Contemporary Challenges to a Clean Energy Future – Winter 2012

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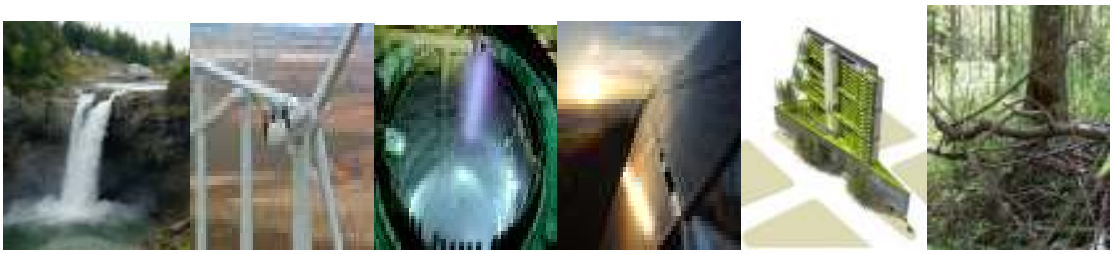
Description: This 4-credit elective course will examine current trends in the clean energy sector and the intersections with efforts to develop a green and sustainable economy and environment that also enhances social equity. The class will integrate research, policy papers and other readings with guest lectures, seminar discussion and a field trip to explore the current social, technical and political context for the shift to clean energy. The class will also include a focus on energy research, education and training, and the implications for regional alternative energy and energy efficiency initiatives.



The overall objectives of the course include:

- Learning and understanding the current state of clean energy research, technologies and implementation.
- Understanding and interpreting economic, social and environmental research related to clean energy
- Developing and enhancing research and analysis skills
- Improving report design and writing, integration and presentation skills
- Defining potential career interests and employment opportunities in clean energy sectors.

Class Resources: All class materials will be posted on the evergreen Moodle website, under the class title. All weekly class reading assignments, presentations, articles, books, videos and web links are listed there. Other materials will be provided as needed. There is no text to purchase for the class.

Class Meetings: Wednesday evenings, from 6:00 PM to 10:00 PM. Meetings will be held in **Sem II C-2109.**

Field Trip: One day-long field trip has been scheduled for this course outside of regular class times (see below). Please make necessary work and personal arrangements as *participation is expected*.

1. **Friday, January 20. 7:00 AM to 5:00 PM**. Transalta Power Plant, Centralia. We will go on a plant tour, learn about and discuss with Transalta executives and staff the history, technologies, upgrades and legislatively-required and future changes happening at Washington's only coal-fired power plant.

   We will then stop for lunch en route to a tour of Tacoma Power's Cowlitz River salmon hatchery and Mayfield Dam Hydroelectric Plant, where we'll learn about TP's fisheries programs, hydro technologies, perspectives concerning state renewable portfolio standard policies and requirements, through a Q & A with TP's chief engineer, and site science and technical staff.

Attendance and Course Credit: Students are expected to attend all class sessions and participate in the field trip. Each person brings a perspective, expertise and/or insightful questions, and a significant portion of the learning from this

class will be the result of interaction with class participants, guest speakers and the field trip experience. Absences from class or field trip exceeding 10 hours, without prior arrangements with the instructor, will cause a partial loss of class credit.

Expectations and Evaluation: Your progress and performance will be evaluated based on the following criteria:

1. **Participate**: Shared learning and teaching is the responsibility of all students, therefore all students are expected to participate in class through group discussions, formal and informal presentations, feedback to peers, and by helping to facilitate topic discussions. Individuals naturally vary in how they prefer to participate; do your best to contribute and expand your skills in this area.
2. **Complete Assigned Readings**: A portion of class time and the field trip will be based on assigned readings, and are therefore central to productive discussions and to maximize learning. Students are expected to complete assigned readings prior to classes and field trips. Additional readings may be assigned.
3. **Bring and Present a Current Events Article**: Students will be expected to find and present one clean energy-related article to share with the class that they expect will relate to their Term Paper. Articles may come from scientific or policy-related journals, newspapers or other sources. Students will summarize the article for the class, describe the implications for clean energy development or implementation, and their plan to expand research on the topic for their Term Paper.
4. **Write Field Trip Report**: You will be expected to take detailed notes during the field trip. Your raw notes are to be converted into a concise, 4-5 page summary describing your observations, key learnings, and any follow-up questions that the experience may have stimulated. *Field trip reports are due and to be emailed to the instructor within one week of the field trip (see schedule)*.
5. **Complete Term Paper and Conduct Presentations** (See * on schedule): This class will require completion and formal presentation of a 10 to 12 page (single-spaced) high-quality term paper on a topic related to the course. The paper may be co-authored and presented by two-student teams, and this approach is encouraged; team-produced papers will be 6-7 pages longer than those produced by individuals.

   Students will choose the general topic by the Week 3/4 classes, and give a brief update on the topic—including the general outline, background research, and early findings—during the Week 6 class. Teams of students will be assigned to review and provide feedback on each other's draft papers by the Week 7 class. Final presentations of term papers, with visual aids (powerpoint, etc.) will be delivered by students during the Week 9 or 10 class. **The final term paper is due by Saturday, March 10.**

SCHEDULE (Weekly) **FOR ALL READING ASSIGNMENT S/RESOURCES, SEE MOODLE**

Week/Date	Subject	Activity Description
1 – 1/11	Overview and class structure	Introduction to class. Overview of content, research and outcomes; socio-technical systems discussion; current events topic discussion
2 – 1/18 1/20 (Fri)	The Context for Clean Energy **Field Trip:** Transalta and Tacoma Power	Guest Speaker: Tony Simon, Energy Engineer, WSU Extension Energy Program (Energy Basics) Leave Evergreen via Bus at 7:00 AM. Return at 5:00 PM (No open-toe shoes on the tour)
3—1/25 1/27 1/27	Bioenergy and Biofuels; State Energy Plan update Field Trip Report FYI: Environmental Lobby Day in Olympia	Guest Speaker: Peter Moulton, Bio-energy Policy Specialist, Dept. of Commerce *Term Paper Topic article presentations **Field Trip Report due Friday, 1/27** http://pugetsound.org/policy/lobby-day/lEnvironmental-Lobby-Day-2012/#Environmental%20Lobby%20Day
4—2/1	Energy Economics; Solar, Wind and Nuclear Energy **Field Trip:** Evergreen	Guest Speaker: Beth Doglio, Program Manager-*Power Past Coal* campaign, Climate Solutions *Term Paper Topic article presentations/Topic CONFIRMED Meet at Campus Boiler Operations center **at 5:00 PM** for one-hour tour before class.
5—2/8	**NO CLASS**	Work on Term Paper
6—2/15	The Smart Grid	Guest Speaker: Larry Kite, Incremental Systems, Inc. *Term Paper Initial Report-Outs
7—2/22	Smart Grid/Energy Efficiency	Guest Speaker: Lee Hall, Smart Grid Program Manager, Bonneville Power Administration, and Michael Whalen, Energy Efficiency Research Analyst, Puget Sound Energy
8—2/29	Clean Energy Policy and Legislation	Guest Speakers: Tony Usibelli, Director of Energy Policy, Dept. of Commerce; Scott Richards, Staff Policy Analyst, Washington State House of Representatives *Term Paper Peer Feedback Due
9—3/7	Clean Energy Economy and Social Equity	Guest Speakers: Bob Guenther, Legislative Liaison, IBEW Local 77. Sean Bagsby, Director of Alternative Energy, IBEW Local 46 *Term Paper Presentations
10—3/14 **3/10** **FYI:**	Clean Energy Workforce, Education and Careers **Final Term Paper** GLOBE 2012 conference	Guest Speaker: TBD *Term Paper Presentations ***FINAL TERM PAPERS DUE SATURDAY, MARCH 10.** Vancouver, Canada, March 14-16: http://2012.globeseries.com/
3/19-23	***Evaluation Conferences***	***Schedule with instructor***

Revised 1-12-12