

SPRING 2025



People, Land, and Food

Geography / Environmental Studies 309

3 credits

LECTURES: Tuesdays & Thursdays 1:20-2:10pm

LOCATION: 1220 Microbial Sciences

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: Thea Showalter

CONTACT: tshowalter@wisc.edu

Office: Room 175A, Science Hall

Office Hours: Thursdays 11am-1pm, or by appointment

COURSE OVERVIEW:

This course will examine how and why humans have transformed the global landscape and the consequences of these transformations for people, biodiversity, climate, biogeochemical cycling and other ecosystem services. 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 investigate different agricultural systems in different regions and tackle topics like food security, land scarcity, bioenergy, and the impacts of agriculture on the environment. We will also examine solutions to the challenges presented by land use ranging from global policy to everyday, individual decisions that can help feed and fuel the world without destroying the planet

SPRING 2025

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% Informational Interview (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.

Numerical (%) course grades will be assigned to letter grades as follows:

A	93%–100%
AB	90%–92%
B	83%–89%
BC	80%–82%
C	70%–79%
D	60%–69%
F	< 60%

MAJOR DEADLINES (assignments expected by 11:59pm on due date):

SPRING 2025

Feb 11/13: Food Sustainability Project TOPIC Worksheet
Feb 18/20: Food Sustainability Project PLAN Worksheet
Feb 27: Exam 1
April 8/10: Food Sustainability Project PAPER DRAFT
April 15/17: Peer review forms due
April 22/24 & April 29: Food Sustainability Project PRESENTATIONS (in lectures)
May 1: Exam 2 @ 10:05am-12:05pm
May 2: Food Sustainability Project FINAL PAPER

COURSE DETAILS

Discussion attendance and participation (100 points): Students' participation grade will be determined by their attendance and engagement in discussion sections and their contribution to each other's learning experience. Discussion sections will include group exercises and conversations in which students will have the opportunity to think, reflect, and practice analytical skills. To be active learners, students will need to read and synthesize assignments before their discussion section and come prepared with discussion points and questions to enrich the classroom environment. Attendance will be recorded each week; consistent attendance is expected. Students may have no more than two excused absences from their weekly discussion section ("excused" means the TA or instructor were informed of the absence **before** the missed session); each additional absence will result in a 10% reduction in their class participation grade.

Required reading - Readings will be posted on Canvas at least one week prior to class. Please read and synthesize all weekly readings before each Tuesdays' lecture. Readings will consist of textbook chapters, scientific journal articles, reports, news articles, and popular books. I will occasionally announce that some readings can be skimmed or to focus on a specific section(s).

Reading Reflections: Students must submit a written reflection of at least 100 words on the readings when a reflection is assigned. These reflections will be submitted through Canvas on Wednesday (by 11:59 pm) of the week the after readings were assigned. This deadline falls after both Thursday and Tuesday discussion sections such that students' written reflections can [but do not necessarily need to] be informed by class discussions–feel free to submit reflections early! Reflections are designed to help you keep pace with and synthesize the readings that will be covered on exams. There is no specific prompt for these reflections. Consider sharing what you found interesting, personal, problematic, troubling, hopeful, confusing, discordant, aligned or misaligned with previous readings, etc.. Please invoke more than one reading in your response. Reflection grades will reflect the number of thoughtful reflections submitted. For example,

SPRING 2025

thoughtfully completing all the assigned reflections will yield a reflection grade of 100%, while thoughtfully completing just half will yield a 50% reflection grade.

Lecture slides – Lectures will be posted on Canvas shortly *following* each lecture. Lectures will not be recorded.

Lecture Quizzes: Throughout the semester, there will be occasional, unannounced (surprise!) quizzes at the beginning of lecture that cover the preceding lectures' materials. Quizzes will consist of five multiple choice and/or short answer questions. NOTE that quizzes will almost always be given at the beginning of lecture, so you will miss the opportunity to take the quiz if you arrive late. You will be allowed to drop one quiz grade (i.e., that with the lowest grade) at the end of the semester, but no make-up quizzes will be given.

Food Sustainability Project and Paper - 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– 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, however most emphasis will be placed on lecture material. 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.

COURSE SCHEDULE AND POTENTIAL READINGS*

*** Note that discussions sections fall on Thursdays and Tuesdays.**

Week 1, Jan 21 & 23 - Introduction to the course & Ecosystem Tradeoffs

- Foley, J. A., DeFries, R., Asner, G. P., Barford, C., Bonan, G., Carpenter, S. R., et al. (2005). Global Consequences of Land Use. *Science*, 309(5734), 570–574. <https://doi.org/10.1126/science.1111772> **Important for week 1 discussion sections

* *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*

SPRING 2025

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

Week 2, Jan 28 & Jan 29 –Ecosystem Tradeoffs & Climate impacts

- Behrens, P. (2022). Pessimism: Eating the Earth. In *The Best of Times, The Worst of Times: Futures from the Frontiers of Climate Science* (2nd ed., pp. 113–130). London: The Indigo Press.
- USGS Water Science School
- Madison in Bloom – Blue-green algae hits home

Week 3, Feb 4 & 6 –More tradeoffs/Big Ag & Intro to Land Use Change

- Pollan, M. 2006, Chapter 2 -- The Farm. *The Omnivore's Dilemma*.
- Pollan, M. 2006, Chapter 9 -- Big Organic. *The Omnivore's Dilemma*. Penguin
- Lusk: "Why Industrial Farms are Good for the Environment"
- Union of Concerned Scientists: "Bigger Farms, Bigger Problems"
- Ellis- Anthromes (SKIM)

Reading Reflection Due Feb 7th: Land Use Change

Week 4, Feb 11 & 13 – Drivers and Solutions to Tropical Deforestation

- Lark: "Cropland expansion in the United States produces marginal yields at high costs to wildlife"
- Fritts, R. (2018). What's causing deforestation? New study reveals global drivers. Mongabay.
- Tabuchi, H., C., Rigby, C., White., J. (2017). Amazon Deforestation, Once Tames, Comes Roaring Back. The New York Times
- Andreoni, M., Tabuchi, H., Sun, A. (2021). How Americans' Appetite for Leather in Luxury SUVs Worsens Amazon Deforestation. The New York Times.

SPRING 2025

Optional: Curtis, P. G., Slay, C. M., Harris, N. L., Tyukavina, A., & Hansen, M. C. (2018). Classifying drivers of global forest loss. *Science*, 361(6407), 1108–1111. <https://doi.org/10.1126/science.aau3445>

Week 5, Feb 18 & 20 – 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

Reading Reflection Due Feb 19th: Deforestation and Solutions

Week 6, Feb 25 & Feb 27 – Finish Corporate solutions and Mid-term Exam

In-class Exam on Feb 27

No readings

No Discussion Sections: Feb 27 or March 4

Week 7, Mar 4 & 6 – Influence of culture and gender on land use decisions

- Ostrom, Elinor. *Governing the commons: The evolution of institutions for collective action*. Cambridge university press, 1990.
- Meyfroidt, Patrick. "Environmental cognitions, land change, and social-ecological feedbacks: An overview." *Journal of Land Use Science* 8.3 (2013): 341-367
- Schill, Caroline, et al. "A more dynamic understanding of human behaviour for the Anthropocene." *Nature Sustainability* 2.12 (2019): 1075-1082.
- Hodel, Leonie, Yann le Polain de Waroux, and Rachael D. Garrett. "Characterizing culture's influence in land systems." *Nature Sustainability* (2024): 1-10.

SPRING 2025

Reading Reflection Due March 5: Gender, Culture and Land Use

Week 8, Mar 11 & 13 – Bioenergy & TBA

- 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.
- Gewin, V. (2022). How Corn Ethanol for Biofuel Fed Climate Change. Civil Eats.
- Cullen, A. (2022). Ethanol in Transition. The Storm Lake Times.

Week 9, Mar 18 & 20 –Solutions Launch & Food Waste movie

- Behrens, P. (2022). Hope: Green Shoots. In *The Best of Times, The Worst of Times: Futures from the Frontiers of Climate Science* (2nd ed., pp. 131–147). London: The Indigo Press.
- Foley, J. A., Ramankutty, N., Brauman, K. A., Cassidy, E. S., Gerber, J. S., Johnston, M., et al. (2011). Solutions for a cultivated planet. *Nature*, 478(7369), 337–342. <https://doi.org/10.1038/nature10452>

Week 10: SPRING BREAK: March 22-29

Week 11, Apr 1 & Apr 3 –Food Waste (with Tyler Lark)

- Pages 4-13 of: NRDC. (2017). Wasted: How America is losing up to 40 percent of its food from farm to fork to landfill. (READ: pages 4-13)
- “Executive Summary” of: FAO. (2011) Global food losses and food waste: extent, causes, and prevention.

April 2nd: Reading Reflection Due: Food Waste

Week 12, April 8 & 10 – Supply chains & Brix Cider project

- Bilal et al. Sustainable Agri-Food Systems: Environment, Economy, Society, land Policy

SPRING 2025

- Brix Project background
- Berris 2019 Location, Location, Location

Reading Reflection Due April 9th: Sustainable Supply Chains

Week 13 April 15 & April 17 – Nature in your Backyard / Biodigesters

- Lawns Reading
- Biodigester readings

Week 14, April 22 & 24 – Sustainability Project Presentations

No readings

Week 15 April 29 & May 1 — Sustainability Project Presentations & Final Exam

No readings

Final exam: May 1 (in class on Thursday)

OTHER DETAILS

Attendance: Students are expected to attend all lectures and their assigned discussion section. Please arrive on time. Attendance will be recorded in discussion sections.

Absences: Absences must be communicated to the instructor (for lecture periods) or TA (for discussion periods) before they occur. For absences to be “excused”, they will need to have been pre-emptively communicated.

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.

SPRING 2025

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.

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 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:

SPRING 2025

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.

Artificial Intelligence: This course emphasizes the thinking and writing skills each individual needs to develop for themselves; For that reason, I always want to see your authentic work, not that of our robot overlords.

COVID19: If you are sick, please stay home and communicate this absence with your TA and/instructor as soon as possible. If you have been exposed to someone with COVID19 but have tested negative yourself and are not symptomatic, please wear a mask.