

Sustainable Agriculture and Food Systems

ENR 5600

Spring 2023



Course Information

- **Course times:**
 - Mondays 12:40-1:35
 - Fridays 12:40 – 2:30 pm
- **Course Location:** Kottman 245
- **Credit hours:** 3
- **Mode of delivery:** In-Person Seminar

Instructor

- **Name:** Douglas Jackson-Smith
- **Email:** Jackson-smith.1@osu.edu
- **Phone Number:** 330-202-3540
- **Office location:** 469 Kottman Hall
- **Office hours:** By appointment (email the professor)
- **Preferred means of communication:**
 - My preferred method of communication for questions is **email**.
 - My class-wide communications will be sent through the Announcements tool in CarmenCanvas. Please check your [notification preferences](https://go.osu.edu/canvas-notifications) (go.osu.edu/canvas-notifications) to be sure you receive these messages.



THE OHIO STATE UNIVERSITY

College of Food, Agricultural, and Environmental Sciences
School of Environment and Natural Resources

Course Description

This course will examine the sustainability of various types of agricultural and food systems. We begin by considering alternative definitions of sustainability and become familiar with critiques of the sustainability performance of mainstream US and global agri-food systems. We then engage in a broad review of the scientific literature on a range of both incremental and transformative approaches to improving the sustainability of these systems, paying close attention to both environmental, social and economic outcomes. While the primary focus of the material will be on US agriculture, we will include readings and discussions about the sustainability performance and challenges of the broader US and global food systems.

Learning Outcomes

By the end of this course, students should successfully be able to:

- Be able to define 'sustainable agriculture' from multiple perspectives.
- Understand and evaluate scientific evidence for the performance of alternative approaches to improving the sustainability of US agriculture and food systems.
- Synthesize evidence from multiple sources to highlight the complexities and tradeoffs associated with efforts to improve the sustainability of agriculture and food systems.

In this course, you will be provided with opportunities to improve your skills in:

- Thinking critically, analytically, and logically about sustainability issues or problems.
- Gathering and critically evaluating scientific research on farming and food systems.
- Applying concepts from class to concrete sustainability puzzles in US agriculture and food systems.
- Communicating effectively both orally and in writing.

How This Course Works

Mode of delivery: This course is in-person. There are required in-person sessions most weeks on Mondays from 12:40-1:35 and Fridays 12:40-2:30. Class sessions will take a seminar format, with a mix of lecture and guided group discussions of the materials and other experiences related to the class. I will use lectures to provide additional background material and supplement what you are reading. Should in-person classes be canceled, we will meet virtually via CarmenZoom during our regularly scheduled time. I will share any updates via CarmenCanvas. If weather and schedules allow we may use one or two Fridays to take field trips to farms and food supply chain businesses.

Pace of activities: There are readings and other assignments that will be completed out of class; deadlines for completing these assignments are linked to the class seminar sessions.

Credit hours and work expectations: This is a 3 credit-hour course. According to [Ohio State bylaws on instruction](https://go.osu.edu/credit%20hours) (go.osu.edu/credit hours), students should expect around 3 hours/week of time spent on direct instruction (instructor lecture and class seminar activities) in addition to 6 hours of homework (reading and assignment preparation) to receive a grade of C average.

Attendance and participation requirements: Research shows regular participation is one of the highest predictors of success. With that in mind, I have the following expectations for everyone's participation:

- **Participation in class session: **twice a week**.** Attendance at all live, scheduled course meetings is required (except with advanced permission from the instructor for special situations). As described below, all students are expected to complete assigned readings in advance of each class and come prepared to discuss this material. Active engagement in class discussions is required for full credit.
- **Office Hours:** Attendance at online office hours is optional.
- **Readings:** Students will be expected to keep up with the assigned readings for each class period and keep detailed reading notes. The reading load is not excessive (for an upper division class) but does require you to plan ahead to get it done. If you want to do well in this class, you must take the readings seriously, take notes, and come prepared to discuss the readings each class session. For the on-line readings, you can either read it on your screen or (what I do) print it out and then read it in the usual fashion. Be sure to leave yourself time to access, print and read the on-line readings well before each class period.
- **Course Communications:** I will be posting announcements, hints, and reminders about this course to students on our Carmen Canvas website on a regular basis. You are expected to check the Carmen Canvas site on a daily basis. You can contact me there – or for fastest service, email me directly. As noted above, my email address is: jackson-smith.1@osu.edu.



Required Materials and/or Technologies

REQUIRED TEXTS (free):

- *Toward Sustainable Agricultural Systems in the 21st Century*. National Research Council Committee on 21st Century Systems Agriculture. 2010. (free as e-book from National Academies Press: <http://www.nap.edu/catalog/12832/toward-sustainable-agricultural-systems-in-the-21st-century>)
- *A Framework to Assess the Effects of Food Systems*. Institute of Medicine/National Academies of Sciences, 2015. (free as e-book from National Academies Press: <http://www.nap.edu/catalog/18846/a-framework-for-assessing-effects-of-the-food-system>)

SUPPLEMENTAL READINGS – Numerous reports and peer-reviewed journal articles will be posted on our course Carmen Canvas site to supplement readings from the core texts. All assigned readings are provided to students under the fair use exception to copyright law, which means they are not to be distributed by students or others for uses other than for this class.

Required Equipment (to access course materials and for occasional online sessions)

- **Computer:** current Mac (MacOS) or PC (Windows 10) with high-speed internet connection.
- **Webcam:** built-in or external webcam, fully installed and tested
- **Microphone:** built-in laptop or tablet mic or external microphone
- **Other:** a mobile device (smartphone or tablet) to use for BuckeyePass authentication

If you do not have access to the technology you need to succeed in this class, review options for [technology and internet access](http://go.osu.edu/student-tech-access) (go.osu.edu/student-tech-access).

Required Software

Microsoft Office 365: All Ohio State students are now eligible for free Microsoft Office 365. Visit the [installing Office 365](http://go.osu.edu/office365help) (go.osu.edu/office365help) help article for full instructions.

CarmenCanvas Access

You will need to use [BuckeyePass](http://buckeyepass.osu.edu) (buckeyepass.osu.edu) multi-factor authentication to access your courses in Carmen. To ensure that you are able to connect to Carmen at all times, it is recommended that you do each of the following:

- Register multiple devices in case something happens to your primary device. Visit the [BuckeyePass - Adding a Device](http://go.osu.edu/add-device) (go.osu.edu/add-device) help article for step-by-step instructions.
- Request passcodes to keep as a backup authentication option. When you see the Duo login screen on your computer, click **Enter a Passcode** and then click the **Text me new codes** button that appears. This will text you ten passcodes, good for 365 days, that can each be used once.



- [Install the Duo Mobile application](https://go.osu.edu/install-duo) (go.osu.edu/install-duo) on all of your registered devices for the ability to generate one-time codes in the event that you lose cell, data, or Wi-Fi service.

If none of these options will meet the needs of your situation, you can contact the IT Service Desk at [614-688-4357 \(HELP\)](tel:614-688-4357) and IT support staff will work out a solution with you.

Technology Skills Needed for This Course

- Basic computer and web-browsing skills
- [Navigating CarmenCanvas](https://go.osu.edu/canvasstudent) (go.osu.edu/canvasstudent)
- [CarmenZoom virtual meetings](https://go.osu.edu/zoom-meetings) (go.osu.edu/zoom-meetings)
- [Recording a slide presentation with audio narration and recording, editing and uploading video](https://go.osu.edu/video-assignment-guide) (go.osu.edu/video-assignment-guide)

Technology Support

For help with your password, university email, CarmenCanvas, or any other technology issues, questions or requests, contact the IT Service Desk, which offers 24-hour support, seven days a week.

- **Self Service and Chat:** go.osu.edu/it
- **Phone:** [614-688-4357 \(HELP\)](tel:614-688-4357)
- **Email:** servicedesk@osu.edu



Assignments, Grading & Faculty Response

The classroom periods will primarily focus on the discussion of the required readings, with supplemental provided from lectures and guest presentations. All assignments and readings will be completed outside class to facilitate in class discussion. Grades will be assigned based on student performance across the semester on several different assignments, which are detailed below.

Class Participation (15%) – IMPORTANT TO TAKE TIME TO DO IT!

Participation will be judged based on three criteria: 1) consistent attendance and clear preparation 2) active engagement in the class discussion 3) quality of classroom participation.

Reading Reflections (15%) – Prior to each class session, students will upload a short commentary and/or questions from the readings assigned for that date.

Midterm (30%)

A **take home midterm exam** will be assigned February 27th and due March 6th. The midterm is designed to test students' critical thinking and integration skills. The exam will consist of a number of short answer or long form essay questions designed to synthesize the concepts covered to that point in the class. Both the readings, class discussions, and lecture material will figure prominently on exams. You will have to type your answers to exam questions and submit them on time to get full credit.

Final Written Papers/Reports on Sustainability Controversies (35%)

Each student will be expected to a **research report or literature review summarizing key arguments and scientific evidence to address one of several controversial topics related to agricultural sustainability**. The analysis should address multiple aspects of agricultural sustainability and provide a reasonable and balanced summary of arguments on both sides of the question. The project will have several steps:

- 1) An outline and brief prospectus of the report will be **due February 17th**. I will review this prospectus with you before you start writing. This prospectus is worth 12.5% of paper grade.
- 2) A full draft of the paper/report is due by **March 31st**. I will provide feedback that I expect you to consider and utilize in revising the paper prior to the final submission. The draft is worth 37.5% of your final paper grade.
- 3) The final paper/report is due no later than **12 pm on May 2nd**. The paper should be between 12-15 (20-30)¹ pages long (double-spaced, including references), and should include references to at least 10 (20)¹ scientific peer reviewed publications. Must show responsiveness to suggestions on draft paper. The final version is worth 50% of final paper grade.

Presentations of Final Reports (5%)

Students with reports/reviews on similar topics will be expected to make an 8-10 minute presentation for the class on each question/topic. Where multiple students are working on the same topic, they will be asked to collaborate on the presentation and can have 15 minutes to present. These presentations should synthesize the arguments pro and con for each question, and review the different (or similar) conclusions drawn by each student's analysis. Presentations will take place during our final 2 scheduled class sessions (**April 24th and 28th**).

¹ All page ranges or counts in parentheses apply to graduate students only. All page limits reflect double-spaced, 1" margins, and are exclusive of properly formatted references.



Instructor Feedback and Response Time

I am providing the following list to give you an idea of my intended availability throughout the course. Remember that you can call [614-688-4357 \(HELP\)](tel:614-688-4357) at any time if you have a technical problem.

- **Preferred contact method:** If you have a question, please contact me first through my Ohio State email address. I will reply to emails within **24 hours on days when class is in session at the university**.
- **Class announcements:** I will send all important class-wide messages through the Announcements tool in CarmenCanvas. Please check [your notification preferences](http://go.osu.edu/canvas-notifications) (go.osu.edu/canvas-notifications) to ensure you receive these messages.
- **Grading and feedback:** For assignments submitted before the due date, I will try to provide feedback and grades within **seven days**. Assignments submitted after the due date may have reduced feedback and grades may take longer to be posted.

Grading Scale

Grades are based on cumulative points for the various required activities in the class (participation, written assignments, and exams). Based on percent of total points, students will be assigned grades using the following ranges

93–100: A
 90–92.9: A-
 87–89.9: B+
 83–86.9: B
 80–82.9: B-
 77–79.9: C+
 73–76.9: C
 70–72.9: C-
 67–69.9: D+
 60–66.9: D
 Below 60: E



Other Class Policies

Extra Credit:

Extra Credit is not given. If you show significant improvement in course performance over the course of the semester, you will be given the benefit of the doubt if on the cutoff margins for the final grade. That is, if your first assignments were D or C level and later work is A or B level, I will assign greater weight to the later work if you are near a grade cutoff point.

Missing Class:

Do not miss class (if at all possible). **If you are unable to come to class, you must let me know in advance of the class period and have a good reason for missing class to be considered excused.** A good idea is to leave me a voice mail message or send me an email message before the start of the class period. If extreme emergencies prevent you from giving me advance notice of your absence, I must be informed of your reasons for missing class as soon as possible after the fact. If you miss a class without an excused absence, your class participation points (and final grade) will suffer.

Make Ups:

Only students who miss class with an excused absence are allowed to make up work. Missing deadlines for take home exams and written assignments without the advance approval of the instructor will not be tolerated and late exams and papers will dropped at least one full letter grade. Plan ahead accordingly.

Incompletes:

University policy states that incomplete grades are not to be given for poor performance in class, but only for exceptional circumstances. Do not ask for an incomplete if you simply failed to plan effectively to complete all course requirements. All incompletes **MUST** be cleared with me before the end of the last regular class period (April 21, 2020). All approved incompletes must be completed **WITHIN 10 WEEKS** of the end of the semester. You will be expected to sign a contract specifying the terms of the incomplete grade.

Questions about Grades

I will not discuss grades over the phone. Students have 10 days from posting of scores for an exam or assignment to review and make a case for the points they feel they should have received.

Classroom Civility

I expect your full attention when we meet in class. Differing viewpoints are encouraged, but personal attacks or disrespectful behavior will not be tolerated. Respect for all is expected, including: (a) treating everyone with civility, including listening without interrupting; (b) avoiding insulting terms and stereotypes when describing people; (c) attempting to understand other people's behavior; (d) critiquing ideas rather than the person holding them.

This is an upper division/graduate class, and I expect that you understand disruptions are not conducive to learning. Please avoid disruptive behaviors such as chatting with others, reading newspapers in class, playing around with electronic devices, etc. Cell phones need to be turned off at the beginning of class, and texting is strictly prohibited. I strongly prefer that you do not use a laptop for



taking notes; if you choose to do so, you will be expected to use your laptop only for class purposes, and will agree not to check email, surf the web, or otherwise disengage from classroom activities. Violations of this policy will result in the loss of laptop privileges. Coming to class late and leaving early are particularly distracting and should be avoided. Please do not leave class early unless you have made prior arrangements with me. If someone around you is being disruptive, please ask them, in a constructive way, to quit the distracting behavior.

Academic integrity and collaboration:

Academic integrity is essential to maintaining an environment that fosters excellence in teaching, research, and other educational and scholarly activities. Thus, The Ohio State University and the Committee on Academic Misconduct (COAM) expect that all students have read and understand the university's Code of Student Conduct (studentconduct.osu.edu), and that all students will complete all academic and scholarly assignments with fairness and honesty. Students must recognize that failure to follow the rules and guidelines established in the university's Code of Student Conduct and this syllabus may constitute "Academic Misconduct."

The Ohio State University's Code of Student Conduct (Section 3335-23-04) defines academic misconduct as: "Any activity that tends to compromise the academic integrity of the university or subvert the educational process." Examples of academic misconduct include (but are not limited to) plagiarism, collusion (unauthorized collaboration), copying the work of another student, and possession of unauthorized materials during an examination. Ignorance of the university's Code of Student Conduct is never considered an excuse for academic misconduct, so I recommend that you review the Code of Student Conduct and, specifically, the sections dealing with academic misconduct.

Acts of academic misconduct will not be tolerated in this class. Examples of academic misconduct include, but are not limited to, cases of plagiarism and dishonest practices in connection with examinations and class exercises. Plagiarism includes knowingly representing, by paraphrase or direct quotation, the published or unpublished work of another person as one's own in any academic exercise or activity without full and clear acknowledgement. It also includes the unacknowledged use of materials prepared by another person or agency engaged in the selling of term papers or other academic materials. See Code of Student Conduct: Rule 3335-31-02. This and other rules can be found in the Resource Guide for Students or in the back of the Student Telephone Directory. If you have a question about approaches and procedures that might constitute academic misconduct, see the instructor.

Individual effort is expected on all assignments. Although you may work together on your papers and take-home exams, under no circumstances should all or any part of the assignment be copied from or modeled directly on someone else's work. All assignments must be your own work and your own original words. If you are citing, quoting, or deriving some of your material from published sources, be sure to use appropriate citations and references. I will check major writing assignments for plagiarism.

If I suspect that a student has committed academic misconduct in this course, I am obligated by university rules to report my suspicions to the Committee on Academic Misconduct. If COAM determines that you have violated the university's Code of Student Conduct (i.e., committed academic misconduct), the sanctions for the misconduct could include a failing grade in this course and suspension or dismissal from the university. If you have any questions about the above policy or what constitutes academic misconduct in this course, please contact me.

Other sources of information on academic misconduct (integrity) to which you can refer include:

Committee on Academic Misconduct (go.osu.edu/coam)

Ten Suggestions for Preserving Academic Integrity (go.osu.edu/ten-suggestions)

Eight Cardinal Rules of Academic Integrity (go.osu.edu/cardinal-rules)



Zoom Etiquette:

Special circumstances may lead us to use Zoom for some class sessions. If we ever meet in Zoom sessions I ask you to use your real name and a clear photo of your face in your Carmen profile. During our full-group lecture time, you may turn your camera off if you choose, but I prefer to see you. When in breakout rooms or other small-group discussions, having cameras and mics on as often as possible will help you get the most out of activities. You are always welcome to use the free, Ohio State themed virtual backgrounds (www.osu.edu/downloads/zoom-backgrounds.html). Remember that Zoom and the Zoom chat are our classroom space where respectful interactions are expected.

Copyright for Instructional Materials

The materials used in connection with this course may be subject to copyright protection and are only for the use of students officially enrolled in the course for the educational purposes associated with the course. Copyright law must be considered before copying, retaining, or disseminating materials outside of the course.

Creating an Environment Free from Harassment, Discrimination, and Sexual Misconduct

The Ohio State University is committed to building and maintaining a community to reflect diversity and to improve opportunities for all. All Buckeyes have the right to be free from harassment, discrimination, and sexual misconduct. Ohio State does not discriminate on the basis of age, ancestry, color, disability, ethnicity, gender, gender identity or expression, genetic information, HIV/AIDS status, military status, national origin, pregnancy (childbirth, false pregnancy, termination of pregnancy, or recovery therefrom), race, religion, sex, sexual orientation, or protected veteran status, or any other bases under the law, in its activities, academic programs, admission, and employment. Members of the university community also have the right to be free from all forms of sexual misconduct: sexual harassment, sexual assault, relationship violence, stalking, and sexual exploitation.

Sexual harassment, sexual assault, domestic violence, and other forms of gender-based discrimination and misconduct on or off campus is wrong and cannot be tolerated. We all deserve to work and take classes in an environment of respect and free from coercion and exploitation. I pledge to listen and believe you if someone is threatening you and to work to change campus culture that responds poorly to dating violence and stalking. If you believe you have experienced (or have observed or been told about) instances of sexual misconduct, I urge you to use OSU's reporting system. To report harassment, discrimination, sexual misconduct, or retaliation and/or seek confidential and non-confidential resources and supportive measures, contact the Office of Institutional Equity:

1. Online reporting form at equity.osu.edu,
2. Call 614-247-5838 or TTY 614-688-8605,
3. Or Email equity@osu.edu



The university is committed to stopping sexual misconduct, preventing its recurrence, eliminating any hostile environment, and remedying its discriminatory effects. All university employees have reporting responsibilities to the Office of Institutional Equity to ensure the university can take appropriate action:

- All university employees, except those exempted by legal privilege of confidentiality or expressly identified as a confidential reporter, have an obligation to report incidents of sexual assault immediately.
- The following employees have an obligation to report all other forms of sexual misconduct as soon as practicable but at most within five workdays of becoming aware of such information: 1. Any human resource professional (HRP); 2. Anyone who supervises faculty, staff, students, or volunteers; 3. Chair/director; and 4. Faculty member."

This course adheres to The Principles of Community adopted by the College of Food, Agricultural, and Environmental Sciences. These principles are located on the Carmen site for this course; and can also be found at <https://go.osu.edu/principlesofcommunity>. For additional information on Diversity, Equity, and Inclusion in CFAES, contact the CFAES Office for Diversity, Equity, and Inclusion (<https://equityandinclusion.cfaes.ohio-state.edu/>). If you have been a victim of or a witness to a bias incident, you can report it online and anonymously (if you choose) at <https://studentlife.osu.edu/bias/report-a-bias-incident.aspx>.

Your Mental Health

As a student you may experience a range of issues that can cause barriers to learning, such as strained relationships, increased anxiety, alcohol/drug problems, feeling down, difficulty concentrating and/or lack of motivation. These mental health concerns or stressful events may lead to diminished academic performance or reduce a student's ability to participate in daily activities.

The Ohio State University's Student Life Counseling and Consultation Service (CCS) is here to support you. If you find yourself feeling isolated, anxious or overwhelmed, [on-demand mental health resources](https://go.osu.edu/ccsondemand) (go.osu.edu/ccsondemand) are available. You can reach an on-call counselor when CCS is closed at [614- 292-5766](tel:614-292-5766). **24-hour emergency help** is available through the [National Suicide Prevention Lifeline website](https://suicidepreventionlifeline.org) (suicidepreventionlifeline.org) or by calling [1-800-273-8255\(TALK\)](tel:1-800-273-8255). [The Ohio State Wellness app](https://go.osu.edu/wellnessapp) (go.osu.edu/wellnessapp) is also a great resource.

Religious Accommodations

Our inclusive environment allows for religious expression. Students requesting accommodations based on faith, religious or a spiritual belief system in regard to examinations, other academic requirements or absences, are required to provide the instructor with written notice of specific dates for which the student requests alternative accommodations at the earliest possible date. For more information about religious accommodations at Ohio State, visit odi.osu.edu/religious-accommodations.

Accessibility Accommodations for Students with Disabilities

Requesting Accommodations

The university strives to make all learning experiences as accessible as possible. If you anticipate or experience academic barriers based on your disability including mental health, chronic or temporary medical conditions, please let me know immediately so that we can privately discuss options. To establish reasonable accommodations, I may request that you register with [Student Life Disability Services \(SLDS\)](#). After registration, make arrangements with me as soon as possible to discuss your accommodations so that they may be implemented in a timely fashion. In light of the current pandemic, students seeking to request COVID-related accommodations may do so through the university's [request process](#), managed by Student Life Disability Services.

Disability Services Contact Information

- Phone: [614-292-3307](tel:614-292-3307)
- Website: slds.osu.edu
- Email: slds@osu.edu
- In person: [Baker Hall 098, 113 W. 12th Avenue](#)

Accessibility of Course Technology

This online course requires use of CarmenCanvas (Ohio State's learning management system) and other online communication and multimedia tools. If you need additional services to use these technologies, please request accommodations as early as possible.

- [CarmenCanvas accessibility](http://go.osu.edu/canvas-accessibility) (go.osu.edu/canvas-accessibility)
- Streaming audio and video
- [CarmenZoom accessibility](http://go.osu.edu/zoom-accessibility) (go.osu.edu/zoom-accessibility)



Course Schedule

Refer to the CarmenCanvas course for up-to-date due dates.

Detailed weekly list of readings and assignments (subject to revision)

Week 1

- M Jan 9 Introduction & Overview**
- Introductions
 - Review syllabus
- F Jan 13 Defining Sustainable Agriculture (24)**
- **BEFORE CLASS - EVERYONE READ:**
 - NRC 2010 – Ch1 “Understanding Agricultural Sustainability” – focus on page 15-29 (15 pgs). Available on CARMEN CANVAS and also on web at http://www.nap.edu/download.php?record_id=12832#
 - Take notes on reading, submit a quick comment/question, and be prepared to discuss details in class (and do this every session!)

Week 2

- M Jan 16 (NO CLASS – MLK Day Break)**
- F Jan 20 Sustainability Challenges in Food and Agriculture (32)**
- **READINGS:**
 - NRC 2010: “A Pivotal Time in Agriculture” from Toward Sustainable Agricultural Systems in the 21st Century; pp. 43-75 (32 pgs)
 - **PRIOR TO CLASS:** Find a report, website, blog post, or other resource that explores a sustainability issue or concern related to American agriculture. Track down the original sources for at least one major claim made in your selected post/report/resource.

Week 3

- M Jan 23 Environmental Sustainability Challenges (31)**
- **READINGS:**
 - IOM/NASS 2015: “Environmental Effects of the US Food System” pp 127-141 only (14 pgs)
 - Foley et al 2011: “Solutions for a cultivated planet.” (6 pgs)
- F Jan 27 Economic and Social Sustainability Challenges (19)**
- **READINGS:**
 - IOM/NASS 2015: “Social and Economic Effects of the US Food System” pp. 167-182 (15 pgs)
 - “An Overview of Farm Labor in the United States” (P. Martin and D. Jackson-Smith, 2013 (4 pgs)

Week 4



- M Jan 30 Approaches to Improving Sustainability (33)**
- **READINGS**
 - NRC 2010 Ch 3, pp. 83-85 only (3 pgs)
 - NRC 2010 Ch 9, pp 519-527 only (9 pgs)
 - Pretty 2008 "Agricultural Sustainability: Concepts, principles & evidence" (19 pgs)

- F Feb 3 Incremental Approaches to Improving Cropping Systems (29)**
- **READINGS**
 - NRC 2010, pp. 85-97 (13 pgs)
 - UCS 2013 Cover Crops (4 pgs)
 - UCS 2012 Rotating Crops (12 pgs)
 -

Week 5

- M Feb 6 Transformative Approaches: Cropping Systems (30)**
- **READINGS**
 - Kremen and Miles 2012, "Ecosystem Services in Biologically Diversified versus Conventional Farming Systems; Benefits, Externalities, and Tradeoffs." (17 pgs)
 - Hunt et al 2020. "Fossil Energy Use, Climate Change Impacts, and Air Quality-Related Human Health Damages of Conventional and Diversified Cropping Systems in Iowa, USA (13 pgs)

- F Feb 10 Livestock Systems (22)**
- **READINGS:**
 - Clay et al 2020: Dairy intensification: drivers, impacts and alternatives.
 - Watch: Sustainable Beef video:
https://www.youtube.com/watch?v=AJV_uimnr8&feature=youtu.be

Week 6

- M Feb 13 Livestock Systems (continued)**
- **READINGS:**
 - Tilman and Clark (2014) "Global diets link environmental sustainability and human health" (4 pgs)
 - Stoll-Kleemann and O'Riordan "The Sustainability Challenges of our Meat and Dairy Diets." (15 pgs)

- F Feb 17 No Class - Prospectus Due**
- **OPTIONAL:** Attend OEFFA conference – Newark OH

Week 7

- M Feb 20 Reintegrating Crop-Livestock Systems (14)**
- **READINGS:**
 - Garrett et al 2017 "Social and ecological analysis of commercial integrated crop livestock systems: current knowledge and remaining uncertainty." (10 pgs)



- Watch video: <https://www.youtube.com/watch?v=Qt3qOV7AxWk>

F Feb 24

Organic Farming Systems (53)

- **READINGS:**
 - Fess and Benedito 2018 “Organic versus Conventional Cropping Sustainability: A Comparative System Analysis”
 - Meemken and Qaim 2018 “Organic Agriculture, Food Security and the Environment”

Week 8

M Feb 27

Organic Farming Systems – Social and Economic Dimensions (29)

- **READINGS**
 - Guthman Ch3 “Organic Farming: Ideal Practices and Practical Ideals” pp. 42-60 (19 pgs)
 - Shreck et al 2006 “Social sustainability, farm labor, and organic agriculture: Findings from an exploratory analysis.” (10 pgs)
- **Hand out Midterm**

F March 3 No Class – Work on Midterm

- Zoom office hours 12:40-1:30 to handle any questions about midterm

Week 9

M March 6

FOOD SYSTEMS INTRO

- **MidTerm Due**
- No assigned readings

F March 10

FOOD SYSTEM SUSTAINABILITY (44)

- **READINGS:**
 - IOM/NAS 2015 “Overview of the US Food System” (pp. 31-75)

Week 10 NO CLASSES (SPRING BREAK WEEK)



Week 11

- M March 20 FOOD SYSTEM OUTCOMES – HEALTH (32)**
- READINGS
 - IOM/NAS 2015 “Health Effects of the US Food System” (pp. 85-117) – 32 pgs
- F March 24 FOOD SYSTEM OUTCOMES – SOCIO-ECONOMICS (28)**
- READINGS
 - IOM/NAS 2015 “Social and Economic Effects of the US Food System” (pp 182-210 only – 28 pgs).

Week 12

- M March 27 LOCAL AND COMMUNITY FOOD SYSTEMS (27)**
- READINGS
 - McBride 2009 “Exploring common ground: community food systems and social sustainability.” (17 pgs)
 - Hinrichs 2000 “Embeddedness and local food systems” pp 295-303 (7 pgs)
 - Patel 2017 – Food Sovereignty Introduction (3 pgs)
- F March 31 NO CLASS**
- **DRAFT PAPER DUE** (11 pm)

Week 13

- M April 3 DRIVERS OF CHANGE: What moves us Toward Sustainability?**
- READINGS
 - Reganold et al. 2011 “Transforming US Agriculture” (2 pgs)
 - NRC 2010: “Drivers and Constraints Affecting Transition to Sustainable Farming Practices” pp 271-291 (20 pgs)
- F April 7 FIELD TRIP**



Week 14

- M April 10 DRIVERS OF CHANGE: – VALUES, BEHAVIOR & MARKETS (37)**
- READINGS
 - Carlisle 2016 “Factors influencing farmer adoption of soil health practices in the United States: a narrative review.” (28 pgs)
 - Bowman and Zilberman 2013 “Economic factors affecting diversified farming systems.” (9 pgs)
- F April 14 DRIVERS OF CHANGE – POLICY (62)**
- READINGS
 - NRC 2010: “Drivers and Constraints Affecting Transition to Sustainable Farming Practices” (pp 291-336)
 - Iles & Marsh 2012: “Nurturing Diversified Farming Systems in Industrialized Countries: How Public Policy Can Contribute.” (17 pgs)

Week 15

- M April 17 DRIVERS OF CHANGE – COVER CROP CASE STUDY**
- READINGS
 - Wicks and Brasher 2021 – Agri-Pulse special series (47 pages)
 - **Paper Drafts Returned**
- F April 21** *(no class; available for zoom consultations)
work on paper revisions & presentations*

Week 16

- M April 24 CLASS PRESENTATIONS of final papers = ZOOM**
- F April 28 CLASS PRESENTATIONS of final papers = ZOOM**

Week 17

- T May 2 Final papers due (Course Exam Day) - NOON**

