

THE UNIVERSITY OF WESTERN ONTARIO
Faculty of Arts and Social Science, Huron University College

ENVIRONMENTAL SCIENCE 1021F [550]:
Environmental Science and Sustainability
Fall 2018/2019

1.0 BASIC COURSE INFORMATION

Instructor:	Dr. Gabor Sass Office: A20 E-mail: gabor.sass@uwo.ca
Office Hours:	Wednesday 10:30-11:30am
Lectures:	Wednesday 6:30 pm-9:30 pm (Location V210)

2.0 COURSE DESCRIPTION

Course Calendar: *EnvirSci 1021F – Environmental Science & Sustainability – An overview of the science underlying key environmental issues (e.g. climate change, loss of biodiversity and ecosystem function, air and water pollution, and resource use) and how each issue impacts environmental sustainability from the local to global scale. Extra Information: 3 lecture/tutorial hours. Prerequisite(s): none. Priority will be given to students in their first year at Western.*

We live on a full planet. Humanity has now expanded across the globe and has an ecological footprint much bigger than what the planet can sustainably bear. The first signs of problems appeared in the middle of the 20th century and have precipitated a movement to implement action from the local to the global level, in order to reverse the environmental degradation. Critically informing this environmental movement has been a new science of the environment that has sought systematically researched answers to some of the most urgent and vexing problems ecosystems are facing around the globe.

EnvirSci 1021 will give you an introductory glance at this burgeoning and highly interdisciplinary science and how it has helped us to understand and as well to restore the health of ecosystems. After laying some of the historical foundations of this science, we will investigate how ecosystems work and how they change through time. We will then go around the world to look at examples of different types of environmental problems and how the different branches of environmental science have been used to dissect and in some cases to solve these problems. Finally, we will consider urban environments where most of humanity now lives, and consider how we can create cities that function like sustainable ecosystems.

Students will be challenged every week with in-class problems as well as a long term project to analyse and synthesize environmental knowledge. Basic ecological understanding and critical thinking will be emphasized in all class activities and assessments. This class will get you excited, and provide you some tools with which to solve the world's 21st century problems in your home, in your community and in the larger world around you.

3.0 COURSE LEARNING OBJECTIVES

- Examine and understand the connection between human actions and their environmental consequences
- Cultivate systems thinking recognizing that environmental issues are multi-faceted and multi-scaled

- Survey earth's different biomes and contrast current challenges and sustainable options for future development
- Develop ecological literacy in the context of local and global environmental problems
- Sharpen critical thinking skills as applied to solving real world problems
- Gather, organize, analyse and synthesize information about a critical environmental issue and create a professional report
- Use the skills developed in this class to make informed and well thought-out life choices regarding environmental issues.

4.0 DESCRIPTION OF CLASS METHODS

The three-hour lecture time will be broken into three sections by two short breaks. The first two hours will be spent on covering the topics of the course using a combination of traditional lecture-style and active learning approaches. The last hour will be spent on honing research and writing skills needed to complete the research project.

Participation is a fundamental part of the learning environment. You will need to be present at all lectures as well as be ready to participate actively in the communal learning. Please read or watch the relevant class material ahead of time and prepare questions or comments. An individual participation grade will be awarded based on your attendance and participation during class activities and on-line discussion forums. I will be using the *iclicker* software (free to Western students) to take attendance and record your answers to questions.

Please turn off all technological devices that are not used for class purposes. If using technology to interact with peers (e.g. Todaysmeet, OWL-FORUMS) please treat everyone with respect in-class and on-line. Derogatory and offensive language is not acceptable and will not be tolerated. You will need to download the app for *iclicker* (<https://www.iclicker.com/>) in order for attendance to be taken and to answer clicker questions posed during class time. Lecture slides will not contain all of the details discussed in class. It will be the responsibility of each student to take good notes from our in-class discussions as well as the textbook.

5.0 TEXTBOOKS AND OTHER REQUIRED RESOURCES

Required Text:

Branfereun, M. et al. 2014. **Environmental Science for a Changing World** (Canadian Edition), W.H. Freeman and Company, New York [GE140.B73 2014 TAY]

Recommended Texts:

Carson, R. 1962. **Silent Spring**. Houghton Mifflin, New York [SB959.C3 WEL]

Dearden, P. and B. Mitchell. 2016. **Environmental Change & Challenge** (5th edition). Oxford University Press, Toronto. [GF511.D42 2016 TAY]

Withgott, J., M. Laposata, B. Murck. 2017. **Environment: The Science behind the Stories** (Canadian edition), Pearson Canada, Toronto. [GE105.W58 2016 TAY]

Course website:

Please access course content through OWL: <https://owl.uwo.ca/portal>. We will make this course as paperless as possible so please follow the lesson plans and announcements on OWL on a regular basis (twice weekly). Lecture notes and other additional material will be placed on OWL in a timely fashion, available for downloading. You are encouraged to communicate with your peers through FORUMS and with your instructor via OWL messaging or email.

6.0 METHOD OF EVALUATION/ASSESSMENT

- Attendance/Participation - 10%
- Weekly quizzes - 10%
 - 10 on-line quizzes
- Term project - 30%
 - Part 1 due on October 31st at 6:30pm (8%)
 - Part 2 due on December 5th at 6:30pm (22%)
- Midterm Exam - 20%
 - (2 hours, Wednesday October 24th, 6:30-8:30pm)
- Final Exam - 30%
 - (3 hours, Time and place TBA)

I. Attendance/participation [10%]

Participation is a fundamental part of the learning environment. You will need to be present at all lectures as well as be ready to participate actively in the communal learning. Please read or watch the relevant class material ahead of time and prepare questions or comments. An individual participation grade will be awarded based on your attendance and participation during class activities and on-line discussion forums. I will be using the *iclicker* software (free to Western students) to take attendance and record your answers to questions.

II. Weekly quizzes [10%]

In order to help you prepare for each lecture, you will have to write a short quiz (using OWL) of a few questions before each class. The questions will be structured to test your basic comprehension of the material. If you have done your reading you can expect to receive full marks. Some of the questions from the quizzes may make it onto the final exam. For each class, readings will be announced well in advance and you will have 1 day prior to class to answer the questions.

III. Term project [30%]

This is an essay course with a significant writing component in which both the content and the quality of your writing will be assessed. You will work in groups of 3 to create a scientific journal (like *Frontiers in Ecology and the Environment*) with an editorial and as many articles as the number of people in the group on the theme of one major environmental issue. For example, the theme could be ocean acidification where one of you could write about the impact of lower pH on corals, someone else on the effects on free floating lifeforms like diatoms and another person on the effects on the wider food chain including humans. The editorial, title page, table of contents, etc. will be a group effort whereas the articles will be written individually by each student. I will provide you guidance regarding your writing assignment and help you to find writing assistance. The mini-journal should have (1) a cover page that has the themes and the list of articles identified; (2) a table of contents page, and a (3) 2-page editorial written by the whole group. This should set the context and overall relevance of the themes and briefly summarize the articles and how they fit together. You are encouraged to discuss your ideas with your instructor.

Finding a group: You will have time in September to form your groups of 3 people. Try to find people who share your interest and passion for a topic and then brainstorm to find 3 distinct sub-topics. To assist in finding a group, you can post your interest on OWL forums. If you can't find a group by October 3rd please come and speak to the instructor.

Annotated bibliography and article outline (individual submission): To keep you on track with your research, you will have to submit a ½ page outline of your article (what are you planning to write about) and an annotated bibliography through OWL-Assignments by October 31st.

Annotated bibliographies are short summaries (5-8 sentences) of the reference works you are using to base your article on. They should also include 1-2 sentences on how that particular reference was useful to develop your arguments in your own paper. You are expected to include at least 10 references which should include both peer reviewed scientific articles as well as book chapters and perhaps government reports. This part of the term project should be 4-5 pages (one annotation for each of 10 sources) long and will count for 8% of your final mark.

Final submission (group submission): The due date for the term project is December 5th at 6:30pm. The group component of the term project will be worth 6% and your individual contribution will count for 16%. Please be as creative as you'd like in the final preparation of your mini-journal. The articles should have a short abstract (200 words in length) and be no more than 10 pages long (double-spaced) including references and figures. The articles can include graphs, tables, maps, or pictures, but they cannot add to the 10 page limit. Only include additional information if they strengthen a point you are making in the paper. There should be a minimum of 10 references including at least 5 scientific articles (from peer-reviewed journals). It is very important to give credit to what others have written or created. Please use in-text citations and use the Frontiers in Ecology and the Environment citation style at the end. Don't forget about the 2-page editorial, TOC and title page. Please make sure that the effort to create these is shared by all in the group. Only one submission (of the mini-journal) needs to be made by each group (through OWL-assignments). Turnitin will be used on all assignments to check for originality (ie, the entire assignment needs to be written in your own words).

Late assignments: With the exception of documented illness or family death (see below), late assignments will be penalized at the rate of 10% per day of lateness. Upon presentation of legitimate documentation, a student can hand in the assignment within 2 weeks without late penalty or the mark value for the assignment will be added to the mid-term and final examinations in an equitable manner.

IV. Exams [50%]

There will be one two-hour mid-term test (worth 20%) and a final examination (30%). The mid-term (2 hours) will be held on October 24th in class. The final examination (3 hours) will be scheduled by the Registrar during the December examination period. The examinations will include questions from material covered in lectures, assigned readings, in-class exercises and films. The final examination will include material from the entire term. The format of the examinations will be a combination of multiple choice, short and long answer type questions. No electronic devices (e.g. laptop computers, cell phones, etc.) will be allowed during an examination.

If you miss the mid-term exam under extreme circumstances, you must obtain permission from the Dean's office and provide sufficient documentation. When we receive the permission from the Dean's office, your final exam will account for 50%. If you miss the midterm with no good reason, you will receive a mark of 0%. Make-up exams will be given for the final exam only under extreme circumstances. If you consider that you have grounds to write the final exam on an alternate date, you must follow the procedure established by the Dean's Office and complete the appropriate forms. You must obtain permission from the Dean's office and provide sufficient documentation. In addition, you must inform the instructor at least 2 days in advance before the final exam. To prevent prior disclosure, the format and contents of make-ups may differ substantially from the scheduled test or examination.

6.5 SPECIAL INSTRUCTIONS

What to do if you fall sick:

Students seeking academic accommodation on medical grounds for any missed tests, exams, participation components and/or assignments worth 10% or more of their final grade must apply to the Academic Advising office of their home Faculty and provide documentation. Academic accommodation cannot be granted by the instructor or department.

UWO Policy on Accommodation for Medical Illness:

http://www.uwo.ca/univsec/pdf/academic_policies/appeals/accommodation_medical.pdf

Downloadable Student Medical Certificate (SMC):

http://www.uwo.ca/univsec/pdf/academic_policies/appeals/medicalform.pdf

Academic Offences:

You are advised to read the academic calendar to familiarize yourself with the University's regulations and procedures concerning grades and penalties. Scholastic offences are taken seriously and you may read the appropriate policy, specifically, the definition of what constitutes a Scholastic Offence, at the following Web site:

http://www.uwo.ca/univsec/pdf/academic_policies/appeals/scholastic_discipline_undergrad.pdf

Plagiarism is an academic offense and will be treated as such. Students who are in doubt as to the nature of this offence should consult their instructor, Department Chair, or Dean's Office, as well as the Huron University College Statement on Plagiarism, available at the Reference Desk in the Huron University College Library and at <https://huronuc.libguides.com/c.php?g=455405&p=4961561>. In addition, students may seek guidance from a variety of current style manuals available at the Reference Desk in the Huron University College Library. Information about these resources can be found at <https://huronuc.libguides.com/c.php?g=455405&p=4961561>

Plagiarism detection software may be used in this course. Students may be required to submit their work in electronic form.

Additional Information:

Please contact the course instructor if you require material in an alternate format or if you require any other arrangements to make this course more accessible to you. You may also wish to

contact Services for Students with Disabilities (SSD) at 661-2111 x 82147 (<http://www.sdc.uwo.ca/>) for any specific question regarding an accommodation.

If you or someone you know is experiencing distress, there are several resources here at Western to assist you. Please visit <http://www.uwo.ca/uwo.com/mentalhealth/> for more information on these resources and on mental health.

Social conduct is governed by the Code of Student Conduct approved by the Board of Governors of the University. This Code can be viewed at: http://www.uwo.ca/univsec/pdf/academic_policies/appeals/code_of_conduct.pdf

7.0 TENTATIVE SCHEDULE OF CLASSES, INCLUDING REQUIRED READINGS, TOPICS

Week	Lecture Dates	Lecture Topics	Read	Due dates
1	Sept 12	Intro to course; the Anthropocene	Ch 1, 4, 5	
2	Sept 19	Environmental science as a discipline	Ch 2, 3	Quiz
3	Sept 26	Ecological foundations: Ecology of campus	Bolund 1999	Quiz; Form groups
4	Oct 3	Ecological foundations: structure and function	Ch 6 - 8	Quiz
5	Oct 10	Reading week		
6	Oct 17	Ecological foundations: change	Ch 9, 10	Quiz
7	Oct 24	Mid-term; group work		
8	Oct 31	Our ancestral home: forests and grasslands	Ch 11, 12	Quiz; Annotated bibliography
9	Nov 7	Blue planet: of lakes and oceans	Ch 13, 15	Quiz
10	Nov 21	Feeding humanity: agriculture and aquaculture	Ch 14, 18	Quiz
11	Nov 14	Metabolic waste of civilization	Ch 16, 17, 21, 22	Quiz
12	Nov 28	Energy: the Achilles heel of industrial civilization	Ch 19, 20, 23, 24, 25	Quiz;
13	Dec 5	Cities as sustainable ecosystems	Ch 26	Quiz Final project due

8.0 STANDARD FASS APPENDIX (adopted September 2009)

HURON UNIVERSITY COLLEGE GUIDELINES ON COURSE OUTLINES

UWO Senate regulations regarding course outlines, and scheduling of assignments, tests and exams are found at: http://www.uwo.ca/univsec/pdf/academic_policies/exam/courseoutlines.pdf
Of note, these regulations require:

- A written outline of each course offered by the department (or faculty), containing a general description of course content. If the course is taught by more than one instructor, the name of the person responsible for the course (course coordinator) shall be included in the outline.
- The following statement to appear on all course outlines:
Students are responsible for ensuring that they have successfully completed all course prerequisites. If you do not have the prerequisites for this course, and you do not have written special permission from your Dean to enroll in this course, you will be removed from this course and it will be deleted from your record. This decision may not be appealed. You will receive no adjustment to your fees in the event that you are dropped from a course for failing to have the necessary prerequisites.

Note: The policy of the University is that, when a course instructor wishes to change the evaluation procedure, as outlined in his or her course outline at the beginning of the year, prior approval must be obtained from the Dean of the faculty concerned.

- At Huron University College, FASS policy requires the following statement on plagiarism to appear on all course outlines:



The Appendix to Course Outlines is posted on the OWL course site.