Acadia University, Biology Department

Organisms & Their Environment 1

BIOL 1113/ 1110 X1 **Fall, 2024**

Lecture sections FA01 and FA02 & lab sections FA01-05

Part 1: Course Information

Instructor Information

Instructors	**Dr. Garett Allen** (lecture, FA01)	**Dr. N. Kirk Hillier** (lecture, FA02)	**Ms. Kendra Sampson** (lab)
Office	Biol Building 100	Biol Building 104	Biol Building 224
Phone	(902) 585-1195	(902) 585-1314	(902) 585-1328
Email	garett.allen@acadiau.ca	kirk.hillier@acadiau.ca	kendra.sampson@acadiau.ca
Office Hours	Monday, Wednesday 12:30-3:00pm, Tuesday 10:00-2:30 or by appointment	Monday, Wednesday 10:30-11:30; 12:30-1; Thursday 10-12; *by appointment only*	Tuesday 8:30am-11:30am, 1pm-4pm; Thursday 8:30am-11:30am, 1pm-4pm

Course Description

An introduction to ecology, and to the foundations of genetics.

Prerequisite

- None

Textbook & Course Materials

Required Text

- Brooker, Widmaier, Graham and Stiling, 2022. *Biology* (Sixth edition), McGraw-Hill Education. Earlier editions, and used texts, should also work.

Course Requirements

- Access to course MOODLE page
- Access to Microsoft Teams
- Vaughn Memorial Library's Biology LibGuide

Course Structure- lectures

Lectures will be in person and take place in 50min lecture slots. Lecture slides will be made available on MOODLE; recorded lectures will not. Students are expected to attend all lectures in-person.

8:30AM-9:20AM (Lecture Section FA01).

9:30AM-10:20AM (Lecture Section FA02).

Lectures will be held in K.C. Irving Environmental Sciences Centre, room 012

Course Structure- labs

The labs will be in person in the Biology Building in rooms BIO 220 and 230 (main floor across from the main doors). **Labs will begin the week of Sept 9, 2024.**

Specific information on lab schedule and requirements are in PART 4 below.

Student Learning Outcomes

This course establishes basic concepts in Biology and will help you develop a foundation in ecology and Mendelian genetics by introducing you to the material listed below.

- Understand principles and theory of evolution and ecology
- Understand interactions between organisms and their environment at a wide range of scales
- Understand the principles of Mendelian genetics and inheritance
- Appreciation of the role of humans in the environment and ecosystems broadly.

You will meet the objectives listed above through a combination of the following activities in this course:

- Attend lectures on a regular basis, take notes, and ask for clarification when something is unclear
- Study on a regular basis
- Evaluation will be via online quizzes, 2 midterms, and one final exam, as well as laboratory marks (described below)

Part 2: Lecture Schedule

Tentative lecture schedule

Letters indicate that a lecture will be with Dr. Allen (A) or Dr. Hillier (H).

Date	Topic
Sept. 4-6	Introduction to BIOL 1113 (A, H, S), the Culture and Practice of Science (A)
Sept. 9-13	*Scientific Culture and Vaccine Development (guest lecture, Dr. López*), Darwin and Evolution (A); Cell structure (A)
Sept. 16-20	Mitosis and Meiosis (H)
Sept. 23-30	Mendelian Inheritance (H)
	Friday, Sept. 30 Truth and Reconciliation Day- no classes
Oct. 2-4	Non-Mendelian Inheritance (A), Biology of Stress (A)
Oct. 7-11	**Monday, Oct. 7 - 1st Midterm;** Epigenetics (A); Population Ecology (H)
Oct. 14-18	**Monday, Oct. 14 - Thanksgiving- no classes; Fall Study Break**
Oct. 21-25	Behavioral Ecology (H), Species Interactions x 2 (H)
Oct. 28-Nov. 1	*Traditional Knowledge (guest lecture, Leah Creaser)*; *Conservation in National Parks (guest lecture, Dr. Matthew Smith, Parks Canada); Community Ecology 1 (H)*
Nov 4-8	**Monday, Nov. 4 – 2nd Midterm;** Community Ecology 2 (H);
Nov. 11-15	Monday**, Nov. 11- Remembrance Day (no classes);** *Bay of Fundy Ecosystems (guest lecture, Dr. Stokesbury)*; Ecosystems (A)
Nov. 18-22	Ecosystems (A); Biomes and Biosphere (A); *Arctic Biomes and Climate Change (guest lecture, Dr. Mallory)*
Nov. 25-29	Challenges to Biodiversity (A); Invertebrates and their value in climate change monitoring *(*A)
Dec. 2-4	Review (A, K; question and answer)

All Lecture Sets will be available on MOODLE.

NOTE: Instructors reserve the right to amend

the above course plan with reasonable notice.

Part 3: Course Grading Policy

Graded Course Activities

Points	Description
Quizzes (5%)	Weekly quizzes integrated with lecture and reading material. You are required to complete 8 of these quizzes, and they will be graded based upon participation.
Tests (30%)	Two midterms, 15% each - Midterm 1: October 7 - Midterm 2: November 4
Lab (30%)	See section 4. Assignments, Quizzes, Reports and Lab Exam.
Final Exam (35%)	Cumulative from lecture material only
100	**Total Points Possible**

All lecture quizzes and exams will take place online via MOODLE. Quizzes will be made available to you at the end of the relevant week. They can be completed at any time, and from wherever you happen to be. Midterms (also online) will be written in the lecture time and classroom (**bring your laptop and make sure your battery is charged- electrical outlets are extremely limited in the lecture hall).** Final exams will be written in the December exam period. If you are registered with Accessibility Services, appropriate accommodation will be made.

Make-up tests for either absence, or poor performance, will not be provided as an option. In the event that you have a *valid* excuse for missing either of the midterms, the weight from the missed midterm(s) will automatically be distributed across the other midterm and the final. Missed midterms without a valid excuse from the registrar will result in a mark of zero. University policies on missing classes, etc. can be found here:

https://registrar.acadiau.ca/RecordsandOtherRequests.html

Part 4: Laboratory Schedule and Description of Grade

Lab Description BIOL 1110L is the laboratory component of Biology 1113 where we will examine topics related to organisms in their environment (ecology) and some of the fundamentals of genetics. Through hands on activities and observation we will study the ecological forces that affect organism survival in an ecosystem.

By the end of the semester students will be able to:

- Identify and apply the fundamental principles of science
- Understand the principles of Mendelian genetics and heredity
- Collect, present and analyze simple ecological data
- Describe the consequences of environmental variability in the role of organisms in their environment

Please check your schedule to confirm your section:

Section	Day and Time	Room
FA01	Tuesday, 08:30AM-11:20AM	BIO 220/230
FA02	Tuesday, 1:00PM-3:50PM	BIO 220/230
FA03	Wednesday, 1:00PM-3:50PM	BIO 220/230
FA04	Thursday, 08:30AM-11:20AM	BIO 230
FA05	Thursday, 1:00PM-3:50PM	BIO 220/230

All laboratory exercises will be available on Moodle. **You are responsible for printing and reading the lab exercises before coming to class.**

Materials for the scheduled labs will be posted on Moodle by Friday on the week before the lab is scheduled to take place.

Other handouts and links of interest will be posted on the Moodle page.

Attendance in labs

Labs will be delivered in-person, only in the event of a campus closure (due to weather) the labs will be cancelled for that day. You will be notified via e-mail and Moodle in the event of a change.

Lab attendance is mandatory. As per our policy in Biology, you must pass the lab to pass the entire course. Failing the lab will result in failing the entire course. Makeup labs will only be considered after presentation of suitable documentation of illness or serious extenuating circumstances, and only if you contact the *lab coordinator* - Kendra - before the absence. Please notify the lab coordinator as soon as you miss or know that you will miss a particular lab.

Makeup labs are only possible if arranged ahead of time. Once the last section (FA05: Thursday 1:00-3:55pm) is completed, it is not possible to make-up that week's lab. In the case of justified absences in which the student is not able to make up the lab, the weight from the missed lab will be calculated based on the average of attended lab grades. A grade of zero will be assigned for unjustified missed work. In the case of unjustified absence, the student will also receive a zero on the hand-in assignment for the respective missed lab/tutorial.

Graded Lab Activities

This is a *general* description of how the student's performance in the lab will be assessed, the number of activities and final weight in each category may change but the general activities will be maintained:

Activity	Grade	Due Date
Hand-in assignments	40%	At the end of each lab
Pre-lab quizzes	15%	Before each lab
Quiz 1	10%	Oct 7-11
Quiz 2	10%	Nov 11-15
Lab report	15%	Nov 25-29

** The lab mark will account for 30% of the total marks for BIOL 1113*

1) The *hand-in assignments* are part of each lab exercise and *must* be completed during the lab session. Make sure to hand it in to your TA before you leave the lab.

2) The *pre-lab quizzes* are to be completed on Moodle before the start of your designated lab time.

3) Q*uiz 1* will be completed at the beginning of lab.

4) Quiz 2 will be completed at the beginning of lab.

5) Lab report will contain the Introduction (and hypothesis), materials and methods, and results (including graphs and or tables summarizing the results of the data you will collect and analyze during the semester).

Lab schedule

This is a *tentative* schedule of the lab exercises for this semester, the order of some of the labs may change, but the due dates for *quizzes* and *reports* will remain the same:

Dates	Topic
Sept 2-6	NO LABS THIS WEEK
Sept 9-13	**Tutorial 1:** Scientific method and literature
Sept 16-20	**Tutorial 2:** Application of scientific method
Sept 23-27	**Lab 1:** Salt marsh field trip
Sept 30-Oct 4	**Lab 2:** Ecological sampling techniques (Woodlot Trail)
Oct 7-11	**Tutorial 3:** Lab techniques QUIZ 1 (material from Tutorial 1-Lab 2)
Oct 14-18	**NO LABS:** Fall study days
Oct 21-25	**Lab 3:** Pedigree
Oct 28-Nov 1	**Tutorial 4:** Scientific writing
Nov 4-8	**Lab 4:** Dichotomous keys (Botanical Gardens)
Nov 11-15	**Tutorial 5:** Tables/Figures and Results QUIZ 2 (material from Tutorial 3-Lab 4)
Nov 18-22	**NO LABS**
Nov 25-29	**NO LABS:** Lab reports due on Moodle

Part 5: Course Policies

Attend Class (Lectures – In person)

Students are expected to attend all class sessions as listed above.

Part 6: 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 Equity, Diversity and Inclusion Officer is available to **students, staff, and faculty**. The fundamental objective of the Equity Office is to **prevent discrimination, sexual harassment, and personal harassment** from occurring, in part by managing Acadia's Policy Against Harassment and Discrimination. For more information, as well as for resources for students who believe they may have experienced or witnessed discrimination, sexual harassment, or personal harassment please contact Acadia's Equity, Diversity and Inclusion Officer, Polly Leonard, MSW, RSW (she/her/hers) at equity@ACADIAU.CA, and check out the website.

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

Course Syllabi Accessibility Statement
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.
Please visit Accessible Learning Services website or email them at accessible.learning@acadiau.ca for more information.

https://www2.acadiau.ca/student-life/accessiblelearning.html

Commitment to Integrity

Cheating in the lecture 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

If caught cheating you will automatically receive a grade of zero on the quiz/assignment/exam, and your name will be submitted to the registrar. If this is not the first occurrence you will either receive a mark of zero for the course (2nd occurrence) or be expelled from the University (3rd occurrence).

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. Students with disabilities who wish to request accommodation should contact Accessible Learning.

Appendix 1: Learning Outcomes

The Biology Department maps Program Learning Outcomes (PLOs) in each course throughout our program in order to identify where learners develop *Discipline Knowledge*, *Lab and Field Skills*, and *Transferable Skills*, and to align content and skills across courses. As BIOL 1113 is a first year course, PLOs here will be Introduced; in upper level courses, some of these will be Reinforced or indicated as Proficient in advanced courses. The table below only includes Sub-outcomes for BIOL 1113; as you take other courses, you will see additional Sub-outcomes, depending on course material.

Program Learning Outcomes	**Sub-outcomes**	Lecture	Lab
Discipline Knowledge			
Scientific Method & Inquiry	Hypothesis Testing	Introduced	Introduced
	Scientific Method	Introduced	Introduced
	Historical Concepts	Introduced	
	Contributions by Historical Figures	Introduced	
	Discovery-based		Introduced
	Observational Science		Introduced
Biodiversity, Ecology & Evolution	Ecology	Introduced	Introduced
	Biodiversity	Introduced	Introduced
	Minas Basin and SW Nova ecosystems	Introduced	Introduced
Cells, Tissues & Evolution	Form and Function	Introduced	
	Development	Introduced	
Molecules, Genetics & Evolution	Phenotype and Environment	Introduced	Introduced
	Inheritance	Introduced	Introduced
Human & Environmental Health	Climate Change (local/national/global)	Introduced	

	Environmental/Social Awareness	Introduced	Introduced
	Environmental Health	Introduced	Introduced
Ethics & Interdisciplinary Perspectives	Traditional/Local (Indigenous) Ecology Knowledge	Introduced	Introduced
	Discuss Ethics in Science (CCAC & Research Ethics)		Introduced
	Cultural Awareness	Introduced	Introduced
Laboratory and Field Skills			
Laboratory Skills	Sample Preparation and Preservation		Introduced
	Observation		Introduced
Field Skills	Identification		Introduced
	Observation		Introduced
Experimental Design	Sampling		Introduced
Data Acquisition and Management	Data Collection		Introduced
	Measurement		Introduced
Data Analysis	Excel		Introduced
	Graphing and Visualizations		Introduced
	Data and Statistical Analyses (significance, etc.)		Introduced
	Data Interpretation		Introduced
Transferable Skills			
Professionalism	Respect/professionalism		Introduced
	Equity, Diversity & Inclusion	Introduced	Introduced
	Ethics and Professionalism		Introduced
Academic Integrity	Academic Integrity and Accountability		Introduced

Problem Solving	Problem solving		Introduced
	Critical Thinking	Introduced	
Resilience	Adaptability/resilience		Introduced
Time Management	Remote Learning	Introduced	
	Time Management	Introduced	Introduced
Group Work	collaboration/group work		Introduced
	Leadership		
	Engage in classroom discussion	Introduced	Introduced
Scientific Communication	Scientific Writing/Referencing		Introduced
	Technical Communication (lab reports)		Introduced
	Interpretation of “Biology in the News”	Introduced	