

## **ENGR 102: Engineering Freshman Academy**

### **FALL 2007**

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### **Course Goals & Objectives:**

The main goal is to introduce freshman engineering students to various aspects of engineering, including the technical, political, ethical and societal impacts of the field. There will be a focus on the following themes:

1. **Thinking like an engineer:** development of problem-solving and teamwork skills
2. **Social and historical context:** understand social and historical reach of engineering
3. **Potential of engineering:** understand vast potential of engineering and rewards of engineering profession compared to others
4. **Ethics component:** understand ethical issues and concepts related to engineering through discussion of real events and other related activities
5. **Transition to college:** peer mentoring to achieve successful transition from high school to college

**Textbook**        None. Reading material will be posted to Blackboard or handed out in class.

### **Class Requirements & Grading Policy**

There will be one lecture per week (Th 2:00-3:50p) held in RTH115. The course will include readings, films, discussions, team activities, and guest lectures. The course will be graded CR/NC (credit/no credit), according to the following criteria:

#### **(1) Homework + Project (50%)**

Homework assignments are due in class at the beginning of class. Please follow the USC guidelines on academic integrity when preparing your homework. There will be approximately 6 assignments and a class project.

#### **(2) Participation (25%)**

Attendance, in-class presentations, and participation in discussions are required.

#### **(3) Out of class activities (25%)**

Students are required to participate in 3 of 4 large (All Academy) lectures. Also, students are required to attend 2 of the out of class activities planned by the coaches.

#### **(4) Replacement for 1 Homework**

You may substitute one homework assignment with participation in the Fall 2007 Engineering Career Conference on Sept 29th (8:30a-3p). Submit a paper saying that you attended and signed off by Candace House. Also, turn in at least one business card from a recruiter. *Note: You may not substitute this event for the resume homework. This is a must!*

### **Statement for Students with Disabilities**

Any student requesting academic accommodations based on a disability is required to register with Disability Services and Programs (DSP) each semester. A letter of verification for approved accommodations can be obtained from DSP. Please be sure the letter is delivered to me (or to the TA) as early in the semester as possible. DSP is located in STU 301 and is open 8:30 a.m. – 5:00 p.m., Monday through Friday. The phone number for DSP is (213) 740-0776.

## **Course Topics and Outline**

This following is a tentative course outline.

### **Week 1 (8/30):**

Lecture: Introduction to course and coaches. Why did I choose engineering? Tips on how to survive your 1<sup>st</sup> year as an engineering student.

In-class activity: Student interviews another student and presents them in class.

Assignment #1: Student (groups OK) interviews faculty member to find out why they chose engineering (1/2 page – don't forget to include faculty name!) (due 9/27).

### **Week 2 (9/6):**

Lecture: Library orientation and resources (Sara Thompson)

In-class activity: N/A

Assignment: N/A

### **Week 3 (9/13):**

Lecture: Activity day, please show up on time!

In-class activity: Engineering Team building activity – Engineering Challenge #1

Assignment #2: Complete homework assignment at end of Engineering Challenge #1 description (due 9/20)

Assignment #3: Create or update your resume (due 9/20)

### **Week 4 (9/20):**

Lecture: Career Services Overview and Writing Effective Resumes – Candace House

In-class activity: Discussion

Assignment #4: (a) Revise your resume and (b) jot down a few sentences on what you learned about resume writing (due 9/27)

### **Week 5 (9/27):**

Lecture: NOVA special on Medieval Siege Engines (start of Engineering Challenge #2)

In-class activity:

Assignment #5: N/A

All Academy Lecture #1 (9/27, Thursday, at 6pm, SGM 123): Krisztina Holly

### **Week 6 (10/4):**

Lecture: What is engineering? What do engineers do? What skills should engineers have?/History of engineering and impact on society.

In-class activity: Construct Trebuchet and Catapult kits in your groups

Assignment: Write ½ page on engineering means to you and list top ten reasons why you want to be an engineer (#1 is the most important reason) (due 10/4). For both parts, think both generally and specifically based on your major.

### **Week 7 (10/11):**

Lecture: N/A

In-class activity: Finish construction. Class competition in e-quad.

Assignment: N/A

Engineering Challenge #2 (10/17, Wednesday, at 5p, e-quad)

All Academy Lecture #2 (10/17, Wednesday, at 6pm, SGM 123): Alexis Livanos

### **Week 8 (10/18):**

Lecture: Engineering ethics. Definitions. Code of ethics. Case studies.

In-class activity: Challenger Disaster Case Study

Assignment: N/A

### **Week 9 (10/25):**

Lecture: Lab Tours  
In-class activity: N/A  
Assignment: N/A

Week 10 (11/1):  
Lecture: Activity with Coaches (it's a surprise)  
In-class activity:  
Assignment:

Week 11 (11/8):  
Lecture: Design, invention, and creativity  
In-class activity: Design activity and presentation  
Assignment: N/A

All Academy Lecture #3 (11/15, Thursday, at 6pm, SGM 123): Andrew Viterbi

Week 12 (11/15):  
Lecture: Guest speaker, intellectual property, entrepreneurial activities  
In-class activity:  
Assignment:

Week 13 (11/22): No Class – Thanksgiving

Week 14 (11/29):  
Lecture: Frontiers in engineering. Job and research opportunities. Project presentations  
In-class activity: Groups present projects (part I)  
Assignment:

All Academy Lecture #4 (12/5 or 6, at 6pm, SGM 123): John Shea

Week 15 (12/6):  
Lecture: Project presentations  
In-class activity: Groups present projects (part II)  
Assignment: