Instructor: Dr. Douglas Jackson-Smith
Contact Information: jackson-smith.1@osu.edu, office phone: 330-202-3540
Classroom/time: Kottman 245; W 12:40-1:35 and F 12:40 – 2:30 pm
Office Hours: W 1:45-2:30 and F 11:00-12:00 (Kottman 469A) or by appointment

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.

Objectives
- 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 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.

Expectations and Goals
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.
Texts:

REQUIRED TEXTS:


SUPPLEMENTAL READINGS – Numerous reports and peer-reviewed journal articles will posted on our course Carmen Canvas site to supplement readings from the core texts.

**All students will be expected read everything that is listed in the syllabus below.** 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.

Electronic Messaging

I will be posting announcements, hints, and reminders about this course to students on our CARMEN CANVAS website on a regular basis. PLEASE BE SURE YOU CHECK IT 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.

Expectations

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.**

Class sessions will take a seminar format, with guided group discussions of the materials and other experiences related to the class. I will periodically use brief lectures to provide additional background material and supplement what you are reading.

We will use Friday classes for both in-classroom activities and off-campus field trips. Ideally, we can find some Fridays when all students’ schedules allow us to extend the allotted course time beyond the scheduled ~2 hours to allow us to do one or more extended field trips to area farms and food system actors.
Course Requirements and Grading

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 in order 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 (20%) – 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.

Field Trip Reflections & Small Assignments (10%) – details to be determined over course of semester

Midterm (30%)

A take home midterm exam will be conducted before spring break (tentatively due March 4) 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. A list of possible topics is included below, but additional topics are possible with the consent of the instructor. The project will have several steps:

1) An outline and brief prospectus of the report will be due February 20. I will review this prospectus with you before you start writing. This prospectus is worth 5% of your grade.

2) A full draft of the paper/report is due by April 8th. 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 15% of your grade.

3) The final paper/report is due no later than 1 pm on April 24th. 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 20% of your 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 scheduled class session (April 17th).

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.
CONTROVERSIAL TOPICS IN AG & FOOD SUSTAINABILITY

A. Can genetically modified crops improve sustainability?
B. Are biofuels an example of sustainable agriculture?
C. Is there a conflict between food security & sustainable agriculture?
D. In what ways does ‘sustainable’ seafood meet the definition of sustainable agriculture?
E. Are pasture-raised beef or dairy cows more sustainable than those raised in confinement systems?
F. Does eating less meat improve sustainability?
G. Is eating more local food more sustainable?
H. Do US-based sustainable agricultural system work in Africa? (and vice versa)?
I. Other topics – propose and get instructor’s approval in advance!
Detailed weekly list of readings and assignments (subject to revision)

Week 1

W  Jan 8  Introduction & Overview
• NO CLASS MEETING
• Review syllabus on Carmen
• Submit a written definition for two terms:
  o Sustainable
  o Sustainable Agriculture

F  Jan 10  Defining Sustainable Agriculture (24)
• BEFORE CLASS - EVERYONE READ:
  o NRC 2010 – Ch1 “Understanding Agricultural Sustainability” –
    focus on page 15-29 (15 pgs) on CANVAS and also on web at
    http://www.nap.edu/download.php?record_id=12832#
  o Take notes on reading and be prepared to discuss details in class
    (and do this every session!)
• Bring 1 concrete example of “sustainable agriculture” and be prepared to
  share with the class

Week 2

W  Jan 15  Sustainability Challenges in Agriculture (32)
• READINGS:
  o NRC 2010: “A Pivotal Time in Agriculture” from Toward
    Sustainable Agricultural Systems in the 21st Century; pp. 43-75 (32
    pgs)

F  Jan 17  Environmental Sustainability Challenges (20)
• READINGS:
  o IOM/NASS 2015: “Environmental Effects of the US Food System”
    pp 127-141 only (14 pgs)
  o Foley et al 2011: “Solutions for a cultivated planet.” (6 pgs)
• PRIOR TO CLASS: (5 volunteers)
  o Pick one type of environmental impact from the readings
  o Find more info on this topic using your internet research skills
  o Be prepared to give a short 5 minute presentation to the class and
    then answer questions on how well contemporary US agriculture
    achieves environmental sustainability for this particular indicator.
• ACTIVITIES
  o First hour: review readings
  o Second hour: brief presentations on environmental effects (n=5)
Week 3

**W Jan 22 Economic and Social Sustainability Challenges (19)**
- **READINGS**

**F Jan 24 Approaches to Improving Sustainability (33)**
- **READINGS**
  - Pretty 2008 “Agricultural Sustainability: Concepts, principles & evidence” (19 pgs)
  - NRC 2010 Ch 9, pp 519-527 only (9 pgs)
  - NRC 2010: Ch3, pp. 83-85 (3 pgs)
  - NRC 2010: Ch 5, pp. 221-222 (2 pgs)
- **ACTIVITIES**
  - Continue discussion of Social and Economic Effects
  - Discuss spectrum of approaches to improving sustainability of US agricultural production

Week 4

**W Jan 29 Cropping Systems (29)**
- **READINGS**
  - NRC 2010, pp. 85-97 (13 pgs)
  - UCS 2013 Cover Crops (4 pgs)
  - UCS 2012 Rotating Crops (12 pgs)

**F Jan 31 Cropping Systems – Continued (25)**
- **READINGS**
  - Kremen and Miles 2012, “Ecosystem Services in Biologically Diversified versus Conventional Farming Systems; Benefits, Externalities, and Tradeoffs.” (17 pgs)
  - Davis et al 2012 “Increasing Cropping System Diversity Balances Productivity, Profitability, and Environmental Health. (8 pgs)
- **ACTIVITIES**
  - Discuss Readings
  - TBA
Week 5

W Feb 5  NO CLASS
• Work on Prospectus
• Watch: Sustainable Beef video:
  https://www.youtube.com/watch?v=AJV_uimirnr8&feature=youtu.be

F Feb 7  Livestock Systems (37)
• READINGS:
  o Powell, Russelle and Martin 2010 “Trends in the Dairy Industry and their implications for producers and the environment.” (22 pgs)
  o Tilman and Clark (2014) “Global diets link environmental sustainability and human health” (4 pgs)
  o Stoll-Kleemann and O’Riordan “The Sustainability Challenges of our Meat and Dairy Diets.” (15 pgs)
• ACTIVITIES
  o Lecture/Discussion of livestock system sustainability issues
  o Discuss prospecti

Week 6

W Feb 12  Livestock Systems (continued)
• Prospectus Due
• No reading – but we will discuss livestock issues

F Feb 14  Reintegrating Crop-Livestock Systems (14)
• READINGS:
  o Garrett et al 2017 “Social and ecological analysis of commercial integrated crop livestock systems: current knowledge and remaining uncertainty.” (10 pgs)
  o Leibig et al 2017 “Aligning Land Use with Land Potential: The Role of Integrated Agriculture.” (4 pgs)
Week 7

W Feb 19 Organic Farming Systems (24)
• READINGS:
  o NRC 2010: Ch 5: Examples of Farming System Types for Improving Sustainability; pp 221-233 only
  o Reganold and Wachter 2016 “Organic Agriculture in the 21st Century” (8 pgs)
  o Bergstrom and Kirschmann 2016 “Are the claimed benefits of organic agriculture justified?” (2 pgs)
  o Reganold and Wachter 2016 “Reply to B&K” (2 pgs)

F Feb 21 Organic Farming Systems – Environmental Dimensions (54)
• READINGS
  o Lorenz and Lal 2016 “Environmental Impact of Organic Farming” (54 pgs)
• ACTIVITIES
  o DEBATE: Organic = Sustainable or Not?

Week 8

W Feb 26 Organic Farming Systems – Social and Economic Dimensions (29)
• READINGS
  o Guthman Ch3 “Organic Farming: Ideal Practices and Practical Ideals” pp. 42-60 (19 pgs)
  o Shreck et al 2006 “Social sustainability, farm labor, and organic agriculture: Findings from an exploratory analysis.” (10 pgs)
• Hand out Mid-term

F Feb 28 No Class -- WORK ON MIDTERM EXAM

Week 9

W March 4 Mid-Term Due
• No assigned readings

F March 6 FOOD SYSTEM SUSTAINABILITY (44)
• READINGS:
  o IOM/NAS 2015 “Overview of the US Food System” (pp. 31-75)

(Spring Break Week)

W March 11 NO CLASS – SPRING BREAK
F March 13 NO CLASS – SPRING BREAK
Week 10

W March 18  FOOD SYSTEM OUTCOMES – HEALTH & SOCIO-ECONOMICS (32)
  • READINGS
    o IOM/NAS 2015 “Health Effects of the US Food System” (pp. 85-117) – 32 pgs

F March 20  FOOD SYSTEM OUTCOMES – HEALTH & SOCIO-ECONOMICS (28)
  • READINGS
    o IOM/NAS 2015 "Social and Economic Effects of the US Food System" (pp 182-210 only – 28 pgs).

Week 11

W March 25  LOCAL AND COMMUNITY FOOD SYSTEMS (27)
  • READINGS
    o McBride 2009 “Exploring common ground: community food systems and social sustainability.” (17 pgs)
    o Hinrichs 2000 “Embeddedness and local food systems” pp 295-303 (7 pgs)
    o Patel 2017 – Food Sovereignty Introduction (3 pgs)

F March 27  FIELD TRIP 1 - FARMS

Week 12

W April 1  DRIVERS OF CHANGE: What Moves Us Toward Sustainability? (22)
  • READINGS
    o Reganold et al. 2011 “Transforming US Agriculture” (2 pgs)
    o NRC 2010: “Drivers and Constraints Affecting Transition to Sustainable Farming Practices” pp 271-291 (20 pgs)

F April 3  FIELD TRIP 2 – FOOD SYSTEM

Week 13

W April 8  DRIVERS OF CHANGE
  • DRAFT REPORT/PAPER DUE
  • No Assigned Readings

F April 10  DRIVERS OF CHANGE: – VALUES, BEHAVIOR & MARKETS (37)
  • READINGS
    o Bowman and Zilberman 2013 “Economic factors affecting diversified farming systems.” (9 pgs)
Week 14

W  April 15  **Paper Drafts Returned**
**DRIVERS OF CHANGE – POLICY (62)**
- READ
  - NRC 2010: “Drivers and Constraints Affecting Transition to Sustainable Farming Practices” (pp 291-336)
- ACTIVITIES
  - Discuss pros and cons of market-driven approaches
  - Review policy options

F  April 17  **CLASS PRESENTATIONS of final papers**

F  April 24  **EXAM WEEK - final reports/papers due**
Grading:

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:

\[
\begin{align*}
93-100 \% & = A \\
87-89.9 \% & = B+ \\
83-86.9 \% & = B \\
77-79.9 \% & = C+ \\
67-69.9 \% & = D+ \\
Under 60 \% & = F
\end{align*}
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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 in 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 17, 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.

Students with Disabilities

Any student who feels they may need an accommodation based on the impact of a disability will need to register with the OSU Office of Disability Services (ODS) and reach out to the instructor individually to discuss specific needs and accommodations. Students are responsible for proactive communication regarding these accommodations and retroactive accommodations may not be possible. ODS is located in
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 Dishonesty

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.

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.

Students who participate in academically dishonest activities – cheating on exams, copying other students’ work, plagiarizing work from other published work or the internet, etc. -- will be severely punished. Penalties include warning or reprimand, grade adjustment, or other penalties imposed at the Dean’s discretion, including probation, suspension, expulsion, withholding of transcripts, denial or revocation of degrees, referral to psychological counseling, and other appropriate disciplinary actions.

Title IX – Statement

Title IX makes it clear that violence and harassment based on sex and gender are Civil Rights offenses subject to the same kinds of accountability and the same kinds of support applied to offenses against other protected categories (e.g., race). If you or someone you know has been sexually harassed or assaulted, you may find the appropriate resources at http://titleix.osu.edu or by contacting the Ohio State Title IX Coordinator, Kellie Brennan, at titleix@osu.edu”