOL 2030 4.00. Completion of 60 credits required.

#### Course Instructors and Contact Information

Dr. Raymond Kwong  
[rwmkwong@yorku.ca](mailto:rwmkwong@yorku.ca)  
Office hours: by appointment

#### Schedule

Tuesday 11:30 – 13:00, LSB 101  
Thursday 11:30 – 13:00, LSB 101

#### Evaluation

Midterm Exam 1: 29%  
Midterm Exam 2: 29%  
Assignment (Essay): 25%  
In-class presentation and participation: 17%

#### No Final Exam

Note: Final course grades may be adjusted to conform to Program or Faculty grades distribution profiles.

## Important Dates

First lecture: Jan 9<sup>th</sup>

Dates of Exams, Due Dates of Major Assignments, last class, drop date, etc. will be announced through Moodle.

NOTE: for additional important dates such as holidays, refer to the "Important Dates" section of the Registrar's Website at <http://www.yorku.ca/yorkweb/cs.htm>

## Resources

### **No Textbook required.**

#### Lecture notes and selected papers:

Materials will be posted on Moodle.

#### Suggested reading material:

Biology of Fishes

Second Edition, CE Bond

ISBN: 0-03-070342-5

(COPIES ON RESERVE IN LIBRARY)

Fishes - An Introduction to Ichthyology

Fifth Edition, PB Moyle and JJ Cech

ISBN: 0-13-100847-1

(COPIES ON RESERVE IN LIBRARY)

## Learning Outcomes

By the end of the course, students should be able to:

- 1: understand and describe the habitat, diversity, behaviour and organismal biology of fishes;
- 2: understand the current knowledge regarding the evolution of fish;
- 3: understand the experimental design used by scientists to study fish function and development;
- 4: understand and provide examples of the impact of current conservation and environmental issues on the ecology of fishes;
5. apply your knowledge by explaining how environmental changes affect the ecology and physiology of fishes;

## Course Content

Specific topics will include:

1. Distribution and diversity
2. Morphology
3. Habitats
4. Classification
5. Evolution
6. Endocrine systems
7. Osmoregulatory systems
8. Nitrogenous waste handling
9. Circulation and respiration
10. Locomotion and sensory systems

Fundamentals plus specific research examples will be available on Moodle.

## Experiential Education and E-Learning

Moodle, supplemental videos and presentations.

## Other Information

## Course Policies

Missed exams:

- An exam missed due to illness requires an Attending Physicians Statement.
- Contact course director and submit paperwork ASAP

Online submission of medical statement:

<http://science.apps01.yorku.ca/machform/view.php?id=84113>

- Make-up exam will be at earliest possible date  
(in accord with the information on the Attending Physicians Statement)

No late assignments accepted without medical statement.

## 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/>). 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 - <http://www.yorku.ca/academicintegrity/>

### 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.

Students 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/>

Counselling & Disability Services at Glendon - <http://www.glendon.yorku.ca/counselling/personal.html>

York Accessibility Hub - <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) (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/>