

**University of Connecticut**  
**CHEG 2103: Introduction to Chemical Engineering**  
**Fall 2010**

HONORS PROJECT:  
Informing Public Policy Using Chemical Engineering Principles

***Project Description:***

Student groups will employ elementary chemical engineering principles to analyze one or more specific technical dimensions of a public policy issue of major societal importance. Groups will use their analysis as a basis to select and defend a specific policy stance. The project will culminate in a 15-page report in the form of a position paper targeting a general college-educated audience. Interim deliverables will be due throughout the course of the semester. Additional information on assignments will be distributed throughout the semester.

This project is a semester-long, self-directed, in-depth analysis of a current societal issue. In keeping with the UConn Honors Program goal of preparing graduates to take their places as leaders of their professions and to be responsible global citizens, participants are expected to go well beyond the technical analysis. Groups will place their findings in the broader context of the issue, considering also non-technical constraints likely to influence ultimate adoption of their recommendations. These may include the need public corporations to maintain profitability; the relevant local, national, or international legal frameworks; political realities; and issues of public perceptions.

Examples of general topics are listed below. Groups may choose from this list, or select a different topic in consultation with the instructor.

1. Deep-water oil drilling in U.S. waters (should/should not) be prohibited.
2. Non-cellulosic biofuels (should/should not) be a major component of the future U.S. energy portfolio.
3. Geologic carbon sequestration (does/does not) warrant significant government investments to develop the technology.

***Primary Contact:***

Prof. Leslie Shor, Engr. II 209, [leslie.shor@uconn.edu](mailto:leslie.shor@uconn.edu)

Project Office hours: Wednesdays 5:00-6:00 PM in EII 209, or by appointment.

***Policies***

Participants. All students enrolled in the Honors section of CHEG 2103 are required to participate in the project. However, all students in the course are welcome to participate. Students not enrolled in the Honors section must positively inform the instructor of their decision to participate in the project via email no later than Friday, September 3<sup>rd</sup>. Please consider carefully as decisions are final.

Groups. Students are responsible for forming their own groups. Student groups may be comprised of 2, 3, or 4 members only. Evaluation of graded work will be based on the nominal expectations for a 3-person group, but increased for 4-person groups. Since this is an open-ended, policy-informed writing project based on detailed chemical engineering analysis, students would be wise to strive for a balance in abilities among group members.

Grading. All project participants will be assigned course grades according to the alternate project-based grading system that is described in the course syllabus. Interim project deliverables will be due over the course of the semester. All group members will receive the

same grade on all *interim* deliverables. Final project grades will also consider an effort allocation statement in the final report and individual peer and self evaluations. Late work will be penalized 10% per day, unless advance permission is granted in writing by the instructor.

## Milestones

Date	Event	Weight
9/3 Friday	Written notice of participation due	-
9/7 Tuesday	Email instructor name of group members, group name, and topic selection(s). Groups meet instructor to discuss topic selection	-
9/17 Friday	<u>Due: Introduction of Topic.</u> Short report introducing the chosen topic, and motivating its broad social importance. Length: 500 < x < 1000 words, must include >10 primary references.	15%
10/1 Friday	<u>Due: System Determination.</u> 1-page flow sheet clearly defining key inputs, outputs, and transformations related to your topic. Focus your topic on a well-defined system comprising or essential to your chosen topic that is amendable to this analysis.	10%
10/15 Friday	<u>Due: Flow Sheet.</u> Revise, expand, and populate flow sheet(s) with data and parameters taken from the primary literature. Attach additional pages as needed to clearly document all data sources, and describe the basis of all calculations.	10%
10/29 Friday	<u>Due: Calculations.</u> Complete analysis of the technical dimensions of your chosen topic based on available data.	10%
11/19 Friday	<u>Due: Policy Paper.</u> 15-page report in the format of a policy position paper (i.e., opinion). First, motivate the importance of the issue and clearly define the specific position taken by your group. Summarize to a lay person the technical basis for your conclusion. The bulk of your report will describe in detail the your technical analysis, and must specifically address the underlying uncertainties, and any data gaps. Finally, describe challenges for implementation. Final papers will also include a joint statement briefly describing the allocation of effort among the group.	35%
11/29 Monday	<u>Due: Individual Peer and self-evaluation.</u> Complete a short reflection essay on what you gained from this assignment, and how well you feel it met its stated objectives. Offer recommendations for improvement of the assignment. Evaluate your own performance and contributions, and offer an evaluation of the performance of your group and its members. <1000 words.	20%

## Project Objectives:

Upon completion of this project, participants will:

1. Learn to apply course principles creatively to perform an in-depth technical analysis of an open-ended modern engineering question.
2. Improve skills in conducting research using the primary scientific literature, including an appreciation for the value of different information sources.
3. Enhance technical communication skills.
4. Gain experience working effectively in groups, including strategies for resolving conflicts.
5. Gain a greater appreciation for the diversity of problems that can be approached and analyzed using chemical engineering principles, and how their solutions may have broader impacts on society.