Appledore Island, Isle of Shoals, Kittery, Maine
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Shoals Marine Laboratory
Seabird Ecology and Conservation (BIOSM 4740
June 14-28, 2027

Course Syllabus and Schedule

Faculty:
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TA Name (TBD)

Prerequisites: two semesters of college-level biology, ecology, environmental science, and/or marine science

Course Credits: 3 Cornell credits / 4 UNH credits

Course Overview/Course Description:

This course provides students with a comprehensive foundation in seabird science, with an emphasis on seabird phenology, foraging ecology, conservation, and research. We will combine classroom-based lectures with field research activities and applied quantitative methods for studying seabirds. Though a general background in ecology/environmental/marine science is required, students are not required to have a pre-existing knowledge base of quantitative analysis or coding (we will teach you this!). Students will become familiar with identifying local seabird species, different field methodologies for studying seabirds, gain practical experience in communicating seabird science through various assignments, and put their learned skills to the test by carrying out their own research project using datasets collected from seabirds at the Isles of Shoals.

Learning Goals and Objectives:
In this course, you will learn how to:

1. ID local seabird species and build skills in natural history observation
2. Describe seabird phenology, foraging ecology, and conservation threats and critically interpret recent studies on these topics
3. Apply field-based methods to study seabird movement and foraging ecology
4. Analyze and visualize seabird datasets and draw conclusions from these data

5. Effectively communicate seabird science and conservation to technical and non-technical audiences
6. Develop an independent research project using datasets from seabirds living on and around the Isles of Shoals

Course Materials/Learning Resources:

1. *Laptop for coding and for other course assignments (we will go over how to download any necessary free software during the course)*
2. *You ARE NOT required to purchase any reading materials (i.e., textbook); we will pull from a variety of resources in your learning, all of which will be provided to you.*
3. *Binoculars (if you have them, bring them! Otherwise, we can provide you with a pair on the island)*
4. *Bike helmet (this will be used to protect your head against angry seabirds, especially gulls and terns, during our fieldwork; NOT a snowboard or skateboard helmet as these can cause injury to the birds). Shoes you feel comfortable walking all day in; a second pair of shoes you don't mind getting wet*
5. *Personal notebook to use as your field journal*

Assessments/Assignments/Grading Overview:

Breakdown of assignments with percentage points- e.g.:

Field Journal	15%
Coding Mini-Assignments	10%
Research Article Project	20%
Science Communication Assignment	20%
Personal Research Project and Presentation	25%

Field Journal: Throughout the course, you will keep a field journal to write down or draw observations and notes. This is meant to be a creative, free-flowing assignment to allow you to express yourself, build skills in natural history observation, and explore your own ideas and thoughts as they pertain to seabirds and their environment. *Learning Goals and Objectives 1,2,3*

Coding Mini-Assignments: You will complete two mini-assignments in R coding language using datasets that we will collect while at SML. In these assignments, you will develop your quantitative skills and apply your knowledge to critically interpret seabird data. Though we encourage you to persevere through R troubleshooting, we will be there to help if you get stuck! *Learning Goals and Objectives 2,4*

Research Article Project: You will select from a provided list of seabird research articles, from which you will compile background information on the study species, the methods used, and the results of that article. You will also be asked to use your critical thinking skills and describe how you might build on the research topic/questions presented in your article based on your knowledge of seabird ecology and methodology. *Learning Goals and Objectives 2,5*

Science Communication Assignment: You will select a seabird species local to the southern New England area and create a science communication piece, intended to communicate a particular conservation and/or management concern for that species. Communication pieces can be a written piece (e.g., essay, conservation note, public notice), a visual art piece (e.g., drawing, graphic design piece), or a media piece

(e.g., podcast episode, video blog). We will provide guidance and examples of how to effectively communicate your science topic to a non-technical audience. *Learning Goals and Objectives 2,3,5*

Personal Research Project and Presentation: You will be introduced to the various datasets generated from seabird research efforts at the Isles of Shoals. Using a dataset of your choice, you will develop your own hypothesis, analyze data using statistical methods in R (don't worry, we will provide support for how to do this!) to test your hypothesis, and create visual plots showing your analyses and results. You will then give a brief (10-minute) presentation to the class, summarizing your methods and findings. *All Learning Goals and Objectives.*

Grading Scale

UNH/other institution student grading Scale		**Cornell student grading scale**	
		100 – 98.00	A+
100 – 94.00	A	97.99 - 94.00	A
93.99 - 90.00	A-	93.99 - 90.00	A-
89.99 – 87.00	B+	89.99 – 87.00	B+
86.99 – 83.00	B	86.99 – 83.00	B
82.99 – 80.00	B-	82.99 – 80.00	B-
79.99 – 77.00	C+	79.99 – 77.00	C+
76.99 - 73.00	C	76.99 - 73.00	C
72.99 - 70.00	C-	72.99 - 70.00	C-
69.99 - 67.00	D+	69.99 - 67.00	D+
66.99 - 63.00	D	66.99 - 63.00	D
62.99 - 60.00	D-	62.99 - 60.00	D-
< 59.99	F	< 59.99	F

Expectations and Code of Conduct:

Students are responsible for fully understanding all the information presented in this syllabus and should discuss any questions with instructors as soon as possible. If there are any questions regarding this information, it is the student's responsibility to bring it to the instructor's attention. Students are responsible for attending all activities associated with this course and completing all assignments—your experience in the course will be most valuable and effective if you are present, enthusiastic, and prepared! Each student is responsible for their own behavior: always be respectful and collegial to other students, with instructors, SML staff, interns, visiting researchers, and other visitors. SML is a community, so please strive to be a positive member of that community. Students are responsible for fully understanding and adhering all of the information presented in the *Appledore Island Handbook*.

1. *Personal Technology / Electronic Devices.* Do not use cell phones, smart phones, iPads, headphones, or similar devices in the classroom or during course activities, unless approved by your faculty. Device use during lectures and activities is distracting, disrespectful, and detrimental to your learning.
2. *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 SML and the instructors who are the original source of the materials.

3. *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. It is your responsibility to properly cite any sources used in your work. Students must adhere to Cornell's and UNH's Policy for Academic Honesty/Plagiarism and Discrimination:
    a. Cornell Code of Academic Integrity
    b. UNH Academic Integrity policy
4. *Use of Artificial Intelligence.* Students must have the express written permission from the faculty member teaching the course prior to the use of of artificial intelligence to generate work submitted in a course. Any attempts to deviate from this principle by submitting work that is not independent and original will be construed as acts of academic misconduct.
5. *Disabilities & ADA Accommodation*: Students with a disability should contact Student Disability Services at Cornell or UNH four weeks prior to start of class for confidential discussion of needs and for registration to verify eligibility for academic accommodations. No retroactive accommodation can be made.
6. Shoals Marine Lab and its faculty are committed to assuring a safe and productive educational environment for all students and for the university as a whole. To this end, SML faculty members will report to the appropriate Title IX offices (UNH – Civil Rights and Equity Office, unh.civilrights@unh.edu; 603-862-2930; Cornell – Office of Civil Rights, titleix@cornell.edu, 607-255-2242) any incidents of sexual violence and harassment shared by students. If you wish to speak to a confidential support service provider who does not have this reporting responsibility because their discussions with clients are subject to legal privilege, you can contact the SHARPP Center for Interpersonal Violence Awareness, Prevention, and Advocacy at (603) 862-7233/TTY (800) 735-2964. SML also maintains an Anonymous Incident Reporting Page for students, staff and faculty to communicate incidences of bias and other feedback to SML leadership.
7. *Mental Health and Belonging*: 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 to someone about a personal issue, seek support first from your TAs and faculty. SML staff are available throughout the daytime, and at any time when there is an emergency. See the following resources for additional assistance:
    a. UNH Mental Health Emergency Services
    b. Cornell Mental Health care and emergency services
    c. SML Supportive Community page, which includes a bias reporting and feedback form

Schedule:

Please note that this schedule is tentative and may change at any time (at the instructor's discretion) due to factors such as weather, personnel availability, etc.

See below for SML mealtimes and quiet hours—
Dining hall mealtimes:
Mon-Sat: Breakfast at 0730, Lunch at 1230, Dinner at 1800
Sun: Brunch at 1000, Dinner at 1700
Island quiet hours:
2200-0700

Schedule color code:
*Field Activities
*Classroom Activities
***Assignments/Deadlines**

Date	Early Morning (0600-0715)	Morning (0830-1230)	Afternoon (1330-1730)	Evening (1900-2100)
Mon			1330 PM: Arrive at SML dock. 1445 PM: depart Portsmouth for SML. 1615: arrive at SML. 1630: arrival and welcome, settling in.	Safety briefing; Intro to the Isle of Shoals and Campus walk; Course intro
Tues		0815-0845: SML Lab orientation; 0900-1230: Intro to seabird ecology, phylogeny, and life history (lecture) and field journal setup	Seabird morphology (lecture); Species ID for local seabird species (lecture and field); beginner field journal session	1900-2000: Intro to R session 2000: Rock Talk
Wed	Morning walk to practice species ID and begin field journaling	0830-0930: Methods of studying seabird movement I (banding, GPS tracking, resighting) 0930-1430: Seabird field-work trip (Terns on White Island; Guillemots or Gulls on Appledore)	1430-1730: R computer lab: basics of Environmental Data Science workflow **Break for food run at 1600**	Guest lecture

Thurs	Gull nest checks and practice species ID	0830-0930: Methods of studying seabird movement I (lecture; banding, GPS tracking, resighting) 0930-1430: Seabird field-work trip (Terns on White Island; Guillemots or Gulls on Appledore)	1430-1730: Guided practice session with R; **R mini-assignment 1 DUE**	Overview of seabird research article project and working session
Fri	-	0830-0930: Methods of studying seabird movement I (lecture; banding, GPS tracking, resighting) 0930-1430: Seabird field-work trip (Terns on White Island; Guillemots or Gulls on Appledore)	1430-1730: Methods of studying seabird movement II (lecture; at sea surveying)	Seabird ID jeopardy
Sat	Gull nest checks	0830-0930: Line transect survey equipment/datasheets overview 1000-1400: Seabird cruise with line transect survey in practice	1500-1730: Line transect survey data compilation and plotting in R; **R mini-assignment 2 DUE**	**research article project session I DUE**
Sunday	7:45-10:00: Morning group beach cleanup and compile data on collected debris	(1000: Sunday brunch) 1100-1330: Seabird conservation I (lecture; plastics, contaminants); plotting of collected debris in R	1330-1700: Seabird foraging ecology I (lecture) and foraging game; **research article project session II DUE** (1700: Sunday dinner)	Guest lecture
Monday		Gull nest checks; Seabird conservation II (lecture; fisheries, spatial conservation, predator control)	Seabird foraging ecology II (lecture); Overview of Science Communication assignment	**research article project session III DUE**

Tuesday		0900–1200: field trip to White Island focused on management 1200-1230: Debrief from White Island	1500-1730: Working session for SciCom assignment with artist in residence	1900-2000: SciCom guest lecture 2000: Rock Talk
Wednesday	Morning field journaling session and bird walk	Gull nest checks; Working session for SciCom assignment; overview of personal research project assignment	Guided working session for personal research projects **Break for food run at 1600**	Guest lecture
Thursday		Final working session for SciCom assignment; **SciCom assignment DUE**	Seabird evolution and adaptation (lecture) and adaptation game	Guided working session for personal research projects
Friday		Gull nest checks; Gull nest check data compilation and findings debrief	Guided working session for personal research projects	Seabird documentary screening
Saturday		Guided working session for personal research projects; field journaling	Final guided working session for personal research projects; **individual research project DUE**	Looking forward: navigating jobs and careers in seabird science (lecture and discussion)
Sunday	0800-1000: Field trip to wading bird colony; **hand in field journals for evaluation**	(1000: Sunday brunch) 1100-1500: Research project presentations	1530-1700: Course debrief (1700 dinner)	2000: Coffee house
Mon	Pack, clean rooms, gather personal items to be left on the deck of your dorm before breakfast; field journals returned to you	Depart SML		