

Energy & Society

Course Number: SCI 321U-001 (Online)

CRN: 64970

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Course Overview

Energy is an integral of our daily life, yet we seldom pause to think about it. In this class we take the time to examine how energy has transformed – and continues to transform – society and the environment. We begin by looking at the fundamentals of energy – the physical laws governing energy, the different kinds of energy, and how we harness different forms of energy in our daily lives. We compare energy use in the pre-industrial era to energy use today, and see how daily life has changed with access to cheap and abundant energy. We next look at the environmental impacts of our current energy use and the risk these impacts pose for human society. We then explore new clean energy options that are on the brink of wide adoption and try to imagine how these might shape the societies of tomorrow.

This is a cluster class, and will focus on the UNST learning goals. Specifically, you will continue to hone your critical thinking skills and your ability to communicate clearly by working on assignments and presentations that require well-researched, well-reasoned, and concise critiques on various aspects of Energy & Society. Through the lab work and some of the in-class activities, you will improve your quantitative literacy. You will have the chance to touch upon ethics and the diversity of human experience in the final research paper as well as in some of the in-class activities.

Weekly class work will include a mix of reading, lab work, discussions, research, and in-class activities.

Learning Outcomes

1. Understand the physical laws governing energy.
2. Develop a qualitative and quantitative understanding of past and current per capita energy use.
3. Learn about the impacts of energy on society and the environment.
4. Hone communication skills by developing and presenting a case study of one aspect of energy and society to your peers.
5. Explore the ethical and/or social implications of new energy technologies on future societies.

Readings

There is no required text for the class. Instead, we will make use of readings, videos, and other media from our library and online. Materials for each week will be posted at the start of the week.

Expectations

This is a fully online class, so please make sure you are familiar with the requirements of an online class. Specifically, in the first week of class, please familiarize yourself with all portions of this course including the course syllabus, course schedule, module structure, discussion boards, discussion board etiquette, assignment dropboxes, and grading rubrics.

Be prepared to spend about 8-10 hours per week on this course, and to visit the course website at least 2-3 times each week.

There are no required in person meetings, as this is a fully online class. However the course is not self-paced – you are expected to cover the readings and other study material for each module within the time allocated for that module, typically a week. It is also expected that you will write up weekly summaries of what you have learned, actively engage in online discussions, submit assignments by the specified date and time, and work collaboratively on a group project. All assignments are due by 11:59pm on the due date – unless a different time is explicitly given in the assignment. Late work will be severely discounted (35% per day – no credit if more than three days late; feedback on late work will be at the discretion of the TA).

Module/Class Structure

The modules will follow the general format outlined below:

1. Modules

Each Module will span 1 week. Modules will typically start Monday morning, and all work for that module is expected to be completed by midnight of the following Sunday.

Study materials, including any narrated slideshows, discussion prompts, and lab assignments will be available by 9:00 am Monday of the week the module starts.

2. Weekly summaries

You, together with your group, will be required to submit a brief summary of the materials for the week to the class discussion board by **Thurs 11:59am (noon)**. The rest of the week (Thurs-Sun) will be devoted to discussion on the summaries, a research activity related to the week's topic and lab/fieldwork. Individual summaries consolidating everything you've learned from the discussions and your own research, will be due by 11:59 pm, Sunday (unless otherwise noted).

3. Weekly Discussions/Activities/Research

The weekly discussion and/or activity will generally be first done in a small group, and the group will then contribute to the class discussion or learning activity.

4. Lab/Fieldworks

There will be 5 lab/fieldwork activities for the class.

5. Mid-term assignment

The mid-term will be a group presentation on an aspect or case study of energy use on society.

6. Final assignment

The final exam will be an individual research paper exploring a social or ethical aspect of an energy source or technology on society.

7. Turning in assignments

When turning in assignments, please use the following naming convention: save and name your file(s) to turn in using your last name and the title of the assignment in the file name (for example, if your name is Smith and you're turning in the first draft of the final essay, you might name your file Smithfinaldraft1.doc). For group assignments, use the group number in place of last name (for example, group04FinalPresentation.ppt).

Please make sure to upload your assignments to the correct dropbox – there will be a dropbox for each weekly assignment and final project. The final mid-term video should be posted to the class channel on PSU’s Media Space.

Miscellaneous

When emailing either the instructor or the TA, always include your last name and a clue about your purpose in the subject line (for example, if you were writing with a question about an assignment, you might write, “SCI 321: Smith week 5 assignment question” in the subject line).

You must save your documents as Word docx, Word doc, or RTF (rich text format). If you are using any other word processing software, I and your peers may not be able to open your documents.

If you have a learning or physical disability, please contact the Disability resource Center for approval to request accommodation.

Grading

100 pts Weekly summaries (8 best of 9, 12.5 each)

100 pts Weekly discussions/research/activity (8 best of 9, 12.5 each)

100 pts Lab/fieldwork (5, 20 each)

100 pts Mid-term (group presentation, 15 min video on an Energy & Society case study)

100 pts Final (individual research paper, 8-10 pages, on the social and ethical impacts of an emerging energy technology)

Guideline for grade assignment:

(This is tentative – I may move it up or down a bit based on overall class performance)

Points	Grade
93.50 to 100	A
90.00 to 93.49	A-
86.50 to 89.99	B+
83.50 to 86.49	B
80.00 to 83.49	B-
76.50 to 79.99	C+
73.50 to 76.49	C
70.00 to 73.49	C-
66.50 to 69.99	D+
63.50 to 66.49	D
60.00 to 63.49	D-
0.00 to 59.99	F

Course Schedule

Below is the schedule for SCI 321U. The weekly pattern we will follow is:

*Summary of materials – including group presentations – **for discussion** due noon, Thursday*

*Activity/Research **for discussion** due noon Thursday, in weeks 1-5*

A checkpoint for individual research papers due Thurs, weeks 7-10

Lab/fieldwork due Sun, weeks 1-5

Final revised summary and activity/research due Sun, weeks 1-5

Revised commentary on group presentations due Sun, weeks 7 – 10

The schedule is tentative and liable to change. Changes will be posted in D2L as news items.

	Week	Topic	Activity/ Discussion/ Research	Lab/Fieldwork	Major deadlines
1	28th Mar - 3rd Apr	Fundamentals of energy (physical)	Activity: Types of energy	Energy diary, energy conversions	
2	4th - 10th Apr	Fundamentals of energy (social)	Activity: Intro + photo-essay	Virtual visit to power generation plants	
3	11th - 17th Apr	Human impact on the energy cycle	Research: photosynthesis, ATP	Compare annual energy use by plants with annual global energy consumption	
4	18th - 25th Apr	Energy and society in pre-industrial and modern times	Research: Impacts of energy use on the environment Form groups for case studies	A day without modern energy; tips for emergency preparedness	Topic & group: Thurs, 21st Apr
5	26th Apr - 1st May	The quest for sustainable energy/ future options	Discussion: Politics and ethics of energy use: Who killed the electric car?	Lab/Fieldwork TBD (life cycle analysis of electric vs. regular cars? Emissions comparisons?)	Topics for individual research: Sun, 1st May
6	2nd - 8th May		Work on presentations	Work on individual research papers	TBD
7	9th - 15th May	Case study presentations Groups 1 & 2 (due by 11:59 pm, 10th May)	Feedback and discussion	Work on individual research papers	Individual research checkpoint: Thurs, 12 th May
8	16th - 22nd May	Case study presentations Groups 3, & 4 (uploaded by 11:59 pm Sunday)	Feedback and discussion	Work on individual research papers	Individual research checkpoint: Thurs, 19th
9	23rd - 29th May	Case study presentations Groups 5, 6 & 7	Feedback and discussion	Work on individual research papers	Individual research checkpoint: Thurs, 26th
10	30th May - 5th Jun	Case study presentations Groups 8, 9 & 10	Feedback and discussion	Work on individual research papers	Individual research papers due: Sun, 5th Jun
11	6th - 10th Jun	Finals week			