

**GPH 314**

**Chhetri**

**Spring 2007**

**Arizona State University**

**The Alternate Copy Shop  
715 S. Forest Avenue  
Tempe, AZ 85281**

**GLOBAL CHANGE (GPH) 314**  
**SPRING 2007 SYLLABUS**  
**Room# 226 Social Sciences Bldg,**  
**MWF: 11:40 – 12:30**

Instructor: Netra Chhetri  
Office: 235A Social Sciences Bldg  
Email: [Netra.Chhetri@asu.edu](mailto:Netra.Chhetri@asu.edu)  
Phone: 480 727 0747  
Office Hours: W&F, 1:00-3:00 p.m.

### **INTRODUCTION**

The term “global change” usually refers to the broad swathe of biophysical and socioeconomic changes that are altering the function of human-environment system on a global scale. In its simplest form global change encompasses the study of global climate change; land use and land cover change; loss of biological diversity; and change in production and distribution of goods and services. Reasoned assessment of human-environment system and the changes that are underway requires “synthesis” of the processes that are operating at various temporal and spatial scales. The objective of this course is to explore the various forces of changes from multiple perspectives. Emphasis will be given to developing holistic view of how human-environment system has been transformed during the course of human history, factors that are causing them, and responses to those changes.

The course will draw from a mix of lectures, in-class debates, and student led case studies. To make this process work, attendance and active participation are imperative. The themes and the readings for the class lecture and discussion is outlined in the course schedule. It is very important that you have read and are familiar with the reading material before you come to class.

**ATTENTION:** Additional readings may be added during the course and will be posted on the BLACKBOARD (BB) program. Please check the Blackboard regularly for any such and other update. You must also ensure that you have the proper ASU ID to access BLACKBOARD.

### **READING ASSIGNMENTS**

The reading assignment for this course is available as a course packet (available at the Alternate Copy Shop, 715 S. Forest Avenue, Tempe, AZ 85281). No text book is required. It is your responsibility to make sure that you have your course packet. Reading assignments are listed separately in this syllabus. Class presentations and discussions are based on the reading assigned for each week. Case study (CS) readings are not included in the course packet but will be made available on BB as and when necessary. You will be informed about the CS guide in class.

### **EXAMS AND COURSE GRADES**

**Term exam:** There will be **three** exams, **one** case study presentation, and **one** group project. Each exam is based on lectures and readings covered during the weeks leading up to the test.

Every exam will take place in Room# 226 Social Sciences Building. Each exam is worth 20% of the course grade and the exam format includes 40 multiple choice questions. Students may have the 50 minutes of the class time to take the exam. The schedules of the exams are:

- Friday, February 23<sup>rd</sup>
- Friday, March 30<sup>th</sup>
- Wednesday, April 25<sup>th</sup>

No make-up exams will be given unless (1) *prearranged with the Instructor* (for example, a student on a sports team needs to provide documentation showing that he or she will be on the road on the day of the exam) or (2) *resulting from a documented emergency* (such as an illness). Documentation is necessary in any case. The exam score will be a zero unless these conditions are met. Any other excuses, such as oversleeping, getting the exam date wrong, or having other tests or papers on the same day, are not valid. The instructor may administer an oral exam covering the same material on the missed exam for students with a documented excuse.

***Case study (CS) presentation and discussion:*** The case study presentation is worth 20% of the course grade. Student will lead a case study based discussion related to the theme of the week. Each week there will be two groups leading the CS and each group will have three/four students all of whom will be randomly selected. The theme of the CS will also be assigned randomly. Minor adjustment and changes may have to be made given the size of the class. The task of CS group is:

- 1) 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.
- 2) To conduct the presentation within 10 minutes. Use your creativity to present the main arguments succinctly and clearly.
- 3) Prepare one page (double space) summary with the main points of the article and distribute to everybody in class.
- 4) You are in charge of printing the write-up for distribution, coordinating your presentation, and leading a five minute discussion after the presentation.
- 5) Remember, there are **TWO** CS presentations per CS class session, so you have to coordinate time and discussion questions with the other team of the day!
- 6) The breakdown of the course grade for case study presentation and discussion is as follows:
  - Oral presentation - 70% (35% by student team and 35% by instructor)
  - Written summary - 30%

The grade for half of the oral presentation will be given by the panel of student team assigned to present the following week. [http://www.cspo.org/documents/Case%20Studies\\_Final.doc](http://www.cspo.org/documents/Case%20Studies_Final.doc)

***Final project:*** The final project is worth 20% of your course grade. This is the expanded version of your case study assignment. You are expected to take the comments and feedback from your CS presentation (including summary writing) and develop it further for your final paper. The final paper must be 8-10 pages long (double spaced, 12 font excluding figures and bibliography). The breakdown of the 15% course grade for final project is as follows:

- Introduction (25%) A clear and concise introduction of the project, the objective(s), and the question(s) that you are going to address in your project. The length should not be more than one page in total.
- Synthesis of literature (50%) Synthesis of 10-12 articles from established journals showing evidence from literature to support your arguments. The length should not be more than 4-5 pages in total.
- Discussion/Conclusion (25%) The discussion is the place where you defend your argument. You should build your argument based on the question(s) that you have raised earlier and the literature that you have reviewed up to this stage. It should be tied up with the rest of the text. The conclusion should be a paragraph summarizing the theme of your project.

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

Letter Grade	% Range
A+	98-100
A	93-97
A-	90-93
B+	87-89
B	83-86
B-	80-82
C+	77-79
C	70-76
D	60-69
F	<59

### **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 will 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.

## CLASS SCHEDULE AND READING LIST

### **Week I: Global change - Introduction**

Jan 17: Introduction to the course

Jan 19: P. Raskin et al., 2002 - Where are we? *Great Transition: The Promise and Lure of the Time Ahead*, pp: 1-11.

### **Week II: Human population and environment**

Jan 22&24: BL Turner and SR McCandless, 2004 - How humankind came to rival nature: a brief history of the human-environment condition and the lessons learned. In: W.C. Clark et al. [Eds.] - *Earth System Analysis for Sustainability*, pp. 227–243.

W.B. Meyer, 1994 - Change in population and society, In W.B. Meyer [Eds.] - *Human Impact on the Earth*, pp: 22-50.

Jan 26: CS on population and environment – presentation and discussion

### **Week III: Transformation of agriculture**

Jan 29&31 Ruttan, V.W., 1999. Research systems for sustainable agricultural development. *Global Environmental Change and Agriculture*, pp 13-42.

T. Dyson, 1999 - World food trend and prospects to 2025. *Proc. Natl. Acad. Sci. USA*, **96**:5929-5936.

Feb 2: CS on agricultural transformation – presentation and discussion

### **Week IV: Global economic transformation**

Feb 5&7 P. Dicken, 2003. The global economic map: trend in production, trade, and investment. *Chapter 2, Global Shift: Reshaping the Global Economic Map in the 21<sup>st</sup> Century*, pp 24-61.

P. Heller, 1986: Hamburger: Jungleburger – Video that examines the impacts of fast food industry in the Third World countries.

Feb 9: CS on global economic transformation – presentation and discussion

### **Week V: Evolution of technologies**

Feb 12&14 P. Dicken, 2003. Technology: the ‘great growling engine of change’: *Chapter 4, Global Shift: Reshaping the Global Economic Map in the 21<sup>st</sup> Century*, pp 85-121.

Feb 16: Case studies on evolution of technologies – presentation and discussion

**Week VI: Role of social institutions in shaping human-environment relations**

Feb 19&21 J.W. Bennett and K.A. Dahlberg, 1992: Institutions, social organization, and cultural values. In Turner et al. [Eds] - *The Earth as Transformed by Human Action*, pp 69-86.

C. Walker, 2005. The dreams of Arnhem land. Video that examines modern synergy that ensured conservation and economic development.

**Feb 23 EXAM - I**

**Week VII: Land use transformation**

Feb 26&28 W.B. Meyer and B.L. Turner. 1992. Human population growth and global land-use/cover change. *Annu. Rev. Ecol. Syst.*, **23**:39-61

D.S. Boyd and G.M. Foody, 2004. Changing land cover. In Harris F. [Eds.], *Global Environmental Issues*, pp: 65-94

Mar 2: CS on drivers of land use transformation – presentation and discussion

**Week VIII: Change in global biogeochemistry**

Mar 5&7 R.B. Cook, 1984: Man and the biogeochemical cycles: interacting with the elements. *Environment*, 26:11-40.

P.J. Crutzen and V. Ramanathan, 2003. Atmospheric chemistry and the climate in anthropocene. In: W.C. Clark et al. [Eds.] - *Earth System Analysis for Sustainability*, pp. 265-292.

Mar 9: CS on biogeochemical cycle & global environment – presentation and discussion

**Week IX: SPRING BREAK - NO CLASS**

**Week X: Earth Transformed**

Mar 19&21 S.R. Palumbi, 2001. Humans as the world's greatest evolutionary force. *Science*, **293**:1786-1790.

J. Lubchenco, 1998. Entering the century of the environment: a new social contract for science. *Science*, **279**:491-497.

Mar 23: CS on human environment interaction – presentation and discussion

**Week XI: Science of climate change**

- Mar 26&28 M. Hulme, 2004. A change in the weather? – coming to terms with climate change. In Harris F. [Eds.], *Global Environmental Issues*, pp:21-44  
Science, 2004; Climate change and climate science – Editorial
- News Focus, 2004. Three degrees of consensus. *Science*, **305**:932-934.
- News Focus, 2006. A worrying trend of less Ice, higher seas. *Science*, **311**:1698-1701.

**Mar 30 EXAM – II**

**Week XII: Indicators of Climate Change**

- Apr 2&4 C. Parmesan and G. Yohe, 2003; A globally coherent fingerprint of climate change impacts across natural systems. *Nature*, **421**:37-42.
- M.F. Meier and J.M. Wahr, 2002. Sea level is rising: do we know why? *PNAS*, **99**:6524-6526
- Apr 6: CS on local indicators of climate change – presentation and discussion

**Week XIII: Impacts of Climate Change**

- Apr 9&11 N.W. Arnell, 1999. Climate change and global water resources, *Global Environmental Change*, **9**: S31-S49.
- M.Parry et al., 1999. Climate change and world food security: a new assessment. *Global Environmental Change*, **9**: S41-S67.
- Apr 13: CS on climate change and impacts at local level – presentation and discussion

**Week XIV: Adaptation to Climate Change**

- Apr 16&18 J.H. Ausubel, 2001; Some ways to lessen worries about climate change. *The Electricity Journal*, **NA**:24-33.
- D. Sarewitz and R. Pielke, 2000. Breaking the global warming gridlock. *The Atlantic Monthly*, **286**:54-65.
- Apr 20: CS on beyond global climate change – presentation and discussion

**Week XV: Sustainability - is it possible to attain?**

Apr 23 R.W. Kates, T.M. Parris, and A.A. Leiserowitz, 2005. What is sustainable development? Goals, indicators, values, and practices. *Environment*, **47**:10-21.

P.H. Raven, 2002. Science, sustainability, and the human prospect. *Science*, **297**:954-958.

**Apr 25 EXAM III**

Apr 27: CS on local level sustainability initiatives – presentation and discussion

**Week XVI: Living with Global Change**

Apr 30 P. Raskin et al., 2002 - History of future. *Great Transition: The Promise and Lure of the Time Ahead*, 71-90.

**May 4 FINAL PAPER DUE**