

Syllabus

MARI 3627.03 - Biology and Conservation of Sharks, Skates and Rays

Dalhousie University, Seaside Summer Course, 2015

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Prerequisites: Biology 2060 (Introductory Ecology)

Office Hours: Anytime, by appointment

Purpose and Scope:

This class offers a combination of lectures, labs, and field trips that explore the elements of elasmobranch (shark, skate, and ray) biology, conservation and management, and shark research methods. Students are introduced to current methods used in shark research, such as tagging, and will learn about the role of sharks in ecosystems, and their global and regional conservation status.

BbLearn Class:

This is a blended learning course; meaning many aspects of the class will be integrated with the in-class components. All literature, ppts, videos, photos, and assignments will be available through Blackboard.

Online Protocol:

Online protocol or 'netiquette' are guidelines to encourage appropriate and respectful online communication that is conducive to learning. Some guidelines for the class, modified from Mintu-Wimsatt et al. (2010) are:

Postings should be evenly distributed during the discussion period (not concentrated all on one day)

- Postings should be a minimum of one short paragraph and a maximum of two paragraphs
- Do not dominate any discussion. Give other students the opportunity to join in the discussion.
- Do not use offensive language. Present ideas appropriately.
- Be cautious in using Internet language and avoid short forms and acronyms.
- Popular emoticons such as or can be helpful to convey your tone but do not overdo or overuse them.
- Keep an “open-mind” and be willing to express even your minority opinion. Minority opinions need to be respected.
- Think and edit before you push the “Send” button.
- Using humor is acceptable, but be careful that it is not misinterpreted.

Mintu-Wimsatt A, Kernek C, Lozada HR. Netiquette: Make it part of your syllabus. MERLOT Journal of Online Learning and Teaching, 6(1), 264-267.

Schedule:

Please see the class schedule, which is available in BbLearn. The schedule is generally available one month before the class is scheduled to begin.

Interactive Campus Map: <http://campusmaps.dal.ca/>

Field Trips:

This class offers several field components including:

1. Molecular mechanisms of stress in Elasmobranchs (parasitology)
2. Pelagic shark tagging and conservation with Blue Shark Fishing Charters
3. Department of Fisheries and Oceans Shark Laboratory visit
4. Visit the Sambro Fish Plant and Speak with Longline Shark Fishermen

* Field trip locations and topics change year-to-year, and we may undertake another field trip not listed here, but will fit within the time allotted.

Meeting Times:

Classes will usually begin at 9:00 am and will usually end at 4:00pm. This course starts July 6th, 2015 and goes until July 23rd, 2015, with weekends off. However, the schedule is always dependent on weather. For field trips, please note that the dates and times are also weather dependent, and may need to be rescheduled, on a weekend day. All field trips will leave outside of the LSC, Biology Office, in the parking lot between Kings and LSC. Some field trips will leave the LSC earlier than others, and will be discussed in class.

Topics to be Covered:

Introduction to elasmobranch (shark, skate, and ray), biology, anatomy and physiology, behaviour and feeding ecology, role of elasmobranchs in the ecosystem, sharks and people (fisheries and culture), molecular mechanisms of stress, conservation and management of elasmobranchs, and field methods for shark research (tagging technology, age determination, genetics).

Class Materials:

Required: Lecture handouts, including papers from primary literature. Literature may also be available through BbLearn.

Suggested: 'Biology of Sharks and Their Relatives', by J.C. Carrier, J.A. Musick, M.R. Heithaus (Eds.) CRC Press

Student Responsibilities:

Attendance is mandatory- You are expected to attend all lectures, field, and lab sessions. It is your responsibility to ask the Instructor for notes, or missed lecture material, and to reschedule exams if absolutely necessary.

Schedule Changes- The student is responsible for knowing when a schedule change takes place, by emailing or asking the teacher, or writing down announcements in class.

Preparation for Field Trips- Excluding transportation, the student is expected to prepare for all field trips, with appropriate personal gear (e.g. sunglasses, sunscreen, weather-proof clothing, and lunch, etc.). A list of gear/apparel can be found on BbLearn. Students are also expected to make their own lunches for all field trips.

University Regulations- Please follow this link to review the following two policies on Intellectual Honesty and Academic Dishonesty, in the Academic Calendar.

http://www.dal.ca/academics/academic_calendars/Undergraduate_Calendar_2013_2014/University_Regulations.html

Course Costs and Logistics:

This class is only offered as a summer course, corresponding to the seasonal patterns and behaviours of elasmobranchs in our region. Maximum enrollment is 19 students, corresponding to the number of students allowed on the research vessel. Class duration is 14 days. An auxiliary fee is needed to cover the costs associated with the field trips, an elasmobranch field guide for species identification, and dissection equipment.

Format and Grading:

This half credit course combines lectures, field trips and lab components. Marks will be translated into letter grades according to the Faculty of Science scale. A number of assignments will be completed and the method of evaluation will include:

- Participation (Species Presentations) (20%)
- Identification lab (Species ID) (5%)
- 2 x Dissection report and diagram (10%)
- R analysis and mapping (10%)
- Group project presentations (30%)
- Final exam (25%)

Grading scale:

Conversion of numerical grades to final letter grades will follow the Dalhousie University Common Grade Scale:

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

Learning Outcomes for Students:**CLASSROOM:**

By the end of this course, students will be able to:

1. Identify the roles elasmobranchs play in marine ecosystems.
2. Identify the conservation status of elasmobranchs on a global, national, and regional scale.
3. Describe basic shark anatomy and physiology.
4. Identify common species of elasmobranchs.
5. Define and discuss the varying types of field methods for shark research.
6. Analyze and discuss important topics on shark biology, population dynamics, effects of human impact, management and conservation, and regional shark conservation concerns.
7. Define and discuss the different types of policies/regulations that apply to the management and conservation of sharks.
8. Investigate, analyze, interpret, and report on an issue related to shark biology, conservation or management (a list of research projects will be provided).

FIELD:

By the end of this course students will be able to:

1. Demonstrate working and collecting data in the field on sharks.
2. Recognize the basics on how to properly tag and release a shark.
3. Identify defining characteristics of sharks' anatomy, physiology, and make field observations.
4. Collect and identify blue shark parasites.

LAB:

By the end of this course students will be able to:

1. Identify anatomical features of several species of shark, skate, or ray.
2. Demonstrate hands on experience with necropsy of cartilaginous fish.
3. Demonstrate experience in applying age-determination techniques.
4. Identify how stressors alter the kinetics of the immune/physiological response of sharks.

Academic Integrity:

At Dalhousie University, we respect the values of academic integrity: honesty, trust, fairness, responsibility and respect. As a student, adherence to the values of academic integrity and related policies is a requirement of being part of the academic community at Dalhousie University.

What does academic integrity mean?

Academic integrity means being honest in the fulfillment of your academic responsibilities thus establishing mutual trust. Fairness is essential to the interactions of the academic community and is achieved through respect for the opinions and ideas of others. "Violations of intellectual honesty are offensive to the entire academic community, not just to the individual faculty member and students in whose class an offence occurs."

How can you achieve academic integrity?

Make sure you understand Dalhousie's policies on academic integrity. Give appropriate credit to the sources used in your assignment such as written or oral work, computer codes/programs, artistic or architectural works, scientific projects, performances, web page designs, graphical representations, diagrams, videos, and images.

Use RefWorks to keep track of your research and edit and format bibliographies in the citation style required by the instructor <http://www.library.dal.ca/How/RefWorks>

- Do not download the work of another from the Internet and submit it as your own.

- Do not submit work that has been completed through collaboration or previously submitted for another assignment without permission from your instructor.
- Do not write an examination or test for someone else.
- Do not falsify data or lab results.

[*These examples should be considered only as a guide and not an exhaustive list]

What will happen if an allegation of an academic offence is made against you?

Your instructors are required to report a suspected offence. The full process is outlined in the Discipline flow chart and includes the following:

Each Faculty has an Academic Integrity Officer (AIO) who receives allegations from instructors

- The AIO decides whether to proceed with the allegation; you will be notified of the process.
- If the case proceeds, you will receive an INC (incomplete) grade until the matter is resolved.
- If you are found guilty of an academic offence, a penalty will be assigned ranging from a warning to a suspension or expulsion from the University and can include a notation on your transcript, failure of the assignment or failure of the course. All penalties are academic in nature.

Where can you turn for help?

If you are ever unsure about ANYTHING, contact your instructor.

- Academic Integrity website - Links to policies, definitions, online tutorials, tips on citing and paraphrasing.
- Writing Center - Assistance with proofreading, writing styles, citations.
- Workshops, online tutorials, citation guides, Assignment Calculator, RefWorks
- Dalhousie Student Advocacy Service - Assists students with academic appeals and student discipline procedures.
- Senate Office - List of AIOs, discipline flow chart, Senate Discipline Committee.