Shoals Marine Laboratory
Field Animal Behavior (Cornell: BIOSM 3290/ BIONB 3290; UNH: MEFB 714)
25 June - 9 July 2018

Course Syllabus and Schedule

Faculty: Dr. Will Kimler, North Carolina State University
Dr. Holly Nance, College of Coastal Georgia
Dr. Hal Weeks, Shoals Marine Laboratory

LT = low tide; L = lecture/discussion; F = field work

25 June, Monday (LT @ 1606, 0.8)

Afternoon - L: Fire & Water, Information

Evening - F: Island Walk and History
L: Introductions, course philosophy, organization and goals

26 June, Tuesday (LT @ 1650, 0.9)

Morning - L: Designing field studies in behavioral ecology (wk)
L: Video – Signals for Survival
F: Gull colony – overview of behavior, life history and distribution
(Worksheet #2 – study design)
L/F: Patricia Savage – Appledore Artist-in-Residence, Raleigh, NC
Observations of Posture as a Window into Animal Condition

Afternoon - L: Ecological Perspectives and Influences on Behavior (hw)
L: Territoriality (wk)
F: *Nucella* egg mass distribution in intertidal
(Worksheet #1 - observations, questions, hypothesis generation)

Evening - L: Rock Talk - Dr. Cameron Wake, UNH Carsey School of Public Policy
Title TBD (likely something on extreme weather preparedness/climate change)

Post-Talk Discussion (including Worksheets)
Assign Predator & Prey Readings (Ellis et al 2012 and Lemke & Ryer 2005)

27 June, Wednesday (LT @ 0530, 0.0; 1731, 1.0)

Morning - F: Island Walkabout: Crystal Lake – (gulls on neutral 'turf'); South Side (Appledore Ledges), East Side Tidepools

L: Sensory Perceptions - (hn)

Afternoon - Immediately after lunch – time for readings

L: Predators and Prey (wk, hw)- about 1500
FOOD RUN – all hands; about 1630

Evening - L: Cetacean foraging ecology/whale & seabird watch preparation (hw)
Discussion: Ellis et al 2012 and Lemke & Ryer 2005

28 June, Thursday (LT @ 0610, 0.0; 1810, 1.1)

Morning - F: Bird Walk
L: Communication (hw)
F: Songbird territorial behavior – Song Playback Demo

F: Whale/Seabird Watch (approx.. 10 – 3) on UNH R/V Gulf Challenger
Lunch from Appledore on board

Afternoon - after return from whale watch
F: Student time for project concept development with faculty
(Individual or small group field walks)

Evening - it's been a long day, take the evening off

29 June, Friday (LT @ 0648, 0.1; 1848, 1.2)

Morning - F: Data Collection in the Intertidal – Smith's Cove
(Worksheet #3 - data collection; presentation)
L: Altruism and Eusociality – (hn)

Afternoon - L: Natural Selection and Evolution (hn)
L: Evolution of Behavior (wk)

L: Discussion – living in groups – pros, cons and tradeoffs

Evening - L: Discussion/Videos - Animal Learning – Archerfish & Octopus (hw)

30 June, Saturday (LT @ 0724, 0.2; 1925, 1.3)

Morning - F: Duck Island Seal Survey w/ Seal Interns (Worksheet #4 – data interpretation) **– else use artificial dataset from songbird playback activity**
N.B. this is just a marker for this activity at this point
L: Orientation and Migration – (hn)

Afternoon - F: Group project – hypothesis, design, data collection
SLUG PROJECT!
F: Project exploration & consultation
Assign Reading #3: Bekoff 2006

Evening - F: Post-dinner island cruise (seals, cormorants, islands)
Work on project ideas

1 July, Sunday (LT @ 0800, 0.3; 2004, 1.3)

Pre-brunch - L: Dorm clean-up

Post-brunch -
L: Ecology and Evolution of Reproductive Strategies (hw)

Evening - L: Group Discussion – Initial Project Ideas & Feedback
Worksheet #5 – Preliminary Project Proposal: What are your (1) Research Question and Organism, (2) Hypothesis, (3) Predictions, and (4) Proposed Methods to Test the Hypothesis
L: Behavioral Ecology and the Question of Animal Mind (wk); discuss Bekoff paper (all)

2 July, Monday (LT @ 0837, 0.4)

Morning - L & F: White Island Tern Restoration Project (2 – 3 hr)
L: Pacific Salmon: Life histories and Counting What We Cannot See (hw)

Afternoon - F: Complete Worksheet #5
F: Individual Student Projects / Exam Prep

Evening - **EXAM**

3 July, Tuesday (LT @ 0915, 0.5)

Morning - F: Individual Student Projects

Afternoon - F: Individual Student Projects

Evening - L: Rock Talk - TBD

Post-Talk Discussion

4 July, Wednesday (LT @ 0954, 0.6)

Morning - F: Individual Student Projects

Afternoon - F: Individual Student Projects

Evening - L: Group discussion of progress on Project

5 July, Thursday (LT @ 1037, 0.7)

Morning - F: Projects

Afternoon - L: Tips on writing project reports and giving oral presentations (all)
F: Projects

Evening - Discussion: Career opportunities in the marine sciences
{questionable advice from living case studies - SML Staph}

6 July, Friday (LT @ 1123, 0.7)

Morning - F: Projects

Afternoon - F: Projects

Evening - Prepare oral presentations for symposium

7 July, Saturday (LT @ 1213, 0.7)

Morning - Almost-Annual FAB Symposium – 30th edition

Afternoon - Time for writing project reports

Evening - Finish writing project reports

8 July, Sunday (LT @ 1307, 0.7)

Pre-brunch - L: Dorm clean-up

Afternoon - Clean-up: Lab & Island field sites
Written reports due (BY NOON)

Evening - Farewell Dinner

9 July, Monday

Clean Dorm Rooms, Pack
0915 - Departure

Course Prerequisites: One semester of college level biology or equivalent

Credit hours: 3

Course Objectives/Goals: After successfully completing Field Animal Behavior, students will:

1. Understand the scientific process as applied to field and/or laboratory investigations of behavior. Demonstrate the ability to design, conduct and present an independent investigation.

2. Be able to explain the role of natural selection and the influences of predictable and unpredictable environmental change in shaping behavioral patterns.

3. Grasp the significance, and be able to provide examples, of quantitative and qualitative measures that illustrate behavioral adaptation.

4. Demonstrate critical thinking in the evaluation of scientific findings.

5. Understand similar selection pressures operate across taxa.

Course Materials:

There will be a variety of scientific journal articles and review papers assigned and/or available as readings for this course. These papers are intended to supplement the lectures and to provide additional background information for doing your project (see below). We will distribute several to you on CD; others will be available in the course area. Three excellent textbooks will be available for your use in Laighton library:

1. Alcock, J. (2013) Animal Behavior - An Evolutionary Approach (10th ed.)
2. N.B. Davies, Krebs, J.R. and J.R. West (2012) An Introduction to Behavioral Ecology (4th ed.)
3. Martin, J. and P. Bateson (1993) Measuring Behaviour (2nd ed.)

Feel free to consult these books, and others in the library, for help in understanding lecture material, or for assistance in developing ideas regarding your field project. There are earlier editions of these texts that are also quite valuable. However, please do not remove them from the library or class area so that everyone may have ready access to these important resources.

Assignments & Grading:

Exam:

You will take an essay-style, open-note examination halfway through the course (2 July). Questions will be taken from lectures, readings and field observations covered to that date, and will require synthesis, integration and critical thinking. The exam counts for 25% of your grade.

Worksheets:

A second 25% of your grade is based on several worksheets that will be assigned during the first week of class. These worksheets are intended to help you understand the methods used by behavioral ecologists to design field studies, and will help you learn how to collect, analyze and report data, and how to make interpretations from your data. The last worksheet, in which you will present your individual project topic and approach, is intended to help you clarify your thoughts toward a simple and direct investigation. The worksheets should also help you get a feel for the writing and analytical style we expect in your individual project reports.

Individual Field Project:

The third 25% of your grade is based on work related to a field project of your own design and execution. You will select an organism or habitat readily accessible on Appledore Island and thoroughly examine it from behavioral and ecological perspectives. Your project will be evaluated as both a final written report (< 10 pages including tables and figures), and as a 15 minute oral presentation delivered at the end of the course during our Field Animal Behavior Symposium. We expect everyone to conduct an individual project. However, we will consider two people working together on data collection IF it is clear beforehand that there are distinct questions being investigated and individual reports are prepared. Let us know early if you want to pursue this option.

Personal Involvement:

The final 25% of your grade is based on the faculty's subjective evaluation of your personal involvement in course activities. We expect everyone to participate in lecture and project design discussions, and to become involved in all phases of the field work. If at any time you have questions or comments about the course, please feel free to contact one of us directly. We hope you will find Shoals Lab an open and stimulating environment in which to learn about animal behavior and the marine environment, and that you will also find the lab's faculty and staff eager to help facilitate your learning. If you have any problems, suggestions, or see something of interest during your travels around the island, please come and talk with us about it.

Expectations and Conduct:

Students are responsible for fully understanding all of the information presented in this syllabus. If there are any questions regarding this information, it is the student's responsibility to bring it to the instructor's attention. In addition, students are responsible for attending all activities associated with this course and completing all assignments. Students are responsible for asking questions anytime they need clarification (remember, there is no such thing as a bad question).

Every student is responsible for their own behavior- specifically in being respectful and collegial to other students and with instructors. Students are responsible for fully understanding and adhering all of the information presented in the SML Appledore Handbook.)

1. *Personal Technology.* Do not use cell phones, smart phones, iPads, mp3 players, headphones, or similar devices in the classroom or during course activities. If you take notes with your computer, disable wireless access during lecture. We follow a no-cell-phones policy at all meals.

2. Wi-fi is available throughout the island. But do remember that this is a remote site with a population sharing a resource. So please do not download/upload videos or stream content or play games.
3. The lab maintains a modest computer lab in Laighton library. Printers are available, but please limit printing to your FINAL project report. Please bear in mind that this is a shared resource and limit your use to relatively short stints at any one time. At course end, when reports are being prepared, we may need to make use of some type of sign-up. Many of you have your own laptops, and files can be readily transferred on a jump drive for printing. We are happy for your oral presentations to make use of computer generated slides and graphics (e.g. PowerPoint), but hand-prepared graphics on overheads can be equally effective. The important thing is to think about what you are conveying and to emphasize the message. How you convey it (the messenger) is secondary. Similarly, while we are happy to receive final reports that are prepared on a computer, this is not required and we are equally happy with neat and legible hand-written reports and graphics.
4. *Transmission of Course Materials*. Students are not authorized to replicate, reproduce, copy or transmit lectures and course materials presented, or derivative materials including class notes, for sale or free distribution to others without written consent of the instructors who are the original source of the materials.
5. *Academic Integrity***.** Any work submitted must be your own. Uncredited use of another person's words, data or images is considered plagiarism, a serious violation of the Code, whether the material comes from another student, a web site, or a published paper. Students must adhere to Cornell's and UNH's Policy for Academic Honesty/Plagiarism and Discrimination
    i. Cornell: http://cuinfo.cornell.edu/aic.cfm
    ii. UNH: http://www.unh.edu/student-life/academic-honesty-policy
6. *Disabilities & ADA Accommodation*: Students with a disability must contact Cornell's (420 CCC building; 607-254-4545) or UNH's Student Disability Services (http://www.unh.edu/disabilityservices) four weeks prior to start of class for confidential discussion of needs and for registration to verify eligibility for academic accommodations. No retroactive accommodations can be made.
7. *Mental Health:* Shoals Marine Laboratory cares about you and your well-being. If you experience unusual personal or academic stress during the course or need to talk with someone about a personal problem, seek support from your instructors as soon as possible. In addition, any SML staff is available for consultation 24/7. Find staff in the office in the Hamilton House between 8am – 7pm or knock on the door of Bartell House after hours