

Department of Biology Course Outline

SC/BIOL 4340 3.00 Fish Biology
Winter 2020

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. Note: Completion of 60 credits required.

Course Instructors and Contact Information

Course Director: Dr. Scott P. Kelly spk@yorku.ca
201 Farquharson Building x 77830

Schedule

Lecture Times: Tuesday and Thursday: 11:30 AM to 1:00 PM in Petrie Science & Engineering 321 (PSE 321)

Evaluation

Assignment 1 (Quiz)*:	2%
Exam 1:	28%
Exam 2:	28%
Assignment 2 (Literature Review):	25%
Individual Presentation**:	17%

*: A student who enrolls into BIO 4340 after Jan 7th will be unable to get this mark.

** : Each student presentation is worth 15%. Student attendance to all but one of the in-class presentation lectures is worth 1% and student participation (i.e. asking questions) is worth 1%. Therefore 15% + 1% + 1% = 17%

Important Dates

Assignment 1 (Quiz): Tuesday January 7th 2020 (in class)

Exam 1: Tuesday Feb 4th 2020 (in class)

Exam 2: Thursday March 5th (in class)

Deadline for Assignment 2 (Literature Review): Tuesday March 10th (**hard copy in class**)

Presentation Schedule: TBA (picked by lottery in class)

Drop Deadline: March 13th 2020 (last date to drop without receiving a grade)

Course Withdrawal Period: Feb 4th – April 5th 2020 (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/>

Resources

Textbook: No textbook is required. Research articles and other material will be posted on the BIO 4340 Moodle site

Useful Texts: Biology of Fishes (2nd or 3rd Ed.) Carl E. Bond, ISBN: 0-03-070342-5

Fishes – An Introduction to Ichthyology (5th Ed.) Moyle BM & Cech JJ^{Jr} . ISBN: 0-13-100847-1

Moodle website: Lecture slides will be posted AFTER class.

Learning Outcomes

Upon successful completion of this course, students should be able to:

1. Discuss what a fish is using specific characteristics that unify the group.
2. Discuss the diversity of fishes in terms of distribution, morphology, adaptations and habitats.
3. Define major fish clades based on their respective major unifying characteristics.
4. Discuss the evolution of chordates within a piscine framework.
5. Discuss the biology of jawless fishes, in particular extant forms.
6. Discuss the success of modern fishes, and in particular teleosts.
7. Discuss the organismal physiology/biology of fishes as it relates to the endocrine system, osmoregulation, locomotion, sensory systems, vision, nitrogen excretion and behaviour
8. Further develop written and oral communication skills as well as the ability to search, read and interpret scientific literature

Course Content

This course considers the biology of the largest and most diverse group of vertebrates on the planet, fishes. The course will provide factual and conceptual information about this group of animals and examine far-reaching interests from classical ichthyology to recent developments as well as rapidly growing fields. In this course, we consider both living and fossil forms (although primarily living), surveying distribution, morphology, adaptations and habitats as well as classification and evolution of the group. In addition, general topics that relate to organismal biology/physiology will be discussed such as osmoregulation, locomotion, sensory systems, endocrine system, excretory systems etc..

Date	Class
Jan 7 th 2020	Introduction
Jan 9 th 2020	Distribution/Morphology I
Jan 14 th 2020	Morphology II
Jan 16 th 2020	Unique Habitats & Adaptations
Jan 21 st 2020	Classification & Evolution I
Jan 23 rd 2020	Classification & Evolution II
Jan 28 th 2020	Endocrine System
Jan 30 th 2020	Endocrine System/Exam Review
Feb 4 th 2020	Exam 1
Feb 6 th 2020	Osmoregulation
Feb 11 th 2020	Vision
Feb 13 th 2020	Nitrogen Excretion
Reading Week Feb 15th – 21st 2020	
Feb 25 th 2020	TBA (Guest Lecturer)
Feb 27 th 2020	Locomotion
March 3 rd 2020	Sensory Systems
March 5 th 2020	Exam 2
March 10 th 2020	Individual Presentations & Peer Evaluation*
March 12 th 2020	Individual Presentations & Peer Evaluation*
March 17 th 2020	Individual Presentations & Peer Evaluation*
March 19 th 2020	Individual Presentations & Peer Evaluation*
March 24 th 2020	Individual Presentations & Peer Evaluation*
March 26 th 2020	Individual Presentations & Peer Evaluation*
March 31 st 2020	Individual Presentations & Peer Evaluation*
April 2 nd 2020	Individual Presentations & Peer Evaluation*

*: Attendance and participation is mandatory and graded

Experiential Education and E-Learning

Accessory lecture materials (images, videos), lecture slides and postings on Moodle

Other Information

The **Course Director** (Dr. Scott P. Kelly) will hold office hours every Thursday from 2-3 PM. However, recognizing that these are restricted, students who cannot make it during this time can email and set up appointments outside of those hours. The course director will do everything he can to make sure that students seeking an appointment will get one in a timely manner.

Guest lecturers will provide their own contact information and will contribute questions for examination.

Both Exam 1 and Exam 2 will be held during regularly scheduled class time on Feb 4th 2020 and March 5th 2020 respectively. The exams will examine students on evenly sourced lecture material

Course Policies

Missed Exam Policy: READ CAREFULLY and ENTIRELY

- if a student misses an exam and intends to provide documentation to explain their inability to write that exam on the scheduled date, the student must notify the course director within 24 h and submit all paperwork in hard copy to the course director by Thursday Feb 6th (for Exam 1) or Monday March 9th (for Exam 2).
- documentation accounting for a missed exam (e.g. an Attending Physician's Statement) must provide enough information for the course director to make an informed decision on whether to grant a make up exam. That is, a student that provides a Physician stamped/signed Attending Physician's Statement is NOT guaranteed an opportunity to write a make up exam.
- if a student misses a scheduled exam AND a make up exam, the mark for that exam will automatically be zero
- a make up exam will not be the same format as the original exam

Missed Presentation Policy: READ CAREFULLY and ENTIRELY

- if a student misses a scheduled presentation date/time, the same missed exam policies (as previously outlined) apply
- if a student misses a scheduled presentation date/time, and provides appropriate documentation it is VERY UNLIKELY (i.e. there is no guarantee) that a student can be re-scheduled for another presentation date during class time
- if a student misses a scheduled presentation date/time, provides appropriate documentation and another presentation date is granted, that presentation will be given to the course director only and will be worth 60% of the original presentation (i.e. there will be no peer evaluation mark)
- if a student misses a scheduled presentation AND a make up presentation, the presentation mark will automatically be zero

Missed Assignment 2 Deadline Policy: READ CAREFULLY and ENTIRELY

- if a student misses the Assignment 2 deadline, the same missed exam policies (as previously outlined) apply
- if a student misses the Assignment 2 deadline and no documentation is provided to rationalize this, a deduction of 5% per day will be applied (i.e. one day late and Assignment 2 will be worth 23.75% of your overall mark etc.)

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/>

A note on sharing assignments, tests, exams:

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.

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 - <https://www.glendon.yorku.ca/counselling/>

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

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-andor-harassing-behaviour-in-academic-situations-senate-policy/>