

Department of Biology Course Outline

SC/BIOL 4250 3.00 Birds and the Environment
Fall 2015

Course Description

A review of the adaptations of birds to different environments, behaviour and ecology, biodiversity and evolution, and current threats to the world's birds. Laboratories include field trips, a study of bird anatomy and examination of museum specimens. Two lecture hours, three laboratory hours.

Prerequisites

SC/BIOL 2050 4.00, SC/BIOL 2060 3.00

Course Instructors and Contact Information

Dr. Bridget Stutchbury, 203F Lumbers, ext 66637 (bstutch@yorku.ca)

Office hours: 11:30-12:30 MW or by appointment

Schedule

Lectures: Mon & Wed, 10:30 LSB 105

Labs: M, T, W, or F 2:30, LUM 131

Evaluation

15%: Lecture Exam 1 (short answer format)

15%: Lecture Exam 2 (short answer format)

40%: Final Exam (short & long answer format, cumulative)

30%: Lab Assignments (10% Songbird Decline Data Analysis & Poster, 10% Form & Function Paper Critique, 10% Lab Quizzes)

Important Dates

First lecture Monday Sept. 14. First labs week of Sept. 14.

Oct 14: Lecture Exam 1

Oct 19: Songbird Decline Poster due

Nov 11: Lecture Exam 2

Nov 25: Critique Paper due

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 – lectures and labs on Moodle

For case studies used in lecture, you will be provided with the scientific reference or web site link so you can look up the article yourself if you need to (e.g. for clarification, or for use in other courses). Unless told otherwise, you are not required to read the original articles upon which the case studies are based.

Some lectures also have YouTube/other videos associated with them – you are expected to watch the videos and understand content.

Some labs have required reading – you are expected to read this material before you come to lab.

Learning Outcomes

- (1) Be able to understand and describe, using case studies and evidence, current and historical causes of bird population declines
- (2) Be able to understand and describe the methods and experimental design used by scientists to study bird population declines
- (3) Learn through first-hand experience how population trend data are collected in North America and learn how to use these data bases to test predictions for causes of population declines
- (4) Be able to understand and describe, using case studies and evidence, the diverse and often specialized adaptations of birds
- (5) Be able to understand and describe the methods and experimental design used by scientists to study form and function in birds
- (6) Apply your knowledge by explaining and critiquing a recently published scientific paper using effective and interesting scientific writing

Course Content

Lectures during the first half of the course will focus on avian biodiversity and global patterns and causes of bird declines. The second half of the course will focus on avian adaptations in morphology, physiology and behaviour. Lectures are available on Moodle in PDF or PPT and topics, in order, are:

Avian Biodiversity
Global Bird Declines
Migratory Bird Declines
Wintering Ground Threats
Pesticides
Threats on Migration
Breeding Ground Threats
Conservation of Island Birds
Raptor Conservation
Climate Change and Adaptation
Avian Evolution
Flight
Physiology
Communication
Mating Systems
Parental Care
Avian Engineering
Recent Adaptations
Avian Intelligence

Labs:

The goals of the labs are to:

- (1) Conduct ornithological field research to learn how bird identification and surveys are done and to learn how to write-up and present the results of bird surveys using similar tools as professional scientists.
- (2) Learn bird taxonomy and anatomy to better understand biodiversity and avian adaptations to the environment

Several labs will require field trips to locations on campus, weather permitting. Dress with appropriate jackets, jeans, boots etc. If wet weather prohibits a field trip then an indoor lab exercise will be done instead.

Bird Decline Poster (10%): We will learn about several amazing long-term and online data bases that ornithologists have collected over the past 20+ years that generate scientifically-based estimated of population trends for dozens of species of North American birds. For this assignment, you will work in along or in groups of up to 3 students to test a hypothesis for bird declines by using the on-line data. Poster due Oct 17; the poster must be submitted electronically via Moodle prior to your lab that day.

Form & Function Assignment (10%): The labs in the second half of the course focus on form & function, in other words, how bird's bodies work and why. The "why" is answered at the evolutionary scale, i.e. how natural selection shapes anatomy, physiology, and behaviour. We will examine feather structure, adaptations for flight, basic anatomy, and song production. For this assignment (5 pages, double spaced), you will summarize the methods, results and conclusions of a scientific article (published in 2013; no exceptions) that presents original data/results/experiments exploring the adaptive significance of some aspect of bird anatomy, physiology, or song structure. Due on Nov 28th and the paper must be submitted electronically via Moodle. Students may work alone or in groups of up to 3 on this assignment.

Quizzes (total of 10%): For about half the labs, there will be a short quiz to test your knowledge of key concepts and facts covered during the previous lab (including required reading). Each quiz will be worth 5 points and there are 6 quizzes. If you are late for lab and miss the quiz, or miss the lab altogether (with no medical note or advance permission), you will get 0 points on the quiz.

Experiential Education and E-Learning

Students will learn to identify wild birds and employ various bird census techniques during field trips on campus.

Other Information

Other Resources:

National Audubon Society Bird Identification App (only \$5 for photos, sounds, maps of all North American species):

<http://www.audubonguides.com/field-guides/bird-identification-app.html>

Cornell Lab of Ornithology "All About Birds" web site <http://www.allaboutbirds.org/Page.aspx?pid=1189>

Birds of North America (through York U library)

Course Policies

Students with legitimate medical or personal emergencies will be accommodated. Please contact Dr. Stutchbury in these situations.

Plagiarism: We have a **zero tolerance policy** for plagiarism, so you should not copy & paste material into lab assignments. Co-authors on an assignment must assume equal responsibility for the content. Students who submit assignments that contain sentences or paragraphs that are plagiarized will automatically receive a grade of zero for that assignment and the incident will be referred to the Dean's Office for further investigation.

No late assignments accepted without medical note; if you face extenuating circumstance make an appointment to see Dr. Stutchbury. Your t.a. does not have the authority to grant extensions or late penalties.

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/>

Ethics Review Process

York students are subject to the York University *Policy for the Ethics Review Process for Research Involving Human Participants*. In particular, students proposing to undertake research involving human participants (e.g., interviewing the director of a company or government agency, having students complete a questionnaire, etc.) are required to submit an *Application for Ethical Approval of Research Involving Human Participants* at least one month before you plan to begin the research. If you are in doubt as to whether this requirement applies to you, contact your Course Director immediately.

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 an Examination Accommodation Form, which can be obtained from Student Client Services, Student Services Centre or online at

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/>