


ERS475 WINTER 2017

Ecological Responses to Climate Change

I. Basic course information

Professor	Dr. Andrew Trant (atrant@uwaterloo.ca ; www.andrewtrant.com)
TA	There isn't one. We are all alone on this one.
Office hours	Monday 9:30-11:30am (or by appointment). <u>Office</u> : EV2-2026.
Class meetings	Tuesday & Thursday 10:00-11:30am in RCH 106 (unless otherwise specified)
Communication	Please use email or LEARN Discussion Forums for course-related questions and communications. <i>I will aim to respond to forum posts and necessary emails within 24 hrs, except over weekends (we all need a break from technology, don't we?)</i>
UW-LEARN	LEARN will be used for the following: course info, dropboxes for assignments, your grades, announcements, and course emails. Course emails will be sent through LEARN, which will forward to your uwaterloo account. Please check that your email address on WatIAM is either your uwaterloo account or a current personal account (https://watiam.uwaterloo.ca/idm/user/login.jsp) so that you receive course emails. If you are registered in the course and have checked your UW-ID AND WatIAM and still cannot access LEARN, please email Mary Power (m2power@uwaterloo.ca).
Required items	There are no required texts for this course. University is expensive enough without having to purchase textbooks. Instead, readings and course information will come in the form of articles, websites, podcasts and handouts. We will make good use of the Intergovernmental Panel on Climate Change reports (IPCC Assessment Report 5: http://www.ipcc.ch/report/ar5/wg1/).
	 You can follow me on twitter (@ajtrant) for course-related tweets (#ers475)

II. Course overview and learning outcomes

Climate change is one of the most important and complex challenges facing us today. This course examines ecological responses of climate change across temporal and spatial scales. We will take a variety of approaches to better understand the ecosystem responses of climate change including in-depth discussions to contextualize these responses. **Also, we will be skyping in climate change research experts from around the world to discuss real research related issues and challenges.**

By the end of this course, you should be on a path to life-long learning as an **ecologically-literate citizen and be an expert in understanding of ecosystems are responding to climate change**. More specifically, you should be able to do the following (our course learning outcomes):

- i. **identify** and **explain**, with examples, the main principles of how climate changes influences ecology patterns across spatial and temporal scales.
- ii. **demonstrate** how these principles and concepts apply to real-world situations (in context of both lectures and through research projects);
- iii. **analyze** the elements of scientific inquiry as they apply to climate change ecology; and
- iv. **evaluate** ecological arguments presented in the media and elsewhere (e.g., for application within your future career).

III. Course assessment

Breakdown of marks

Assignment	Due date	Grade
1. Individual meeting #1	January 12 th (sign up)	2.5%
2. Group work + presentation	Feb 2 nd	5%
3. Individual meeting #2	Feb 9 th (sign up)	2.5%
4. Paper critique	Throughout (sign up)	10%
5. Exam	March 9 th	20%
6. Group presentations	March 16 th – March 30 th	15%
7. Final paper	March 30 th (Last day of class)	30%
8. Participation	Throughout	15%
	TOTAL	100%

Details about mark breakdown

1. First individual meeting to discuss your final paper – 2.5%

There will be two occasions throughout the semester to meet with me to discuss your final paper ideas and the progress you are making on your paper. These meetings also give me a chance get to know you and see how we can make this whole experience better. Win win.

For meeting 1 (Jan 12th): bring a list of 3-5 ideas for your final paper – more details will be given in class.

2. Group work and presentation – 5%

Working with the idea of climate change experiments, groups of 4-5 students will brainstorm ways of testing different climatic factors during class and then informally present findings to the class. *It is essential to bring your brains to this class.* (Feb 2)

3. Second individual meeting to discuss your final paper – 2.5%

There will be two occasions throughout the semester to meet with me to discuss your final paper ideas and the progress you are making on your paper. These meetings also give me a chance get to know you and see how we can make this whole experience better. Win win.

For meeting 2 (Feb 9th): bring outline of paper, again, more details will be given in class.

4. Paper critique – 10%

Each student will be required to summary/critique a peer-reviewed paper. These presentations will be 10 minutes long and will include a thoughtful critique of the methods and results and a good amount of context for the rest of the class to understand the contribution of this work. Powerpoint accompaniments are not required for these presentations. Readings will be assigned on LEARN one week in advance (to keep current and to be fair).

5. Exam – 20%

There will be an in-class exam midway through the semester. We will have plenty of time throughout the semester to discuss my approach and philosophy for testing. The content for this exam will be taken from the lectures and readings, with an emphasis placed on concepts, rather than details, and to demonstrate your ability to think critically about issues of climate change. (March 9th)

6. Group presentation – 15%

Each group of 4 students (groups to be assigned by me in mid-Feb based on project themes) will develop an engaging 30-minute presentation that integrates concepts and themes arising from your papers. For this project, these papers are no longer separate entities but rather, they are a single and cohesive unit. (March 16th – 30th).

7. Final paper – 30%

Take 10 well-referenced pages (plus references) to explain and discuss the problem, scientific background of your topic, and proposed policy/management solution. You are encouraged to include figures and tables to make your paper compelling. **This might sound obvious but pick a topic that you are interested in and run with it.** More details will be given in class.

8. Participation – 15%

I expect you to attend all of the classes. Of course. For each of the assigned readings, you will submit a short critique/overview of the paper. These are due by email prior to class. While these will not be assigned a mark, they will be read and failing to submit these will result in a low participation mark. Participation marks will also be assigned for in class contributions. If you have any concerns about this, please contact me at the start of term.

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IV. Course schedule

Week	Topic	Readings	Details	Deadlines
1				
Jan 3 rd	Introduction & overview		Sign-up for presentations and meetings	
Jan 5 th	What is climate change anyways?			
2				
Jan 10 th	Climate change – drivers	2 papers TBA		
Jan 12 th	Individual meeting 1		Bring topics for final paper	
3				
Jan 17 th	Climate change – predictions	2 papers TBA		
Jan 19 th	Paleoclimate (Holocene)	2 papers TBA		
4				
Jan 24 th	Life history and phenology I	2 papers TBA		
Jan 26 th	Life history and phenology II	2 papers TBA		
5				
Jan 31 st	Experiments (2 p)	2 papers TBA		
Feb 2 nd	Experiments (group work)	1 paper TBA		
6				
Feb 7 th	Population responses	2 papers TBA		
Feb 9 th	Individual meeting 2		Bring outline of paper	
7				
Feb 14 th	Range dynamics I	2 papers TBA		
Feb 16 th	Range dynamics II	3 papers TBA		
8				
Feb 21st and 23rd: READING WEEK				
9				
Feb 28 th	Community responses	2 papers TBA		Draft Individual papers due
Mar 2 nd	Ecosystem responses	2 papers TBA		
10				
Mar 7 th	Review for exam			
Mar 9 th	Exam			
11				
Mar 14 th	Communicating/alternative perspectives	3 papers TBA		
Mar 16 th	Group presentations (x2)			
12				
Mar 21 st	Group presentations (x2)			
Mar 23 rd	Group presentations (x2)			
13				
Mar 28 th	Group presentations (x2)			
Mar 30 th	Group presentations (x2)			Final individual papers due

V. Course policies

This syllabus is a contract between us, so you must abide by the policies and schemes laid out here (as will I, for my part). If you have any questions or concerns, please speak with me as soon as possible.

Academic integrity and offences

In order to maintain a culture of academic integrity, members of the University of Waterloo community are expected to promote honesty, trust, fairness, respect and responsibility (<http://uwaterloo.ca/academicintegrity/Students/index.html>). You are expected to know what constitutes academic integrity, to avoid committing academic offences, and to take responsibility for your actions. If you are unsure whether an action constitutes an offence, or need help in learning how to avoid offences (e.g., plagiarism, cheating) or about “rules” for group work/collaboration, please complete the tutorial at <http://www.lib.uwaterloo.ca/ait> and seek guidance from the course professor, your Undergraduate Advisor, or the office of the Associate Dean – Undergraduate. *Note, in particular, that using someone else’s iClicker is misconduct.*

When misconduct has been detected, disciplinary penalties will be imposed under Policy 71 – Student Discipline (<http://www.adm.uwaterloo.ca/infosec/Policies/policy71.htm>). For information on categories of offences and types of penalties, refer to Policy 71. Within the Faculty of Environment, those committing academic offences (e.g. cheating, plagiarism) will be placed on disciplinary probation and will be subject to penalties that may include a grade of 0 on affected course elements, 0 on the course, suspension, and expulsion.

If you believe that a decision affecting some aspect of your university life has been unfair or unreasonable, you may have grounds for initiating a grievance; see Policy 70 – Student Petitions and Grievances, Section 4 (www.adm.uwaterloo.ca/infosec/Policies/policy70.htm). When in doubt please contact your Undergraduate Advisor for details. A decision made or penalty imposed under Policy 70 or Policy 71 may be appealed if there is a ground (see Policy 72 – Student Appeals, www.adm.uwaterloo.ca/infosec/Policies/policy72.htm).

AccessAbility

AccessAbility Services (<https://uwaterloo.ca/disability-services>), located in Needles Hall—Room 1132, collaborates with all academic departments to arrange appropriate accommodations for students with disabilities without compromising the academic integrity of the curriculum. If you require academic accommodations to lessen the impact of your disability, please register with AccessAbility Services at the beginning of each academic term.

Assignment submission

Please see your lab manual for detailed instructions on submission of lab assignments, and see above (p. 3) for deadlines for weekly quizzes in WileyPlus and the SimBio assignment.

Attendance and preparation

You are strongly encouraged to attend class meetings because they will be interactive in nature and develop the course material. Thus, please come to class prepared to discuss and engage, which will be reflected not least in your iClicker grade (see above). Please see lab manual for policies regarding lab attendance (including lateness).

Availability for exams

Supplemental exams are only set for those with medical or similar problems. You are expected to be present for scheduled examinations, so please see the course schedule (above) for the midterm exam and consult UW’s final examination timetable before making travel plans. No “make up” examinations are provided to accommodate you for leaving campus early. For the UW policy on exams, see <http://www.adm.uwaterloo.ca/infosec/exams/ExamRegs.pdf>.

Course prerequisites

Level at least 2A, unless a prior exception has been granted.

Definition of grades

Please see the following link for descriptions of the standards required for different grades: <https://uwaterloo.ca/environment/current-undergraduate-students/student-handbook#exams>.

Digital distraction

Recent research has demonstrated that students cannot focus effectively on classroom activities and discussions if others around them are using laptops or electronic devices—and their grades, as well as those of their classmates, suffer (e.g., Fried 2008; Taneja *et al.* 2015). Accordingly, *please turn your cell phone off before class*. Further, this course involves extensive oral and listening participation (e.g., clickers), in addition to note-taking, so laptops will not be used regularly during class. Therefore, *I request that those of you who must use a laptop sit in the back half of the class*. If you have a special learning need that requires a laptop and sitting closer to the front of the room, please document it with AccessAbility Services and we will find an agreeable solution.

Mental health

Along with the University of Waterloo and the Faculty of Environment and its Departments, I consider your well-being to be extremely important. We recognize that many students face health challenges, physical and/or emotional. *Please note that help is available.* Mental health is a serious issue for everyone and can affect your ability to do your best work. Counselling Services (www.uwaterloo.ca/counselling-services) is an inclusive, non-judgmental, and confidential space for anyone to seek support. They offer confidential counselling for a variety of areas including anxiety, depression, grief, relationship issues, sexuality, stress management, substance use, and much more.

Religious observances

Please email me at the beginning of term if you require special accommodation for religious observances that are not otherwise accounted for in the scheduling of classes and assignments.

TurnItIn

Except as below, plagiarism detection software (TurnItIn) will be used to screen assignments in this course. This is being done to verify that materials and sources in assignments are appropriately documented. For further information on UW's TurnItIn guidelines, see <https://uwaterloo.ca/academic-integrity/node/3/guidelines-instructors>. TurnItIn submissions will be stored on a server in the United States, so if you choose not to use TurnItIn you must make an Alternate Declaration in an email to the administrative TA, Stephanie Barr (s2barr@uwaterloo.ca), to be received by January 10, 2016, 11:55pm. Students not using TurnItIn must provide alternative documentation submitted to the admin TA with a paper copy of the lab report or project by the assignment due date and time. The alternative documentation to be submitted is (as applicable): a plagiarism disclaimer form as in the lab template, complete raw data, a rough draft, an extended annotated bibliography for each citation, and original articles or materials used in preparation of the report. Additionally, an electronic copy of the final report is to be uploaded to UW-LEARN by the assignment due date and time.

Unclaimed assignments

Unclaimed assignments will be retained until one month after term grades become official in Quest. After that time, they will be destroyed in compliance with UW's confidential shredding procedures.

Writing

The Writing Centre works across all faculties to help students clarify their ideas, develop their voices, and write in the style appropriate to their disciplines. Writing Centre staff offer one-on-one support in planning assignments and presentations, using and documenting research, organizing and structuring papers, and revising for clarity and coherence. You can make multiple appointments throughout the term, or drop in at the Library for quick questions or feedback. To book a 50-minute appointment and to see drop-in hours, visit www.uwaterloo.ca/writing-centre. Group appointments for team-based projects, presentations, and papers are also available.

Please note that writing specialists guide you to see your work as readers would. They can teach you revising skills and strategies, but will not proof-read or edit for you. Please bring hard copies of your assignment instructions and any notes or drafts to your appointment.

References

Fried, C. B. (2008). In-class laptop use and its effects on student learning. *Computers & Education* 50: 906–914.
Taneja, A., Fiore, V. and Fischer B. (2015). Cyber-slacking in the classroom: Potential for digital distraction in the new age. *Computers & Education* 82: 141-151.