Faculty of Science Course Syllabus BIOL 3622 'Ornithology'
Department of Biology, Summer Term 2020
Instructor: Sarah E. Gutowsky, sarahegutowsky@gmail.com
On-campus June 17 – 21
Lectures (0905-1155) *room TBD* & Labs (1305-1655) *room TBD*
Off-campus June 22 – 29 (field trip)
On-campus June 30 – July 1 (see schedule for details)

Course Description from the Dalhousie Academic Calendar

Overview of avian biology and techniques for the scientific study of bird populations, including identification by sight and sound. Field-intensive, with 8 days in the field, including one week camping at a field station in southwestern Nova Scotia to conduct research on birds in their natural habitats.

Course Prerequisites

BIOL 2003.03 (Diversity of Life) or BIOL 2060.03 (Introductory Ecology) or BIOA 3001.03 (Ecology) or permission of the instructor.

Course Materials

Course materials will be provided through the BrightSpace course website and email announcements. Students are expected to check the site daily for course updates and to carefully and promptly read all course emails. There is no assigned textbook for this course but you are required to acquire three episodes of the BBC documentary series Life of Birds (1998) available on iTunes for $1.99 per episode (episodes 1, 2 and 3) or you can download all ten episodes in the series for $18.99. There is also one copy available for loan through Dalhousie's Library services but it is strongly recommended that you purchase you own personal copy (all of the episodes are fantastic).

Course Overview

This course is designed to give students an overview of avian biology, with an emphasis on studying birds in the field. This field-intensive class is hands-on and applied; students learn by doing. Through focused and condensed lectures, team exercises, hands-on labs, documentary viewing, and extensive field trips to a variety of Nova Scotia ecosystems, you will learn about the evolution, adaptations, and diversity of birds, key aspects of their ecology and behaviour, and techniques and strategies for the study of their behaviour, populations and communities. You will also gain experience in conducting field studies, including study design, data collection, data analysis and presentation of results. You will be amazed at how much you will have learned in just over 2 weeks. A walk in the woods will never be the same again!

Course Learning Objectives

At the end of the course, students will be able to:

1) *Explain* the behavioural, morphological, and physiological characteristics that distinguish the Class *Aves* from other animal taxa.
2) *Identify* and *understand* general themes in avian ecology and evolution (e.g. communication, mating, foraging, feathers, flight).
3) *Appreciate* the conservation issues affecting bird species, populations, and communities.
4) *Identify* most Nova Scotia forest bird species (and others) by sight and sound.
5) *Generate* relevant and detailed field notations of bird behaviour.
6) *Integrate* knowledge of principles and methods into the design and implementation of a research project that effectively addresses a research question about bird ecology.
7) *Communicate* scientific ideas effectively both in writing and through oral presentations.

Meeting Times

This class is intense. It starts at 9:05 AM Wednesday, June 17, and ends at midnight on Wednesday, July 1. Expect to be in class all day, every day. The tentative schedule is weather dependent and may require changes on a daily basis, so do not make other commitments for the entire duration of the class. You won't have time for anything else.

Field Trips

You are expected to arrive on time prepared for the field trips as scheduled. Vans will not wait for you. Be prepared for all conditions. We will take one field trip in Halifax the first week, pending suitable weather. We will take a week-long (8-day, 7-night) trip to southwestern NS from June 22 – 29. We will stay for two nights at the Mersey River Nature Retreat in Kejimkujik National Park, and for five nights at the Harrison Lewis Centre (HLC) at Sandy Bay, on the coast by Port Joli, Queens County. Both field stations have small, unheated cabins or permanent platform tents with bunk beds, along with kitchen and bathroom amenities. Our nights in Keji will be without wifi, while the HLC has limited internet for research. You will need a warm sleeping bag or TWO regular sleeping bags and base layers including long johns. Nearby sites we will visit include Thomas Raddall Provincial Park and the Kejimkujik Seaside Adjunct. You are encouraged to bring a tent if you'd prefer for our nights at the HLC. See the 'Field Trip Preparation' section for further information.

Tentative Course Schedule (subject to change due to weather)

Date	Day	Time	Activities
Jun 17	Wed	9:05- 9:55	Introductions and class administration (room TBD)
		10:05-12:30	Lecture: Avian Evolution & Biodiversity (room TBD)
		13:45-16:55	Lab I: Avian Biodiversity & Evolution (room TBD)
18	Thu	9:05-12:30	Lecture: Avian Behaviour, Form & Function (TBD)
		13:45-16:55	Lab II: External Anatomy, Form & Function (TBD)
19	Fri	9:05-12:30	Lecture: Avian Conservation Biology (room TBD)
		13:45-16:55	Lab III – Field Methods and Study Design (TBD)
20	Sat	9:05-12:30	Lecture: Avian Behaviour & Ecology (room TBD)
		13:45-16:55	Lab IV: Internal Anatomy, Form & Function (TBD)
21	Sun	8:15-12:15	Local field trip (meet @ Point Pleasant Park); practice field skills & begin notebook entries; Lab II Part 4 and Lab III Part 4
		Afternoon	Finish lab write-ups and submit; pack for trip
22	Mon	Morning	Finish lab write-ups and submit; pack for trip
		Afternoon	Meet at Dal; drive to Keji; unpack, settle in; birding!
23	Tue	05:00 start	Dawn and dusk chorus walks at Keji, hiking, paddling, practice field ID skills, night in Keji
24	Wed	05:00 start	Dawn chorus walk at Keji; pack up and drive to HLC; survey habitats at HLC and Thomas Raddall Park; practice field methods (e.g., point counts, etc)
25	Thu	05:00 start	Dawn and dusk chorus walks at HLC; morning survey at Keji Seaside; work out team field project ideas; afternoon finalize projects with instructor and TAs
26	Fri	05:00 start	Begin team field projects at HLC/Raddall/Keji Seaside; revise as necessary with instructor feedback
27	Sat	05:00 start	Continue team field projects; organize and analyze data; practice ID
28	Sun	05:00 start	Continue team field projects; organize and analyze data; practice ID
29	Mon	05:00 start	Field ID quiz (by sound & sight; can use your binoculars, field guides, notes & notebooks); pack up and return to Halifax by dark
30	Tue	Full day of work time	Analyze project data, prepare presentations, prepare data reports; instructor available for feedback
Jul 1	Wed	09:30-12:30	Symposium - Students present and discuss group projects; class evaluations and field notebooks due
		Afternoon	Data reports due online before July 1 at midnight

Course Assessment

Assessments	Marks %	Due dates
Lab I – Avian Biodiversity & Evolution	10	June 22, noon
Lab II – External Anatomy, Form & Function	10	June 22, noon
Lab III – Field Methods and Study Design	10	June 22, noon
Lab IV – Internal Anatomy, Form & Function	10	June 22, noon
Professionalism	10	continuous
Field Quiz on species identification	15	June 29, 05:00
Field Notebook	15	Jul 1, 09:30
Symposium Presentation	5	Jul 1, 09:30
Field project data report	15	Jul 1, midnight
TOTAL	100	

Conversion of numerical grades to Final Letter Grades follows the Dalhousie Common Grade Scale:

A+ (90-100)	**B+** (77-79)	**C+** (65-69)	**D** (50-54)
A (85-89)	**B** (73-76)	**C** (60-64)	**F** (<50)
A- (80-84)	**B-** (70-72)	**C-** (55-59)	

Professionalism

A significant focus of this course is developing professional skills useful for successful careers in science and beyond. This includes not only the production of written documents, critical thinking, and applied field skills for collecting data, but also the ability to contribute constructively to a team experience. To encourage honing professionalism, students will be evaluated according to two vital components:

1) course contributions (5/10%). Students are expected to be actively engaged and willing to participate voluntarily in all aspects of course activities, including lectures (especially during guest speakers and student presentations), labs, field work, and symposiums. Students are also expected to contribute fairly to team projects, consider all opinions equally, and conduct themselves professionally at all times. A score out of 5 will be evaluated based on the quantity and quality of contributions made throughout the course, including in both class-wide and group-project activities.

2) attendance and time management (5/10%). Attendance in this course is not optional; students are expected to be present and actively engaged for all activities. Each student will begin the course with 5 points, and will only lose points for absences or late arrivals. Plan to attend and contribute to every single course activity (lectures, labs, field activities) and manage your time wisely to arrive on time. Students are expected to arrive a minimum of 5 minutes *before* course activities begin (unless instructed otherwise); arrivals after set start times are simply unprofessional, causing disruption to classmates' experiences and showing disrespect to the facilitator.

Field Research Projects and Symposium

Working in teams of 3, you will devise and conduct a field research project on bird ecology in coastal, forest and/or field habitats near the Harrison Lewis Centre, Thomas Raddall Provincial Park or Kejimikujik Seaside Adjunct. Your project should be well-researched and supported by the primary literature; you are expected to consult and acquire relevant resources from the internet during the field week to guide your initial project ideas and provide context for your findings. Each team will summarize the outcomes of their project in a Data Report (15%), which will be marked for completeness and clarity (see Field Project Data Report below for details). One report will be submitted per group. On the last day of class your team will give a 15-min Oral Presentation of your field project, using PowerPoint, and leave an additional 10 min for questions (5% team presentation grade). Everyone on your team will receive the same grade for the Report (15%) and Presentation (5%). * Remember to take lots of photos of your field sites and data collection for use in your presentation and report!

Field Project Data Report

You will report the findings of your field research project in a single document, submitted as a group. Instruction for submission will be posted on the course website. You will include all of the following elements in your report (these should be easily identifiable but do not need to follow any particular format):

Project Title
Names of Researchers
Timeframe of research (dates and times of data collection)
Project rationale and research question
Specific research objectives
Species studied and relevant ecological details
Study location (with UTMs) and detailed habitat descriptions
Techniques used to collect data and description of data collected
Results (included as appropriate figures, photos, maps, etc)
Discussion and conclusions
Recommendations for future studies
Literature Cited

Field Notebooks

When conducting field studies it is extremely important to document everything you do and see that may be relevant to the data you collect. If you are hired to conduct a study, your employer will want a copy of your field notes. A field notebook is a public record, which means it may be scrutinized closely. It is important to develop the skills of taking careful, accurate, complete, neat, and well-organized notes. Therefore, maintaining your personal field notebook will be an essential part of this class and is worth 15% of your grade. Record all pertinent sightings and other information from field trips in real time. Copied over notes are easily identifiable and will NOT be accepted.

Field Notebook Marking Scheme

Format and organization (20%): _____ out of 3.0

- front cover – full name in permanent marker
- inside cover - mailing address, e-mail address, phone number, ID numbers for borrowed binoculars and guidebook
- Numbered pages – starting after table of contents
- Tables of contents – to be easily navigated by any user, provide as much information as possible for each notebook entry
- Legend - all codes (acronyms and symbology) defined clearly and used consistently
- all writing relatively neat (considering it is written in the field), and easy to read
- all dates and times to follow consistent system and 24-hr clock - 13 May 2011, 16:30

Documentation of field trips (20%): _____ out of 3.0

- pertains to all 'official' field trips, when the class was together, led by instructor
- ancillary information is accurate and complete - location, date, start time, end time, weather conditions, habitat described/classified (environment, tree species, vegetation structure)
- running list of bird species detected and whether you saw or heard the bird (or both), or whether heard or seen (or both) by the other people
- upon completion of trip, record final total of species and individuals

Focal observations (20%):_____ out of 3.0

- at least 10 entries, titled and numbered for Table of Contents, each for a different species/activity/event; many will be opportunistic and some will be from class 'field' activities (e.g. swifts going to roost, owl surveys, etc.)
- each entry must include location, date, time started and ended, total observation duration, environment and context of observations
- observations should include detailed descriptions of behaviours you observed closely, with reference to lecture and lab materials – pose questions about what you're observing and propose potential physiological/ecological/evolutionary
- entries must be minimum 1 page, maximum 3 pages (manage your notebook space)

Species summary sections (20%): _____ out of 3.0

• maintain a running list of the species you personally hear/see
• each entry should include common name, AOU code, scientific name, family name, and main encounter locations (this can be valuable during the field quiz)
• leave one blank page at the back of your notebook for final tallies – provide a summary including total number of species, families, 3 most diverse families, any notable Species At Risk, and any other summary statistics

Sounds summary section (20%):_____ out of 3.0

• a reference guide for yourself, useful while in the field
• record reminders of vocalizations and/or non-vocal sounds of species encountered
• each described in a distinctive way that will allow you to identify the species
• minimum of 2.5 pages in length

Field notebook mark (100%): _____ out of 15.0 marks

Field Trip Preparation

Mandatory items for our field week

- binoculars
- field notebook
- bird field guide
- lots of pencils (pens don't work in field notebooks)
- plastic bags to keep things dry
- small daypack to carry your things
- sneakers or hiking boots
- lots of warm layers
- raingear (you absolutely need a waterproof jacket & waterproof pants)
- waterproof footwear (either good hiking boots or rubber boots, absolutely necessary)
- light-coloured long pants (not jeans) that can comfortably tuck into socks (for ticks)
- long socks (ankle socks will not suffice)
- ball cap or other kind of hat with a sun brim
- warm hat & gloves
- re-usable water bottle and tupperwares for packed lunches
- sunscreen and insect repellent (vitally important)
- camera/phone and charger
- alarm clock (battery operated – there is no electricity in cabins)
- warm sleeping bag (bring an extra bag or extra blankets if you don't have a warm one)
- flashlight or headlamp & extra batteries
- personal toiletries, toothbrush & toothpaste
- soap, shampoo, bath towel
- prescription drugs, aspirin or ibuprofen, allergy medication (e.g. Benadryl)
- basic snack food & special treats for yourself
- laptop (highly recommended; internet is available for e-mail and research, NOT for TV)

Optional items

- personal binoculars – recommended to obtain your own, 8-10 x 32-42, models for <$200 available at Canadian Tire, Cabela's or Mountain Equipment Co-op
- personal clipboard (very handy)
- extra pillow for a comfortable sleep
- slippers for the cookhouse
- swimsuit and beach towel (unlikely but you never know!)
- bug head-net or jacket (SEASIDE has some head-nets you can check out)
- field guides to other organisms (plants, insects, fungi, marine life) (optional)
- musical instruments for around the campfire
- frisbee, soccer ball, other games for the beach

Class Policies

To avoid any misunderstanding throughout the semester, please note the following policies and information will be enforced by the instructor to ensure transparent, fair and equal treatment for all. Extenuating circumstances are inevitable and you are encouraged to communicate with your instructor if you have any issues or require special consideration at any time during the semester. These procedures are in accordance with and/or in addition to the relevant sections in the current University Calendar. If there is any discrepancy, the University Calendar will take precedence.

Attendance is mandatory

This class is hands-on, so you must participate fully in all activities, including attending all classes and doing your share of chores at the field station. You are expected to attend all lectures, labs and field trips. We will deduct any unnecessary absences from your final mark, in proportion to the amount of time missed. If unable to attend a class, you must contact the instructor at once and obtain a doctor's note or complete a Student Declaration of Absence form, following the Student Absence Policy guidelines.

Participation is mandatory

You are expected to participate and cooperate in all class activities and follow rules at the field stations. If you don't or you cause a problem for the class or instructors, your final grade will be reduced in proportion to the severity of the problem.

Assignments and Grading

All assignments should be typed, well written and spell-checked before submission. To maximize your mark, please use care in ensuring all required components as listed in the assignment instructions or rubrics have been met to the very best of your ability. Although most assignments will have a detailed point distribution for marking, the instructor and TA have discretionary power to deduct additional points (up to 20%) for overall sloppy writing, poor grammar and spelling, inadequate referencing, glaring omissions, and general inferior quality of the assignment.

Any material submitted for evaluation after the designated deadline will have marks **DEDUCTED AT THE RATE OF 10% PER DAY LATE** (Monday-Sunday). The stress that results from procrastinating on the completion of assignments is avoidable. **PLAN AHEAD & WORK SYSTEMATICALLY**. Your time at Dalhousie should serve to teach you effective time management skills.

Extensions without a late penalty will be given only with a valid (medical or otherwise) excuse. If you need an extension for an assignment, communicate with the instructor.