Department of
Community Sustainability

MICHIGAN STATE
U N I V E R S I T Y

CSUS 300-001
Theoretical Foundations of Sustainability

Spring 2021
Monday-Wednesday, 12:40-2:00 PM,

Location starting January 31: Natural Resources Building Rm 223

On Zoom until January 31
https://msu.zoom.us/j/99496858358
Meeting ID: 994 9685 8358
Passcode: CSUS300

Instructor: Dr. John M. Kerr
Office Location: 325 Natural Resources
Telephone: (517) 449-3193 (cell)
E-Mail: jkerr@msu.edu

Office Hours:
Fixed hours: Mondays 2:00-3:30; Wednesdays 2:00-2:30
Other hours: I am quite flexible and will be happy to meet outside of these times if they don't work for you. Normally I can meet within a day or two of when you ask me for a meeting. Please email or text me to set up a time – if you text please include your name.
Office hours location: either in my office (Natural Resources Rm 325) or on Zoom: https://msu.zoom.us/j/94767298958, Passcode: CSUS. (Or we can arrange another meeting place if needed.)

Catalog Course Description**:**
Foundations of sustainability theory. History and evolution of interdisciplinary thought about sustainability. Principles of systems thinking as applied to complex problems. Application of theory in community systems.

Course Learning Outcomes**:**
Students who complete this course will:
1. Demonstrate the ability to frame complex problems from a systems perspective.
2. Distinguish between and connect functional integrity and resource sufficiency as global perspectives on sustainability.
3. Describe and demonstrate understanding of evolutions in the thinking about sustainability in various disciplinary/theoretical contributions (economics, ecology, ethics).

4. Discuss sustainability critically as a wicked problem, drawing from two or more paradigms for sustainability.
5. Explain the importance to sustainability of embracing multiple knowledge cultures/ways of knowing.

In addition, students in this class will practice their ability to communicate clearly and concisely in short written and verbal statements; and work in teams to think critically and communicate respectfully.

The main course outcomes listed above support the Department of Community Sustainability undergraduate program competencies for our three majors of critical thinking, systems thinking, and ethics. Successful completion of this course provides students with the background needed to frame complex problems and address them systemically in order to successfully complete additional courses in the major. Students can learn more about the Department of Community Sustainability undergraduate program competencies at https://www.canr.msu.edu/csus/undergraduate/undergraduate_courses#Sustainability-Core. In addition, this course supports Michigan State University's Undergraduate Learning Goals of analytical thinking and integrated reasoning. More information about MSU's Undergraduate Learning Goals is available at http://learninggoals.undergrad.msu.edu/.

Course Overview:
As the title implies, this course will introduce students to some bodies of theory that provide foundations for understanding, pursuing practical objectives, and researching new approaches regarding sustainability. Sustainability is generally understood to require integration of theory and methods from a number of different scientific disciplines. Our approach is to suggest that two paradigms guide sustainability science today. One is grounded in the debate over limits to economic growth and the indefinite expansion of resource utilization implied by global economic development and increasing human population. Another is grounded in both social and environmental scientists' growing understanding of the fragility and vulnerability of the socio-technical and ecological systems on which human beings depend. These paradigms are not unrelated. Both have been influenced by the development of general systems theory since World War II. But the first, which we will call *resource sufficiency*, understands systems as engines that generate useful products and services, while the second, which we will call *functional integrity*, sees systems as having intrinsic value, or at least as being important in and of themselves. A possible third way lies in *process-oriented adaptations* of systems theory: the emphasis is on using systems thinking to better engage and respect participants and affected parties. The course will emphasize the role of systems thinking and stock and flow systems modeling as it has been developed for applications in economics, ecology, and natural resource management. Sustainability modeling will be discussed in connection with views on the role and function of scientific models, on the one hand, and ethical worldviews, on the other. Students

will learn to develop non-quantitative stock and flow models of systems and to discuss how system structure does and does not contribute to the sustainability of the system in question.

Course Methods and Logistics:
We will rely heavily on reading and discussion of materials that articulate and analyze the key theoretical concepts and perspectives noted above. We will also use case studies as ways to both motivate and explore the implications of different theoretical approaches to sustainability. In addition, in-class exercises will demonstrate complexities of key systems. Student performance will be evaluated in accordance with the activities discussed below.

All lectures and readings will be online. Students will be required to complete them prior to class. A simple quiz will be due before class to encourage you to complete the required materials. Class time will be devoted to exercises and discussion. Assignments based on this class work will be due either at the end of class or after class. Students may work on the assignments together but they will submit them individually. There will be a group paper/presentation and a group oral exam at the end of the semester.

For the first three weeks we will meet on Zoom (Zoom link above).
For the first two weeks we will meet together as an entire class of about 50 students. Beginning on January 24, we will consider having half the class attend class on Mondays and the other half of the class will meet on Wednesdays. This is to be determined depending on what seems to work for student learning.

Required Materials:
- Book: Meadows, D. 2008. *Thinking in Systems: A Primer*. White River Junction, VT: Chelsea Green Publishing.
  - (This is available online as a free pdf, or you can buy a hard copy.)

- Access to Zoom (can be by phone if necessary)

- Access to Microsoft Office or equivalent – homeworks and exams must be submitted as Word or Excel docs.

- Access to Desire to Learn (D2L)
  - The Meadows book will be supplemented with articles and reports posted on the CSUS D2L 300-002 site (https://d2l.msu.edu) and this will be where assignments are posted/submitted.

If you need technical assistance at any time during the course or to report a problem you can:

- Visit the Desire2Learn Help Site (http://help.d2l.msu.edu/)
- There is a self-paced course for students to learn to use D2L; it works well as a reference page even if you don't take the course: https://help.d2l.msu.edu/training
- Or call MSU IT Help at (517) 432-6200, or Distance Learning Services (517) 355-2345.   (**NOTE**: The IT Help line is extremely helpful – definitely call them if you are having trouble. They are almost always open.)

Grades (all assignments will be submitted electronically through D2):

Grading Scale:

Grade	Percentage
4.0	93 - 100%
3.5	87.5 - 92.9%
3.0	82.5 - 87.4%
2.5	77.5 - 82.4%
2.0	72.5 – 77.4%
1.5	67.5 – 72.4%
1.0	62.5 – 67.4%
0.0	under 62.4%

Assessments

1.	Pre-class Online Assessments	(3 pts each)	36 pts
2.	In-Class Assignments	(3 pts each)	36 pts
3.	Semester Group Paper/Presentation		14 pts
4.	Group Oral Final Exam		14 pts
5.	Attendance & Participation		up to +/- 5 pts

Total   **100 pts**

Summary information about the different assignments that will make up your grade
Here is a summary of all the different kinds of assignments in the class. Detailed descriptions will be posted to D2L.

D2L will be organized around modules for each week of the class. All course materials will be posted on those modules. Quizzes will located on the module for the day/week in which they are due. In-class assignments will also be submitted on that same module.

Pre-class online assessments (36%):
This mostly means quizzes, though sometimes they may take a different form. All of them will be due BEFORE class on the designated date. They will be easy for who completes the required materials (recorded lectures, readings and videos), but they will be difficult for anyone who did not. The idea is simply to encourage you to engage with the materials.

Quizzes on D2L will drawn randomly from a question bank and the order of questions will be randomized. This means that students will not receive exactly the same questions. I will be sure to write the quizzes to make sure that the quiz is of the same difficulty no matter how the questions are randomly selected.

Twelve of these quizzes will be graded during the year out of about 14 or 15 to be given. Only the 12 with the highest grades will be counted; the others will be thrown out. This is a way to addressed missed classes due to covid or other problems. Each one that is counted will be worth 3 points (3% of the grade for the entire course), for a total of 36 points or 36% of the grade for the course.

In-class assignments (36%):
Most of our class time will be devoted to exercises that build on the week's required materials. If you come to class you can do the exercises jointly with other people, though you will turn yours in individually. You can still do an exercise if you don't come to class, but you will have to do it on your own. Each in-class assignment will be worth 3 points or 3 percent of the total grade for the class. The top 12 will be counted towards your grade, for a total of 36 points or 36% of the class. The bottom two will be thrown out.

The in-class assignments will generally be much more difficult and require much more thought than the pre-class quizzes.

Absent/Late Policy: If you know you're going to be absent and would still like to complete that week's assignment, please let me know *before class* and we will make arrangements. If you must miss class because of illness w/ a doctor's note, an MSU-sponsored trip, or a required field trip, we will make arrangements. *Other allowances will be made at the instructor's discretion*.

End of semester paper/presentation (14%):
I will assign groups based mainly on shared interests. These groups will work together to give a 10-minute video presentation in which they apply the main themes of the class to their area of interest related to sustainability. A detailed description of this assignment will be provided. In addition to the presentation, the team will submit a written version of the presentation (like a transcript, not powerpoint slides).

Please note that a 10-minute group presentation applying the main themes of the class to your area of interest is much more difficult than it sounds. You will have to condense a lot of ideas into a small space and a small period of time. This will require very clear understanding so that you can choose what to say and what not to say. We will discuss this during the semester in advance of when the assignment is due.

The reason for requiring the written version is to help encourage you to prepare really well. My logic is that the best way to prepare a really good presentation is to write up what you want to say and then practice it really well. I want you to develop good skills and habits to give an excellent presentation since this is an important skill in many kinds of professional work.

The reason for submitting a video of your presentation instead of presenting it live is to avoid having to schedule the presentations, which would be extremely difficult in a class of 50 students. You are not required to watch other students' presentations, though they will be available to the whole class.

This presentation will be worth 14 points (14% of the grade for the course). The grade will be primarily the same for all members of the group, with a portion determined based on self-assessment of the group (i.e. those who did more than their share in the eyes of the group will get a bonus, and those who did less of their share in the eyes of the group will be marked down). Details are in the assignment description on D2L.

End of semester group oral exam (14%)
In the oral exam, your group will respond to follow-up questions from me about the ideas you raised in your group presentation. The logic for this is that in professional life, it is likely that you will be given a task with several weeks to prepare, and after you have completed it you will have to be ready to answer questions about it. That is the same idea as this oral exam.

This oral exam will be worth 14 points (14% of the grade for the course). Grades will be based not only based on the quality of responses but also evidence of teamwork and organization. The grade will be primarily the same for all members of the group, with a portion determined based on self-assessment of the group (i.e. those who did more than their share in the eyes of the group will get a bonus, and those who did less of their share in the eyes of the group will be marked down). Details are in the assignment description on D2L.

Immediately after the exam, each member of your team will submit an assessment form for the performance of you and each of the other members of the team.

Participation and attendance (+/- 5%)
Attendance in-person is not required but is highly encouraged. In-class assignments will normally be done in groups, making attendance highly beneficial to you. After the third week of

class we will meet in person and classes will not broadcast on Zoom. This is because most of the time in class will be devoted to group work and a Zoom link for the whole class won't be useful. (If you are sick and can't attend but are well enough to work, you are welcome to connect to another student via Zoom or Facetime or whatever to conduct group work with them. However, please don't make a habit doing that every time if you can help it.)

In general, students are expected to actively and constructively participate both with the instructor and each other during class, by both asking and answering questions, and showing evidence that they have engaged the assigned readings, videos and lectures. ***The instructor reserves the right to adjust the student's grade up to +/- 5 points based on their attendance and participation or lack of.***

Extended periods of absence will be excused for the following reasons: (a) required field trips for other classes with a note; (b) participation in university athletics with a note; and/or (c) illnesses with a doctor's note (i.e., positive Covid tests). **Do NOT come to class if you feel Covid-like symptoms!!**

Late policy:
All assignments must be turned in on time in order to earn credit, unless you make arrangements with me in advance or if you are ill (with a doctor's note). The idea of only counting the top 12 quizzes and in-class assignments is partly to account for the possibility of a couple of missed assignments due to illness. *(Do not waste the allowance to throw away your bottom two scores early in the semester if you can help it; you might need them later!)*

Note: I realize that situations arise in which you can't submit an assignment on time despite your best intentions, or that your schedule is such that submitting it on time is very difficult. If that is the case, please get in touch with me and we will figure something out.

If you have a VISA arrangement that allows you more time to complete your assignment, please get in touch with me and we will figure out a schedule for you.

Schedule for assessment and feedback
Quizzes will be graded instantly, and other assignments will be graded when I am able to get to them. Normally I will aim to assess assignments by the day after they are due. However, I have to be honest: I've never taught a class with 50 students, and I might be in for a shock regarding how much time it takes to go through all of them. We will figure that out as we go, but please know that my aim is to provide very rapid feedback.

Course Schedule

Week 1, January 10-12	Introductions, Overview of the course; Introduction to sustainability
Week 2, January 19 *(No class January 17 – Martin Luther King Holiday).*	Introduction to theory; wicked problems.
Week 3, January 24-26	Systems thinking 1: introduction
Week 4, January 31/February 2	Systems thinking 2: more details
Week 5, February 7-9	Systems thinking 3: system archetypes
Week 6, February 14-16	Systems thinking 4: leverage points
Week 7, February 21-23	Ways of knowing: participation of local people in tackling sustainability challenges
Week 8, February 28-March 2	Ecological view of sustainability – part 1
Spring break, no classes (March 7-9)	
Week 9, March 14-16	Ecological view of sustainability – part 2
Week 10, March 21-23	Views of sustainability from economics
Week 11, March 28-30	Sustainability ethics
Week 12, April 4-6	Resource sufficiency view of sustainability
Week 13, April 11-13	Functional integrity view of sustainability
Week 14, April 18-20	Resource sufficiency and functional integrity: competing paradigms?
Week 15, April 25-27	Review and exam prep
Finals week: May 2-6	Oral exams (your team will select an exam time during this week)

Last day to drop with refund: 2/04/2022.
Last day to drop with no grade reported: 3/02/2022.

Specific required materials for each week will be posted in D2L.

Course Policies

<u>Attendance:</u>

Students whose names do not appear on the official class list for this course may not attend this class. Students who fail to attend at least one of the first two class sessions may be dropped from the course.

<u>E-Learning Policies:</u>

Information technologies such as D2L, Zoom, and email are widely used in this class. As a result, there are some additional policies that need to be understood.

- Students should visit the course's D2L site regularly.
- Students should check their email frequently (all class email is sent to the student's official MSU email account).
- All assignments submitted electronically, either on disk or via email, should be free of any viruses and/or worms. Any infected file or disk that is submitted will receive a zero (0) for that assignment.
- This course recognizes the students' right to privacy and adheres to the Family Educational Rights and Privacy Act (FERPA).
- Students need to review the university policy "Acceptable Use of Computing Systems, Software, and the University Digital Network" at https://tech.msu.edu/about/guidelines-policies/aup/.
- The Web site https://tech.msu.edu provides a number of information technology resources for students.

Excessive emails make an unreasonable time demands on both sender and recipient. Please ensure you have a legitimate need before you write. The instructor will answer emails about:

- Questions arising from difficulty in understanding course content.
- Requests for feedback about graded assignments.
- Private issues appropriate for discussion within the teacher-student relationship.

The instructor will NOT answer emails that:

- Pose questions answered in the course information sections of the course D2L site.
- Pose questions answered in the course syllabus.
- Raise an inappropriate subject.

<u>Syllabus Disclaimer</u>
All syllabi are subject to minor changes to meet the needs of the instructor, school, or class. Every effort will be made to avoid changing the course schedule but the possibility exists that unforeseen events will make syllabus changes necessary. The instructor reserves the right to make changes to the syllabus as deemed necessary. Students will be notified in a timely manner of any syllabus changes through the course site announcements. Please remember to check your MSU email and the course site announcements often.

Academic Honesty:

Article 2.III.B.2 of the Academic Freedom Report states: "The student shares with the faculty the responsibility for maintaining the integrity of scholarship, grades, and professional standards." In addition, the Department of Sustainability adheres to the policies on academic honesty specified in General Student Regulation 1.0, *Protection of Scholarship and Grades*; the all-University Policy on *Integrity of Scholarship and Grades*; and Ordinance 17.00, Examinations. (See Spartan Life: Student Handbook and Resource Guide and/or the MSU Web site: www.msu.edu).

Therefore, unless authorized by your instructor, you are expected to complete all course assignments, including homework, lab work, quizzes, tests and exams, without assistance from any source. (In this section of CSUS 300, this policy applies to the quizzes that are due prior to class.) You are expected to develop original work for this course; therefore, you may not submit course work you completed for another course to satisfy the requirements for this course. Also, you are not authorized to use the www.allmsu.com Web site to complete any course work in this course. Students who violate MSU regulations on Protection of Scholarship and Grades will receive a failing grade in the course or on the assignment.

Faculty are required to report all instances in which a penalty grade is given for academic dishonesty. Students reported for academic dishonesty are required to take an online course about the integrity of scholarship and grades. A hold will be placed on the student's account until such time as the student completes the course. This course is overseen by the Associate Provost for Undergraduate Education.

(See also https://ombud.msu.edu/resources-self-help/academic-integrity). **There will be no warnings** – the maximum sanction allowed under University policy will occur on the first offense.

Spartan Code of Honor:
"As a Spartan, I will strive to uphold values of the highest ethical standard. I will practice honesty in my work, foster honesty in my peers, and take pride in knowing that honor is worth more than grades. I will carry these values beyond my time as a student at Michigan State University, continuing the endeavor to build personal integrity in all that I do."

You can find more about the Spartan Code of Honor at https://www.deanofstudents.msu.edu/academic-integrity.

Cite your references!
Cite your work as appropriate in your written assignments – this is a normal and important thing to do in academic and professional life. All sources of information, data, facts, or ideas presented in written work should be cited in the text, and a list of all cited references should be provided at the end of your document. Reference information must include the author's name or names, the title, the publication name (e.g. if it is a journal article, which journal?), and the year of publication. Be sure to be consistent in your citation style. You may use any style you want, but if you want to practice being professional, use the APA format. A good reference site for APA style, including a tool for automatically formatting in APA, can be found at

https://owl.english.purdue.edu/owl/resource/560/01/. Also, you can automatically format in APA using a reference manager software like Zotero, Mendeley or Endnote, and you can download citations in APA style from Google Scholar. (This is the easiest way to be sure to cite correctly.)

Bereavement:

Michigan State University is committed to ensuring that the bereavement process of a student who loses a family member during a semester does not put the student at an academic disadvantage in their classes. If something comes up during the semester that impedes your ability to get your work done on schedule, please alert me and I will work with you to make appropriate accommodations so that you are not penalized due to a verified grief absence. Beyond this, please see MSU's Grief Absence Policy here: https://reg.msu.edu/roinfo/notices/griefabsence.aspx.

Disruptive Behavior:

Article 2.III.B.4 of the Student Rights and Responsibilities (SRR) for students at Michigan State University states: "The student's behavior in the classroom shall be conducive to the teaching and learning process for all concerned." Article 2.III.B.10 of the SRR states that "The student and the faculty share the responsibility for maintaining professional relationships based on mutual trust and civility." General Student Regulation 5.02 states: "No student shall . . . interfere with the functions and services of the University (for example, but not limited to, classes . . .) such that the function or service is obstructed or disrupted. Students whose conduct adversely affects the learning environment in this classroom may be subject to disciplinary action through the Student Judicial Affairs office.

Social Media

As members of a learning community, students are expected to respect the intellectual property of course instructors. All course materials presented to students are the copyrighted property of the course instructor. Students may **not** record online sessions, lectures, or any other classroom activities, nor post course materials online or distribute them to anyone not enrolled in the class, without the advance written permission of the course instructor and, if applicable, any students whose voice or image is included in the recordings.

Any student violating the conditions described above may face academic disciplinary sanctions.

Commercialized Lecture Notes:

Commercialization of lecture notes and university-provided course materials is not permitted in this course.

Drops and Adds:

It is the student's responsibility to understand when they need to consider un-enrolling from a course. Refer to the Michigan State University Office of the Registrar for important dates and deadlines.

The last day to add this course is the end of the first week of classes. The last day to drop this course with a 100 percent refund is 2/04/2022. The last day to drop with no grade reported is 3/02/22. You should immediately make a copy of your amended schedule to verify you have added or dropped this course.

Inform Your Instructor of Any Accommodations Needed

Michigan State University is committed to providing equal opportunity for participation in all programs, services and activities. If you have a documented disability and verification from the Resource Center for Persons with Disabilities (RCPD), and wish to discuss academic accommodations, please contact your instructor as soon as possible. It is the student's responsibility to provide documentation of disability to RCPD and meet with an RCPD specialist to request special accommodation before classes start.

Once your eligibility for an accommodation has been determined, you will be issued a verified individual services accommodation ("VISA") form. Please present this form to the instructor at the start of the term and/or two weeks prior to the accommodation date (test, project, etc). Requests received after this date will be honored whenever possible.

RCPD is located in 120 Bessey Hall, near the center of the Michigan State University campus, on the southwest corner of Farm Lane and Auditorium Road. RCPD may be contacted by phone at (517) 884-7273 (884-RCPD), or via their website (http://www.rcpd.msu.edu).

Diversity Equity and Inclusiveness:
Diversity, Equity and Inclusion are important, interdependent components of everyday life in the College of Agriculture and Natural Resources (CANR) and are critical to our pursuit of academic excellence. Our aim is to foster a culture where every member of CANR feels valued, supported and inspired to achieve individual and common goals with an uncommon will. This includes providing opportunity and access for all people across differences of race, age, color, ethnicity, gender, sexual orientation, gender identity, gender expression, religion, national origin, migratory status, disability / abilities, political affiliation, veteran status and socioeconomic background. (See the full CANR statement: https://www.canr.msu.edu/news/canr-statement-on-diversity-equity-and-inclusion)

If you find yourself having trouble with readings, feel free to contact me to discuss, but also consider making use of the MSU Learning Resource Center: https://nssc.msu.edu. Many students who are accustomed to scanning webpages need to develop better reading skills and the Learning Resource Center can help.

General College and University Policies:
All other general college and university policies applicable to this course are available at https://www.canr.msu.edu/academics/courses/policies . Please review these policies. Topics covered in these general policies include:
- Students with disabilities, Resource Center for Persons with Disabilities (RCPD) and accommodations
- Student rights under the family educational rights and privacy act (FERPA)

- - Student release authorization form
- Religious holiday policies
- Grief absence policies
- Students in distress policies
- MSU student athlete policies
- Course add-drop policies
- Honors options
- Course Management system policies
- Final exam policy and attendance
- Grade dispute policies
- Academic honesty and integrity, plagiarism, and disciplinary procedures
- Disruptive behavior
- Harassment and discrimination policies
- RVSM University reporting protocols
- Limits to confidentiality
- Social media policy
- Web accessibility policies
- MSU Code of Teaching Responsibility
- SIRS
- Commercialization of lecture notes
- University Learning Goals