

ENVIRONMENTAL SYSTEMS: THE HUMAN FOOTPRINT (EESC2201)

Revised for COVID-19 online version of course

Spring Semester 2020 (2nd Half, March 12-April 30 - T Th, 1:30-2:45 PM)
 Lectures: Asynchronous, using various online options for communication.
 Laboratory: EESC221101, W 3:00-5:00 PM; EESC221102, W 5:30-7:30 PM

Professor Alan Kafka (kafka@bc.edu): Office hours as available through various online options for communication.

Teaching Assistant, Sarah Jonathan (jonathas@bc.edu): Office Hours as available through various online options for communication.

This syllabus provides a basic summary of the course. Other course materials will be posted on the course web site (on the BC Canvas course management system). ***You should consider whatever is posted on Canvas as the "official" version of the course syllabus because it will be updated as changes occur.***

DESCRIPTION OF COURSE

Over the past 150,000 years, humans have become an increasingly significant force affecting Earth systems. This course explores the effects of human population growth, energy needs, agriculture, land use, and related phenomena on the sustainability of human civilization within Earth systems. An important goal of the course is to help students to develop sufficient scientific background to be informed citizens regarding these matters. This course is part of the Environmental Systems introductory sequence (EESC2201-2209) for Environmental Geoscience majors and Environmental Studies majors and minors.

GOALS

At the end of this course, students should:

- Know some of the fundamental concepts of environmental science.
- Understand and be able to discuss some of the ways that humans influence Earth systems.
- Gain knowledge on the scientific basis for questions related to the sustainability of human population growth, energy use, and agriculture.
- Be able to think critically about environmental problems and use scientific analysis to find solutions.

REGARDING POLITICAL OPINIONS ON TOPICS COVERED IN THIS COURSE

Nothing in this course is intended to be an endorsement of any particular political opinion on the topics covered. The intention is to give us all a better background on the science underlying these issues, so that we can all develop better-informed opinions on these issues.

APPROACH AND EVALUATION

Course meetings were originally designed to consist of lectures mixed with discussion and in-class exercises. In response to COVID-19, we will be using various online options as substitutes for those in-person aspects of the course. The readings for the course are meant to support and extend the material covered in class. The grading for this course is based on two exams, labs, and participation.

20%: **Mid-term Exam** (date to be determined)

20%: **Final Exam** (tentatively scheduled for May 5, 2020)

40%: **Labs**

20%: **Class and Lab Participation**

The general organizing principle for class participation will be that students would need to respond to all posted participation activities to get full credit for class participation. And, we will generally consider the term “participation” to mean just credit for participating on a given activity, and “exam” to mean any aspect of the course in which you would be graded with a score based on the quality of your answer.

All labs are to be turned in on *Canvas*, and are due by the lab meeting the following week (or as specified on the assignment). Late labs will be deducted 5 percentage points initially and an additional 1 point for each subsequent 12-hour period. If you are having trouble completing a lab on time, contact the TA at least 24 hours in advance of the due date and appropriate accommodations can be made. The lab projects will involve computer work, such as: web searches, analysis using Microsoft Excel, and map work using GoogleEarth. So, bring your laptop to lab.

Please do not ask for extra credit or extra assignments to get extra credit. The answer is no. The grading system applies to everyone in the course.

READING ASSIGNMENTS

Textbook

Karr, S., J. Interlandi, and A. Houtman (2018) *Environmental Science for a Changing World*, Third edition, W.H. Freeman and Company.

Other reading assignments and any videos we will be watching will be posted on *Canvas* as the course progresses.

ACADEMIC INTEGRITY

Boston College values the academic integrity of its students and faculty. It is your responsibility to familiarize yourself with the university’s policy on academic integrity (www.bc.edu/offices/stserv/academic/integrity.html). Violations of academic integrity will be reported to your class dean and judged by the academic integrity committee in your school. If you are found responsible for violating the policy, penalties may include a failing grade as well as possible probation, suspension, or expulsion, depending on the seriousness and circumstances of the violation. (Official BC Policy)

DISABILITY SERVICES

If you are a student with a documented disability seeking reasonable accommodations in this course, please contact Kathy Duggan (617-552-8093, dugganka@bc.edu) at the Connors Family Learning Center regarding learning disabilities and ADHD, or the Disability Services Office (617-552-3470, disabilityservices@bc.edu) regarding all other types of disabilities, including temporary disabilities. Advance notice and appropriate documentation are required for accommodations. (Official BC Policy)

Students are responsible for knowing all of the information in this syllabus. There might be changes, corrections, or addenda to what is written here, and if so they will be posted on the course *Canvas* website. The most current version of the syllabus will always be the version on *Canvas*.

COURSE OUTLINE (subject to change as the COVID-19 situation unfolds)

The topics we will be discussing in this course are a moving target: New scientific discoveries, and new political challenges associated with the science covered in this course are happening every day. Below is a tentative list of topics and textbook readings, but given the nature of this course, there may be changes as class discussions evolve, and as current events in the world unfold that are relevant to this course. In general, the textbook (Karr et al., 2018) follows the basic storyline of the course, and you should read the entire textbook (beginning to end) starting from the first day of class and finishing before the final exam. You should also read the specific sections of the book as they are announced on *Canvas* as the course progresses. **There will be additional readings for some topics, and those readings will be posted on *Canvas*.**

Topics, Textbook Readings, and Labs:

- Introduction
Humans and the Planet: Introduction to Population Growth
- Population and Consumption
- Energy: Coal, Oil and Natural Gas
- Alternatives to Fossil Fuels: Nuclear Energy, Climate
- Food, Energy, and Activism
- Sustainable Agriculture
- Earthquakes and the Environment, and Living in Cities
Fracking and Earthquakes, Cities and Sustainability
- Course Wrap-up and Review