

**HONORS 383—Fall, 2016****Honors Colloquium: Energy--Present Realities, Future Possibilities**

Fridays, 2:00-4:50 PM, Room 0118 Honors Hall

Some weeks (as noted) will include field trips to locations on and off campus.

We will take one 10-20 minute break during each class session.

**Instructional Team**

- Jeffrey Doom, 220 Crothers Engineering Hall, 688-6703, [Jeffrey.doom@sdstate.edu](mailto:Jeffrey.doom@sdstate.edu)
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- Vance Owens, 200G Administration Building, 688-5476, [vance.owens@sdstate.edu](mailto:vance.owens@sdstate.edu)
- Reinaldo Tonkoski, 211 Daktronics Eng. Hall, 688-6298, [reinaldo.tonkoski@sdstate.edu](mailto:reinaldo.tonkoski@sdstate.edu)
- Michael Twedt, 226 Crothers Engineering Hall, 688-4303, [michael.twedt@sdstate.edu](mailto:michael.twedt@sdstate.edu)

**Course description**

Honors Colloquium is described as ‘a multidisciplinary examination of a topic of contemporary interest’. For this section in fall 2016, that topic is *Energy: Present Realities, Future Possibilities*.

**Course goals, objectives, and learning outcomes**

As a result of completing this course, students will be able to:

1. Explain foundational concepts from the physical and biological sciences regarding energy.
2. Critically evaluate the advantages and disadvantages of multiple sources of energy.
3. Thoughtfully discuss economic, social, and policy dimensions of energy in the 21<sup>st</sup> century.
4. Articulate an understanding of what comprises an energy portfolio, and to propose, present, and defend an energy portfolio in an informed, professional manner.

**Course pre-requisites**

There are no pre-requisites for this course. Students should be eligible for and enrolled in the Fishback Honors College.

**Description of instructional methods**

This course will utilize a variety of pedagogical approaches, including lecture, discussion, field experiences, and collaborative learning.

**Required texts**

Readings and other resources will be posted to the course’s D2L site. Students are expected to come to class having carefully read and considered the content for that week.

**Technology and Technical Support**

Technology requirements (<http://d2l.sdbor.edu/shared/sdsu/require.htm>)

Desire to Learn (D2L) will be an essential course resource. Course materials, supplemental resources, grading, and communication will be facilitated through D2L. For some assignments, D2L drop boxes will be used; others will be submitted and/or presented in class. Lecture materials (e.g. power point presentations) may also be made available on D2L.

### **Technical Support**

Helpdesk 605-688-6776 or SDSU.supportdesk@sdstate.edu.

<http://www3.sdstate.edu/TechnologySupport/InformationTechnologyServices/>

### **Class attendance policy**

Attendance, active participation, and contribution to the classroom dynamic in the course is expected. True to the spirit of the Honors Colloquium, a significant portion of the course will involve discussion and group work. Points will be regularly awarded for in-class activities. These points may not be made up.

### **Policy on Late Assignments**

Points will be deducted on late work at the schedule of ten percent (i.e. one letter grade) per day late.

### **This course fulfills SDSU's Institutional Graduation Requirement #2: Cultural Awareness and Social/Environmental Responsibility.**

Students will acquire knowledge about the world's peoples – their cultures, arts, and environments – that prepares them for further study, deepens their understanding of the human condition, and strengthens their commitment to social and environmental responsibility.

### **Student Learning Outcomes:**

As a result of taking the course(s) meeting this goal, students will:

- *Articulate the ways in which different peoples express an understanding of the human condition and respond to environmental opportunities and constraints.*
  - This outcome will be fulfilled through the examination of energy use in response to a variety of environmental, social and cultural contexts.
- *Describe how personal choices derive from and affect social, cultural, and environmental contexts.*
  - The impacts of choices relating to energy use will be explored in economic, social, cultural, political, and environmental contexts.
- *Engage in aesthetic experience in order to understand artistic expression and learn how meaning emerges from contexts of both artist and audience.*
- *Explain the ethical consequences of decisions and actions concerning the environment to strengthen commitment to local, national, and global citizenship.*
  - Energy will provide the context for examination and reflection on ethical consequence of decisions and actions concerning the environment, and local, national and global citizenship.

### Course assessments

- **Energy in the news — 25 points.**
  - ◆ Each student will identify an article from that week's news and/or popular press, summarize it for class, and engage the class in discussion of the topic. Scheduled throughout the semester.
  
- **Personal energy audit – 25 points (due in class on 16 Sep.)**
  - ◆ Students will complete and discuss a simple audit of their personal energy use.
  
- **Quizzes – 50 points (2 @ 25 points each; will use D2L).**
  - ◆ Quiz 1 (23 Sep.): Foundations of energy
  - ◆ Quiz 2 (25 Nov.): Social and political dimensions of energy, energy sustainability
  
- **Midterm — 100 points (due on 21 Oct.; in class).**
  - ◆ Students will complete an essay exam in which they discuss the key concepts of the first portion of the semester, to include an explanation of the advantages and disadvantages of each of the energy sources presented.
  
- **Energy portfolio presentations – 150 points**
  - ◆ Students will work in groups of 3-4 people to explore the current status, future possibilities, associated issues, and policy incentives regarding the energy portfolio of a student-identified geographic unit of analysis. More information will be distributed in class during week 2. This assignment will be divided into 4 parts:
    - Part 1 (5 points possible)
      - Due in class on 16 Sep.
      - Each group will select three possible geographic regions for analysis.
    - Part 2 (group presentation—25 points possible)
      - Presentations (15-20 minutes) in class on 14 Oct.
      - Presentation of the current status of the energy mix for their chosen geographic region, including sources, consumers, and associated current issues (good, bad, and ugly).
    - Part 3 (group presentations—40 points possible)
      - Presentations (15-20 minutes) in class on 18 Nov.
      - Presentation of proposed energy mix for 2035, to include sources, consumers, and social/economic/environmental justification for approach.
    - Part 4 (final group presentations—40 points possible; final group paper—40 points)
      - Presentations in class during scheduled final time (12 Dec. from 1:45-3:45 pm)
      - Group presentation to include synopsis of previous work along with a discussion of policy proposals that will help achieve the proposed energy mix
      - Group paper (approximately 5 pages), should include narrative support and references for all four oral presentations
  
- **Attendance and participation – 50 points**
  - ◆ Students are expected to attend, participate, and contribute thoughtfully to class each week.

**Course Grading:**

Letter grades will be awarded according to the following standard of excellence:

<b>Grade</b>	<b>%</b>	<b>Points</b>
A	90-100	360-400
B	80-89	320-359
C	70-79	280-319
D	60-69	240-279
F	0-59	0-239

**ADA statement:**

We are committing to supporting the academic success of all of our students. Any student who feels s/he may need an accommodation based on the impact of a disability should contact the Coordinator of Disability Services (605-688-4504 or FAX 605-688-4987) to privately discuss your specific needs. The Office of Disability Services is located in room 065, University Student Union.

**Freedom in Learning Statement:**

Students are responsible for learning the content of any course in which they are enrolled. Under Board of Regents and University policy, student academic performance shall be evaluated solely on an academic basis and students should be free to take reasoned exception to the data or views offered in any courses of study. Students who believe that an academic evaluation is unrelated to academic standards but is related instead to judgement of their personal opinion or conduct should first contact the instructor of the course. If the student remains unsatisfied, the student may contact the Department Head, Dean, or both, of the college which offers the class to initiate a review of the evaluation.

**Student Academic Integrity and Appeals:**

The University has a clear expectation for academic integrity and does not tolerate academic dishonesty. University Policy 2.4 sets forth the definitions of academic dishonesty, which includes, but is not limited to, cheating, plagiarism, fabrication, facilitating academic dishonesty, misrepresentation, and other forms of dishonesty relating to academics. The Policy and its Procedures also set forth how charges of academic dishonesty are handled at the University. Academic dishonesty is strictly proscribed and if found may result in student discipline up to and including dismissal from the University.

For a broader discussion of these expectations, consult the *Fishback Honors College Student Ethic*.

**Tentative course schedule (subject to change):**

Week/Date	Topic	Facilitating faculty	Readings/Resources/Assignments/Activities
Week 1 26 Aug.	*Introduction to course *Introduction to energy – *Foundational information and understanding *The Physics of energy *Energy and your life	All R. McTaggart	Energy demonstration by Larry Browning and Matt Miller
Week 2 2 Sep.	*Personal energy audit *Portfolio project overview	M. Twedt All	2 Energy in the news
Week 3 9 Sep.	Energy source: Biofuels *Historical basis/context for biofuels *Market dynamics *Public and private threats *Energy/lifecycle balance	B. Gibbons	Field Trip to Valero
Week 4 16 Sep.	Energy source: Fossil fuels *Climate change and the energy mix	Jeff Doom	Personal energy audit due  Portfolio project ‘geographies’ due  2 Energy in the news
Week 5 23 Sep.	Field Trip	R. Tonkoski D. Galipeau	Quiz 1 via D2L Field Trip to Deer Creek Power Plant and Windfarm
Week 6 30 Sep.	Energy source: Nuclear *Nuclear physics primer *What is radiation? *Nuclear Pros and Cons	R. McTaggart	2 Energy in the news
Week 7 7 Oct.	Energy source: Renewables – *Vision of energy future (100% renewables) *Renewable challenges *The smart grid Solar *Solar energy basics *Photovoltaic systems *Economics of photovoltaics *Load management and the smart grid	R. Tonkoski D. Galipeau	2 Energy in the news -Visit Microgrid Lab

Week 8 14 Oct.	Energy Source—renewables **Wind and hydroelectric power Basics of wind energy *Wind and hydro economics  Energy panel discussion Question and answer	R. Tonkoski  All	Portfolio project presentations (v1)
Week 9 21 Oct.	Mid-term on energy sources (in class)		
Week 10 28 Oct.	The economics of energy “Power markets”	T. Hansen	2 Energy in the news
Week 11 4 Nov.	Sustainable energy; life cycle approaches	H. Sieverding, SDSMT	2 Energy in the news
Week 12 11 Nov.	No class Veteran’s Day holiday		
Week 13 18 Nov.	Energy policy	B. Jordan, Great Plains Institute	Portfolio project presentations (v2)
Week 14 25 Nov.	No class Thanksgiving holiday		Quiz 2 via D2L
Week 15 2 Dec.	Energy conservation, energy sustainability Energy and social issues	J. McLaughlin, L. Ganschow, J. Schad	Work on portfolio projects
Week 16 12 Dec. 1:45-3:45 p.m.	Final presentations	All	Final portfolio project presentations  Final technical reports due

Additional readings and resources will be posted to the D2L throughout the semester.