

# Geography 406

## Human Use of the Environment

### Spring Semester, 2006

---

218A Hosler, Tuesday and Thursday, 2:30 - 3:45pm  
Dr. Petra Tschakert, Assistant Professor of Geography/AESEDA  
315 Walker, Phone: 863-9399, E-mail: [petra@psu.edu](mailto:petra@psu.edu)

Office Hours: Tuesday 4-5pm and Wednesday 9:30-11am, or by appointment

---

#### Required Texts

No text book is required. We use a course packet. Additional material is available on ANGEL.

#### Course Description

This course is an exploration of the theoretical and practical considerations of human decision-making and adaptive management of resources in complex social-ecological systems. We will address critical issues of fisheries, watershed planning, wilderness, forest management, georesource extraction, and environmental services from a holistic perspective that acknowledges historical drivers, dynamics of ecosystems, changing markets, and public conceptions and values. Under conditions of uncertainty, social learning, institutional arrangements, and experimentation play an important role for decision-making processes in dynamic systems. Key concepts discussed include resilience, adaptive capacity, and sustainability. By incorporating several spatial and temporal scales, we will explore the main conditions under which actors and players are most successful in using environmental resources in socially, economically, and ecologically sustainable ways.

#### Format

One of the key concepts in complex adaptive social-ecological systems is collective/social learning. We will use this concept as the main strategy for this course. This implies that the professor and students share responsibility for the learning process and take advantage of collective skills, insights, experiences, and efforts of each other. As in system dynamics, this requires both commitment and flexibility and the willingness to explore foreign territory. We will use a case study approach to explore real life lessons of adaptive management around the globe. To make this process work, attendance and active participation are imperative. Because the course is relatively small, it will be run more like a seminar than a lecture course. We will draw from a mix of lectures, in-class discussions, presentations, and interactive activities. You are expected to have done all assigned reading before coming to class, and be prepared to discuss it. This is YOUR class, and I want to know how it's going. Let me know if you have constructive suggestions on how to improve it!

## Assignments/Exams

**Readings:** Reading assignments are listed on the schedule for class topics and readings. All lecture readings are available in a course packet and are mandatory. Case study (CS) readings are accessible on ANGEL. Pick ONE CS reading per week (you will learn about the other one from your colleagues). Since the class is largely based on discussions, I expect you to do all assigned readings prior to each class.

**Mid-term:** The mid-term is in-class and covers all the material on complex adaptive social-ecological systems up to February 23, 2005. The exam format includes a combination of question types such as essay, short answer and multiple choice. Make-up exams are only given in the event of illness or other verifiable emergency. In the event of an absence during an exam, it is the student's responsibility to contact me no later than one (1) class period after the test date.

**Case study presentation and discussion:** You are asked to indicate your preference for ONE article from the case study (CS) reading list, based on which I form two-person teams to collaborate on this assignment. Your task is to read the article carefully, distill the main arguments and examples used, and present the content to the rest of the class on the CS day of your topic (see schedule). The presentation should not be longer than 20 minutes. Use your creativity to present the main arguments. Prepare a 1-2 page summary with the main points of the article to be distributed to everybody in class. Also, you are in charge of leading the discussion during the remaining time of class. Remember, there are TWO article presentations per CS class session, so you have to coordinate time and discussion questions with the other two-person team of the day!

**Synthesis paper on case studies:** This is the major writing assignment for this class. Your task is to synthesize the different case studies discussed in class, identify key concepts, methods, and results and distill some main lessons you have learned and how they apply to your own research and/or career plans. I will provide you with guidelines for the paper after the mid-term.

**Final project "Adaptive Management":** You are asked to team up with TWO OTHER students, ideally with different disciplinary backgrounds. Search the internet, the Penn State Institutes for the Environment (PSIE) website, and other sources for an ongoing environmental management project that incorporates complex systems thinking. It does not matter where the project is located. What is important is that you have the possibility to interact with some project members (for example over email), collect information about the purpose of the project, participants, agendas, objectives, and the various issues at stake. Follow project activities throughout the semester. Your task for the final project is four-fold: 1) write (in your own words!) a brief narrative about the project (location, participants, objectives etc.); 2) describe the activities that have happened in the project through the course of the semester; 3) create and describe three realistic future scenarios for the project (following scenario building methods discussed in week 10); and 4) prepare a poster on the project to be discussed during the last week of class. On January 31<sup>st</sup>, submit the names of your group members as well as the name, location, and source/contact information of the project you have decided to work on. Let me know if you need help identifying a project. On March 21<sup>st</sup>, submit a two-page prospectus of your joint project, justifying the selection of your case study, and explaining the group's proposed division of labor. This should include criteria to evaluate individual team members' contributions to the project.

**Short projects and participation:** Your attendance and participation in class activities is essential to the overall learning experience. Both are required and are graded. In addition to the above assignments, there are a couple of short projects/assignments throughout the semester (10-20 pts. each) that complement your participation grade. They are announced in class and available on ANGEL.

## Schedule for tasks, assignments, and exams:

Week	Date	Tasks and Assignments
2	Jan 19	Indicate preference for CS article for joint presentation + discussion
4	Jan 31	Submit team information on the final project "Adaptive Management"
8	Feb 28	Mid-term exam
11	March 21	2-page prospectus on project, division of labor, criteria for evaluation
14	Apr 20	Synthesis paper case studies
15	Apr 25	Final project "Adaptive Management"
16	Apr 25, 27	Poster discussion on your final project "Adaptive Management"

## Grading and Exams

Mid-term exam:	200 pts.	(20%)
Case study presentation and discussion	200 pts.	(20%)
Synthesis paper on case studies	200 pts.	(20%)
Final project "Adaptive Management"	200 pts.	(20%)
Small projects and class participation	200 pts.	(20%)
Total:	1,000 pts.	(100%)

Final grades are based on a weighted average for the term. Grade cutoff points are as follows:

A = 93-100%	B+ = 87-89%	C+ = 77-79%	D+ = 67-69%
A- = 90-92%	B = 83-86%	C = 73-76%	D = 63-66%
	B- = 80-82%	C- = 70-72%	D- = 60-62%
			F = <60

## Disabilities

If you have a documented disability, or any other problem you think may affect your ability to perform in class, please see me early in the semester so that arrangements may be made to accommodate you.

## Academic Misconduct

Plagiarism and cheating are both academic crimes. Never (1) turn in an assignment that you did not write yourself, (2) turn in an assignment for this class that you previously turned in for another class, or (3) cheat on an exam. If you do so, it may result in a failing grade for the class, and possibly even suspension from the college. Please see me if you have any questions about what constitutes plagiarism. Anyone caught cheating on an exam will be reported to the provost in line with recognized university procedures.



**Welcome to the course!**

## Schedule for Class Topics and Readings

L = lecture; CS = case studies. L readings form the conceptual basis of the class and are mandatory!  
 For each CS session, read ONE of the two CS readings before coming to class - we'll discuss both.  
 Please note that this schedule might be subject to change.

Week	Date	Class Topics	Readings
1	Jan 10	Course Introduction	none
	Jan 12	Cultural Ecology (L)	▪ Bassett and Zimmerer, 2003, Cultural Ecology (L)
2	Jan 17	Political Ecology (L)	▪ Kull, 2002. Madagascar aflame (L)
	Jan 19	Complex coupled socio-ecological systems (L)	▪ Holling, 2004. From complex regions to complex worlds (L)
3	Jan 24	Resilience and sustainability (L)	▪ Walker et al., 2004. Resilience, adaptability, transformability (L)
	Jan 26	Adaptive capacity (L)	▪ Key concepts on Resilience Alliance site ( <a href="http://www.resalliance.org/ev_en.php">www.resalliance.org/ev_en.php</a> ) (L)
4	Jan 31	Adaptive management (L)	▪ Bennett et al., 2005. Managing the Great Barrier Reef water quality (CS)
	Feb 2	Adaptive management (CS)	▪ Milich, 1999. Collapse of the Newfoundland cod fishery (CS)
5	Feb 7	Ecological knowledge (L)	▪ Davidson-Hunt and Berkes, 2003. Learning as you journey (CS)
	Feb 9	Ecological knowledge (CS)	▪ Moller et al., 2004, Monitoring populations for co-management (CS)
6	Feb 14	Social learning (L)	▪ Schusler et al., 2003. Social learning for collaborative NRM (CS)
	Feb 16	Social learning (CS)	▪ Olsson et al., 2004, Wetland landscape in Sweden (CS)
7	Feb 21	Institutions and networks (L)	▪ McGinnis et al., 1999, Conflict resolution & watershed planning (CS)
	Feb 23	Institutions and networks (CS)	▪ Tompkins et al., 2002, Coastal management in Trinidad & Tobago (CS)
8	Feb 28	<b>Mid-Term!</b>	▪ <a href="http://www.millenniumassessment.org/en/index.aspx">http://www.millenniumassessment.org/en/index.aspx</a> (L)
	March 2	Millennium Ecosystem Assessment	
9	March 6-10	<b>Spring Break!</b>	none
10	March 14	Scenarios (L)	▪ Peterson et al., 2003. Northern Highland Land District (CS)
	March 16	Scenarios (CS)	▪ Wollenberg et al., 2000, Scenarios for community forests (CS)
11	March 21	Environmental service provision (L)	▪ Nelson and de Jong, 2003, C mitigation in Chiapas, Mexico (CS)
	March 23	C Trading (CS)	▪ Victor and House, 2005, BP's emissions trading system (CS)
12	March 28	Environmental service provision and poverty reduction (L)	▪ Zbinden and Lee, 2005. Costa Rica's PSA program (CS)
	March 30	Pro-poor ecosystem projects (CS)	▪ Gjertsen, 2005, Marine protected areas in the Philippines (CS)
13	Apr 4	Wilderness debate (L)	▪ Brooks, 2005. Images of 'Wild Africa' (CS)
	Apr 6	Wilderness (CS)	▪ Gill, 2005. Australian outback mythology (CS)
14	Apr 11	Mineral extraction and conflict (L)	▪ Sandoval et al., 2005. Mineral extraction in Venezuela (CS)
	Apr 13	Oil and diamonds (CS)	▪ Omeje, 2005. Oil and conflict in the Niger Delta (CS)
15	Apr 18	Synthesis - Framework of AM	none
	Apr 20	Synthesis - Comparative studies	
16	Apr 25	Presentation final projects	none
	Apr 27	Presentation final projects	
17	May 1-5	<b>Final Exam week</b>	