Aquatic Ecology
BIOL 3373/3370L

Instructor: **Dr. Mike Stokesbury (He/Him)**

Hear my name

Office: Room 141 ACER
Office hours: M W 9:30-10:30
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Lecture: M,W,F, HSH 016, 8:30 AM
Lab: BIO 230/ACER

Evaluation	Percentage	Date
Midterm 1	20%	4 October
Midterm 2	20%	6 November
Final Exam	20%	TBD
Proposal Project and Presentation	20%	Talks scheduled in class written portion due Nov 29th before class
Laboratory	20% (10% two reports; 10% attendance and participation)	-2 short lab reports (5% each) Silver Lake Comparison Kingsport vs Blue Beach Comparison
Total	100%	

Part 1: Course Information

Course Description

An introduction to marine and freshwater ecosystems emphasizing the relationships between aquatic ecosystem structure and function, human activities that impact natural processes and procedures for assessing the health of aquatic ecosystems.
Aquatic – Growing or living in or frequenting water.
Ecology (Kreb's Definition) – The scientific study of the interactions that determine the distribution and abundance of organisms.

Prerequisite : BIOL 1113/1123 and BIOL 2563 (Marine Biology) with minimum grades of C- in each.

Course Materials & Requirements

Text:
None, but readings will be assigned.

Course Requirements:
- Access to course on ACORN page
- Laptop
- Good internet service
- Knowledge of MS Teams

Course Structure

Lecture material will be presented in 50 min lecture slots.
Lectures will take place in HSH 016, starting at 8:30 AM on M, W. F
Labs will meet Bio 230 or ACER on Monday afternoon from 1:00 PM to 4:00 PM
Labs will begin on 16 September.

Student Learning Outcomes

Understanding of: ecosystem structure and function; biodiversity and human impacts on ecosystems.

How to Meet the Learning Outcomes

1. Attend lectures and labs
2. Pay attention
3. Participate in discussions

Part 2: Course Plan

The instructor reserves the right to amend the course plan with reasonable notice, and in consultation with the class.

Lecture:

Day	Month	Topic
4	September	Introduction
6	September	Introduction to Aquatic Ecology
9	September	The Ocean Environment
11	September	Sampling Bias-Physical Variables
13	September	Matt Warner Guest lecture - Lake Trout
16	September	Density – Annapolis TGIS
18	September	Wind Systems - Productivity
20	September	Waves Tides and Endothermy
23	September	Variation in physical variables - Productivity
25	September	Blue Planet - film
27	September	Acclimation – Population Models
30	September	Holiday
2	October	Reproduction and Dispersal
4	October	Midterm 1
7	October	Dispersal and Migration Types
9	October	Ocean Scale Migration
11	October	Tracking Tech and Plankton
14	October	Holiday
16	October	Holiday
18	October	Holiday
21	October	Mechanisms of Plankton
23	October	Plankton - Nekton

25	October	Blue Planet - Film
28	October	Benthos - Food Web
30	October	Coral Reefs
1	November	Coral Reefs Seaweed
4	November	Blue Plant - Coral Reefs
6	November	Midterm 2
8	November	Ocean Sampling
11	November	Holiday
13	November	Liz Bateman - Guest Lecture - Halibut
15	November	Whales- Prey Consumption
18	November	Deep Sea
20	November	Film
22	November	Film and discussion
25	November	Fisheries 1
27	November	Fisheries 2
29	November	Proposal Project presentation
2	December	Proposal Project presentation
4	December	Proposal Project presentation (if needed)

Lab:

In some cases, labs are weather dependent

Day	Month	Topic
16	September	Silver Lake 1 - In situ, plankton tows (vert and horiz), Line of hobos, seci disc,
23	September	Surgery
30	September	**Holiday**
7	October	Striped Bass Derby and Tagging
14	October	**Holiday**
21	October	Seine Net/Plankton - Kingsport
28	October	Seine Net/Plankton - Blue Beach
4	November	In Lab Assessment
11	November	**Holiday**
18	November	Silver Lake 2 - In situ, plankton tows (vert and horiz), Line of hobos, seci disc,
25	November	Silver Lake Comparison

Part 3: Assessment and Grading

You are required to pass the lab to pass the course.

Points	Description
Midterms (40%)	Two tests, 20% each
Mock Grant Proposal report (20% total [5% presentations 15% written report)	To be done individually or in pairs. For this project you will complete a grant proposal for a research project. This will give you experience thinking about, and communicating, the need for your research project and impact. There is a marking rubric posted on ACORN including dates for completing each proposal component. Also, there is a completed grant proposal and talk posted on ACORN to help guide your proposal project. Talks scheduled in class, written due Nov 29th before class
Lab (20%)	2 short lab reports (5% each) - Silver Lake Comparison - Kingsport vs Blue Beach Comparison - 10% attendance
Final Exam (20%)	Material from the last 1/3 of course
Total = 100	**Total Points possible**

Part 4: Course Policies

All materials covered in lecture, information from the textbook and information from Guest Speakers may be included in the midterms and final exam. So, you should attend class.

You are permitted to use laptops or tablets to take notes in lecture, please limit their use to classroom material only. No use of phones.

A missed test requires a doctor's note.

Assignments must be passed in on time. Late assignments will not be accepted.

Makeup tests will not be given, rather the value of the midterm will be added to the final exam.

Part 5: University Policies

University policies are available in the Acadia University Academic Calendar or through the Registrar's website: https://registrar.acadiau.ca/welcometotheregistrarsoffice.html

Equity, Diversity and Inclusion

Acadia University is committed to becoming a culturally safe and anti-oppressive community. This can only be achieved where there are simultaneous efforts to eliminate all forms of discrimination and harassment from our campus community, including the elimination of all discrimination, harassment and violence based on one's identity, including but not limited to, gender, race, class, ethnicity, sexual orientation, disability, gender identity, gender expression, and Indigeneity. The policy against harassment and discrimination, and resources for students who believe they may have experienced, or witnessed, discrimination or harassment, are available here: https://www2.acadiau.ca/student-life/equity-judicial/equity.html

Last Drop Day

Last day to drop a course and receive a "W". Please check the Acadia University calendar dates, which are available here: https://registrar.acadiau.ca/AcademicCalendars.html

Inform Your Instructor of Accommodations

Acadia University is dedicated to improving access to campus life for all students with disabilities. While we attempt to ensure that all courses are accessible, we recognize that there are barriers that need to be addressed on an individual basis. Students who require accommodations to complete coursework or otherwise fully participate in class should contact Accessible Learning Services directly as soon as possible. https://www2.acadiau.ca/student-life/accessiblelearning.html

The Use of Animals in Teaching and Research

The use of animals in teaching and research at Acadia University is done in accordance with guidelines on the care and use of animals published by the Canadian Council on Animal Care (CCAC). For more information on the CCAC, please visit their website at http://www.ccac.ca

Commitment to Integrity

It is standard practice in Biology to check exams and assignments for cheating and plagiarism. Cheating in the class and/or lab, including plagiarism, will not be tolerated. Please read the appropriate sections of the current Acadia University Academic Calendar: https://registrar.acadiau.ca/AcademicCalendars.html

Information on copy-write and course content from Acadia University is available through the Vaughan Memorial Library: http://libguides.acadiau.ca/c.php?g=433650&p=5027078

The spoken and written course content (including the syllabus, handouts, lectures, presentations, labs, assignments, quizzes, tests, and exams) are the intellectual property of the instructor and may only be copied for personal use. Sharing these materials or uploading them where they may be accessed by others is a violation of copyright. If you wish to make audio, video, or photographic recordings in class, you must first obtain the consent of the instructor and of any other persons (e.g., guest speakers, other students) who may be captured in such recordings. In the case of personal use by students with disabilities, the instructor's consent shall not be unreasonably withheld.

Part 6: Program Learning Outcomes

Foundations of knowledge		**Course specific examples**	**Proficiency** 1-Introduction 2-Reinforcement 3-Proficient
Scientific method, inquiry and hypothesis testing	Find, understand and apply information from the literature; understand how to use the scientific method to examine problems from different perspectives	Scientific Method will be discussed throughout the course, with specific examples from published literature	3
Historical concepts and contributions by important figures	Explain foundational concepts in biology, Two-eyed Seeing, and ethical implications of scientific discoveries	Contributions by important scientific figures will be reviewed.	2

Biodiversity and ecology	Understand the genetic, taxonomic and ecosystem levels of biodiversity; focus on SW Nova including the Acadian Forest and Bay of Fundy ecosystems	Biodiversity will be a central theme in the course.	3
Genetics and evolution	Understand the chemical basis of heredity, genetics and genomics; integrate concepts across disciplines to understand evolution	Genetics will be touched upon in the context of evolution and ecology	2
Human and environmental health	Understand form and function in health and disease within a One Health framework, integrating human and environmental health	This will be touched upon in the context of evolution and ecology	2
Lab and field skills			
Experimental design	Gain experience in applying the scientific method	A central theme of the course.	3
Safety	Work safely and productively in lab and field settings	Focus on field and lab safety.	3
Lab skills	Gain experience with basic and advanced lab techniques and understand their application in research, health science and industry	Some lab skills will be learned in the aquatic invert lab and the tagging lab	2
Field skills	Gain experience in basic and advanced field skills and understand their application in ecology, conservation biology and environmental change	Many of the labs are field focused.	3
Data acquisition, analysis and interpretations	Collect data, present results both qualitatively and quantitatively, and interpret outcomes in light of the literature	Fulfilled in the invert full lab report.	2
Statistical analysis	Use R and or other programs to analyze biological data	Software choice will mostly be left to the student. Excel and "R" are common programs.	2
Professional skills			
Ethical practices	Demonstrate ethical conduct, apply principles of academic integrity, and understand the principles of EDI in science	A focus throughout the course both in lecture and lab.	3
Collaboration and group work	Work effectively in groups within and across disciplines	A focus throughout the course both in lecture and lab.	3
Critical thinking	Analyze and evaluate information to make science-based decisions	A focus throughout the course both in lecture and lab.	3
Computer proficiency	Use common and discipline- specific software	Some focus.	2
Scientific communication	Communicate science effectively to both scientific and general audiences	Some focus.	2