Syllabus Revised: 11/21/18

Spring 2019

PGEOG 38306/PGEOG 70506- Ecology of Global Change
Monday 1:10-4 PM
HN 1028

Instructor: Dr. Andrew Reinmann

Office Hours: Monday 10:30 a.m. to 12 p.m. HN 1039

Also by appointment at the CUNY Advanced Science Research Center (85 St. Nicholas Terrace, New York, NY, 5th Floor - Environmental Sciences Initiative)

Email: Andrew.Reinmann@asrc.cuny.edu (Best method of contact)

When emailing, you should include the course number in the subject heading. Every attempt will be made to respond to emails in a timely manner. In general, emails received between 9 a.m. and 5 p.m. on normal workdays will be responded to on the same day, but emails received after 5 p.m. may not receive a response until the following day.

Course Overview

Human activities have introduced a suite of planetary-scale perturbations to the Earth system that have profoundly altered the composition and functioning of ecosystems across the planet. In *Ecology of Global Change*, we will explore the ecological consequences of a wide range of global change phenomena including climate change, land use and land cover change, acid deposition, habitat fragmentation, urbanization, invasive species and environmental pollution. Through a combination of lectures, discussions, reading the primary literature, guest lectures from experts in the field, and an overnight field trip you will become familiar with the seminal and cutting-edge research investigating the effects of global change on ecosystems and their biota, the scientists conducting this research and the methods they use. We will run a 2-night field trip to Harvard Forest in Massachusetts to see, firsthand, several world-renowned global change field experiments that have revolutionized the field and our understanding of the ecological impacts of global change. This trip will occur during spring break. You will also become familiar with a range of instruments and techniques that are being used for studying ecological impacts of global change. Student evaluation will be based on participation in class discussions, exams/quizzes, a grant proposal/peer review, and a presentation.

Expected Learning Outcomes

1. Understanding of what global change is
2. Basic understanding of ecological processes
3. Basic understanding of biogeochemical cycles
4. Understanding of how and why different aspects of global change have an effect on ecological processes and biogeochemical cycles
5. Perform data analysis and interpretation of ecological data
6. Understanding of how scientists go about studying and quantifying the impacts of global change on ecosystems
7. Developing the skills to comprehend, critique and write about scientific research

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Prerequisites

Students must have passed at least one 100-level science course, or have permission from the instructor. **Familiarity with Microsoft Word, Excel, and Powerpoint is assumed.**

As this is an upper-level/graduate-level course, **I expect well-written assignments**. Communication is an incredibly important component of science and clear and concise articulation of science will be emphasized in this course. I encourage ALL students to take advantage of the wonderful writing resources available to you at Hunter (http://www.hunter.cuny.edu/thewritingcenter-ce) as this will hopefully improve your written communication skills AND your grades on assignments!

Required Texts

There are no required textbooks for this course. Instead, readings will be derived from the peer-reviewed literature. A list of readings will be posted to BlackBoard 1-2 weeks ahead of time.

Classroom Policies

You are expected to have all assignments submitted to BlackBoard or turned in by the due date/time and to have completed all relevant readings before class on that date. Except when relevant to coursework, no electronic devices (e.g., phones, tablets, laptops, etc.) are to be used in class.

Attendance

Because class discussions are central to achieving the learning outcomes of this course, attendance is critical. Therefore, students are strongly encouraged to attend each class and it is the student's responsibility to figure out what was missed during any absence.

Grades

Grades are based on two quizzes, one final exam, one consumer product presentation, one grant proposal, and participation in class discussions. Additional criteria for graduate students: 1) different exam criteria, 2) lead discussions for 1-2 of the readings during the semester, and 3) separate guidelines for the group project.

Exams	**50%**
Quizzes	20%
Final	30%
Presentation	**15%**
Group Project	**20%**
Class Participation	**15%**

Lectures

Class will meet once each week. The format will be part traditional lecture and part discussion of a particular topic and the assigned readings. Once the weather warms up, we might do mini-field trips to Central Park or other locations nearby to further discuss the ecological processes and aspects of global change covered in class.

Field Trip

In addition to our weekly meetings, I hope to run a 3-day field trip to Harvard Forest in Petersham, MA. This field trip will provide you with the opportunity to see different ecosystem types that occur in the northeastern U.S. as well as several world-renowned global change research experiments that we will read about in class. Further, during this field trip you will gain experience in making ecological measurements that can be used to understand how global change alters ecosystem processes. This field trip will occur over spring break (dates TBD). Any student who has concerns or questions about the field trip or is unsure they will be able to attend should meet with me before the end of the second week of class (i.e. February 8th). **NOTE: The content of this field trip is a required component of this course and students who cannot come on the field trip will still be responsible for the material covered.**

Exams

The two quizzes will be mostly short answer and will test your knowledge of the material covered during that section of the course. The final exam is comprehensive and will be based on lectures, readings, discussions in class, the field trip to Harvard Forest and consumer product presentations given by each of you. Exams will begin at the start of class and if you arrive late you will have less time to complete the exam. A missed exam will be graded as a zero and make-up exams will ONLY be available in the case of a documented unavoidable circumstance that results in an excused absence. You are required to notify me if you know ahead of time that you will need to miss an exam for an excused reason.

Consumer Product Presentation

Over the course of the semester you are expected to research the ecological impacts of a consumer product of your choice. However, you need to get prior approval from the instructor. You will present an 8-minute PowerPoint presentation to the class at the end of the semester. In addition, you will need to prepare an abstract (250-word limit) describing the content of your presentation. You will not be given credit for this presentation if the topic did not receive prior approval from the instructor. You will also be required to turn in the slides used for your presentation. Abstracts will be compiled into one document for the first day of presentations. As such, abstracts submitted late will be penalized 50%.

Group Project

In groups of 4-5 (graduate students will be in their own group), you will research and develop an approach to solving or mitigating the ecological impacts of some aspect of global change. Each group will provide a 10-minute presentation on their research and write a 1,500 word paper in the format of a scientific manuscript. Late assignments will be penalized as follows: <1 day = -10%; 1-2 days = 20%; 2-3 days = 30%; >3 days = 50%.

Syllabus Change Policy

Except for changes that substantially affect implementation of the evaluation (i.e. grading) statement, this syllabus is a guide for the course and is subject to change with advance notice. Any changes to the syllabus will be posted to Blackboard and the instructor will bring changes to the students' attention in class.

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Incomplete Policy

I do not give Incomplete (INC) as a final course grade except under extreme and documented circumstances. In order to receive an INC you must be doing passing work at the time of the final exam. Undergraduate students must notify me within 48 hours of the scheduled final exam and also make arrangements with me to complete a Contract to Resolve an Incomplete Grade in which we will establish a deadline for completing missed work and/or examinations. This contract must be completed **prior to final grade submissions.** Graduate students must request the INC within 48 hours of the scheduled final exam. In either case if I do not hear from you within the specified time period I will average your grades and record them.

Hunter College Policy on Academic Integrity
Hunter College regards acts of academic dishonesty (e.g., plagiarism, cheating on examinations, obtaining unfair advantage, and falsification of records and official documents) as serious offenses against the values of intellectual honesty. The College is committed to enforcing the CUNY Policy on Academic Integrity and will pursue cases of academic dishonesty according to the Hunter College Academic Integrity Procedures.

Hunter College Policy on Sexual Misconduct
In compliance with the CUNY Policy on Sexual Misconduct, Hunter College affirms the prohibition of any sexual misconduct, which includes sexual violence, sexual harassment, and gender-based harassment retaliation against students, employees, or visitors, as well as certain intimate relationship. Students who have experienced any form of sexual violence on or off campus (including CUNY-sponsored trips and events) are entitled to the rights outlined in the Bill of Rights for Hunter College.

a. Sexual Violence: Students are strongly encouraged to immediately report the incident by calling 911, contacting NYPD Special Victims Division Hotline (646-610-7272) or their local police precinct, on contacting the College's Public Safety Office (212-772-4444)
b. All Other Forms of Sexual Misconduct: Students are also encouraged to contact the College's Title IX Campus Coordinator, Dean John Rose (jtrose@hunter.cuny.edu or 212-650-3262) of Colleen Barry (colleen.barry@hunter.cuny.edu or 212-772-4534) and seek complimentary services through the Counseling and Wellness Services Office, Hunter East 1123.

CUNY Policy on Sexual Misconduct Link:
http://www.cuny.edu/about/administration/offices/la/Policy-on-Sexual-Misconduct-12-1-14-with-links.pdf

Hunter College ADA Policy
In compliance with the American Disability Act of 1990 (ADA) and with Section 504 of the Rehabilitation Act of 1973, Hunter College is committed to ensuring education parity and accommodations for all students with documented disabilities and/or medical conditions. It is recommended that all students with documented disabilities (Emotional, Medical, Physical, and/or Learning) consult the Office of AccessABILITY, located in Room E1214B, to secure necessary accommodations. For further information and assistance, please call: (212) 772-4857 or (212) 650-3230.

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Tentative Schedule for Spring 2019

Week	Date	Assignment	Topic	Readings
1	Jan 28		Course Overview; Overview of Ecology and Global Change	Vitousek et al. 1997 Schlessinger 2006
2	Feb 4		Anthropocene	Steffen et al. 2007
3	Feb 11		Biogeochemical Cycles	https://en.wikibooks.org/wiki/Ecology/Biogeochemical_cycles
4	**Feb 18**		**NO CLASS: President's Day**	
5	Feb 25	GUEST LECTURER: TBD	Acid Rain & Atmospheric Deposition	Galloway et al. 2008; Driscoll et al. 2001; Norton et al. 2010
6	Mar 4		Acid Deposition and C and N Cycles	No new readings
7	Mar 11		Land Cover Change	Foley et al. 2005; Lambin et al. 2001; 2017Haddad et al. 2015; Reinmann et al. 2016; Laurance et al. 1997
8	Mar 18	GUEST LECTURER: TBD	Land Cover Change: Deforestation & Habitat Fragmentation	Reinmann & Hutyra 2017; Nemani et al.; Smith et al. 2018
9	Mar 25	GUEST LECTURER: TBD	Urbanization	Grimm et al. 2008; Seto et al. 2012; Hardiman et al. 2017
10	**Apr 1**		**Quiz #1; Climate Change**	**Grimm et al. 2013; Walther et al. 2002; Bonan et al. 2009**
11	Apr 8	GUEST LECTURER: TBD	Climate Change	Christenson et al. 2014; Groffman et al. 2012
12	Apr 15		Extreme Climate Events	Cleland et al. 2007; Bokhorst et al. 2008; Hufkens et al. 2012
13	Apr 22		**Spring Break (Field Trip)**	Melillo et al. 2012; Reinmann and Templer 2016; Orwig and Foster 1998
14	**Apr 29**	**GUEST LECTURER: TBD**	**Quiz #2; Interactive Effects of Global Change**	**Readings TBD**
15	**May 6**	**Abstracts Due by 8 a.m.**	**Student Presentations**	
16	**May 11**		**Student Presentations**	
17	**May 18**		**FINAL**	

Red font = No Class; Blue font = Assignment or Quiz; Green highlight= Harvard Forest Field Trip