**FALL 2015 SYLLABUS**

**ECO 370: BUILDING SUSTAINABLE ENERGY COMMUNITIES THROUGH SERVICE LEARNING**

Tues/Thurs 3:30-4:45

Aubert Hall 422

**INSTRUCTOR**

**Dr. Sharon Klein**

School of Economics

**Email**: sharon.klein@maine.edu

207-581-3174

**Office Hours:** By appointment

305 Winslow Hall

website: http://umaine.edu/soe/faculty-and-staff/klein/

**PREREQUISITES**

None for pilot course in Fall 2015

In future years: ECO 120 and ECO 121; or ECO 180; or ECO 405; or ECO 410; or equivalent; or permission

**REQUIRED TEXTS**

There are no required texts for this course. Readings will be posted online through **Google Classroom**. Instructions will be presented on the first day of class.

**COURSE DESCRIPTION**

This course explores community energy as a possible solution to a complex set of technical, economic, environmental, and social issues associated with energy supply, distribution and use. The course begins with a broad overview of a variety or sustainability issues associated with energy. Students will examine the need to challenge existing paradigms that perpetuate these issues. They will learn the importance of civic engagement, community building, and service learning in creating lasting solutions. Students will acquire hands-on learning about sustainable energy issues, options, policies, and tradeoffs by actively designing and participating in community projects. They will apply tested methods for civic engagement, community building, and service learning to help solve energy issues. They will conduct quantitative and qualitative assessments of potential sustainable energy solutions across technical, economic, environmental, and social criteria, employing assessment tools such as life cycle assessment (LCA), social benefit cost analysis (SBCA), and multi-criteria decision analysis (MCDA). Students will evaluate policy options for encouraging community sustainable energy development. This is a project-oriented course that may require field trips.

**COURSE LEARNING OBJECTIVES:**

1. Develop analytical models of tradeoffs between technical, economic, environmental, and social implications of different sustainable energy solutions at the community/residential level.
2. Communicate and collaborate with community partners to advance sustainable energy solutions.
3. Develop a sense of personal identity and purpose related to sustainable energy, and take civic action consistent with this sense of identity and purpose.
4. Develop a sense of community identity and role of self in the community related to sustainable energy, and take civic action consistent with this sense of identity and purpose.
5. Critique existing societal paradigms related to sustainable energy and develop new policy solutions based on these critiques.

**COURSE LEARNING OUTCOMES**

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

1. Distinguish between concepts of power and energy, and convert between power and energy units across a wide range of energy resources, technologies and uses.
2. Define sustainability and sustainable energy.
3. Define “systems thinking”, and use it to evaluate sustainable energy options.
4. Define the “food-water-energy nexus” and “energy poverty”, and discuss their implications in the context of systems thinking and sustainable energy.
5. Compare current energy paradigms based in centralized generation and top-down incentives with alternatives based in distributed generation, demand-side efficiency and conservation, and bottom-up approaches.
6. Identify challenges associated with using top-down policies to change the behavior of individuals and firms.
7. Define “community energy”, and examine its role in achieving a sustainable energy future.
8. Compare community energy options across quantitative and qualitative sustainability indicators associated with technical, economic, environmental, and social sustainability.
9. Compare sustainability tradeoffs associated with community energy options using LCA, SBCA, and MCDA.
10. Implement and evaluate strategies for promoting civic responsibility and community building.
11. Evaluate the effectiveness of community building, civic engagement, and service learning methods in creating and implementing sustainable energy solutions.
12. Evaluate existing barriers to grassroots community energy development and potential policy options that could reduce these barriers.
13. Create a new vision for a sustainable energy future and propose strategies for achieving it.
14. Build a community to address sustainable energy challenges.

**“FLIPPED CLASSROOM” AND SERVICE LEARNING**

Implicit to every learning experience you engage in is a goal to develop professionally and personally. Every college course you take is a professional learning/development experience. You are not just learning a topic, you are learning to learn. Mastering communication and participation skills, collaborative learning skills, and professional academic discourse, are requirements of every profession in every field. More than ever before, the ability to collaborate and learn with others is fundamental to your ongoing professional and academic success.

In keeping with this implicit goal, this course will follow a “flipped” classroom approach and include a service learning project, to increase opportunities for collaborative and active learning, while providing a positive benefit to the community. A flipped classroom is different from the traditional lecture-style approach because instead of sitting and listening to me lecture to you for 75 minutes, you will be actively engaging in problem solving, discussions, debates and other in-class assignments usually in small groups (but sometimes individually) while I listen to you and provide guidance, feedback and mini-lectures on topics that help you be successful in the activities. In class, you will apply what you have learned in your homework assignments under my guidance so if you are struggling with understanding some concepts, I will be there to help you understand. Sometimes, I may teach directly to the whole class for a few minutes if it is clear there is a concept that most people are struggling with, but most of the class time will involve you doing the work while I roam the classroom, providing guidance, answering questions, teaching small groups, and listening.

Service-learning is a “teaching method which combines community service with academic instruction as it focuses on critical, reflective thinking and civic responsibility. Service-learning programs involve students in organized community service that addresses local needs, while developing their academic skills, sense of civic responsibility, and commitment to the community” (<http://umaine.edu/volunteer/service-learning/>). Research shows that service learning and other active learning methods improve learning outcomes, problem-solving and critical thinking skills, student confidence, retention of information, group collaboration, and many other important aspects of learning. These approaches are especially appropriate in a course focusing on community energy and sustainability because the main goal is for you to understand the community’s role in achieving a sustainable energy future.

Community Service is an important part of this course. There may be times when you wonder, why are we doing service or why with these particular organizations? And when you wonder you should pose and process your questions with the rest of the class. Here is a question that is commonly posed to you by the people whom (or with whom) you serve: why are you here or why do you do service? So give this some thought ahead of time, so you can respond with a meaningful and articulate answer. (hint: because my course requires it is not a good answer).

**GRADING**

#### Graded Activities & Percentages:

|  |  |
| --- | --- |
| **In-Class** Assignments | 20% |
| Homework | 20% |
| Exams | 20% |
| Service | 20% |
| Final Project | 20% |

All students are expected to attend class each day and be prepared with a **calculator** (can use phone, tablet or computer)**, paper** and **pen/pencil**.

#### In-Class Assignments (20%)

Students are expected to attend ALL scheduled class meetings, including the Retreat (see course timeline and more information forthcoming). Students are expected to participate in all learning activities during class times, which may include group discussions, reflections, debates, games, problem-solving (often involving math – hence the calculator), individual writing, quizzes, etc. In-class assignments will build off of Homework assignments and help students complete their final projects.

#### Homework Assignments (20%)

Students are expected to be prepared each day for active learning. Often, this will require a homework assignment, due at the beginning of the week, consisting of reading and/or watching videos and writing a reflection and/or answering specific questions about the material. These HW assignments will prepare students for in-class activities and help students meet learning outcomes. In addition, some HW assignments will be reflections on service learning activities, a key component to meeting civic engagement learning outcomes.

#### Exams (20%)

There will be 2 exams during the semester – one at the middle and at the end. Both exams will be administered through Blackboard (https://www.courses.maine.edu). Students will have a limited amount of time to complete each exam (1-2 hours depending on exam length). Exams will be available for several days to allow for flexibility in individual student schedules; however, once you start the exam, you must complete it within the 1-2 hour time frame specified. Exams will consist of mainly multiple-choice questions, with the possibility of a few short answer questions.

**Service (20%)**

Students will be required to complete an average of 4 hours of service per week as part of their service learning project. The service learning project for Fall 2015 will be a Window Insert Build in collaboration with 2 community partners: Rockland Window Dressers (<http://windowdressers.org/>) and the Bangor Unitarian Universalist (UU) Church (<http://uubangor.org/>). Window inserts are pine frames wrapped in transparent plastic that are placed inside existing window frames to help reduce heat loss, save oil and money, and make for a more comfortable living space. They are a cost-effective way for people with old windows to save energy and emissions, especially for low-income people.

Students will work with community partners to help recruit “customers” for window inserts in the communities surrounding the University of Maine, with priority for low-income customers in need. Students will measure windows and send measurements to Rockland Window Dressers (RWD) so RWD can cut the frames to the correct proportions. In November, students will work alongside Bangor UU volunteers to assemble the window inserts and deliver them to the customers. The nature of the service learning project will require students to spend more service hours during the weeks of the Window Insert Build and Retreat (see course Timeline) than during other weeks. Therefore, students will spend an average of 2 hours per week on service (i.e., recruiting customers, measuring windows, etc) during weeks that are not part of the Window Insert Build or the Retreat. Students will document their service on a weekly time sheet that will be signed by their community partners. The time sheets and instructor/community partner observations will contribute to the final Service grade (20% of the final grade).

#### Final Project (20%)

#### The final project will be a research project about the effect of service learning and community-based approaches to advancing sustainable energy. Students will administer a survey to window insert customers at the beginning and end of the project to understand customer motivations, attitudes and perceptions of the window inserts. They will be required to complete IRB training in the beginning of the semester in order to administer the surveys. They will also apply course concepts to calculate the amount of energy and emissions projected to be saved by the window inserts. They will create a collaborative final paper and presentation, which will include a literature review, the results of the surveys, calculations, excerpts from their Reflections, and recommendations for future community energy service learning projects. The students will work as a class to complete the final project. More instructions will be presented during the first month of class. Homework assignments, in-class activities, and service will help students make progress on the final project throughout the semester. The final project grade will include group and individual components. Students will earn individual grades for specific parts of the project they were expected to complete and through self and peer evaluations. There will also be a group final project grade for the paper and presentation, as well as the component parts (literature review and calculations).

#### Final Semester Grade

#### The final semester grade will be the sum of the weighted total In-Class Assignment, Homework, Service, Exam, and Final Project grades and will be assigned as follows:

|  |  |  |  |
| --- | --- | --- | --- |
| A (90 or above) | B+ (87-89.9) | B (82-86.9) | B- (80-81.9) |
| C+ (77-79.9) | C (72-76.9) | C- (70-71.9) | D+ (67-69.9) |
| D (62-66.9) | D- (60-69.9) | F (59.9 or less) |  |

**Late/Missed Assignments**

At the end of the semester, I will drop the 2 lowest assignments out of the combined homework and in-class assignment categories to account for any life event that may have made it difficult for students to submit assignments on time or attend class. Assignments related to the Retreat and Window Insert Build (including reflections) will not be eligible to be dropped. Due to that policy, there will be NO opportunities to make up missed work, and late assignments will NOT be accepted. The only exception to this rule is if the University has granted a student a leave from course duties for some reason - in this case, the proper documentation would be required to make up missed or late assignments within the appropriate timeframe specified on the University documentation.

**Extra help**

I am available for extra help as needed and always willing to help students achieve success. Please send email requests for meetings at least 48 hours ahead of time – depending on my travel and research schedule, I may need more time than this. Also, please see the Communication Policy for questions that may be addressed electronically.

**Communication Policy**

**Check Google Classroom regularly** for announcements, assignments and other communication from me. More instructions to follow. Also, feel free to email me at [Sharon.klein@maine.edu](mailto:Sharon.klein@maine.edu). Please include in the subject line “ECO 370” before the topic of your email, so I will be able to easily match the course with your inquiry. Also, please make sure your emails are professional and include proper spelling and grammar. Please allow at least 48 hours (more if I am traveling) for a response. I will make every effort to respond sooner than this if possible.

**Disabilities Policy**

If you have a disability for which you may be requesting an accommodation, please contact Disabilities Services, 121 East Annex, 581-2319 ((TTY) 581-2325), as early as possible in the term.

**Academic Integrity Policy**

Academic honesty is very important. It is dishonest to cheat on exams, to copy term papers, to submit papers written by another person, to fake experimental results, or to copy or reword parts of books or articles into your own papers without appropriately citing the source. Students committing or aiding in any of these violations may be given failing grades for an assignment or for an entire course, at the discretion of the instructor. In addition to any academic action taken by an instructor, these violations are also subject to action under the University of Maine Student Conduct Code. The maximum possible sanction under the student conduct code is dismissal from the University.

**University Sexual Discrimination Reporting Policy**

The University of Maine is committed to making campus a safe place for students. Because of this commitment, if you tell a teacher about an experience of **sexual assault, sexual harassment, stalking, relationship abuse (dating violence and domestic violence), sexual misconduct or any form of gender discrimination** involving members of the campus, **your teacher is required to report** this information to the campus Office of Sexual Assault & Violence Prevention or the Office of Equal Opportunity.

**If you want to talk** **in confidence** to someone about an experience of sexual discrimination, please contact these resources:

For *confidential resources on campus*: **Counseling Center: 207-581-1392** or **Cutler Health Center: at 207-581-4000**.

For *confidential resources off campus*: **Rape Response Services:** 1-800-310-0000 or **Spruce Run**: 1-800-863-9909.

**Other resources:** The resources listed below can offer support but may have to report the incident to others who can help:

For *support services on campus*: **Office of Sexual Assault & Violence Prevention: 207-581-1406**, **Office of Community Standards: 207-581-1409**, **University of Maine Police: 207-581-4040 or 911**. Or see the OSAVP website for a complete list of services at <http://www.umaine.edu/osavp/>

**Course Schedule Disclaimer (Disruption Clause)**

In the event of an extended disruption of normal classroom activities, the format for this course may be modified to enable its completion within its programmed time frame. In that event, you will be provided an addendum to the syllabus that will supersede this version.

**Course Timeline: see attached**