



Department of
Community Sustainability

MICHIGAN STATE
UNIVERSITY

CSUS 459
Clean Energy System Policy
Fall 2020

Class meets online
Synchronous: Wednesday 5pm – 6:20pm

Instructor: Dr. Doug Bessette
Natural Resources Building
480 Wilson Road Room 327

Office: 517-353-0803; Cell: 734-649-9226
Email: Bessett6@msu.edu (best way to get hold of me!)
Website: www.dougbessette.com
Twitter: @dlbessette

Additional Office/Class Hours: **Thursday 2:30 PM – 4:00 PM** or by appointment.

Course Description: In this class, we examine opportunities for and the constraints of clean energy options, systems and policies. Using modeling, systems thinking, and policy analysis, we identify and engage the social, cultural, economic and ecological impacts of and potential strategies for pursuing clean energy technologies, systems and policies.

Course Materials: Readings and course software will be provided by the instructor and available on D2L.

Course Outcomes:

Upon completion of this course, students will be able to:

1. Use systems thinking to analyze energy policies, options, and decisions.
2. Identify key drivers and leverage points of energy systems and transitions.
3. Compare fuels, power-generation technologies, and energy options from multiple perspectives.
4. Model energy systems using rich pictures, causal loop diagrams and fuzzy cognitive maps (mental models).
5. Analyze existing energy policy and inform development of new policy using policy analysis.
6. Work as a team to deepen understanding of and communicate about energy systems from multiple perspectives.
7. Develop professional materials and relationships alongside energy experts.
8. Meaningfully assist communities engaged in clean energy planning and sovereignty efforts.

Course Learning Outcomes:

These course outcomes support the Department of Community Sustainability undergraduate program competencies of *Critical Thinking, Systems Thinking, Economic Literacy, Equity, Civic Engagement, Leadership, Initiative and Practical Skills, and Ethics*. In addition, this course supports Michigan State University's Undergraduate Learning Goals of *Analytical Thinking, Effective Citizenship, Effective Communication and Integrated Reasoning*. Students can learn more about the Department of Community Sustainability undergraduate competencies at http://www.canr.msu.edu/csus/undergraduate/sustainability_core. More information about MSU's Undergraduate Learning Goals is available at <http://undergrad.msu.edu/msu-goals>.

Assignments & Grading:

1. Weekly Attendance & Participation:	10 %
2. Modeling & Policy Analysis Assignments	50 %
3. Group Project	20 %
4. "Take-home" Online Final Exam	20 %
Total	100%

Grading Scale: All assignments will be graded using the 4-point scale.

1. Weekly Attendance & Participation (10%) Attendance during the one synchronous class session each week is required—if you cannot attend class, please let me know why beforehand. Students are allowed *one* unexcused absence per semester; subsequent unexcused absences will decrease your course grade. All class sessions will be recorded and posted in D2L.

There will be small *participation assignments* assigned throughout the semester; these will vary throughout the semester. It is the student's responsibility to submit the assignment even if they miss class.

Important Note: 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 +/- 0.5 points (on the 4-point scale) based on their participation.

Learning Outcomes: Initiative and practical skills; leadership; effective communication

Absences 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; (c) illnesses requiring you to miss class; and (d) instructor-approved excuses (will only be allocated *before* class)

2. Modeling and Policy Analysis Assignments (50%) Most weeks during the course, students will be required to either build a model or conduct a policy analysis relating to that week's clean energy problem or policy topic. Some of these assignments will be individual and some will be completed as members of a group. Due dates and times will vary by assignment, but will typically be the start or end of class each week.

Learning Outcomes: Critical thinking; systems thinking; initiative and practical skills; analytical thinking; effective communication; integrated reasoning

3. Group Project (20%). As a group of 3-4 students, students will select one clean energy policy or problem and develop either a i) professional report, ii) online video, or iii) recorded podcast, describing that policy or problem and potential strategies for improving or addressing it. The focus of each group’s project is up to the students involved; however, the instructor must approve each group’s project before they proceed.

A key component of this project is the addition and inclusion of one energy expert/professional in the group’s work.

Learning Outcomes: Critical thinking; systems thinking; initiative and practical skills; analytical thinking; effective communication; effective citizenship; integrated reasoning

4. Take-home Online Final Exam (20%) A take-home online final exam will be distributed following the last class period and will be due at the end of the exam period. This cumulative exam will combine modeling and policy analysis.

Learning Outcomes: Critical thinking; systems thinking; economic literacy; equity; ethics initiative and practical skills; analytical thinking; effective communication; integrated reasoning

Course Schedule

Week	Class	Topic	Notes
Week 0	Wed: Sep 2	NO CLASS!!- Check Email & D2L	
Week 1	Wed: Sep 9	Introduction	
Week 2	Wed, Sep 16	Systems thinking, mental modeling & policy analysis	
Week 3	Wed, Sep 23	Integrated resource plans: LBWL	
Week 4	Wed, Sep 30	Line 5 Pipeline: Alternatives & risk analysis	
Week 5	Wed, Oct 7	Local impacts & control of fracking	
Week 6	Wed, Oct 14	Wind and solar: Zoning & taxes	
Week 7	Wed, Oct 21	Wind and solar: State policies (PA 116; MI RPS; Net Meter)	
Week 8	Wed, Oct 28	EVs and biofuels: Taxes & Incentives	
Week 9	Wed, Nov 4	Energy sovereignty & Treaties	
Week 10	Wed, Nov 11	Carbon pricing & policy; RGGI	
Week 11	Wed, Nov 18	Offshore Wind; Vineyard Environmental Impact Statement	
Week 12	Wed, Nov 25	Nuclear power opportunities & constraints	ASYNC.
Week 13	Wed, Dec 2	Federal clean energy initiatives	
Week 14	Wed, Dec 9	Group Projects, Presentations & Review	

Final Exam	TBD	Final Exam Due 12pm. (Provided at end of class on Dec. 9th)
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Course Policies

Attendance:

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.

E-Learning Policies:

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 <http://lct.msu.edu/guidelines-policies/aup/>.
- The Web site 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 which:

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

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. 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://www.msu.edu/~ombud/academic-integrity/index.html>). **There will be no warnings** – the maximum sanction allowed under University policy will occur on the first offense.

Bereavement:

Students seeking a grief absence should be directed to the Grief Absence Request Form found on the RO home page (<https://reg.msu.edu/>) under ‘Student Services – Grief Absence Request Form’ OR to StuInfo (<https://stuinfo.msu.edu/>) under ‘Academics - Enrollment Information and Services – Grief Absence Request Form.’

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.

Understand When You May Drop This Course:

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.

Drops and Adds:

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 and no grade reported is 9/28/20. 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 \(http://www.rcpd.msu.edu\)](http://www.rcpd.msu.edu).

Syllabus Disclaimer

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.