

SPRING 2022



People, Land, and Food

Geography / Environmental Studies 309

3 credits

LECTURES: Tuesdays & Thursdays 1:20-2:10pm
FORMAT: In Person
CLASS WEBSITE: <https://canvas.wisc.edu/courses/233824>

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

MAIN TA: Laura Lawler
CONTACT: llawler2@wisc.edu
OFFICE HOURS: Mondays 9-10 by zoom, or 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 different 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

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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% Learning Assessments & Reading Reflections (100 points)
- 25% Mid-term exam (250 points)
- 5% Reflection 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.

MAJOR DEADLINES (assignments expected by 12pm on due date):

- Feb 10/15: Food Sustainability Project TOPIC Worksheet
- Feb 17/22: Food Sustainability Project PLAN Worksheet
- March 3: Exam 1
- March 24/29: Positionality Reflection Paper
- April 7/12: Food Sustainability Project PAPER DRAFT
- April 14/19: Peer review forms due
- April 28: Food Sustainability Project FINAL PAPER
- April 21/26/28/May 3: Food Sustainability Project PRESENTATIONS (in lectures)
- May 5: Final exam on last day of class

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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 Canvas shortly *following* each lecture.

Required reading - I will post required readings on Canvas at least one week prior to class. Please read and synthesize all weekly readings before each Tuesday'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 learning checkpoints.

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.

Positionality Reflection Paper (50 points)– Critically reflect on your role within your Food Sustainability Project and within your broader food community. More details coming!

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

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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 Thursdays and Tuesdays. Assignments are due prior to the start of your specific discussion section.**

Week 1, Jan 25 & 27 - 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

Week 2, Feb 1 & Feb 3 -Ecosystem Tradeoffs & Intro to Land Use Change

- 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.
- USGS Water Science School
- Madison in Bloom – Blue-green algae hits home

**** The schedule and readings will *likely* change over the semester as the course evolves; refer to Canvas for the latest information and lecture slides for which to skim and which to read in detail***

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Week 3, Feb 8 & 10 – Urban & Agricultural expansion

- d'Amoura et al. 2017. Future urban land expansion and implications for global croplands
- Seto et al. 2012. Global forecasts of urban expansion to 2030 and direct impacts on biodiversity and carbon pools

Week 4, Feb 15 & 17 – Drivers and Solutions to Tropical Deforestation

- 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*.

Week 5, Feb 22 & 24 – Corporate solutions to 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*
- Gibbs et al. Soy Moratorium

Week 6, March 1 & 3 – Finish Corporate solutions and Mid-term Exam

In-class Exam on Mar 3

No readings

No Discussion Sections: March 4 or March 8

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Week 7, Mar 8 & 10 – Bioenergy & Industrial Farming Systems

- 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.
- Pollan, M. 2006, Chapter 2 -- The Farm. *The Omnivore's Dilemma*.
- Pollan, M. 2006, Chapter 9 -- Big Organic. *The Omnivore's Dilemma*. Penguin

Week 8: SPRING BREAK: March 12-20

Week 9, Mar 22 & 24 – Large-scale Ag, Solutions launch & Farmer Cassie

- Burney et al. 2010, Greenhouse gas mitigation by agricultural intensification. *PNAS*.
- National Geographic. Organic farming: Why we don't have more organic farms?
- Foley et al. 2011, Solutions for a cultivated planet. *Nature*. 478: 337-342.

Week 10, Mar 29 & 31 -- 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.

Week 11, Apr 5 & Apr 7-Solutions to Food Waste & Natural Climate Solutions

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- 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.
- Fargione, et al. Natural climate solutions for the United States. *Science Advances*. 2018.

Discussion Sections April 7 & 12: NO DISCUSSIONS

***Draft project papers due*

Week 12, April 12 & 14 – Food sovereignty & Expanding Croplands

- Shattuck et al. Politics of Food Sovereignty
- Guthman, Bringing good food to others.

Week 13 April 19 & April 21 -- TBD & Brix project

- TBD

Week 14, April 26 & 28 – Sustainability Project Presentations

No readings

Week 15 May 3 & 5 — Sustainability Project Presentations & Exam

No readings

Second exam in-class on May 5

OTHER DETAILS

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Contacting Professor or TA

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

Accommodations. If you have a disability or face any other challenges that could affect your participation and/or performance in this course, *please contact the TAs or instructors as soon as possible in order to discuss appropriate and helpful accommodations.* We are here to help you succeed and understand that there are many ups and downs under normal circumstances and especially during a pandemic.

Diversity, equity, and inclusion. We recognize varied histories of social discrimination globally, and seek to support and extend opportunities to members of all groups that have been and continue to be marginalized. *We're committed to creating a learning environment that is free of discrimination based on race, gender, sexuality, religion, age, ability, and any other aspects of students' identities.* Please reach out if you ever have any concerns over the course of the semester.

Changes to the syllabus. The instructors reserve the right to make changes to this syllabus, including adding assignments and changing due dates. These changes will be announced as early as possible so that students may adjust their schedules.

Religious Holidays

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

Credit hours & expectations

This class 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.

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

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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.