InterEgr 102: Introduction to Society's Engineering Grand Challenges
Fall Semester 2010

Instructional Staff:

Faculty Instructors

Prof. Nicola Ferrier
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Samira Azarin
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Prof. Craig H. Benson
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Dr. Christopher A. Bareither
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Prof. Stark Draper
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Prof. Daniel Klingenberg
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Prof. Matt Allen
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office hours: Wednesday 2:00-3:00 PM

Note: You are welcome to make an appointment with any of the professors if you need to meet at a time other than during their stated office hours.

Undergraduate Student Assistants:

Ms. Carmen Coddington (Junior)
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Mr. Brent Flaten (Junior)
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Ms. Kate Santarius (Junior)
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Mr. Jamon Opgenorth (Senior)
Biomedical Engineering
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Class schedule:

Tuesdays, Thursdays 9:30-10:20 am

- Introductory Lectures (Weeks 1-3): single large section
  - all students meet together in one classroom
- Module 1 (Weeks 4-10): six small-group sections
  - each section meets in a different classroom and focuses on a specific theme that ties together several grand challenges in society
- Module 2 (Weeks 10-16): six small-group sections
  - same section themes as Module 1, with students assigned to a new section/theme

Students will have the opportunity to rank their section preferences for Modules 1 and 2 in a Learn@UW survey administered in mid-September.

Grand Challenge Themes: (ordered/structured by scale)

Theme 1: Engineering challenges that impact our lives on a personal/individual scale
Theme 2: Engineering the Wisconsin Idea
Theme 3: Engineering challenges in developing communities around the world
Theme 4: Engineering the mega-city
Theme 5: Global engineering challenges
Theme 6: Engineering challenges beyond Planet Earth

Course web page:

Our Learn@UW web page for this course can be accessed through the following URL: http://learnuw.wisc.edu/. You are encouraged to check the web page regularly to keep up to date on course news, access course materials, take quizzes, view grades online, etc. The website is organized using the following categories, which appear as tabs at the top of the Learn@UW page for this course:

- *Content:* Go here to find lecture notes, assigned readings, and assignment handouts.
- *Course News*: Various news items and information will be posted here.
- *Student Opportunities*: Links to additional resources that may be helpful to you.
- *Library/Reserves*: A link to a library web site customized for our course.
- *Dropbox*: Allows you to upload files in order to electronically submit assignments (only if instructed to do so).
- *Quizzes*: Access to quizzes that will be given at different points in the semester.
- *Surveys*: Access to required surveys assigned at the beginning and end of the semester.
- *Grades*: Allows you to view your grades for individual assignments and final grade at end of semester.
- *Classlist*: A list of the names and email addresses of all instructors and students enrolled in this course.

Required text:

Required readings will be posted on our Learn@UW course web page. You are not required to purchase a text or course pack for this course.

Course activities:

As with any two-credit course, you can expect to spend about four hours outside of class per week (averaged over the semester) on work related to this course. Attendance in class will be recorded using sign-in sheets during large group lectures and by your discussion-section

instructors during Modules 1 and 2. There will be a number of individualized assignments throughout the semester as well as a team project for each of the two theme-based modules.

- Module 1 project: team-based in-class oral presentations within each section
- Module 2 project: team-based poster presentations across sections, during an extended final class period for this course (December 17, 10:05-12:05 am, ECB Atrium).

Grade calculation:

Professionalism (attendance, participation, etc.)	10%
Module 1 project (team-based)	25%
Module 2 project (team-based)	25%
Individual assignments	40%

The individual assignments include beginning- and end-of-the-semester surveys posted on the Learn@UW course web page. The completion of both surveys is mandatory. We thank you in advance for your cooperation.

Absences:

Planned absences from class must be communicated to your instructor via email (preferred method; via phone is also acceptable) a minimum of 48 hours prior to class. Unplanned absences, such as absence due to illness, should be communicated to your instructor via email (or phone) at any time *before* the missed class period in order for the absence to be considered excused. In exceptional circumstances (i.e., extreme illness or other emergency), it is understood that pre-notification of an absence may not be possible; each circumstance will be considered individually. All students who miss class for any reason are responsible for getting class notes from the Learn@UW web site and making up assignments promptly in a time frame that is approved by the instructor.

The UW-Madison is committed to creating a dynamic, diverse, and welcoming learning environment for all students and has a non-discrimination policy that reflects this philosophy. Disrespectful behavior or comments addressed toward any group or individual, regardless of race/ethnicity, sexuality, gender, religion, ability, or any other difference is deemed unacceptable in this class, and will be addressed by the professors.

If you need accommodations for a physical or learning disability, please see one of the instructors or TAs. The McBurney Disability Resource Center (http://www.mcburney.wisc.edu) is available for consultation, diagnosis, and assistance.

As a UW-Madison student, you have the right to expect that you and other students will be graded fairly. You also have an obligation to conduct your academic work with honesty and integrity according to University standards. Academic honesty requires that the course work you present to your instructor honestly and accurately represents your own academic efforts. Work submitted under a student's name must be solely the work of that student and be carried out in the manner prescribed by the instructors. Additional information from the Dean of Students is available online (http://www.wisc.edu/students/saja/misconduct/academic_misconduct.html).

Introductory Lectures: entire class meets in 1800 EH

Week	Class	Date	Topics/Activities
1	1	9/2	Introductions, course overview, Learn@UW tutorial ***Beginning-of-the-semester survey*** (mandatory assignment) posted on Learn@UW: must be completed by 5:00 pm on Tuesday Sept. 7
2	2	9/7	Overview of the engineering disciplines (part 1) Overview of opportunities available to engineering students ***Intro HW assigned***
	3	9/9	Overview of the engineering disciplines (part 2) Student opportunities panel, Q&A session
3	4	9/14	Overview of theme-based modules ***Survey of theme preferences*** must be completed by 9:00 am on Thursday Sept. 16 if you want your rankings to be considered in section assignments
	5	9/16	Panel of practicing engineers, Q&A session ***(CAREER FAIR)*** ***Intro HW due***

Module 1: Each theme-based section meets in its assigned room (to be announced), except on the designated dates (highlighted with shading). In addition to the Module 1 project presentation, approximately four homework assignments will be given in Module 1.

Week	Class	Date	Topic/Activity
4	1	9/21	Introductions, grouping into teams, how to function as a team, project topic selections
	2	9/23	How to make effective use of library resources and electronic references (**class meets in 1800 EH**)
5	3	9/28	Case studies/guest lecture/project work
	4	9/30	Case studies/guest lecture/project work
6	5	10/5	Non-technical constraints on engineering: political, social, economic, legal, environmental, ethical (**class meets in 1800 EH**)
	6	10/7	Case studies/guest lecture/project work
7	7	10/12	Case studies/guest lecture/project work
	8	10/14	Case studies/guest lecture/project work
8	9	10/19	How to give effective presentations (**class meets in 1800 EH**)
	10	10/21	Case studies/guest lecture/project work
9	11	10/26	Case studies/guest lecture/project work
	12	10/28	Project presentations during class
10	13	11/2	Project presentations during class

Module 2: Each theme-based section meets in its assigned room (to be announced), except on the designated dates (highlighted with shading). In addition to the Module 2 project presentation, approximately four homework assignments will be given in Module 2.

Week	Class	Date	Topic/Activity
10	1	11/4	Introductions, grouping into teams, how to function as a team, project topic selections
11	2	11/9	Case studies/guest lecture/project work
	3	11/11	Case studies/guest lecture/project work
12	4	11/16	How to design effective posters (**class meets in 1800 EH**)
	5	11/18	Case studies/guest lecture/project work
13	6	11/23	Case studies/guest lecture/project work
	7	*11/25*	*No class – Happy Thanksgiving*
14	8	11/30	Case studies/guest lecture/project work
	9	12/2	Case studies/guest lecture/project work
15	10	12/7	Case studies/guest lecture/project work
	11	12/9	Case studies/guest lecture/project work
16	12	12/14	Recap of engineering opportunities (**class meets in 1800 EH**)
Finals		12/17	Project presentations in poster session (**10:05-12:05 am, Engineering Centers Building Atrium**)