

ME 568
Alternative Energy and Fuel Resources
SPRING 2014

Instructor: Dr. Tomasz Wiltowski

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Time: Tuesdays and Thursdays, 3.35 pm – 4.50 pm

Location: A210

Office hours: T, Th 2:30 pm – 3:30 pm

Textbook: The course will not require any textbook. All the lectures and course information will be published on the webpage.

Course description:

The course will covers alternatives for energy resources and the impact of the human growth on the energy usage and its environmental consequences. The course describes the fossil fuel era, renewable energy resources and the hydrogen fuel era. The fundamentals of each of these fuel types, their conversion to unstable energy and the potential of each of these fuels for the future is discussed.

Interesting Information Resources on the Internet:

One of the goals of this course is to provide an introduction to the emerging information technologies apply to Energy and Fuels. At some point you may wish to browse World Wide Web Virtual Library. There are also lots of other fun things to see and do on the Internet. So take a break every so often from the serious stuff and explore the rest of the Wide World Web and the Internet.

Grading:

Mid term Exam 40%

Presentation 60%

Daily Schedule:

The attached schedule gives the anticipated dates of lecture topics and the dates on which examinations are to be given. This schedule will be revised as necessary during the semester. Some topics may take more or less lecture time than indicated here and the problems numbers will be adjusted to be in sync with the lecture topics. However, the dates for examinations are fixed and the topics covered in each exam will be adjusted to those covered by lectures at the time of the examination.

Emergency Procedures

Southern Illinois University Carbondale is committed to providing a safe and healthy environment for study and work. Because some health and safety circumstances are beyond our control, we ask that you become familiar with the SIUC Emergency Response Team (BERT) program. Emergency response information is available on posters in buildings on campus, available on BERT's website at www.bert.siu.edu, Department of Safety's website www.pds.siu.edu (disaster drop down) and in Emergency Response Guideline pamphlet. Know how to respond to each type of emergency.

Instructors will provide guidance and direction to students in the classroom in the event of an emergency. It is important that you follow these instructions and stay with your instructor during an evacuation or sheltering emergency. The Building Emergency Response Team will provide assistance to your instructor in evacuating the building or sheltering within the facility.

SCHEDULE

- January 14** Introduction to the course
- January 16** Introduction to Energy
- January 22** Nonrenewable Energy Resources: Coal & Natural Gas
- January 24** Nonrenewable Energy Resources: Crude Oil
- January 28** Environmental Impact of Energy Consumption: The Saga of the Greenhouse Effect
- January 30** Nuclear Energy
- February 4** Renewable Energy Resources: Solar Energy
- February 6** Renewable Energy Resources: Geothermal Energy

- February 11** Renewable Energy Resources: Hydropower Energy
- February 13** Renewable Energy Resources: Biomass Energy
- February 18** Renewable Energy Resources: Wind Energy
- February 20** Renewable Energy Resources: Wind Energy
- February 25** Renewable Energy Resources: Wave Energy

- February 27** **Mid-term Exam**
- March 4** Renewable Energy Resources: Tidal Energy
- March 6** Hydrogen: Production
- March 8 – March 16** **SPRING BREAK**
- March 18** Hydrogen: Storage
- March 20** Gasification of Coal, student's presentation
- March 25** Gasification of Coal, student's presentation
- April 1** Liquid Fuels from Coal, student's presentation
- April 3** Liquid Fuels from Coal: Fischer-Tropsch, student's Presentation
- April 8** student's presentation
- April 10** Shale Oil from Oil Shale, student's presentation
- April 15** Renewable in Transportation, student's presentation
- April 17** Fuels for Transportation – student's presentation
- April 22** Modern vehicles, student's presentation
- April 24** Fuel Cells, student's presentation
- April 29** Fuel Cells, student's presentation
- May 1** Future Energy Recourses, course summary, where we are going and what is the future of energy
- May 5-9** **FINAL WEEK**

"We emphasize student achievement and success because achievement and success are essential if we are to shape future leaders and transform lives." ¹

IMPORTANT DATES

<u>Semester Class Begins</u>	01/13/2014
<u>Last day to add a class</u> (without instructor permission):	01/24/2014
<u>Last day to withdraw completely and receive a 100% refund:</u>	01/26/2014
<u>Last day to drop a course using SalukiNet:</u>	03/23/2014
<u>Last day to file diploma application</u> (for name to appear in Fall Commencement program):	03/28/2014
<u>Final examinations:</u>	5/5 – 5/9/2014

Note: For outreach, internet, and short course drop/add dates, visit Registrar's Academic webpage <http://registrar.siu.edu/>

SPRING SEMESTER HOLIDAYS

Martin Luther King, Jr.'s Birthday 01/20/2014
Spring Vacation 03/08—03/16/2014

WITHDRAWAL POLICY ~ Undergraduate only

Students who officially register for a session may not withdraw merely by the stopping of attendance. An official withdrawal form needs to be initiated by the student and processed by the University. For the proper procedures to follow when dropping courses and when withdrawing from the University, please visit <http://registrar.siu.edu/pdf/ugradcatalog1314.pdf>

INCOMPLETE POLICY~ Undergraduate only

An INC is assigned when, for reasons beyond their control, students engaged in passing work are unable to complete all class assignments. An INC must be changed to a completed grade within one semester following the term in which the course was taken, or *graduation*, whichever occurs first. Should the student fail to complete the course within the time period designated, that is, by no later than the end of the semester following the term in which the course was taken, or graduation, whichever occurs first, the incomplete will be converted to a grade of *F* and the grade will be computed in the student's grade point average. *For more information please visit:*

<http://registrar.siu.edu/grades/incomplete.html>

REPEAT POLICY

An undergraduate student may, for the purpose of raising a grade, enroll in a course for credit no more than two times (two total enrollments) unless otherwise noted in the course description. For students receiving a letter grade of A,B,C,D, or F, the course repetition must occur at Southern Illinois University Carbondale. Only the most recent (last) grade will be calculated in the overall GPA and count toward hours earned. *See full policy at* <http://registrar.siu.edu/pdf/ugradcatalog1314.pdf>

GRADUATE POLICIES

Graduate policies often vary from Undergraduate policies. To view the applicable policies for graduate students, please visit <http://gradschool.siu.edu/about-us/grad-catalog/index.html>

DISABILITY POLICY

Disability Support Services provides the required academic and programmatic support services to students with permanent and temporary disabilities. DSS provides centralized coordination and referral services. To utilize DSS services, students must come to the DSS to open cases. The process involves interviews, reviews of student-supplied documentation, and completion of Disability Accommodation Agreements.

<http://disabilityservices.siu.edu/>

STUDENT CONDUCT CODE

http://policies.siu.edu/other_policies/chapter3/conduct.html

¹ Southern Illinois University Carbondale. (2013). *Pathways to Excellence: A Strategic Plan*. Retrieved from http://chancellor.siu.edu/_common/docs/A_Strategic_Plan.pdf

SALUKI CARES

The purpose of Saluki Cares is to develop, facilitate and coordinate a university-wide program of care and support for students in any type of distress—physical, emotional, financial, or personal. By working closely with faculty, staff, students and their families, SIU will continue to display a culture of care and demonstrate to our students and their families that they are an important part of the community. For Information on Saluki Cares: (618) 453-5714, or siucares@siu.edu, <http://salukicare.siu.edu/index.html>

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INCLUSIVE EXCELLENCE

SIU contains people from all walks of life, from many different cultures and sub-cultures, and representing all strata of society, nationalities, ethnicities, lifestyles, and affiliations. Learning from and working with people who differ is an important part of education as well as an essential preparation for any career. *For more information please visit:* <http://www.inclusiveexcellence.siu.edu/>

MORRIS LIBRARY HOURS

<http://www.lib.siu.edu/about>

LEARNING AND SUPPORT SERVICES

Help is within reach. Learning support services offers free tutoring on campus and math labs. To find more information please visit the Center for Learning and Support Services website:

Tutoring : <http://tutoring.siu.edu/>

Math Labs http://tutoring.siu.edu/math_tutoring/index.html

WRITING CENTER

The Writing Center offers free tutoring services to all SIU students and faculty. To find a Center or Schedule an appointment please visit <http://write.siu.edu/>

AFFIRMATIVE ACTION & EQUAL OPPORTUNITY

Our office's main focus is to ensure that the university complies with federal and state equity policies and handles reporting and investigating of discrimination cases. *For more information visit:*

<http://diversity.siu.edu/#>

Additional Resources Available:

SALUKINET: <https://salukinet.siu.edu/cp/home/displaylogin>

ADVISEMENT: <http://advisement.siu.edu/>

PROVOST & VICE CHANCELLOR: <http://pvcaa.siu.edu/>

SIU ONLINE: <http://online.siu.edu/>