

12:114

Energy & Environment

Dr. C.T. Foster

FALL 2012

COURSE GOAL: To understand scientific concepts related to potentially significant energy sources of the 21st century; environmental impacts, positive and negative, of each energy source as well as geologic and geographical distributions and applications.

LECTURE: T-T 9:30 -10:45 Room 134 TH

INSTRUCTOR : Prof. C. T. Foster - Office 239 TH, Office Hours T - W 11:00 AM – 12:30 PM and by appointment
Phone: 335-1801 (office) or 335-1818 (message); email: tom-foster@uiowa.edu.

TA: Dan Cukierski - Office xxx TH, Office Hours xxxx, and by appointment. Phone 335-1818 (message);
Email: daniel-cukierski@uiowa.edu

REQUIRED TEXT: Energy: Its Use & the Environment (5th Edition) by Hinrichs & Kleinbach (2012)

CLICKERS: Student response Systems or "clickers" are required for this course. Bring it to all classes beginning with the first meeting. Each student must have their own and register it on line. See <http://its.uiowa.edu/support/srs/registering.shtml> for further information on how to do this.

Modifications: Please see Dr. Foster during his office hours the first week of class if you have any disability that may require some modification of seating, testing, or other class requirements, so that appropriate arrangements can be made. Also, please talk with Dr. Foster if you have questions about the lectures or problems with the course.

Grading: 1000 points total. **Quizzes/Exercises/Participation** = 300 points (30%), **Midterm Exam** =150 points (15%), **Final Exam** =250 points (25%), **Power Point Presentation** = 150 points (15%), **Term Paper** = 150 points (15%). Quizzes may be announced or unannounced and can be given at any lecture or lab meeting. Exams and quizzes are comprehensive and may include any class and reading topics to date, including the reading assignment for the week. Approximate grading scale: A=900 to1000 points, B=800 to 900 points, C=700 to 800 points, D=600 to 700 points, F=below 600 points (*note: +- grades will be used in the upper and lower portions of each grade range*).

EXAMS & ASSIGNMENT DUE DATES, TIMES AND LOCATIONS:

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|------------------|---------|----------|---------------|
| Midterm Exam | 9:30 AM | 10/16/12 | room 134 TH |
| Presentation due | 11:59PM | 11/16/12 | ICON drop box |
| Term Paper due | 11:59PM | 12/02/12 | ICON drop box |
| Final Exam | TBA | | room 134 TH |

Attendance and class participation: *Students are expected to attend all lectures and participate in class exercises.* Each unexcused absence will result in loss of quiz/exercise/participation points from your point total. If you miss a lecture, you are expected to get the pertinent information from another student who attended the class. Make-up assignments/quizzes/exams and late homework exercises will be allowed only because of illness, [mandatory religious obligations](#), certain University activities, or unavoidable circumstances. You should discuss absences with Professor Foster prior to missing class or an assignment due date unless it is due to a sudden, unanticipated event. In the latter situation, please notify Professor Foster of the circumstances by email as soon as possible.

Cell phone use and other social activities (texting, facebook, email etc) are not permitted during class time. Students violating this rule will be required to leave class and accumulate an unexcused absence for each offense.

Amount of Work Expected: The College guideline is that one semester hour of credit is the equivalent of approximately three hours of work (class time + out-of-class preparation) each week over the course of a whole semester. In a typical lecture/discussion course, each hour of class normally entails at least two hours of outside preparation for the average student (e.g., in a three-credit-hour lecture course like this one, standard out-of-class preparation is about six hours per week).

Course Web Page: <http://icon.uiowa.edu> Log in with your HAWK ID and password. Course information (syllabus, lecture materials, presentation & term paper instructions, grades etc.) can be found here. Check it regularly as course announcements will be posted here as well. We will use your official University of Iowa email, and no other address, as your contact email. If you use another email, it is your responsibility to check your Ulowa email regularly.

This syllabus and/or course policies may be modified as the semester progresses, if unforeseen circumstances develop. Any changes will be presented in class and on ICON announcements

CLASS OUTLINE

| Class # & date | Lecture Topic | Reading Assignment (read before class) |
|----------------|--|---|
| 1 8/21 | Introduction | |
| 2 8/23 | National Energy Use | Chapter 1 |
| 3 8/28 | Iowa Energy Use | Chapter 1 |
| 4 8/30 | Energy Mechanics | Chapter 2 |
| 5 9/4 | Conservation of Energy | Chapter 3 |
| 6 9/6 | Heat & Work | Chapter 4 |
| 7 9/11 | Home Energy | Chapter 5 |
| 8 9/13 | Solar Energy | Chapter 6 |
| 9 9/18 | Fossil Fuels: Oil & Natural Gas | Chapter 7 |
| 10 9/20 | Fossil Fuels: Refining, Transportation & Price | Chapter 7 |
| 11 9/25 | Fossil Fuels: Hydrocarbon Exploration & Unconventional Sources | Chapter 7 |
| 12 9/27 | Fossil Fuels: Coal | Chapter 7 |
| 13 10/2 | Deepwater Horizon & Other Accidents | TBA |
| 14 10/4 | Air Pollution & Energy | Chapter 8 |
| 15 10/9 | Global Warming & Thermal Pollution | Chapter 9 |
| 16 10/11 | Electricity: Introduction | Chapter 10 |
| 17 10/16 | MIDTERM EXAM: will cover all material through lecture #15 & Chapter 9 | |
| 18 10/18 | Electricity : Generation & Transmission | Chapter 11 |
| 19 10/23 | Electricity: Solar & Wind | Chapter 12 |
| 20 10/25 | Electricity: Hydro | Chapter 12 |
| 21 10/30 | Nuclear Chemistry | Chapter 13 |
| 22 11/1 | Fission | Chapter 14 |
| 23 11/6 | Radiation | Chapter 15 |

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|---------------------------|-------|-------------------------------|--------------------|
| 24 | 11/8 | Fusion | Chapter 16 |
| 25 | 11/13 | Three Mile Island & Chernoble | TBA |
| 26 | 11/15 | Fukushima | TBA |
| THANKSGIVING BREAK | | | |
| 27 | 11/27 | Biomass | Chapter 17 |
| 28 | 11/29 | Biomass (cont) | Chapter 17 |
| 29 | 12/4 | Geothermal | Chapter 18 |
| 30 | 12/6 | National Energy Policy | Chapter 19 |
| TBA | | - FINAL EXAM - | room 134 TH |

Department of Geoscience Syllabus Information:

Department Office: 121 Trowbridge Hall

Department Chair (DEO): Prof. M.K. Reagan

DEO Telephone: 319-335-1820

Telephone: 319-335-1818

DEO Office: 121C TH

DEO Email: geology-deo@uiowa.edu

Administrative Home

The College of Liberal Arts and Sciences is the administrative home of this course and governs matters such as the add/drop deadlines, the second-grade-only option, and other related issues. Different colleges may have different policies. Questions may be addressed to 120 Schaeffer Hall, or see the CLAS Academic Policies Handbook at <http://clas.uiowa.edu/students/handbook>.

Electronic Communication

University policy specifies that students are responsible for all official correspondences sent to their University of Iowa e-mail address (@uiowa.edu). Faculty and students should use this account for correspondences. (*Operations Manual*, III.15.2. k.11.)

Accommodations for Disabilities

A student seeking academic accommodations should first register with Student Disability Services and then meet privately with the course instructor to make particular arrangements. See www.uiowa.edu/~sds/ for more information.

Academic Honesty

All CLAS students have, in essence, agreed to the College's Code of Academic Honesty: "I pledge to do my own academic work and to excel to the best of my abilities, upholding the IOWA Challenge. I promise not to lie about my academic work, to cheat, or to steal the words or ideas of others; nor will I help fellow students to violate the Code of Academic Honesty." Any student committing academic misconduct is reported to the College and placed on disciplinary probation or may be suspended or expelled ([CLAS Academic Policies Handbook](#)).

CLAS Final Examination Policies

The final examination schedule for each class is announced around the fifth week of the semester by the Registrar. Final exams are offered only during the official final examination period. No exams of any kind are allowed during the last week of classes. All students should plan on being at the UI through the final examination period. Once the Registrar has announced the dates and times of each final exam, the complete schedule will be published on the Registrar's web site.

Making a Suggestion or a Complaint

Students with a suggestion or complaint should first visit the instructor, then the course supervisor, and then the departmental DEO. Complaints must be made within six months of the incident ([CLAS Student Academic Handbook](#).)

Understanding Sexual Harassment

Sexual harassment subverts the mission of the University and threatens the well-being of students, faculty, and staff. All members of the UI community have a responsibility to uphold this mission and to contribute to a safe environment that enhances learning. Incidents of sexual harassment should be reported immediately. See the UI [Comprehensive Guide on Sexual Harassment](#) for assistance, definitions, and the full University policy.

Reacting Safely to Severe Weather

In severe weather, class members should seek appropriate shelter immediately, leaving the classroom if necessary. The class will continue if possible when the event is over. For more information on Hawk Alert and the siren warning system, visit the Public Safety [web site](#).

Rights and responsibilities in the classroom

The College's statement on student rights and responsibilities can be found at: <http://www.clas.uiowa.edu/students/handbook/x/>.