

**Conceptualizing and Modeling Human-Environmental Interactions
(GEOG416); Spring 2018;**

Tuesday and Thursday 12:30pm – 1.45pm in 1158 LeFrak Hall

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Office Hours: Thursdays after class, or by appointment

Course description and learning outcomes

This course aims to develop skills to enable students to carry out research projects, which integrate environmental and economic aspects of sustainability. Through lectures, group discussion, and hands-on computer sessions, the class will familiarize students with some extensively used quantitative tools for analyzing human-environment interactions. By the end of the semester you should have some understanding of a number of currently used approaches, software packages and tools for analysis within the fast-growing field of Ecological Economics. On successful completion of the class you will have demonstrated the ability to apply and critically discuss a number of the widely used tools in the sustainability discourse. In particular, these are: index number calculations and decomposition analysis (*I=PAT*), the Environmental Kuznets Curve (EKC), environmental input-output analysis, and systems dynamics.

You will need to **bring your own laptop** to be able to run the models and applications during class.

Prerequisites

Permission of BSOS-Geography department. Or GEOG306, STAT100, MATH107, or MATH111; and (GEOG201 and GEOG202); and (GEOG331 or GEOG330). Or permission of instructor.

Corequisites

MATH130, MATH140, or MATH120; or MATH220

Assessment

Over the course of the semester 4 assignments (research reports each 1,500 words plus calculations submitted separately). The research reports are applications and discussions of the above-mentioned themes. For each assignment you will provide a report critically discussing the tool/approach based on your experience when calculating/modeling a given problem. The reports have to be written in the style of a journal article (e.g. http://www.elsevier.com/wps/find/journaldescription.cws_home/503305/authorinstructions); but it is not necessary to include an abstract.

Your grade will be calculated as follows:

	Weight	Hand in date
Assignment 1 (1,500 words) (IPAT)	25%	02/23/2018
Assignment 2 (1,500 words) (EKC)	25%	03/12/2018
Assignment 3 (1,500 words) (Environmental input-output analysis)	25%	04/20/2018
Assignment 4 (1,500 words) (Systems Dynamics)	25%	05/18/2018

The 4 assignments will be used for calculating the grade (total = 100%) but all assignments need to be submitted and passed.

Grading

<59 = F

60 – 63 = D-

64 – 66 = D
67 – 69 = D+
70 – 73 = C-
74 – 76 = C
77 – 79 = C+
80 – 83 = B-
84 – 86 = B
87 – 89 = B+
90 – 93 = A-
94 – 96 = A
97 – 100 = A+

You are bound by the Honor Code for all course assignments and exams.

Policy on Late Assignments

The late submission of examined work will be penalized with the deduction of 5% from the overall grade for every day late. No homework will be accepted past one week after the due date. No homework will be accepted via email. Any extensions must be agreed with me at least 24 hours before the due date. General guidelines for written assignments are outlined below, and expectations for each assignment will be clearly stated at the time the assignments are given. You are responsible to make sure that you submit coursework successfully. Late work policy is also applied to unsuccessfully submitted coursework.

Lectures

This course meets twice a week. During lecture, students are expected to take notes, listen and participate when appropriate. Intolerable activity includes (but is not limited to): cell-phone use, laptop use aside from note taking/following/running models and applications, sleeping, and newspaper/magazine reading.

Attendance

Attendance is mandatory. You are expected to take an active part in all class exercises. For the purposes of this course, attendance means arrive to discussion at the proper time, participate when asked, and not leave until class is dismissed. The philosophy of this course is based on learning by doing, so be prepared to participate, learn, and think.

However, in the event that a class must be missed due to an illness, the policy in this class is as follows:

1. For every medically necessary absence from class, a reasonable effort should be made to notify me in advance of the class. When returning to class, students must bring a note identifying the date of and reason for the absence, and acknowledging that the information in the note is accurate.
2. If a student is absent more than 1 time, he/she is required to bring documentation signed by a health care professional.

For more information on the UMD attendance policies, see <http://faculty.umd.edu/teach/attendance.html>.

Students who are absent due to religious observances are responsible for notifying me of projected absences within **the first two weeks** of the semester.

Notification of Disability

Any student with a documented disability (physical or cognitive) who requires academic accommodations should contact the Disability Resource Center as soon as possible to request an official letter outlining authorized accommodations. Students should then present said letter to the instructor NO LATER than Feb 5, 2013.

Sexual and Racial Harassment

It is the policy of the University of the Maryland that sexual harassment and racial harassment of students, staff and applicants for admission to the University are prohibited. For further details see the UMD student handbook.

Academic Integrity

Academic dishonesty is a serious offence that can result in suspension or expulsion from the University of Maryland. Please refer to the following website to determine how the University of Maryland defines plagiarism and academic dishonesty --

<http://www.testudo.umd.edu/soc/dishonesty.html>. All assignments must be cited properly, especially when using direct quotations, paraphrasing, or using ideas that are not your own and come from another author (Including websites!!!).

Disruptive Students

Students are expected to treat each other with respect. Disruptive behavior of any kind will not be tolerated. Students who are unable to show civility with one another or myself will be subject to being referred to the Office of Student Conduct or to Campus Police. You are expected to adhere to the Code of Student Conduct.”

Guidelines for written assignments: You have several written assignments for this course. Specific expectations and materials for each assignment will be discussed in class. However, these are the guidelines to follow:

- Submit assignments plus calculations electronically using ELMS. Assignment will not be graded until the associated calculations are received.
- The assignment has to be submitted at the specified day and time. A 5 % penalty will be given for each day that the assignment is late.
- A cover sheet for each assignment should be included which contains your name, date, assignment and title.
- Follow the guidelines for each assignment’s word length.
- Assignments will be graded on the following criteria: content, presentation, organization, clarity, and grammar and will be handed out and specified for each assignment.
- Must include proper and consistent citations and references.

Literature

Key literature will be provided as we go along. This will consist of key journal articles showing applications of the various concepts, software manuals, and textbooks for key statistical and mathematical concepts (you are free to use any textbook or online source according to your own preferences).

Course Outline & Schedule (tentative)

Week	Topics
01/25	Overview & Introduction

Week	Topics
01/30	I=PAT
02/01	I=PAT
02/06	I=PAT
02/08	Environmental Kuznets Curve (EKC)
02/13	EKC
02/15	EKC
02/20	EKC
02/22	EKC
02/27	Input-output Analysis
03/01	Input-output Analysis
03/06	Input-output Analysis
03/08	Input-output Analysis
03/13	Input-output Analysis
03/15	Input-output Analysis
03/18-03/25	Spring Break
03/27	Input-output Analysis
03/29	Input-output Analysis
04/03	Input-output Analysis
04/05	Fishbanks Game
04/10	Fishbanks Game
04/12	Systems Dynamics (SD)
04/17	Systems Dynamics (SD)
04/19	Systems Dynamics (SD)
04/24	Systems Dynamics (SD)
04/26	Systems Dynamics (SD)
05/01	Systems Dynamics (SD)
05/03	Systems Dynamics (SD)
05/08	Systems Dynamics (SD)
05/10	Final review