

Welcome to 471

Dairy Science and Agronomy 471 Food Production Systems and Sustainability



This syllabus answers many questions you may have about this course including:

General Info | Learning Outcomes | Course Organization | Teaching Method | My Roles as an Instructor | Your Roles as students | Assignment & Grades | Covid-Related Absence | Academic Integrity |

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TA	Morgan Conaway (mconawaybaum@wisc.edu), Tracy Campbell (tacampbell@wisc.edu), and Amanda Lewis (allewis@wisc.edu)
Office Hours	By appointment or after each class period
Location	Room 3250 College Library (Helen C. White Bldg)
Day/Time	Tuesdays and Thursdays 4:00-5:15 pm
Requisite	(Graduate/professional standing) or junior standing and satisfied Quantitative Reasoning (QR) B requirement
Official Course Description	Delves into aspects of natural sciences (biology and agricultural sciences) and social sciences underpinning the assessment of food production systems as related to a variety of outcomes including but not restricted to human and environmental health, air and water quality, greenhouse gases emission, land use, economic opportunity, social justice, as well as mitigation and adaptation to climate change, locally, regionally, domestically, across continents, and globally
Additional Information	This course partially fulfills the course requirement of the Food System Certificate . (CALS) and the Sustainability Certificate (Nelson Institute for Environmental Studies), and the CALS three credits of International Studies. The course is also listed in the category E: Applied Biology, Agriculture and Natural Resources of the Biology Major as well as in the list of electives for the Global Health Certificate . This course contributes also to your eligibility to participated in a two-week Field Study Program in Mexico . (i.e., This course is one of the alternative prerequisites for the international field program.)

Learning Outcomes

Overarching objective: Students will develop the skills to critically evaluate food production systems as they relate to sustainability and climate change using recent findings from biological, environmental, and social sciences.

Theme 1 (Tuesday Classes): Through reading and discussion of core research in food systems and climate change during theme 1, students will:

1. Explain the social, economic, and/or environmental dimension of sustainability challenges associated with food production systems (See Figure 1)
2. Critically evaluate the quality of scientific literature and other sources of information related to the sustainability of food systems.

By the end of Part 1, Students will have a good understanding of the relationships among "food," Production Systems," and "Sustainability" as illustrates in the Figure. More importantly, students will be prepared to identify and address mitigation and adaptation issues of the diverse food production systems in different parts of the world and how they may relate to one another.

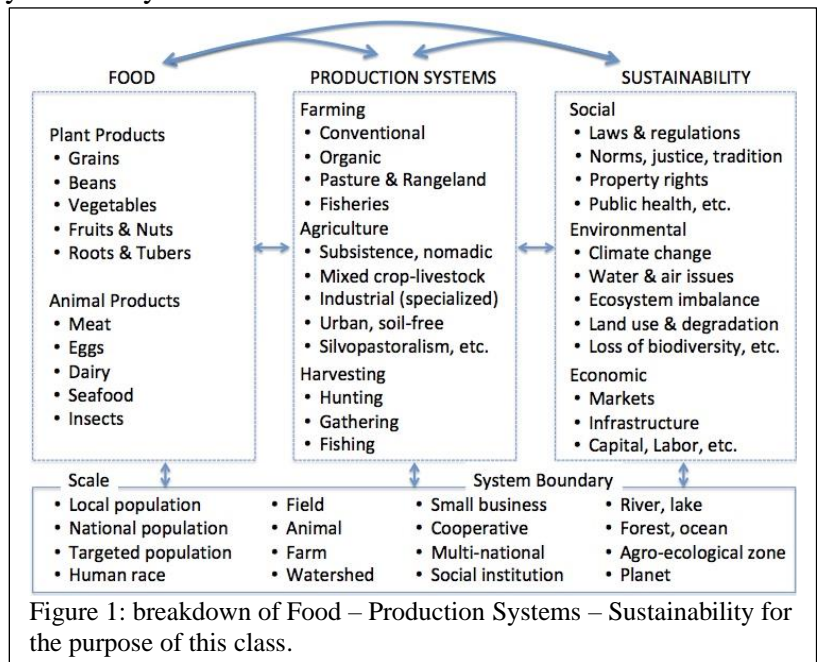


Figure 1: breakdown of Food – Production Systems – Sustainability for the purpose of this class.

Theme 2 (Thursday Classes):

Through team projects, students will develop their capacity to:

3. Analyze the causes of, and solutions for, the sustainability concerns related to food production, distribution, marketing, consumption, and waste disposal.
4. Develop analytical and problem-solving skills individually and in teams of classmates with diverse worldviews.
5. Communicate effectively information to multiple audiences through multiple medias.

Additionally it is expected that Graduate Students will:

6. Develop leadership skills working in mixed teams including undergraduate students.
7. Improve their research and writing skills to create academically rigorous literature reviews.

Course Organization

The course is divided in two main parts. Part 1, the Tuesday class periods will engage you in reading and discussing recent research on food systems, sustainability and climate change. As an

instructor, I have designed part 1 of the course as an inter-disciplinary approach to studying farming systems with an emphasis on dairy and other animal source foods (ASF) for humans. What we will do in part 1 is meant in part to be a model for you to follow in developing your own project in part 2 of the course (Thursday class periods). As indicated in Figure 2, the two parts of the course are not sequential, but rather will occur in parallel.

Tuesday Class Periods: The teaching method used in the Tuesday classes emphasizes **ACTIVE** participation of students before, during and after class. This section of the course is based primarily on pre-assigned readings followed by in-class discussion of the reading. The in-class time will include a variety of learning activities (case studies, group discussion, etc.). PowerPoint presentations will be used sparingly only to clarify key concepts as needed. The work you do before and after class: reading the articles, completing the pre-class quiz (restricted to the content of the reading) or addressing the discussion posts, and doing other homework (described below) is essential for you to do well in this class (i.e., earn good grades).

Thursday Class Periods: Concurrent to the development of knowledge through readings and discussions, students will learn and practice hands-on skills (e.g., library database search), inter-personal communication skills (e.g., teamwork), as well as oral and written communication skills while working on their team project (Thursday class periods).

The team project will focus on the sustainability of a specific food, a specific aspect of a food production system, and/or compare the climate implications of at distinct food production, processing, or marketing approaches. There are two main products expected from the team project at the end of the semester: a “peer-review style” paper and a project webpage. It is up to team members to decide how to divide tasks.

The team project has three-phases: a set-up phase, a initial presentation phase and a final presentation and discussion phase (Figures 2 and 3). In the **step-up phase** students will explore

WK	PD	DAY	DATE	TUESDAYS IN-CLASS DISCUSSION OF READING	THURSDAYS TEAM PROJECTS
1	1	T	1/25/22	MODULE I: SEETING THE STAGE 1/25/22	STEP I: PROJECT SET UP 1/27/21
	2	R	1/27/21		
2	3	T	2/1/22	2/1/22	2/3/22
	4	R	2/3/22		
				MODULE II: FOOD / ENVIRONMENT / HEALTH	
3	5	T	2/8/22	2/8/22	2/10/22
	6	R	2/10/22		
4	7	T	2/15/22	2/15/22	2/17/22
	8	R	2/17/22		
5	9	T	2/22/22	2/22/22	2/24/22
	10	R	2/24/22		
6	11	T	3/1/22	3/1/22	STEP II: INITIAL PRESENTATIONS 3/3/22
	12	R	3/3/22		
				MODULE III: SOCIO-ECONOMIC / POLICY ASPECTS	
7	13	T	3/8/22	3/8/22	3/10/22
	14	R	3/10/22		
		T	3/15/22	SPRING BREAK	03/14 Initial paper due
		R	3/17/22		SPRING BREAK
8	15	T	3/22/22	3/22/22	3/24 Web page /paper
	16	R	3/24/22		
9	17	T	3/29/22	3/29/22	3/31 web page / paper
	18	R	3/31/22		
10	19	T	4/5/22	4/5/22	
				MODULE IV: BIOLOGICAL (NATURAL SCIENCE) ASPECTS	
	20	R	4/7/22	4/12/22	4/7 web page / paper / poster web page due Saturday 4/9 11:00 pm
11	21	T	4/12/22		
	22	R	4/14/22	4/19/22	4/14 poster / paper
12	23	T	4/19/22		
	24	R	4/21/22	4/26/22	4/21 poster / paper
13	25	T	4/26/22		
	26	R	4/28/22		STEP III: 471 CLASS SYMPOSIUM 4/28 presentation of 10 posters
				MODULE V: FOOD SYSTEMS & SUST. DEVELOPMENT GOALS	
14	27	T	5/3/22	5/3/22	5/5 presentation of 10 posters
	28	R	5/5/22		

Figure 2: Overall course organization **UPDATED 03/24**

ideas for projects. As a first attempt to frame your project idea, you may want to pick one item from the “Food” category, one item from the “Production System” category, and one item from the “scale / System Boundaries” category in Figure 1. Teams will be formed based on students’ common interests. In the **preliminary presentation phase** students will be exploring how to tackle the project and begin exploring available resources to gather preliminary information. Each team will share with their classmates their project ideas and progress to date (power presentation is suggested). In the **final presentation and discussion phase**, students will move their projects along using the feedback of the preliminary presentations. For the final presentation / discussion, teams are expected to engage their classmates in their project topic using the teaching method described above for the Tuesday classes. The reading that will be assigned to the class will be the peer-review style paper (and/or the website) that the team will have produced as a result of a collective effort.

March 24th Revision:

To avoid a crunch of “too many” deliverables at the end of the semester, we are revising expectations as follows (see also Figure 2, Figure 3 and grades Table below):

- a) Initial and final webpage will be combined into a single deliverable due April 9, 11:00 pm
- b) In-class final presentation and discussion (which was planned on starting Thursday April 14 and last until the last Thursday of class) will be replaced with a “471 CLASS SYMPOSIUM” taking place the last two Thursdays of the semester (04/28 & 05/05). In each of these two dates 10 teams will be presenting their poster to the class and the non-presenting teams will be assigned to conduct an in-depth evaluation of two or three posters.

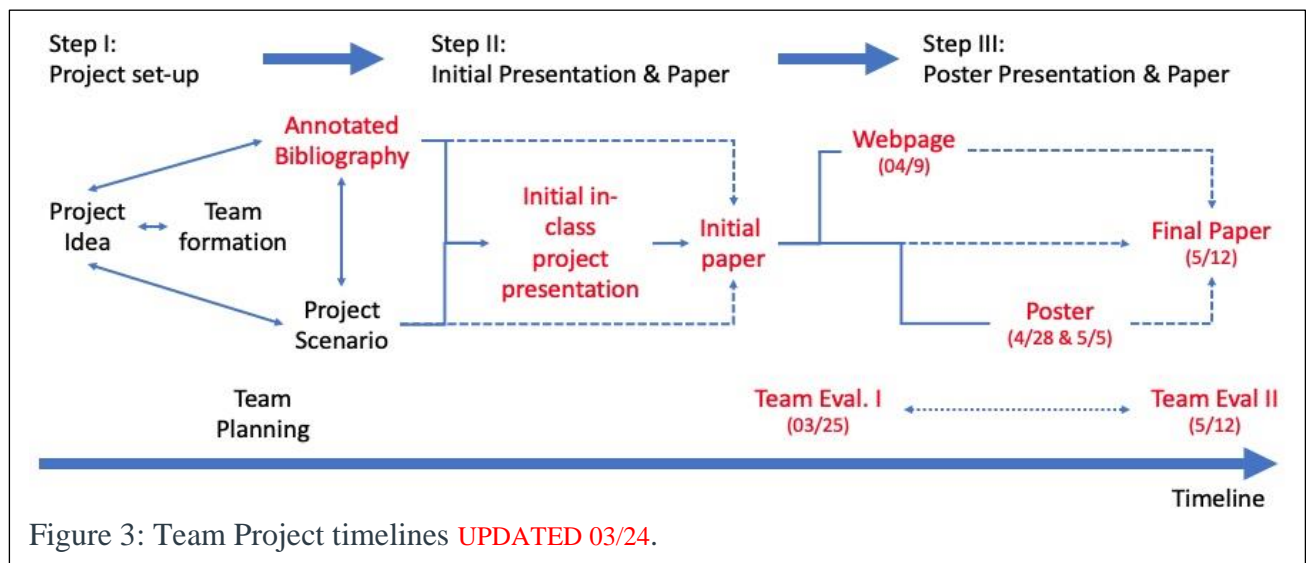


Figure 3: Team Project timelines **UPDATED 03/24**.

My Roles as an Instructor:

My goal is to help you learn (and as a result help you get good grades). The variety of instruction strategies used for the course will help you acquire knowledge *that makes sense to you*, interpersonal communication skills (in-class and out-of-class), and critical thinking skills. I

will strive to accommodate for the variety of interests that each student brings to class, but to do so, we need to hear from you! Do not be afraid to set a time to visit with us if you have any concerns. In other words, we want this course to be of interest to each one of you. We hope this class will motivate you to expand your interest in sustainability, food systems, and climate change. My roles include:

- To define the course topics and relative importance of various subject matters,
- To provide you with the information and resources you need to learn,
- To facilitate class activities designed to foster deep thinking and critical analysis,
- To communicate with you in a way that facilitates your learning,
- To set the level of expectations and evaluate your progress and your work.

Your Roles as a Student:

As a student, you are expected to take an active role in your own learning. Please review the lecture material or complete the reading assignment *before class*. The ways you can be proactive and do well in this class include:

- *Be prepared for class:* Allocate enough time to read the papers carefully *before class*. Think of the reading and homework assignments as a way of helping yourself find out what you know and what you don't know or don't fully understand. For making sense of the course material, you must continually question yourself, your teammates, your classmates, and your instructor.
- *Complete the quiz or address the pre-class discussion prompt before each Tuesday class.* These assignments are designed to help guide your understanding of key course materials and concepts, as well as help the instructional team prepare class activities that addresses your concerns.
- *Be an active participant in class:* Active participation in class means **listening, thinking, taking notes, and asking questions**. There are (almost) no stupid questions in this class. As long as you have a genuine interest in learning the subject matter, all questions will be valid questions! Be honest with yourself and you will find out what your current level of knowledge really is, and what your misunderstandings might be.
- *Reflect on what happened in the class afterward:* To help you "capture" what you have learned during our class activities, we encourage you to keep your own journal, focusing on your very own "bottom-line" and "take-home" messages.
- *Practice your teamwork skills:* Note in Figure 3 (above) that the team project includes the completion of two parts "course planning and evaluation" form. This form will help you with team management but will also help you evaluate each other on your contribution to the efforts. This form will be used to adjust the team assignment grade for each team member. This team project is an opportunity to practice being accountable to yourself and your teammates!

Assignments and Grades:

Below is a brief explanation of the grade assignments of the class and a description of how grades will be assigned.

1. Pre-Class Quiz: Every other reading (Tuesday class) the quiz will be your way to demonstrate that you have familiarized yourself with the reading and are prepared to engage in in-class discussion. The quiz questions are limited to the content of the reading. You will be allowed two attempts at each quiz. Missing a quiz deadline will automatically result in a score of 0. However, the end of semester quiz grade will be calculated by averaging the score of every attempt after removing your two lowest scores.

2. Pre-Class Prompts: On alternative Tuesdays, instead of a quiz you will be asked to address discussion prompts (questions). These are thought-provoking questions that will be used to help engage the students during the in-class discussion activities. Response to prompts are graded on a 3 pt. system, in ¼ pt. increments. Pre class discussion prompts will be graded using the following rubric:

Criterion	Description
On-time and complete	Turned in by 1pm on class date, ~5-7 sentences (bulleted lists or other media are acceptable in responses as well).
Shows critical thinking	Thoughtful comments with probing thoughts/questions (why or how).
Clear, concise writing	Logical, organized, clear writing style with few grammatical errors.

3. Peer Feedback (initial presentation): On the day that your classmates will be presenting their initial project presentation, you will be asked to provide them with constructive feedback, ideas, and suggestions for how they might consider moving their project forward.

4. Peer Evaluation (final presentation & discussion): On the day that your classmates will be presenting and engage the class in a discussion of the final version of their project, you will be asked to provide a quantitative and qualitative evaluation of the strengths and weaknesses.

Note about “deadline” for quizzes and prompts

Quizzes and prompts to which you will be assigned on an alternative week basis have a deadline (1:00 pm the day for the class). These quizzes and prompts are designed to guide your reading of the articles before we discuss them starting at 4:00 pm later that day. We are planning to make the readings, the quizzes, and the prompts available as early as possible before our Tuesday classes so every student has ample time to prepare for class. A weekly canvas announcement will be released on Friday evening (or Monday morning) as a reminder to everyone about the reading, the prompts and the quiz that we expect everyone to have completed by 1:00 pm on Tuesday. This approach gives every student in the class either 1.5 day (if the announcement is sent on Monday morning) or approximately 4 days (if the announcement is sent on Friday) to complete the reading, the quiz or the prompts.

5. Engagement: Engagement will be graded based on the *student's completion of formative assessment tools (i.e., ungraded class survey or questionnaire) and their regular class attendance. We will monitor attendance throughout the semester. If a student misses class and does not complete a make-up assignment (see Absence policy below), points will be deducted from this category. Absences will not be excused unless pre-arranged. ~~The grading for Engagement is as follows: 0-2 unexcused absences = 5 pt if all surveys are completed, 3-4 unexcused absences = 2.5 pt if all surveys are completed, 5+ unexcused absences = ineligible to participate in class surveys other than AEFIS, 0 pt. Partial credit will be awarded corresponding to partial completion of surveys.~~*

The grade for engagement will be allocated based on the following criteria and points:

- *Completion of mid-semester course survey (not including AEFIS) (1 pt)*
- *Completion of mid-project self-and-teammate(s) evaluation (1 pt)*
- *Completion of end-of-semester course survey (1 pt)*
- *Completion of end-of-project self-and-teammate(s) evaluation (1 pt)*
- *Class attendance: Less or equal to 2 unexcused absences = 1 pt; 3 or more unexcused absence = 0 pt.*

6. Annotated Bibliography: After being match with teammate(s) with common interests. One of the first assignment of your team will be to search the library databases to identify peer-reviewed (scientific) articles that address the topic you have in mind. This assignment may help you narrow down your topic and (or) give you ideas to re-orient your project toward something more doable and more “realistic” to accomplish. Peer-reviewed publications are needed to establish the credibility of your work.

7. Initial team-led class presentation: These goal of these “initial” in-class team presentations is (a) for your team to come together sill “early” in the process of constructing your project, (b) to share your ideas with the rest of the class and (c) get feedback, ideas and suggestions from classmates to move your project into its final phase. For this initial presentation a power point presentation would be fine. It does not have to be fancy but rather effective in communicating “where you think you are and where you want to go with your project to the rest of the class.

8. Initial peer-review style paper: Your team will produce a peer-review style article summarizing the team project, modeled after a respected peer-reviewed journal. We expect graduate students to take the leadership, but surely undergraduate could and should contribute to this effort. A peer-review paper typically comprises an introduction, a section describing the “materials and methods”, another section for “Results and Discussion”, and a final “conclusion” section that the main outcomes of the study in relation to the original objectives or hypothesis that that the scientists had when they started to work on their project. Indeed one of the goals of this team project is to make you think and act as a scientist! You should think of the audience for the peer-review style paper as a group of highly educated individuals to whom you need to convey the “latest” scientific discoveries.

9. Initial webpage: As part of your group project, you and your team will develop your own web page in order to share what you have learned with the broader public. Knowing and practicing

how to create webpages is an important 21st century skill. Our goal here is to provide you with the opportunity to build a webpage to communicate to a non-scientific audience who, nevertheless, needs to be educated about the findings and implications of your work. **The writing should not be as “scientific” as it should be “journalistic”**, think of your audience as the reader of the Science section of ~~Wall Street Journal~~ or The New York Times. **Use “lay-person language but convey the science to an audience of critical thinkers.**

10. Final team-led class presentation & discussion: The main objective of your final presentation and discussion differs from the goal of the initial presentation. At this stage we want you to share the advanced-draft of your paper to be used as pre-class reading assignments. During class you will implement a lesson plan that you will develop using ideas of lesson plans that we have used all along in our Tuesday classes to actively engage and draw your classmates in the “story” of your project.

11. Final peer-review style paper: This is the revised and expanded version of the initial paper properly formatted with proper citations (as if you were to submit it for publication in a scientific journal).

~~**12. Final webpage:** This is the revised and expanded version of the initial webpage properly formatted with proper citations (as if you were to submit it to the editor of the Wall Street Journal or The New York Times.)~~

12. Poster Presentation: The last two Thursday of the class will be dedicated to the presentation and evaluation of posters, as we were attending a scientific symposium on Food Production Systems and Sustainability”.

13. Team grade adjustment: At the beginning of the project team members will jointly make an initial plan (identify major steps, allocate tasks, set deadlines, etc.) for their respective contribution to the expected deliverables (part I of the “Team Planning and Evaluation” form illustrated in Figure 3). **About halfway through the project and** at the end of the project, each student will then complete a self-evaluation along with an evaluation of team members for their actual contribution in relation to the initial plan (part II of the “Team Planning and Evaluation” form to be completed individually). Adjustment points will be -2, -1, 0 (no adjustment, everyone in the team has the same grade), +1 or +2. The sum of your adjustment points will have to equal zero. In other words, if you give someone positive point(s) you will have to give someone else negative point(s).

Grades

Item	Due date	Undergr.	Grad.
Individual Graded Items			
1. Pre-class quizzes	1:00 pm T	20	10
2. Pre-class prompts	1:00 pm T	10	10
3. Peer feedback (initial presentations)	End of class, the day of	5	5

4. Peer evaluation (final pres. & disc.)	<i>End of class, the day of</i>	5	5
5. Engagement (Attendance & surveys)	<i>TBA</i>	5	5
Sub-total		45	35
Team Project Graded Item			
6. Annotated bibliography and outline	<i>11:00 pm Thur. 2/24</i>	5	5
7. Initial team-led class presentation	<i>03/03 & 03/10</i>	5	5
8. Initial peer-review style paper	<i>11:00 pm Sat. 3/12</i>	10	10
9. Initial web page	<i>11:00 pm Sat. 3/12</i>	5	10
9. web page	<i>11:00 pm Sat. 4/09</i>	10	15
10. Final team-led class pres. & discussion	<i>From 04/14 to 05/05</i>	10	10
11. Final peer-review style paper	<i>During final week</i>	10	15
12. Final web page	<i>During final week</i>	10	10
12. Poster Presentation	<i>04/28 & 05/05</i>	15	15
13. Team grade adjustment	NA	± 2	± 2
Team project sub-total		55	65
Total		100	100

How will final letter grade be assigned? A criterion-referenced grading will be used in this class and therefore you do not need to worry about your standing relative to others in this course. In fact, working together with others may be to everyone's advantage. The following is an approximate grading scale that the instructors will use to determine the letter grade associated with students' percentage achieved in the class (slight changes may be made as needed, depending upon specific circumstances).

A = 100-90 | AB = 89-87 | B = 86-80 | BC = 79-77 | C = 76-70 | D = 69-60 | F = 59 or less.

Covid-Related and Other Absence

Please check the university website (<https://covidresponse.wisc.edu/students/>) for campus based-information about Covid-19. Assistance is also available from the Dean of a Students Office (<https://doso.students.wisc.edu/contact-us/>).

In case you need to quarantine and/or will need to excuse yourself (for any reasons) from one or multiple class periods, please email the TAs as soon as you know. If you test positive for Covid or are waiting for results of a test (antigen test or PCR test). If the test is positive, please excuse yourself for 10 days from the start of your symptoms (if any) or from any positive test.

If you miss a Tuesday class, to make-up for your absence, we will ask you to write a 500-word summary, analysis and critique of the discussion posts of your classmates or write a 500-word summary, analysis and critique of the weekly reading, if you do not have access to the discussion. This will be due the class period after you return to class, and should be submitted through canvas.

If you miss a Thursday class, you will be asked to Zoom in if possible, in order to contribute to your group project. If you are unable to Zoom into the class, you will need to check-in with your team members. The zoom link is intended for those who have a pre-arranged absence (have communicated to the instructor/TAs prior to class about their absence).

As a reminder, absences are unexcused if they are not communicated to the instructor team prior. Multiple unexcused absences will result in a reduction in points (see Engagement above).

Academic Integrity

By enrolling in this course, each student assumes the responsibility of an active participant in UW-Madison's community of scholars in which everyone's academic work and behavior are held to the highest academic integrity standards. The act of copying/pasting answers or partially editing answers from others is an instance of **academic misconduct**, the definition of which includes *"any act aimed at making false representation of one's academic performance."* The University has strict rules and provides for disciplinary action on this issue. Please see the [UW academic misconduct page](#) for more details.