SPRING 2018

People, Land, and Food

Geography / Environmental Studies 309

3 credits

LECTURES: Tuesdays & Thursdays 1:20-2:10pm
LOCATION: 1641 Humanities Building
CLASS WEBSITE: https://learnuw.wisc.edu/

INSTRUCTOR: Prof. Holly Gibbs
CONTACT: hkgibbs@wisc.edu
WEBSITE: www.gibbs-lab.com
OFFICE HOURS: After class or by appointment

MAIN TA: Jules Reynolds
CONTACT: jreynolds7@wisc.edu
OFFICE HOURS: By Appointment

COURSE OVERVIEW:

In this course we will examine how and why humans have transformed the global landscape and the consequences for biodiversity, climate, biogeochemical cycling and other ecosystem services needed to keep our planet habitable. We will explore these land-use tradeoffs between human necessities such as food production and unintended consequences such as habitat loss, floods, greenhouse gas emissions, and community displacement. We will study agricultural systems in different regions and tackle topics such as food security, land scarcity, bioenergy and the impacts of agriculture on the environment. The drivers and pattern of tropical deforestation will also be a focus. We will examine a range of solutions from global policy to everyday decisions to feed and fuel the world without destroying the planet. Each student will have a chance to lead a service-learning or research project that aims to make change in our local community.

LEARNING OBJECTIVES

The goal of this course is to provide an opportunity to learn about and understand the complex social and environmental processes governing global land use and agricultural production. Major aims are to acquire knowledge about a range of topics related to the people, land, and food and skill development, including:

- Gain knowledge on how and why humans have transformed land around the world and the associated environmental and social impacts
- Understand the global challenge of feeding and fueling the world while also protecting our environment and communities
- Investigate a range of solutions to increase food production and how they vary through space and time
- Identify opportunities and limitations of different farming and animal production systems
- Understand the impacts of globalization on land-use change
- Improve professional skills such as research, writing, & presentations

GRADING AND ASSIGNMENTS

Your course grade will be based on (out of 1000 points):

10% Discussion Participation (100 points)
10% Pop Quizzes & Reading Reflections (100 points)
25% Mid-term exam (250 points)
5% Current Events Presentation & Paper (50 points)
25% Food sustainability paper & presentation (250 points)
25% End-of-term Exam (250 points)

*10% off per day for late assignments. No make-up exams or quizzes.

<u>MAJOR DEADLINES</u> (assignments expected by 12pm on due date):

- Feb. 8/12: Project ideas due
- Feb. 22/26: One-pager on project due
- March 8: Exam 1
- March 19/22: Current Events presentation and papers
- April 12/16: Project paper draft due to peer reviewers
- April 19/23: Peer-review forms due
- April 26: Exam 2
- May 1/3: Final Project presentations

- May 10: Final project papers due

COURSE DETAILS

Attendance and Participation in Discussion Section (100 points) – Your participation grade will be determined by your engagement in the class discussion sections and contribution to each other's learning experience. We will have group exercises as well as whole-class discussions where you will have the opportunity to think, reflect and practice analytical skills. To be active learner you need to read and synthesize assignments before class and come prepared with discussion points and questions to enrich the classroom environment. Consistent attendance is expected.

Lecture slides – I will post slides on Learn@UW shortly *following* each lecture.

Required reading - I will post required readings on Learn@UW at least one week prior to class. Please read and synthesize all weekly readings before each Monday's lectures. I will occasionally announce that some readings can be skimmed or to focus on a specific section. Readings will consist of textbook chapters, scientific journal articles, reports, as well as popular books. Readings will be covered on exams and pop quizzes.

Pop Quizzes (100 points) – Quizzes will be cumulative and could cover material from lectures or readings in the previous weeks but will emphasize recent topics. The format will vary from short answer to multiple choices. NOTE that quizzes will be *given at the beginning of class*, so you will miss the opportunity to take the quiz if you are tardy. You can drop your lowest grade, but no make-up quizzes will be given under any circumstances. In some cases we will assign a brief reading reflection rather than a quiz.

Current Events Presentation (50 points)– In small groups, you will present and lead a brief discussion on a current events topic related to food systems and/or sustainability. Groups should present the key issues and differing viewpoints relating to the topic using outside sources (5 minutes) and provide discussion questions to engage a group discussion (5 minutes). In addition to this in-class presentation, each student will write a brief paper that describes their findings.

Food Sustainability Project and Paper (250 points)- You will each complete semester-long project related to food sustainability or other topics relevant to class. You will work in topical groups, but each student will select and complete their own specific project, which will culminate in a final paper written by each person and a final presentation by the entire group during lecture. Details to follow!

Exams (500 points total) – You will have a mid-term exam covering the material from the first half of class, and then an end-of-semester exam covering the second half of the class. The exams will have short-answer and multiple-choice questions. Exams will include material covered in lectures, discussion sections, readings, and

group project final presentations. Exams will emphasize material covered in lectures, but readings will be needed to help deepen and clarify topics *discussed* in lectures or discussions (*not everything discussed in class will be shown on the slides). There will be no formal review sessions but time will be allotted in lectures and discussion sections throughout the semester to review challenging information and answer specific questions.

*Graduate students will submit a larger final project with higher expectations. They will also be expected to participate more fully in lectures and discussion sections.

COURSE SCHEDULE AND POTENTIAL READINGS*

*** Note that discussions sections fall on Mondays and Thursdays. Assignments are due prior to the start of your specific discussion section.**

Week 1, Jan 23 & 25 - Introduction to the course & Ecosystem Tradeoffs

- Knox, Paul L and Sallie A. Marston. 2004, Chapter 8-Agriculture and Food Production. In Places and regions in global context: human geography. 3rd ed. Upper Saddle River, N.J.: Pearson/Prentice Hall. Pgs 299-315. (Skim for background as needed)

- Jonathan A. Foley, et al, Global Consequences of Land Use. Science 309, 570 (2005).
  **Important for week 1 discussion sections

- DeFries, R. et al. 2004. Land-use choices: balancing human needs and ecosystem tradeoffs. Front Ecol Environ 2(5):249-257.
  **Important for week 1 discussion sections

Discussion Sections: Jan 25 & Jan 29: Introductions, Flower Diagrams

Week 2, Jan 30 & Feb 1 –Ecosystem Tradeoffs & Intro to Land Use Change

- USGS Nitrogen and Water Science School

- WDNR and UW-Limnology blog about Madison's lakes

* ***The schedule and readings will *likely* change over the semester as the course evolves; refer to learn@uw for the latest information***

- Ramankutty, N., L. et al. , Global Land Cover Change: Recent Progress, Remaining Challenges. In Land Use and Land Cover Change: Local Processes, Global Impacts, edited by E. F. Lambin and H. Geist, pp. 9-39, Springer Verlag, New York, 2006.

Discussion Sections: Feb 1 & Feb 5: Brainstorming for Group Projects

Week 3, Feb 6 & 8 – Agricultural expansion & Cattle ranching

- Union of Concerned Scientists. 2010, Chapter 4 Soybeans. *From The Root of the Problem.*
- Union of Concerned Scientists. 2010, Chapter 5 Cattle and Pasture. *From The Root of the Problem.*
- Union of Concerned Scientists. 2010, Chapter 6 Palm Oil. *From The Root of the Problem.*
- Executive Summary. Martin Upton, 2004. The role of livestock in economic development and poverty reduction (6 pages).
- Overview. FAO, 2013. Tackling climate change through livestock (3.5 pages).

Discussion Sections Feb. 8 & 12: Cattle ranching with Petterson Molina Vale

**Initial project ideas due; bring printed version to discussion*

Week 4, Feb 13 & 15 – Solutions to Tropical Deforestation

- Rudel, T.K. et al, Changing Drivers of Deforestation and New Opportunities for Conservation. Conservation Biology, Volume 23, No. 6, 1396-1405.
- Butler, R. 2010, "In the Battle to Save Forests, Activists Target Corporations". *Yale Environment 360*

Discussion Sections Feb 15 & 19: Introduce Current Events Project & Paper; Present project ideas within group

Week 5, Feb 20 & 22 – Solutions to deforestation & Bioenergy

- Gibbs et al. soy and cattle press releases
- Naylor et al. 2007. The ripple effect: biofuels, food security, and the environment. *Environment V 49 (9): 31-43.*

- Gibbs, H. K., M. Johnston, J. A. Foley, T. Holloway. C. Monfreda, N. Ramankutty, and D. Zaks. 2008, Carbon payback times for crop-based biofuel expansion in the tropics: the effects of changing yield and technology. *Environmental Research Letters 3 034001.*

Discussion Sections Feb. 22 & 26: Solutions & Bioenergy discussion

**Project idea summary due (bring printed to discussion section)*

Week 6, Feb 27 & Mar 1 – Commodity Chains & Industrial Farming Systems

- Collins, Jane: Tracing Social Relations in Commodity Chains: The Case of Grapes in Brazil. In Commodities and Globalization: Anthropological Perspectives, Angelique
- Pollan, M. 2006, Chapter 2 -- The Farm. *The Omnivore's Dilemma.*
- Pollan, M. 2006, Chapter 9 -- Big Organic. *The Omnivore's Dilemma. Penguin Press, New York, 450 p.*

Discussion Sections: March 1 & 5: Discuss Pollan readings, FAO activity, present semester project ideas in groups

Week 7, Mar 6 & 8 – Catch up and Mid-term Exam

In-class Exam on Mar 8

No readings

No Discussion Sections: March 8

Week 8, Mar 13 & 15 – Large-Scale Industrial & Organic Agriculture

- Burney et al. 2010, Greenhouse gas mitigation by agricultural intensification. *PNAS.*
- Badgley et al. 2006, Organic agriculture and the global food supply. *Renewable Agriculture and Food Systems 22(2): 86-108*
- Seufert et al. What is this thing called organic? – How organic farming is codified in regulations

Discussion Sections: March 12 & 15: Current events group work

Week 9, Mar 20 & 22 – Subsistence Agriculture & Solutions

- Stull, V., Bell, M. M., & Ncwadi, M. (2016). Environmental apartheid: Eco-health and rural marginalization in South Africa. Journal of Rural Studies, 47, 369-380.
- Foley et al. 2011, Solutions for a cultivated planet. *Nature. 478: 337-342.*
- Godfray et al. 2010, Food Security: The challenge of feeding 9 billion people. *Science 327. OR* Godfray, C. J. Tara Garnett. 2014. Food security and sustainable intensification. DOI: 10.1098/rstb.2012.0273Published 17 February 2014 (SKIM)

Discussion Sections March 19 & 22: Current Events presentations

**Current events paper due*

Week 10, SPRING BREAK!

Week 11, Apr 3 & 5– Intro to Food Waste & Diet Trends

- NRDC. 2012. Wasted: How America is losing up to 40 percent of its food from farm to fork to landfill. NRDC Issue Paper: August 2012: 1-21.
- Gustavsson, J., et al. "Global food losses and food waste: extent, causes and prevention." (2011). Executive summary, figures, and conclusion section.
- Cassidy, Emily S., et al. "Redefining agricultural yields: from tonnes to people nourished per hectare." Environmental Research Letters 8.3 (2013): 034015.
- Marlow, H.J. et al. Diet and the environment: does what you eat matter? Am J Clin Nutr 2009;89(suppl):1699S–703S.

Discussion Sections April 5 & 9: To be determined

(no discussion section April 2)

Week 12, Apr 10 & 12 Solutions to Food Waste & Expanding Cropland

- Parfitt et al. 2010, Food waste within food supply chains: quantification and potential for change to 2050. *Philosophical Transactions of the Royal Society B 3065-3081*

- Neff, Roni A., Marie L. Spiker, and Patricia L. Truant. "Wasted Food: U.S. Consumers' Reported Awareness, Attitudes, and Behaviors." *PLoS ONE* 10.6 (2015): e0127881. *PLoS Journals*. Web.

- Lambin et al. 2013. Estimating the world's potentially available cropland using a bottom-up approach. Global Environmental Change http://dx.doi.org/10.1016/

Discussion Sections April 12 & 16: To be determined

***Draft project papers due*

Week 13, Apr 17 & 19 — Metropolitan Foodsheds & Final inspiration by Jack Kloppenburg

- Lengnick, L., Miller, M. & Marten, G.G. Metropolitan foodsheds: a resilient response to the climate change challenge? J Environ Stud Sci (2015) 5: 573. doi:10.1007/s13412-015-0349-2

- Berry, Wendell (1990) The pleasures of eating." Pp. 125-131 in Robert Clark (ed.), Our Sustainable Table. Essays, San Francisco, CA: North Point Press

- Open Source Seed Initiative: Growing Access to a Liberated Domain of Plant Genetic Diversity

- Review website: https://osseeds.org/

Discussion Sections April 19 & 23: In-class peer review meetings & time to talk about group presentations

**Peer review document due at least 48 hours prior to class*

Week 14, April 24 & 26 – Project Presentations

No readings

No discussion sections

Week 15, May 1 & 3 — Project Presentations

No readings

No discussion sections

***Final project papers due on May 10*

EXAM -

OTHER DETAILS

Contacting Professor or TA
Your professor and TA are both glad to meet with you outside class. Please attend office hours or approach us after class. Common questions will be answered on our message board at our class's Learn@UW site, so frequently check for updates.

Electronic Devices
Electronic devices, such a laptops, phones, or tablets, are prohibited during lecture and discussion section. If you have specific needs that require you to use an electronic device, you must discuss it with the TA prior to class. Unauthorized use of an electronic device in class distracts you and other students, and thus will negatively impact your participation grade.

Religious Holidays
If you plan on missing class due to a religious holiday, please notify your TA by September 15.

Accommodations
If you have special concerns, needs, or a disability please see TA no later than September 15. We are happy to make accommodations and consult with you about the course, but you must come speak with the TA first. If you have a documented disability, and you need a reasonable accommodation in this course, please consult with TA immediately at the start of the course so we can design a solution that will help you be successful in the class.

Credit hours & expectations

This class 3-credit ourse meets for three 50-minute class period each week and carries the expectation that students will work on course learning activities (reading, writing, problem sets, studying, etc) for about 2 hours out of classroom for every class period (6 hours per week).

Plagiarism and Academic misconduct

Section 14.03 of the University of Wisconsin System Administrative Code Defines academic misconduct as "an act in which a student: (a) seeks to claim credit for the work or efforts of another without authorization or citation; (b) uses unauthorized materials or fabricated data in any academic exercise; (c) forges or falsifies academic documents or records; (d) intentionally impedes or damages the academic work of others; (e) engages in conduct aimed at making false representation of a student's academic performance; (f) assists other students in any of these acts." If you have any questions about what constitutes academic misconduct generally, you must consult www.wisc.edu/students/amsum.htm before proceeding in this course.

Any form of cheating or plagiarism is absolutely unacceptable and intolerable in this class and in the entire UW System. If you are suspected of doing so, your TA and Dr. Gibbs will speak to the Dean and file a written report in your permanent academic file. You are expected to familiarize yourself with your rights and duties as a UW student, and about the consequences of cheating at: www.wisc.edu/students/saja/misconduct/UWS14.html. Lack of knowledge regarding these guidelines will NOT be accepted as an excuse.

Your TA is licensed to use anti-plagiarism software. This software is extremely accurate, comparing student work to a database of previously submitted work, on-line sources (including Wikipedia), and published academic materials. Be aware that your TA or professor may choose to run your intellectual journal entries and/or test answers through the software.