One Health
BIOL 4193 FA01

Instructor: Laura Ferguson (she/her)
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Lecture: T/Th 11-12:20
Location: Carnegie 207

Evaluation	Percentage	Date(s)
Debate (× 1)	15	Sept 24; Oct 27; Nov19
Debate summary (× 2)	15 (7.5 × 2)	Due following debates that you aren't participating in
Global summit activities	20 (2.5 × summit 1 & 2; 15 × summit 3)	Oct 6; Nov 5; Dec 1
Closed computer critique (CCC) of the week summary/reflection	25 (5 × 5)	~biweekly; distributed in class
Final summit report	25	TBD (due during exam period)

Part 1: Course Information

Course Description

Health is […] not merely the absence of disease – WHO
It is not 'natural' to talk about land and people without each other or the health of one without the health of the other – Joe Copper Jack

The health of humans, animals, and the environment are inextricably linked. One cannot flourish without the health of the other, though at times there will also be conflict between these nested, interconnected spheres. In this course we seek to understand the mechanisms underlying the connections between human, animal, and environmental health – ecological, physiological, and evolutionary – such that we can explain *how* and *why* the One Health approach is functional. We will work to determine how this mechanistic understanding and the One Health approach allows us to tackle the major challenges that face life on earth (e.g. biodiversity loss, emerging zoonoses, climate change, antibiotic resistance, etc). This course is designed to reunite our students focused more towards Ecology and Wildlife with those who lean towards Health Sciences to share perspectives and ideas. Ultimately, these fields – and the future of life on earth – are linked together and we use this course to explore our various, collaborative roles as biologists.

This course relies heavily on class participation and active engagement! We use our course content as a foundation to build skills in communication and creative, critical thinking.

Prerequisite(s): BIOL 1113/1123; Biology core

Course Materials & Requirements

There is no required textbook for this course. We will build a database of readings throughout the term.

Course format and communications

The course will combine traditional lectures with outside-of-class reading and in-class discussion. I will sometimes expect you to read a document or paper before attending class and then participate in class discussion

or activities. There is no lab component. There will be guest lectures from a variety of different disciplines (e.g. politics, economics, social science, those working directly in One Health). We use debates and mock global summits as structured learning activities, as well as smaller active-learning tools and class discussions. Although recall of the content is important, and would be served by midterms and exams, we instead focus our assessments on content comprehension and creative and critical thinking through written and oral communication (see table at beginning of document and Part 3).

I will communicate with you on the course Moodle page https://moodle.acadiau.ca/course/view.php?id=41107 and over Acadia email (i.e. to your Acadia email address, using my Acadia email address). Importantly, some of our activities are conducted/handed out in class, so communication also happens in-person (though I will typically follow-up with reminders on Moodle). In the event of illness that may cancel class, I will email you through Moodle.
I will aim to reply to all emails within 24 hrs; however, I may not respond to emails in the evenings or on the weekends (I have a young family so am typically chef, chauffeur, and generally mom-ing in these hours, so I aim to be off my screens and tuned into family!)

Student Learning Outcomes

1. Explain the functional foundation underlying the concept of One Health
2. Apply a One Health perspective to emerging local and global challenges
3. Develop skills in critical thinking and problem solving
4. Gain experience working collaboratively across disciplines and perspectives
5. Develop an understanding of your role as a biologist
6. Develop skills in formulating and presenting ideas
7. Develop oral and written communication skills

How to Meet the Learning Outcomes

1. Attend class
2. Participate in group discussions
3. Check your email and ACORN regularly. I use these to communicate with you about deadlines, updates to classes and labs, etc.
4. Communicate with me in advance or as close to a missed deadline as possible. I am flexible, but meet me halfway!

Part 2: Course Plan

The instructor reserves the right to amend the course plan with reasonable notice, and in consultation with the class. The pace of instruction, dates of guest lectures, and direction of class discussions will dictate how and when we move through the material.

Lecture:

Week	Dates	Topics	Notable things happening/due
1	Sept 9-11	Welcome! Intro to the course	Reading rubrics, outlines, and posted readings to prep for debates and summits
2	Sept 14-18	Revisiting concepts in Evolution and Ecology in the context of One Health	Same as last week! **Add/drop day is Sept 17 *likely a reading for next week's CCC
3	Sept 21-25	Indigenous perspectives; parasites and healthy ecosystems	CCC1 – Sept 22

			Debate #1 – Parasites make for healthy ecosystems (Sept 24)
4	Sept 28-Oct2	Zoonoses	**Due:** CCC1 summary (Sept 29) debate summary (Oct 1) *likely a reading for next week's CCC
5	Oct 5-9	Summit; Guest lecture on the economic value of life	**First summit** on pandemic prevention (Oct 6) CCC2 – (Oct 6)
7	Oct 12-16	FALL BREAK	FALL BREAK
6	Oct 19-23	Zoonoses continued if necessary; Neglected tropical diseases; Antibiotic resistance	**Due:** CCC2 summary Oct 20 Summit summary Oct 22 *likely a reading for next week's CCC
8	Oct 26-30	Antibiotic resistance continued	**Debate #2** – we should stop widespread use of antihelmintic drugs (Oct 27) CCC3 – Oct 29
9	Nov 2-6	Antibiotic resistance continued; microbiomes	**Due:** CCC3 summary (Nov 3); debate summary (Nov 5); **Second summit** on pandemic prevention (Nov 5)
10	Nov 9-13	Human-nature connection; Guest lecture on climate grief	Nothing major! *likely a reading for next week's CCC
11	Nov 16-20	linking conservation and health; Vector-borne disease	CCC4 (Nov 17) **Debate #3** – conservation improves human health (Nov 19)
12	Nov 23-26	Vector-borne disease continued	**Due:** CCC4 summary: (Nov 24) debate summary (Nov 26) *likely a reading for next week's CCC
13	Nov 30-Dec 4	Social contracts for scientists; navigating communication and misinformation	**Third summit** on pandemic prevention (Dec 1) CCC5 Dec 3
14	Dec 8	Final class activities	Due: CCC5 summary (Dec 8)
	Exam Period		Final summit report (date TBD from exam schedule)

Part 3: Assessment and Grading

Assessments in this course are largely based on activities that involve reading and digesting research articles and grey literature, framing arguments, oral communication, written communication, and creating solutions to challenges. We seek to build skills in these areas as they are fundamental skills both within and outside of biology. I provide rubrics and outlines for all assignments that provide more details on specific points of assessment for each activity.

Part 4: Course Policies

While your primary objective is to be in class and learning, we certainly all recognize that life happens outside of school as well and you may encounter a variety of challenges throughout the term. We can work together to

accommodate illness, etc. Contact me as early as possible for any possible conflicts in dates. Generally, our class policy is to be respectful of everyone in our class and put effort into your participation and projects!

Students are expected to submit work that reflects their own ideas and engagement with the readings as well as their writing ability. Engaging with the work of others is an important part of academic writing. All ideas and quotations borrowed from other sources must be carefully cited.

Use of artificial intelligence tools by students to assist with their learning is allowed only if:

- prior permission has been given by the course professor/instructor

AI must be used in an ethical and responsible manner as a positive learning tool. AI may not be used in ways that violate Acadia's Academic Integrity Policy. Students are reminded that plagiarism, or other forms of cheating, are both types of academic dishonesty.

A big part of this course is exercising and developing your ability to read, think, and critique; your own learning gains are stunted if we outsource our work and challenges to chatbots. Being challenged, doing hard things, even doing the boring things, are all important parts of the growing process that you're here for. If you feel you are struggling and are tempted to use chatbots, etc, please come chat with me instead! Humans first.

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	Identifying experimental needs and designing experiments to address One health challenges	3
Historical concepts and contributions by important figures	Explain foundational concepts in biology, Two-eyed Seeing, and ethical implications of scientific discoveries	Land and People's Relationship Model	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	Re-exploring and applying foundational concepts to understand why One Health works	2
Genetics and evolution	Understand the chemical basis of heredity, genetics and genomics; integrate concepts across disciplines to understand evolution	Re-exploring and applying foundational concepts to understand why One Health works	2
Human and environmental health	Understand form and function in health and disease within a One Health framework, integrating human and environmental health	Curriculum based on understanding and applying this framework	3
Lab and field skills			
Experimental design	Gain experience in applying the scientific method	Identifying experimental needs and designing experiments to address One health challenges	3
Safety	Work safely and productively in lab and field settings	NA	
Lab skills	Gain experience with basic and advanced lab techniques and understand their application in research, health science and industry	NA	
Field skills	Gain experience in basic and advanced field skills and understand their application in ecology, conservation biology and environmental change	NA	
Data acquisition, analysis and interpretations	Collect data, present results both qualitatively and quantitatively, and interpret outcomes in light of the literature	NA	
Statistical analysis	Use R and or other programs to analyze biological data	NA	
Professional skills			
Ethical practices	Demonstrate ethical conduct, apply principles of academic integrity and understand the principles of EDI in science	Unit on EDI; addressing EDI in final reports	2
Collaboration and group work	Work effectively in groups within and across disciplines	Term group project	3
Critical thinking	Analyze and evaluate information to make science-based decisions	Term project report on scientific needs to address local One Health challenges	3
Computer proficiency	Use common and discipline- specific software	Powerpoint, Word	2
Scientific communication	Communicate science effectively to both scientific and general audiences	Unit on effective communication and misinformation	2