1. Course Information

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Objectives: Students successfully completing this course will understand how to formulate and solve engineering challenges as systems problems using mathematical modeling, including selection of an objective function, design variables, modeling constraints and identifying an optimal solution. Students will work a number of design problems from several civil and environmental specialty areas. Special topics include risk and uncertainty, multi-criteria decision-making, and mathematical modeling of dynamic and complex systems.

2. Textbook & Other Resources

Blackboard Web site: Grades will be reported on Blackboard. Occasionally, announcements or assignments will be made via email, using the course roster available in Blackboard. There will be no hard-copy handouts.

3. Grading Procedures and Policies

Grading Philosophy: Grades in CEE300 are based upon an absolute standard, not relative to a class average. Typically, 'A' grades are earned by adding new knowledge to assignments – i.e., 'A' students exceed expectations and instructions in such a way that they are teaching the Instructor (and other classmates). By contrast, 'B' students are demonstrably learning from the Instructor by following instructions. 'C' students are typically putting forth consistent effort, but do not show clear evidence of learning relative to instructions. A+, B+ and C+ grades may be used, at the discretion of the Instructor. A-, B-, and C- grades will not be used, except in extraordinarily rare circumstances.

Grading System: Grades are based upon a number of assignments, including two professional projects, one oral presentation, several team and ethics exercises, two exams, various quizzes or in-class exercises, and on-line assignments. On all assignments with the exception of exams, students may work in groups of unlimited size.

Professional Reports (30%). Students will complete two professional projects related to problems of engineering in the context of complex systems. The first of these (10%) is a straightforward, systems optimization problem. The second is a complex systems problem.
Oral Presentations (10%). Students will present their second professional project in an oral exam format.
Two Exams (40%). Students will be assessed on a comprehensive mid-term and final exam, each worth 20% of the overall grade.
In-class, on-line, & homework assignments (20%). Upon occasion, students will be expected to complete short essays in class, make postings on-line, complete assignments outside of class, and participate in active learning exercises in class (including class discussions). The following guidelines may help students understand how participation in class is assessed:
100% - Extremely supportive of class and/or on-line discussion. Initiates topics of discussion.
95% - Demonstrates leadership and aptitude for cooperative learning that benefits classmates.
90% - Exceeds minimum participation expectations in class or on-line. Strong attendance record.
80% - Absences and/or inattentiveness (e.g., falling asleep) have impaired contributions to class.
80% - Several absences and/or rarely attentive
4. Classroom Ethics & Etiquette

Academic Integrity Policies: This course expects cooperation and teamwork on quizzes, class discussions, presentations, projects and problem sets -- on which students may work collectively and share credit. However, for exams students are expected to work entirely individually. Students may not share any type of information during exam periods. Students failing to place their name on their exam, attempting to claim credit for the work of others, attempting to obtain or share information, or using notes, books, or electronic devices (including calculators) during exams will not receive credit for any aspect of the exam.

Classroom Behavior:

(1) It is better to show up late than not at all. Some studies show that students who sit in front generally receive better grades than those in the back of the classroom.

(2) Each class begins with a review of the previous class. You should be prepared to ask questions at the beginning of class that occurred to you as you thought more about the previous class discussion (or readings). Your class notes will be valuable in this respect. However, you should not be preoccupied with note-taking during discussions. It is far better to make your notes brief during class, and then post or write a journal entry of your thoughts after class. You may then refer back to your journal entry prior to the next class.

(3) Smart phones and the internet make us smarter. They give us access to facts and information that we no longer have to memorize. Please bring your network-enabled devices to class and be prepared to use them to enhance our learning experience. However, use of all electronic devices is prohibited during exams.

(4) Class periods are discussion-based. Typically, some extroverts participate more readily than others, but it is often the case that one person who asks a question or makes a comment gives voice to something that many others in the class are also thinking. All students are expected to enhance the classroom experience.

5. Course Schedule

There are several times during the semester when the Instructor will not be available for class or office hours due to travel. Classes may meet in person on those dates, or be conducted on-line. Announcements will be made via email and Blackboard.

The final exam may be administered prior to finals week.