

# **Environmental Systems Analysis**

## **GEO 7313, Spring 2017**

**Instructor:** Dr. Jason Julian  
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Office Hours: M & T 1:00-2:30, or by appointment

**Lecture:** Tuesdays 9:30 – 12:20 in ELA 313

**Philosophy of the Course:** Environmental systems are the sum of human-environment interactions across the geosphere, atmosphere, hydrosphere, and biosphere. This course examines both biophysical and social components of environmental systems, with a focus on global change drivers, ecosystem processes, and system feedbacks. Our discussions and analyses will use a geographic perspective where we will examine the scientific, political, cultural, and economic aspects of environmental systems across multiple scales.

**Catalog Description:** Theories and concepts involved in environmental systems will be examined. Tools and research issues relevant to their analysis will also be explored. Basic principles, as well as specific research questions and techniques, will be proposed to give students a foundation for analysis of current issues involving environmental systems.

### **Student Goals and Objectives**

- Understand the essential principles, processes, and feedbacks across the geosphere, atmosphere, hydrosphere, and biosphere.
- Gain an in-depth knowledge of and be able to explain key human-environment interactions, especially as they relate to ecosystem processes and global change.
- Acquire experience in researching and quantifying the value of environmental systems.

**Highly Recommended Book\*:** Marsh, W.M. and Grossa, J. Jr. (2005) Environmental Geography: Science, Land Use, and Earth Systems. Washington DC: Wiley & Sons, 455 pp.

\*I will place a copy of this book on Reserve at the Alkek Library.

**Additional readings posted on TRACS:** All assigned journal articles and reports will be posted to the TRACS course website at least one week before their scheduled discussion. Discussants are required to send me their chosen articles two weeks before we discuss them in class so that I have a chance to review them beforehand.

### **Attendance and In-class Participation**

You are required to attend all class sessions. You are responsible for all materials and announcements made in class. Each unexcused absence will result in points deducted from your course participation grade. Given this is a seminar, I expect every student to be engaged and participate in class discussions of the readings and subject matter. Your participation in the course will be monitored and count for 10% of your overall grade.

## Discussants

For Discussant Performance 1, each member of the class will be a discussant for one of the weekly set of readings. Discussants are responsible for all the readings for that week. We will pass around a sign-up sheet the first class to schedule discussants. I will be the first discussant and go over what it means to be a discussant. For Discussant Performance 2, you will select 1-2 articles (related to your literature review and final paper) to be discussed by the class. You will lead the discussion, but the entire class is expected to actively participate. Your selection of paper(s) will be part of your grade, so choose thought-provoking material that will help you finalize the outline for your final project. All articles must be given to me at least two weeks in advance so I can review them before posting to TRACS.

## Weekly Quizzes on Readings

At the beginning of almost every class, there will be a quiz on the assigned readings. There will be 10 quizzes total, worth 2 points each.

## Final Paper and Presentation

Each student will do an environmental system case-study on a topic that we will discuss the first class. Each student will need to choose their case-study by the fourth class and provide a one-page justification of why this case-study is important and relevant (worth 5 pts). On March 7, you will update the class on important findings to date, and turn in a write-up of these findings along with your literature review to the professor, which will be graded (worth 10 pts). On the final day of class, you will turn in your final paper (worth 25 pts) and present your research (worth 10 pts; ~15 mins each presentation).

**Grading** Your grade in the course will be determined by how many points you accrue out of the total possible 100 points. The final letter grades will be assigned as follows: A = 90-100, B = 80-89, C = 70-79, D = 60-69, F = <60. The points are allocated as follows:

In-class participation	10
Weekly quizzes on readings	20
Discussant performance 1	10
Discussant performance 2	10
Case-study justification	5
Midterm project update & lit review	10
Final presentation	10
<u>Final paper</u>	<u>25</u>
TOTAL	100

## Course Policies

**Electronic Devices:** Electronic devices such as laptops and tablets (but NOT smartphones) are allowed in class as long as they are being used for viewing class materials and taking notes. If you are caught using electronic devices for any other reason, then you will forfeit your right to use electronic devices in class for the rest of the semester. These other reasons include, but are not limited to, social networking, texting, email, and viewing non-course material. If I find that your electronic device is distracting or prevents you from paying attention in class, I will ask you to refrain from its use. If you are expecting a life and death announcement from an immediate family member, please notify me before class of that situation.

**Learning Outcomes:** The Department of Geography's Student Learning Outcomes for all departmental programs may be reviewed at: <http://www.geo.txstate.edu/about/apr.html>.

**Texas State University Honor Code** (<http://www.txstate.edu/effective/upps/upps-07-10-01.html>)

*Learning and teaching take place best in an atmosphere of intellectual fair-minded openness. All members of the academic community are responsible for supporting freedom and openness through rigorous personal standards of honesty and fairness. Plagiarism and other forms of academic dishonesty undermine the very purpose of the university and diminish the value of an education. Specific sanctions for academic dishonesty are outlined in **Texas State Student Handbook**.*

**Students with Special Needs/Disabilities:** If you have a condition that requires special accommodation (as documented by the Office of Disability Services) in order to successfully complete the course, you must notify the Office of Disability Services (located at LBJ 5-5.1; ph. 512.245.3451) **AND the instructor** in a written memo (or email) before the end of the second week of classes. Failure to do so may result in the necessary accommodations not being made. *Texas State University San Marcos is dedicated to providing these students with necessary academic adjustments and auxiliary aids to facilitate their participation and performance in the classroom* (<http://www.txstate.edu/effective/upps/upps-07-11-01.html>).

**Academic Testing for Students with Disabilities** (<http://www.txstate.edu/trec/atsd/accessAtsdTS.html>).

*Students who are approved for testing accommodations have the option of using Academic Testing for Students with Disabilities (ATSD) office to take in-class tests or quizzes with their accommodations. Any student who schedules a test(s) with ATSD must schedule tests during the in-class scheduled test time (or seek an exception from the instructor) and are expected to take the test at ATSD. If a student schedules to take test with ATSD but decides that they will take the test in the classroom, the student will be responsible for notifying the ATSD and the instructor prior to the class start time.*

**Professionalism:** Our society considers a “professional” as a person who is responsible for the quality, integrity, and implications of his/her work. In the Department of Geography, we consider our students to be “professionals in training.” Course requirements are intended to bring the conduct and the quality of work of students in our programs up to professional standards. Students are responsible for attending class on time, reading the assignments, and completing the assigned projects on time in an aesthetic and thorough manner. We assume that students are aware of, and practice common courtesy and the consideration of others that are necessary for a civil society and that are expected of professional persons. For additional information on Texas State University policy on student conduct, we encourage you to consult the university Policy and Procedures Statement on: Courteous Behavior, Classroom Civility, Classroom Disruption, Suspension from Class and Sexual Harassment. <http://www.provost.txstate.edu/pps/policy-and-procedure-statements/4-teaching/pps4-02.html>.

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## COURSE TOPICS AND TENTATIVE SCHEDULE

Date	Topic	<u>Suggested Readings from Marsh text (before class)*</u>
Jan 17	Environmental Systems Introduction & Concepts	
Jan 24	Ecosystem Services	Ch 2
Jan 31	Geosphere and Global BGC Cycles	Ch 4, Ch 15
<b>Feb 7</b>	Atmosphere and Climate Change <b>Case-study selection &amp; justification due</b>	Ch 10
Feb 14	Hydrosphere & Watershed Science	Ch 12
Feb 21	Population Changes & Land Use Change	Ch 7
Feb 28	Ecosystems and Connectivity	Ch 16
<b>Mar 7</b>	Protected Places and Public Lands <b>Project update and literature review due</b>	Ch 17
<b>Mar 14</b>	<b>NO Class – Spring Break</b>	
Mar 21	Group 1 student article discussions	
Mar 28	Group 2 student article discussions	
<b>Apr 4</b>	<b>NO Class – AAG; Work on Final Project</b>	
Apr 11	Environmental Restoration	
Apr 18	Ecosystem Services revisited	
<b>Apr 25</b>	<b>Student Presentations; Final Papers Due</b>	

**\*Required readings are posted on TRACS**