Shoals Marine Laboratory
Introduction to the Biology of Sharks, Skates, & Rays (BIOSM 1640)
Dates August 9th – 20th 2021

Course Syllabus and Schedule

Part 1: Course Information

Faculty: Maggie Winchester, M.Sc., International SeaKeepers Society
Email: Maggiewinchester4@gmail.com
Office Hours: By appointment, through zoom

Teaching Assistant: Scott Lynch, University of Massachusetts Dartmouth (Dartmouth, MA)
Email: slynch@umassd.edu
Office Hours: By appointment, through zoom

Prerequisites: None
Credit hours: 1.0

Course Description:

Elasmobranchs (sharks, skates, and rays) are the subjects of numerous headlines and blockbuster movies, but what do we really know about them? Our main goal is to discover the current state of knowledge of elasmobranch (shark, skate & ray) biology and explore areas for future research and conservation initiatives. This includes separating fact from fiction, analyzing various types of media including peer reviewed scientific literature, and exploring experimental methods in both laboratory and (virtual) field settings for studying sharks, rays, and other marine life. Get ready for a great adventure!

Course Requirements and Materials:

All reading materials will be provided electronically via Canvas. Otherwise, you must have access to:
- Computer, tablet, or other electronic device with video and audio capabilities for Zoom meetings
- Reliable internet connection
Course Structure:

This course is designed to provide an online experience including both synchronous (things happening live, at the same time) and asynchronous (things are happening at different times) activities. Class sessions will be a blend of self-paced and group activities using Canvas embedded tools. Activities will consist of multimedia presentations, readings, discussions, individual, and group projects, quizzes, and reflections.

You must complete both synchronous and asynchronous activities and assignments by their due date in order to receive full credit, unless you have been granted an extension by the instructor or TA (see Part 3: Schedule for additional information).

Synchronous activities will be hosted in Zoom and asynchronous activities and assignments will be completed online (primarily) using Canvas.

- You can expect to complete synchronous activities like group work and class discussions on Monday, Wednesdays, and Fridays from 10:00 AM to 12:00 PM (eastern time).

- You should also expect to attend Rock Talk on Thursday nights from 7:30 PM to 8:30 PM (eastern time).

Participation is highly encouraged during synchronous activities; if you cannot attend, you should make arrangements with the instructor or TA to watch meeting recordings and complete any missed work.

You should prepare for synchronous activities by completing any work that is due at the beginning of the synchronous time.

The instructor and teaching assistant are also available for one-on-one or small group Zoom meetings (a.k.a. virtual office hours) by appointment. You can email the instructor or TA to set up an appointment at any time during the course. You should take advantage of this opportunity if you are confused or just curious about topics covered in the synchronous or asynchronous activities.

Technical Expectations and Assistance:

You should be able to navigate the Canvas learning management system and the internet, watch online videos and upload items such as images and documents. The instructor will review this material the first day of course and will provide an “Orientation to the Course” video, which will offer guidelines for navigating the course.

Part 2: Course Components

Strategies for Success:
● You should login into Canvas every day and read the daily announcement, as well as the list of resources and activities that are associated with the daily topic.

● You should set a daily and weekly schedule so you are able to complete (and understand) the work by the due date.

● Email your instructor and TA if you have any further questions regarding the schedule, deadlines, discussions, or assignments. In addition, if you have a question regarding content you can either (a) email your instructor or TA or (b) post our question in the Muddy Points Discussion Forum.

● Always read the instructions!

**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](http://www.unh.edu/disabilityservices)) **AS SOON AS POSSIBLE** for confidential discussion of needs and for registration to verify eligibility for academic accommodations. Please inform your instructor if you are in the process of verifying academic accommodations. No retroactive accommodations can be made.

**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.

**Assignments & Grading:**

Your points for this class will result directly from your participation and performance on the projects, exercises, and activities described within this syllabus. The course will total to 800 points.

<table>
<thead>
<tr>
<th>Category/Assignment</th>
<th>Points</th>
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<tbody>
<tr>
<td><strong>Course Projects</strong></td>
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<tr>
<td>Scientific Communication Project and Presentation</td>
<td>200</td>
</tr>
<tr>
<td>Experimental Design Project</td>
<td>150</td>
</tr>
<tr>
<td>Anatomy and Physiology Project</td>
<td>100</td>
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<tr>
<td>Elasmobranch Family Tree Project</td>
<td>100</td>
</tr>
<tr>
<td><strong>Laboratory Assignments</strong></td>
<td>150</td>
</tr>
<tr>
<td><strong>Attendance and Participation</strong></td>
<td>150</td>
</tr>
<tr>
<td>Discussion Reflections</td>
<td>60</td>
</tr>
<tr>
<td>Rock Talk</td>
<td>50</td>
</tr>
<tr>
<td>Post-Assessments</td>
<td>30</td>
</tr>
<tr>
<td>Pre-Assessments</td>
<td>10</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>800</strong></td>
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</table>
This year, you will be tasked with reading and interpreting at least one assigned paper from the scientific literature. You will then use this paper as the basis for their Experimental Design Project and Science Communication Project and Presentation. You will be provided with additional instructions and rubrics for each assignment during the course.

*Science Communication Project and Presentation:* It’s time to get creative! To complete this project, you will produce your own form of media to communicate the information in the assigned scientific paper to the general public or specific audiences like fishermen or tourism operators. Students will ask, “If I were the scientist, how would I communicate my research to a non-scientific audience?” and “What audience is important? Who and how should I target them?” Types of media include infographics, videos, guides and more! As a part of this project you will give a presentation explaining why what you have created is useful and how it is effective.

*Experimental Design Activity:* Science is rarely a linear process, and most experiments often lead to more questions. To complete this project, you will design an experiment that expands on the research outlined in your assigned scientific paper. You will write a research proposal for a new experiment that either (a) uses a similar methodology to ask a similar question in a different study species or (b) explores a new question outlined in their assigned scientific paper.

*Anatomy & Physiology Project:* This multi-part exercise will give you the chance to relate form to function for major body parts and systems and explore how they differ within elasmobranchs and what those differences might mean for these animals.

*Elasmobranch Family Tree Project:* You will investigate how and why elasmobranchs are separated into different groups and how they all fit together in the big picture. You and your classmates will create a course-wiki page dedicated to the phylogeny of elasmobranchs.

*Laboratory Assignments and Participation:* Each daily module will involve a pre-assessment, an activity, and a post-assessment. The pre-assessment and post-assessment are meant to prime and measure learning throughout the daily module. The pre and post-assessments will count towards the student’s participation grade. The activity, unless considered a project (above), will count as part of the laboratory assignment grade or the discussion reflection grade (under participation). In general, laboratory assignments and discussion posts are daily activities related to the topic at hand. The activities may be completed on canvas or recorded in a lab notebook that will be turned in at the end of the week.

*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 (http://www.sml.cornell.edu/sml_forms.html)
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.

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 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. Students must adhere to Cornell’s and UNH’s Policy for Academic Honesty/Plagiarism and Discrimination

   a. Cornell: [http://cuinfo.cornell.edu/aic.cfm](http://cuinfo.cornell.edu/aic.cfm)
   b. UNH: [http://www.unh.edu/vpsas/handbook/welcome-university-new-hampshire](http://www.unh.edu/vpsas/handbook/welcome-university-new-hampshire)

**Zoom Etiquette:**

- Your Zoom screen name must match the name under which you are enrolled in the course.
- Your webcam adds value to our class experience. Please keep it on to the maximum extent appropriate. If it is off, we will assume you have stepped away from the classroom.
- Muting of your microphone can be helpful if there are distractions on your end, but it reduces the spontaneity of discussion and verbal feedback. Use your discretion and follow the evolving instructions of your instructor and TA.
- Minimize distractions and “be present” by putting away phones and unrelated work.
- Improve clarity by speaking deliberately and use good lighting (behind your camera).
- Be explicit and animated with your non-verbal communication: nodding, thumbs up, hand-raising.
- Participate with grace & humor. Suspend judgment and be willing to try new things!
- Students should not record or share zoom calls or other information without permission. The instructor and TA may record meetings for student’s that are not able to attend synchronous session.
- Attire, language, and backgrounds should be professional and respectful. Shirts are required, but shoes are optional.

**Discussion Board Guidelines:**

The Discussion Board questions provide you with an opportunity to illustrate what you have learned as a result of assigned readings, practical experiences, and research. Here are some guidelines that are designed to help you get the most out of this learning experience:

- Before posting your initial answer to the Discussion Forum, be sure to read and reflect on all of the material assigned. When appropriate, be sure to read prior posts before adding your response.
- Your responses should reflect both what you have learned presently and in the past.
- When responding to your peers’ posts, you may agree, disagree, expand upon for further clarification and/or bring up additional points. Responses are typically a minimum of 3 sentences, relate to the post, and relate to the topic under study. Please avoid responses such as “I agree” or “me, too;” rather, be sure to add to the conversation. Please remember to disagree with ideas and not people. Always be understanding, patient, and accepting of new ideas. This is a safe space where all may express their opinions freely. Please don’t be a jerk.
- Always reread your response to be sure it is respectful and clear similar to the way you would when writing an email. Avoid using sarcasm, as its use can easily be misunderstood as rudeness.

- Please model professionalism by using proper grammar and punctuation. You may find it helpful to write your response in a word processing document and then copy it to the discussion forum. This is a good practice to keep a back-up of your work, in case of errors during submission.

- **Be kind and respectful to one another.** Any and all forms of bullying, hate speech, discrimination or anything similar will not be tolerated.

### Part 3: Schedule

Please note that this schedule is tentative. Synchronous and asynchronous activities, as well as due dates may change during the class period.

<table>
<thead>
<tr>
<th>Date</th>
<th>Day</th>
<th>Synchronous Topic</th>
<th>Asynchronous Topic</th>
<th>Items due at 10:00 am</th>
<th>Items due at 11:59 pm</th>
</tr>
</thead>
<tbody>
<tr>
<td>9-Aug</td>
<td>Monday</td>
<td>Orientation to Canvas and Scientific Method</td>
<td>Scientific Method</td>
<td></td>
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<tr>
<td>10-Aug</td>
<td>Tuesday</td>
<td></td>
<td>Evolution and Phylogeny</td>
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<tr>
<td>11-Aug</td>
<td>Wednesday</td>
<td>Scientific Method and Phylogeny</td>
<td>Phylogeny and Diversity</td>
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<tr>
<td>12-Aug</td>
<td>Thursday</td>
<td>Rock Talk</td>
<td>Anatomy and Physiology</td>
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<tr>
<td>13-Aug</td>
<td>Friday</td>
<td>Scientific Paper Discussions; Project Orientations</td>
<td>Foraging and Behavior</td>
<td></td>
<td>Elasmobranch Family Tree</td>
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<tr>
<td>14-Aug</td>
<td>Saturday</td>
<td></td>
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<td></td>
<td>Elasmobranch Family tree; Week 1 Asynchronous Work</td>
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<tr>
<td>15-Aug</td>
<td>Sunday</td>
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<tr>
<td>17-Aug</td>
<td>Tuesday</td>
<td></td>
<td>Fisheries and Bycatch</td>
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<td>18-Aug</td>
<td>Wednesday</td>
<td>Science Communication; Artist in Residence</td>
<td>Conservation</td>
<td>Science Communication Outline</td>
<td>Anatomy and Physiology Project</td>
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<td>19-Aug</td>
<td>Thursday</td>
<td>Rock Talk</td>
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<tr>
<td>20-Aug</td>
<td>Friday</td>
<td>Science Communication Presentations</td>
<td>Scientific Communication Presentation</td>
<td></td>
<td>Week 2 Asynchronous Work</td>
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