

# **Nuclear Power and Society**

ENV 1060

## **Course Description and Syllabus – Fall 2011**

- Instructor:** Leslie Kanat, Ph.D.  
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Course web page: <http://kanat.jsc.vsc.edu/>
- Office hours:** Scheduled office hours are from 8:30 to 9:30 a.m., Tuesday through Thursday; otherwise, stop in anytime, or schedule an appointment.  
Office location: 332 Bentley.
- Meetings:** Tuesday and Thursday, from 10:00 to 11:15 in LLC 216.
- Text:** A formal textbook will not be required for this course. Appropriate Internet resources may be found on the class web page and additional books will be on reserve in the library.

### **Content to be covered**

Students will be introduced to the basic science behind nuclear power (unstable isotopes, mining, nuclear power plants, and waste disposal), the environmental and biological effects of the use of nuclear power, the economics of nuclear power, and the use of nuclear power throughout the world.

We will develop a concept map related to nuclear power. Students will present written and oral arguments that cover some of the concepts and relationships portrayed in the concept map. Effective student arguments will require research. Each student must find evidence that supports their thesis. It is not necessary for the student to personally disagree or agree with either side of the issue – it is only important that the student makes a well-reasoned and properly documented case for their stated position.

Some class time will be devoted to the use of technology and the development of presentations. We will learn some of the basics of Word® (word processing), Excel® (spreadsheet, database, graphics, and curve fitting), Internet Explorer® (searching and downloading data and images), PowerPoint® (presentations), Illustrator® (figures and posters), and Photoshop® (image editing) in order to develop appropriate presentations. Opportunities will exist to develop skills in the development of a thesis, abstract, structure of a document, grammar, spelling, punctuation, and presentation style.

A textbook is not required for this class. There are many books and journals in the library and online that will be used in this class. Go to the library to seek out information – talk with the librarians.

A significant component of the content of this course has been compiled by the Joint Fiscal Committee of the VT Legislature; the materials are available online at <http://www.leg.state.vt.us/jfo/envy.aspx>.

### **Purpose and course objectives**

The primary objectives of this course are to allow the student to:

- evaluate the efficacy of nuclear power;
- develop written and oral arguments that challenge the main ideas related to nuclear power;
- work together to solve problems;
- apply a working knowledge of computer software (including, but not limited to Explorer®, Word®, Excel®, PowerPoint®, Illustrator®, and Photoshop®); and
- present the recommendations, assessments, and conclusions through oral presentations, poster presentations, and written documents.

This is a First-Year Seminar course and thus has the following characteristics:

- topic not confined to a traditional disciplinary approach;
- incorporates extended classroom experiences;
- explores the variety and commonality of human experiences and perspectives;
- includes information literacy and research skills;
- contains a public events component; and
- emphasizes connections across the college.

### **Assessment**

- 15% Quizzes (announced and surprise)
- 10% Participation in lecture and laboratory sessions.
- 10% Participation in off-campus and after-class activities (to be announced as appropriate)
- 15% In-class student presentations related to nuclear power.
- 35% Materials submitted in conjunction with class activities. You will receive grading rubrics for some of these assignments, whereas for others, you will not.
- 15% Final exam: Thursday, 15 December 2011 at 8:00 a.m. This will be a comprehensive, cumulative, hands-on, written and practical exam.

### **Plagiarism**

Students at JSC are expected to be honest in all their academic work. Acts of dishonesty for which a student may be disciplined include, but are not limited to, receiving or providing unauthorized assistance on coursework or plagiarizing the work of others in writing assignments. The American Heritage Dictionary defines plagiarism in the following way: "To steal or use (the ideas or writings of another) as one's own." You are responsible for knowing what specific acts constitute plagiarism. If you are unsure, then consult me or read the JSC Catalogue. Academic dishonesty in any form is prohibited and unacceptable.

## Order of material to be presented

<b>Week</b>	<b>Beginning</b>	<b>Topics</b>
1	22-Aug-11	Course overview; development of concept map; types of evidence required to take a position. Use of JSC web mail and the JSC LAN.
2	29-Aug-11	Unstable isotopes; half-life; types of radiation; elucidation of research topics. Use of Word.
3	5-Sep-11	Nuclear fuel cycle; mining; conversion; transportation; disposal. Use of PowerPoint.
4	12-Sep-11	Nuclear reactors. Use of Excel.
5	19-Sep-11	Radiation; disease; medical issues. Use of Word.
6	26-Sep-11	Nuclear waste; Yucca Mountain. Use of Illustrator.
7	3-Oct-11	<i>Fall Break</i>
8	10-Oct-11	Nuclear accidents and terrorists. Use of Photoshop.
9	17-Oct-11	Costs per kW·h; Public Utility Holding Company Act; subsidies. Use of Illustrator.
10	24-Oct-11	VT Re-licensing Bill (S.124) No. 160; Complex 2030 and the Reliable Replacement Warhead Program; Treaty on the Non-Proliferation of Nuclear Weapons; other nations in the headlines. Use of PowerPoint.
11	31-Oct-11	PowerPoint presentations.
12	7-Nov-11	Worldwide location of nuclear power plants; sources of energy for JSC; Vermont Yankee
13	14-Nov-11	Average income of people living near nuclear power plants; cultural differences in the perception of nuclear power in different countries.
14	21-Nov-11	<i>Thanksgiving Break</i>
15	28-Nov-11	What you can do: non-violent direct action; letter writing, public hearings
16	5-Dec-11	Poster Presentations.
Final	15-Dec-11	Thursday at 8:00 a.m. in LLC216.

*We will modify and improve the course syllabus as the term progresses.*

### **Order of material to be presented (continued)**

The previous page indicates the material that we expect to cover in this class and the dates in which it will be presented. There will be significant modifications to this schedule. Guest speakers will be invited to present their ideas to our class and that will result in changes in the schedule. Other changes will reflect the timing of the expected field trips and the progress we make in the content areas.

### **Other things to keep in mind**

#### *Attendance and participation:*

- If you miss a class, I expect you to make up all work prior to the next class. Find out from another student what you missed and learn the material (you can also look on the class web site). There is no in-class opportunity to make-up missed work.
- When you come to class, please come early, and please be prepared.
- Field trips will be scheduled for this course. I will give you as much advance notice as possible. Tentative trips include: i) a visit to the Vermont State House during deliberations of a relevant issue, ii) participate in energy-related public events, and iii) participate in a VT Yankee event in Brattleboro, VT.
- Guest speakers will be invited to participate in this course – it is expected that you will engage the speaker and ask appropriate questions.
- Please see me when you have questions or concerns – do not procrastinate.
- I expect a lot out of you and I place a great deal of responsibility on you – I cannot do your learning for you, please be prepared for class.
- Please keep a calendar for assignment due dates and field trips.

#### *Assessment and research:*

- All activities and assignments will be posted on the course web page.
- All material submitted for a grade must be presented in a professional fashion – no grades are dropped and no grades are curved.
- Assignments are due at the start of the class period. For each calendar day (24-hour period) an assignment is late it will be down-graded by 10%. Please come to class a few minutes early so that everyone is ready to start on time.
- Numerous books and journal articles are on reserve in the library – please see the appropriate list on the course web page and spend time in the library. Get to know the librarians.
- If you are having difficulty in this class, or if you require learning accommodations, then either i) come by my office to speak with me, ii) meet with me on a regular basis, iii) work with other students, or iv) visit the Learning Resource Center (123 Dewey Campus Center, phone 635-1264).
- All activities in the course require well-written and properly referenced materials.
- Please expect a lot of short quizzes, at the start of class, throughout the semester.