

**Undergraduate Advising
Civil & Environmental Engineering
Spring 2009 for 2009-2010 AY
Professor M. G. McNally**

- UG Advising: Faculty, Counselors, Catalogue
- CE & EnE Degree Programs:
- Performance Assessment and Accreditation
- Professional Registration (FE) & Grad School
- Where to Find Program Information and Advice
- Questions? E-mail me at mmcnally@uci.edu

UNDERGRADUATE ADVISING PROCESS

- **Annual Process:** *every year!*
 - Group Advising: sessions for Freshmen in the Fall and separate sessions for Sophomores and Junior/Seniors in the Spring.
 - Individual Advising: select a faculty member by name, teaching and research area, or session format (either individual 15 minute session or a small group session). Sign-ups at Group Session.
 - *If you are registering in the next quarter, you must participate!*
- **HSSOE Counselors:**
 - “Advising-R-Us” ECT101 (824-4334)
- **Student Plan of Study:**
 - Schedule course work for 1-2 years in advance
 - Ensures that you are on schedule for graduation
- **UCI General Catalogue:** Your *contract* with UC
[<http://www.editor.uci.edu/08-09/engr/engr.6.htm>]

Structural Engineering Faculty



Dr. Feng, EG 4165
Structural Health Monitoring
CEE 151A, CEE 153



Dr. Mosallam, EG 4149
Composite Structures
CEE 151C



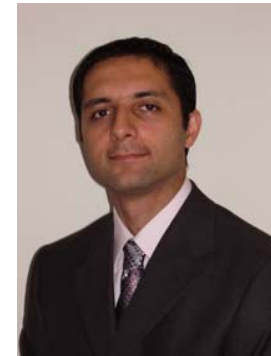
Dr. Shinozuka, EG 4150
Earthquake Engineering
and Risk Analysis



Dr. Sun, EG 4139
Mechanics, Composites
CEE 30, CEE 152



Dr. Yang, EG 4135
Structural Control
and Dynamics



Dr. Zareian, EG 4141
Earthquake Engineering
CEE 150

Hydrology & Water Resources Faculty



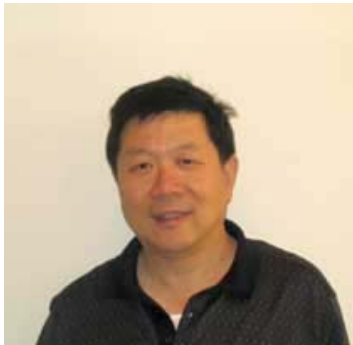
Dr. Detwiler, ET 844C
Groundwater Hydrology
CEE 171



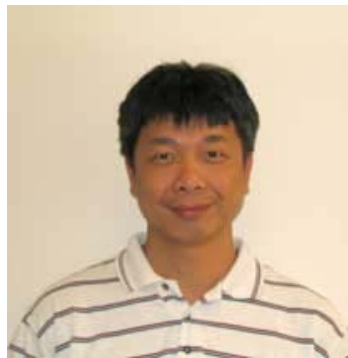
Dr. Sanders, ET 844D
Computational Hydrodynamics
CEE 20



Dr. Sorooshian, AIRB 2084
Hydrologic systems
CEE 176



Dr. Gao, AIRB 2085
Hydroclimatology
CEE283

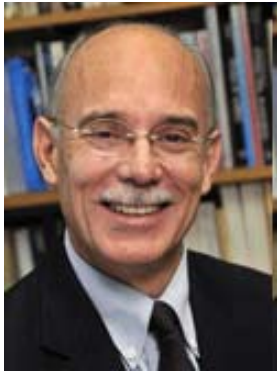


Dr. Hsu, AIRB 2072
Hydrologic Modeling
CEE170



Dr. Imam, AIRB 2086
Hydrologic Modeling
CEE 173

Environmental Faculty



Dr. Bras, 301 REC
Dean, HSSOE
Hydrology & Geomorphology



Dr. Cooper, ET 844E
Environmental Chemistry
CEE 162



Dr. Jiang, SE2 1367
Water Quality
CEE 167



Dr. Olson, SE2 1361
Environmental Microbiology
CEE 60



Dr. Rosso, ET 844F
Environmental Processes
CEE161

Transportation Systems Engineering



Dr. Jay, AIRB 4055
Transport Systems Anlys
CEE 81b, CEE 122



Dr. Jin, AIRB 4038
Traffic Flow, ITS
CEE 11



Dr. McNally, AIRB 4048
Travel Behavior & Modeling
CEE123, CEE181abc



Dr. Recker, AIRB 4074
Transport Systems Anlys
CEE 111



Dr. Ritchie, AIRB 4014
ITS, Emerging Technology
CEE121, CEE124



Dr. Saphores, AIRB 4028
Transport Planning & Policy
CEE 110, CEE125

FRESHMEN/SOPHOMORE ISSUES

- What's New?
 - Physics and Chemistry sequences
 - Engineering Science Elective
 - Engineering Design Electives & Specializations
- What Choices?
 - Degree programs? Specializations? Minors?
 - General Education Options? When?
 - Freshman Seminars
- Student Clubs & Professional Associations
- E-Week – February 16th - 20th – Get Involved!
- Assessment (ABET) & Registration (FE, PE)

JUNIOR / SENIOR ISSUES

- What's New?
 - Engineering Design Elective (151B, 172, 122, 123)
 - **CEE 60 versus E8**
 - **Specializations: 4 to 3 with 1 free tech elective**
- What Choices?
 - BSCE Specializations & Minors
 - Senior Design Projects & Specializations
- Student Clubs & Professional Associations
- Assessment (ABET) & Registration (FE, PE)

ABET Program Assessment

1. Stakeholders include students, faculty, alumni, and employers.
2. Program Educational Objectives describe expected accomplishments of graduates during the first several years following graduation.
3. Program Outcomes describe knowledge and skills to be attained by the time of graduation.
4. Course Outcomes are restatements of Program Outcomes that define specific knowledge and skills to be attained in a particular course.
5. Degree Requirements comprise core, specialization, and General Ed courses, and a capstone design experience.

ABET Program Assessment

6. A comprehensive Assessment Process is applied to evaluate the CE & EnE degree programs.
 - a. Assessment by Students: tools include standard UCI Course Evaluation Surveys, **HSSOE Course Outcome Surveys**, Graduating Senior Program Outcome Surveys, and Senior Exit Interviews
 - b. Assessment by Faculty: tools include course grades (may include exams, homework, laboratory exercises, and projects), HSSOE and CTQ Instructor Course Outcome Surveys, and Analysis of FE Exam Results.
 - c. Assessment by Faculty and Industry: tools include the assessment of CEE181ABC Senior Design Project presentations and reports.
 - d. Assessment by Industry: tools include the Industry Survey of Program Educational Objectives and Program Outcomes, regular meetings with the Corporate Affiliates, and participation in departmental retreats.
 - e. Assessment by Alumni: tools include the Alumni Survey of Program Educational Objectives and Program Outcomes, as well as participation in departmental retreats and alumni events.

Program Educational Objectives:

Describe the expected accomplishments of graduates during the first few years following graduation. Our graduates are expected to:

1. Establish a Civil Engineering career in industry, government, or academia and achieve professional licensure as appropriate.
2. Demonstrate excellence and innovation in engineering problem solving and design in a global and societal context.
3. Commit to lifelong learning and professional development to stay current in technology and contemporary issues.
4. Take on increasing levels of responsibility and leadership in technical and/or managerial roles.

Note: EnE PEOs are virtually identical

Program Outcomes:

Describe what students are expected to know or be able to do by graduation (a-k)

- a. An ability to apply knowledge of mathematics through differential equations; probability and statistics; calculus-based physics; general chemistry; and engineering science in the context of civil engineering applications.
- b. An ability to design and conduct laboratory experiments, as well as to critically analyze and interpret data, in two or more recognized major civil engineering areas, such as structures, transportation, water resources, and environmental.
- c. An ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, constructability, and sustainability.
- d. An ability to function in multidisciplinary teams.
- e. An ability to identify, formulate, and solve civil engineering problems in at least four recognized major civil engineering areas.

Program Outcomes (continued)

- f. An understanding of professional and ethical responsibilities of civil engineers in relation to public and private institutions and in the context of civil engineering infrastructure systems.
- g. An ability to communicate effectively, orally and in writing.
- h. A broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context.
- i. A recognition of the need for professional licensure and life-long learning.
- j. Knowledge of contemporary issues related to civil engineering.
- k. An ability to use the techniques, skills, and modern engineering tools necessary for civil engineering practice, and an understanding of professional practice issues such as project management and interactions between the development, design, and construction professions.

Sample Course Syllabus & Outcomes

CEE 30 STATICS (Required for CE and EnE)

Catalog Data: **CEE 30: Statics (Credit Units 4)** Addition and resolution of forces, distributed forces, equivalent system of forces centroids, first moments, moments and products on inertia, equilibrium of rigid bodies, trusses, beams, cables. Corequisite or prerequisite: Mathematics 2D. Prerequisite: Physics 7A. Only one course from CEE30, ENGR30, and MAE30 may be taken for credit (Design Units: 0)

Relationship to Program Outcomes: - The course relates to Program Outcomes

CE: a and e as stated at:

<http://undergraduate.eng.uci.edu/degreeprograms/civil/mission>

EnE: a and e as stated at:

<http://undergraduate.eng.uci.edu/degreeprograms/environmental/mission>

Course Outcome/Performance Criteria: **Students will:**

Analyze and draw free body diagrams for single particles and rigid body systems.

Establish equilibrium equations of particles/rigid bodies for solve for forces and support reactions.

Calculate centroids of areas and moments of inertia.

Apply the theory and methods to analyze simple trusses.

Compute internal forces in cables/beams.

Formulate statics problems for simple structural beams.

CE Course Requirements 1

Mathematics and Basic Science (48 units)

- *Previous Science Options have been replaced*
- Math2A-B-D-E-J, 3D, CEE 11
- Phys7C-D and 7LC-D -- or -- Phys7B-D, 7LB-D
- Chem1A-B, 1LB (1LA will no longer be offered)

General Education Requirements (44+ units)

- Provides flexibility, overlaps encouraged, etc.
- Engineering Professional Topics Courses include Economics 20A-B and CEE60 (or SocEcol E8)

CE Course Requirements 2

Engineering Topics Courses (77 units):

- LD Core: EECS 10, CEE 20, 30, 80, 81A-B
- UD Core: CEE 110, 111, 121, 130, 130L, 150, 150L, 151A, 151C, 161, 170, and 171
- **Engineering Science Elective** (materials, circuits, thermo, science)
- **Engineering Design Elective** (one of 151B, 172, 122 or 123)
- Senior Design Practicum: CEE 181A-B-C

Specialization or Concentration (16+ units)

- Must complete senior design project in same area

Summary

- A nominal total of **185** units (24+ design units)

BSCE: Freshman 2009-2010

Fall		Winter		Spring	
Math 2A	4	Math 2B	4	Math 2D	4
EECS 10	4	Phys 7C, L	5	Phys 7D, L	5
Chem 1A	4	Chem 1B, L	6	CEE 81A	3
Gen. Ed.	4			Gen. Ed.	4
	16		15		16

- Gen Ed Recommendation: WR39B-C, **CEE60**

BSCE: Sophomore 2009-2010

Fall		Winter		Spring	
Math 2J	4	Math 3D	4	Math 2E	4
CEE 81B	2	Engr Sci	4	CEE 11	4
CEE 30	4	MAE 80	4	CEE 20	4
Gen. Ed.	4	Gen. Ed.	4	Gen. Ed.	4
	14		16		16

- Gen Ed Recommendation: Econ 20A-B, **CEE60**
- **Engr Science** Elective => current Science Option

BSCE: Junior 2009-2010

Fall		Winter		Spring	
CEE 150, L	5	CEE 151A	4	EngrDsgn	4
CEE 170	4	CEE 171	4	CEE 110	4
CEE 121	4	CEE 130, L	5	CEE 161	4
Gen. Ed.	4	Gen. Ed.	4	Gen. Ed.	4
	17		17		16

- **Engr Design** Elective (151B, 172, 122 or 123)
- Civil Engineering “core”; consider pre-requisites!

BSCE: Senior 2009-2010

Fall		Winter		Spring	
CEE 181A	2	CEE 181B	2	CEE 181C	2
CEE 151C	4	CEE 111	4	Spec. Elec.	4
Spec. Elec.	4	Spec. Elec.	4	Spec. Elec.	4
Gen. Ed.	4	Gen. Ed.	4	Gen. Ed.	4
	14		14		14

- Specialization or concentration, and 181
- CEE 181 A-B-C with UD Writing or E190

Specializations 1

General Civil Engineering:

Requires **four** courses from CEE122 or CEE123; CEE152, CEE153, CEE155, or CEE156; CEE162, 167, or CEE168; CEE172, CEE176, or CEE178; or CEE55 or courses from an approved list.

Environmental Hydrology & Water Resources:

Requires **four** courses from CEE162, CEE163, CEE172, CEE173, CEE176, CEE178, or courses from an approved list.

Note: WRE and EnE Specializations No Longer Available to new students

Specializations 2

Structural Engineering:

Requires **CEE153** and **three** courses from CEE152, CEE155, CEE156, MAE157, **or courses from an approved list.**

Transportation Systems Engineering:

Requires **CEE122** and **CEE123**, and **two** courses from CEE 124, CEE125, ECE 70A, MAE 140, MAE 170, MAE 171, **or courses from an approved list.**

[CEE 198/199 ITE Project]

Concentrations 1

Concentrations comprise courses primarily from other Schools and thus more courses than for specializations. *CEE does not control the scheduling for these courses.*

Computer Applications:

Requires **at least five classes or 20 units** from ICS/Math 6A, ICS21, 22, 23, 52, **EECS 20**, EECS 40, and other approved courses.

Infrastructure Planning:

Requires at least six courses selected from CEE 112, CEE123, **CEE125**, EAD E105U, E107U, E141U, E148U, E151U, E152U, E155U, E159U, and other approved courses.

Concentrations 2

Mathematical Methods:

Requires Math 13 and 140A, and 4 other courses selected from Math 6A, 7, 105A and 105LA (or MAE 185), 105B and 105LB, 107, 112A-B-C, 118A-B-C, 130A-B-C, 131A-B-C, and other approved courses

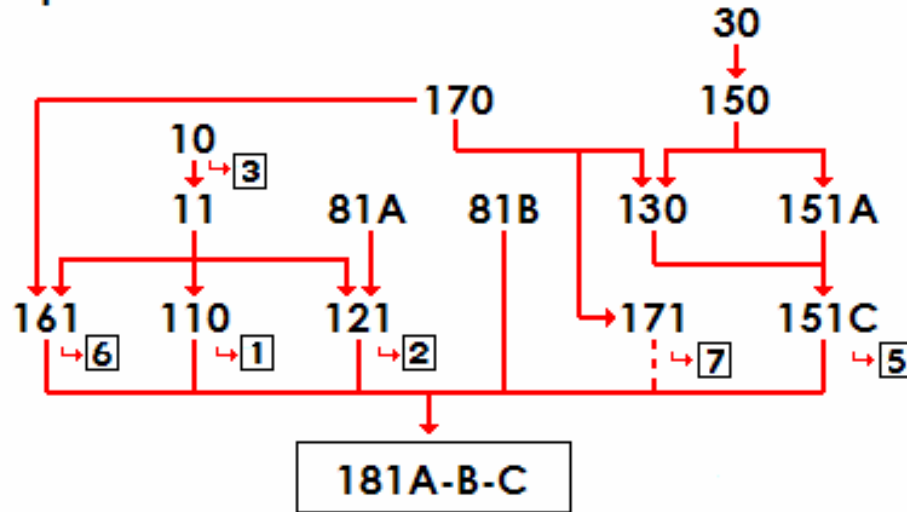
Engineering Management * :

Requires MGT 5 and five other courses from CEE 112, E190, E192, E193, or MGT 160, 181, 183, 185, 188, and other approved courses.

* must be admitted to PMSOB UG Minor in Management

Key Pre-requisites

Prerequisite Chains for CEE181ABC



1	2	3	5	6	7	4
111	123	20	151B	162	172	60
	122	55	152	163	173	80
	124		153	167	176	No
	125		155	168	178	Pre-reqs
			156			

Note:

- Math and science pre-reqs are not shown
- For 1 through 7, specific pre-reqs are not shown
- For 4, there are no formal pre-reqs

Program Educational Objectives:

Describe the expected accomplishments of graduates during the first few years following graduation. Our graduates are expected to:

1. Establish an Environmental Engineering career in industry, government, or academia and achieve professional licensure as appropriate.
2. Demonstrate excellence and innovation in engineering problem solving and design in a global and societal context.
3. Commit to lifelong learning and professional development to stay current in technology and contemporary issues.
4. Take on increasing levels of responsibility and leadership in technical and/or managerial roles.

EnE Program Outcomes:

Describe what students are expected to know or be able to do by graduation (a-k)

- a. An ability to apply knowledge of mathematics through differential equations, probability and statistics, calculus-based physics, general chemistry, an earth science and biological science relevant to environmental engineering, and fluid mechanics in the context of environmental engineering.
- b. An ability to design and conduct experiments, as well as to analyze and interpret data in more than one environmental engineering focus area such as: air, water, land or environmental health.
- c. An ability to design an environmental engineering system, component, or process to meet desired needs within realistic constraints such as economic, social, ethical, political, constructability, and sustainability.
- d. An ability to function in multidisciplinary teams.
- e. An ability to identify, formulate, and solve engineering problems in more than one environmental engineering focus area such as: air, water, land or environmental health.

EnE Program Outcomes (continued)

- f. An understanding of professional and ethical responsibilities of environmental engineers in relation to public and private institutions and in the context of environmental systems (e.g., drinking water distribution, waste management)
- g. An ability to communicate effectively, orally and in writing.
- h. A broad education necessary for understanding the societal and economic impacts of engineering solutions to environmental problems at both regional and global scales.
- i. Recognition of the need for, and an ability to engage in life-long learning.
- j. Knowledge of contemporary issues related to environmental engineering.
- k. An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice, an understanding of the importance of licensure for professional practice, and an introduction to administrative business (planning, contracting, etc.) of professional practice.

EnE Course Requirements 1

Mathematics and Basic Science (64 units)

- Math 2A-B-D-J, 3D, 2E
- Phys 7C-D, 7LC-D -- or -- Phys 7B-D, 7LB-D
- Chem 1A-B-C, 1LB-LC, 51A, 51LA
- 4 units of Earth System Science and 4 units of Biological Sciences

General Education Requirements (44+ units)

- Engineering Professional Topics Courses include:
- Economics 20A-B and CEE60 (or Soc Ecol E8)

EnE Course Requirements 2

Engineering Topics Courses (81+ units):

- LD Core: EECS 10, CEE 11, 20, 30, 80, 81A-B, thermo
- UD Core: CEE 110, 130, 130L, 150, 150L, 162, 168, 170 (options)
- Senior Design Practicum: CEE 181A-B-C (options)
- Engineering Electives (2 from 2 areas/1 from other):
 - Water Supply and Resources (CEE171, 172, 173, 176, 178, ESS132)
 - Waste Water Management (CEE 161, 163, 165)
 - Atmospheric Systems & Air Pollution Control (MAE110, 115, 162, 164, ESS 112)
- A nominal total of 189 units
- *Must verify Program of Study and unit counts with UG Office*

BS EnE: Freshman 2009-2010

Fall		Winter		Spring	
Math 2A	4	Math 2B	4	Math 2D	4
EECS 10	4	Phys 7C, L	5	Phys 7D, L	5
Chem 1A	4	Chem 1B,L	6	Chem 1C, L	6
Gen. Ed.	4	Gen. Ed.	4	CEE 81A	3
	16		19		18

- Gen Ed Recommendation: WR39B-C or **CEE60**

BS EnE: Sophomore 2009-2010

Fall		Winter		Spring	
Math 2J	4	Math 3D	4	Math 2E	4
CEE 81B	2	Chem 51A, L	6	MAE 91	4
CEE 30	4	MAE 80	4	CEE 11	4
Gen. Ed.	4	Gen. Ed.	4	CEE 20	4
	14		18		16

- Various options for MAE 91 (thermodynamics)
- Gen Ed Recommendation: **CEE60**

BS EnE: Junior 2009-2010

Fall		Winter		Spring	
CEE 150, L	5	CEE 130, L	5	CEE 110	4
CEE 170	4	CEE 162	4	Eng. Elect.	4
Sci. Elect.	4	Eng. Elect.	4	Sci. Elect.	4
Gen. Ed.	4	Gen. Ed.	4	Gen. Ed.	4
	17		17		16

- Consider pre-requisites!
- Science Electives: 1 each in Bio Sci and Earth Systems Sci

BS EnE: Senior 2009-2010

Fall		Winter		Spring	
CEE 181A	2	CEE 181B	2	CEE 181C	2
Eng. Elect.	4	CEE 168	4	Eng. Elect.	4
Gen. Ed.	4	Eng. Elect.	4	Gen. Ed.	4
Gen. Ed.	4	Gen. Ed.	4		
	14		14		10

- Spread Gen Ed (include Econ 20A-B, UD Writing)
- Consider pre-requisites for Science and Engineering Electives

General Education Requirements

1. General Education requirements:

- *Writing (3 courses)*
- *Arts and Humanities (3 courses)*
- *Social and Behavioral Sciences (3 courses)*
- *Multicultural Studies / International Issues (1)*

2. BSCE and BSEnE already cover:

- *Science and Technology*
- *Quantitative, Symbolic, Computational Reasoning*

3. Need to consult with a counselor

4. Everyone can switch to new requirements!

Academic Honesty

- Civil and Environmental Engineering is perhaps at the pinnacle of the practice of, and the need for, **ethical behavior**.
- At you progress through the program, any form of cheating has minimum benefit (on grades) and maximum cost (of not finishing your degree).
- The **UCI Policy on Academic Honesty** is defined at:
<http://www.editor.uci.edu/08-09/appx/appx.2.htm#gen0>
- Ask your instructors to discuss course policies on joint work on HW, labs, or other required tasks.

Professional Registration

1. **Profession Registration:** licensure as a professional engineer is required to practice as a civil or environmental engineer.
2. **Steps Toward Licensure: First...**
 - a. Complete a BS from an accredited institution (UCI)
 - b. Successfully complete the *Fundamentals of Engineering* exam (material covered includes physics, chemistry, thermo, circuits, mathematics, statics & dynamics, engineering economics, fluids, engineering ethics, strength of materials, computers, etc.)
 - c. <http://www.ncees.org/exams/fundamentals/>
3. **Steps Toward Licensure: Then...**
 - a. After 2 years of work under professional engineers...
 - b. Successfully complete the *Principles and Practice of Engineering* (PE)
 - c. <http://www.ncees.org/exams/professional/>

Education Abroad Program

UCIrvine | CENTER FOR
INTERNATIONAL EDUCATION

EAP Planning for Civil Engineering

Academic Planning

Planning Strategies

How to get credit

Researching EAP Courses

EAP Program Wizard

Financing EAP

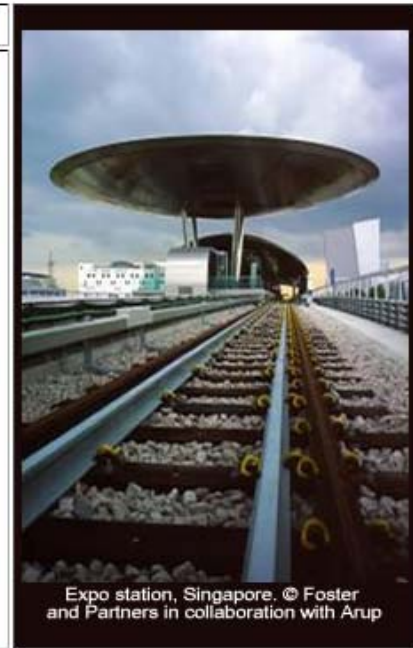
Engineering

Major Requirements

Why study Civil Engineering abroad?

"As a Civil Engineering student studying abroad, you will gain exposure to different modes of problem solving, leading toward different approaches to the design and implementation of civil engineering projects. In light of the increasing globalization of engineering practice, this acquired knowledge will likely be beneficial in your future engineering career. You will see the significance of US building codes and how these are implemented in other countries, as well as how the US adopts sections of engineering building codes from other countries. EAP programs often have more academic support staff to assist engineering professors with computing, wet/dry, and field labs, which leads toward more meaningful laboratory experiences. Not only will EAP be one of the most memorable times in your life, the international experience will open a world of engineering opportunities in your future."

Professor Michael McNally
Department of Civil & Environmental Engineering



<http://www.cie.uci.edu/academics/ce.html>

Further Information ?

Undergraduate Student News - Mozilla Firefox

File Edit View History Bookmarks Tools Help

http://undergraduate.eng.uci.edu/

The Henry Samueli School of Engineering, UC Irvine
Undergraduate Student Site

Student Handbook Degree Programs Special Programs Scholarships and Awards Sign In To My Account

Welcome
The Engineering Student Affairs Office offers academic advising from staff counselors and peer advisors in the School's Student Affairs Office, 101 ECT. Students are encouraged to consult with the academic counselors in the Engineering Student Affairs Office whenever they desire to change their program of study.



I have a question about...
...advising
...enrolling in classes
...understanding your grades
...normal progress and probation
...completing my degree
...academic honesty
...campus resources
...career and professional development

Frequently Asked Questions
What is an E.I.T.? What is the F.E. exam?
What is academic probation?
What is the deadline for changing major?
Why should I fill out an Individual Study Proposal form?
[more...](#)

Contact Us
Office Hours
Monday-Friday 8:30 am-4:30 pm PST
The office closes between noon-1 pm for lunch.
Voice: (949) 824-4334
Fax: (949) 824-3440

Please **sign in** above to access teaching evaluations, course surveys, and petitions. Make sure you **sign out** when you are finished.

Hot Links
Freshman Handbook
2008-2009 Teaching Plan
2008-2009 Course Outlines
2007-2008 Course Outlines
UCI New Student Handbook
WebSOC (Online Schedule of Classes)
WebReg (Online Course Registration)
StudentAccess
CODE (Center for Opportunities and Diversity in Engineering)
EEE (Electronic Educational Environment)
UCI Libraries
UCI Summer Session
UCI Career Center
ASSIST (Community College Course Equivalencies)

Hot Topics
Congratulations to the 2007-2008 Latin Honor Recipients.

Word on the Plaza
Check Commencement 2005 information at <http://www.commencement.uci.edu>

About Contact Copyright Legal Privacy

Last Modified: Monday, May 17, 2004 at 1:41:46 PM

Summary

1. **Academic Honesty...**
2. ABET evaluations versus UCI course evaluations
3. Civil Engineering Specializations and Concentrations
4. Petitions: substitutions, variations, and related issues
5. Student Clubs? [G-E-T I-N-V-O-L-V-E-D]
6. Independent Study and Research Opportunities?
7. Internships, Jobs, Careers
8. Graduate School? (GRE)
9. **Professional Practice** (FE, PE, professional societies)

Contact Information

HSSOE UG Affairs Office:

1. UG Counselors in ECT 101 (824-4334)
2. Web site: <http://undergraduate.eng.uci.edu/>

Civil & Environmental Engineering:

1. Department Office in EG 4130 (824-5333)
2. CEE web site: <http://www.eng.uci.edu/cee/>
3. CE Advisor: Professor McNally <mmcnally@uci.edu>
4. EnE Advisor: Professor Detwiler <detwiler@uci.edu>

Unused Slides

The following slides were not used in Sp'09

1. CE Educational Mission
2. EnE Educational Mission

Educational Mission of the Civil Engineering Program:

- To provide students with an multidisciplinary curriculum that is fundamental, yet broad and flexible, to produce graduates who are well-grounded in mathematical, scientific, and technical knowledge; have the ability to analyze, evaluate, and design civil engineering systems; have the ability to communicate effectively; have had meaningful opportunities for undergraduate research; and who have acquired an understanding and appreciation for global and societal issues and are thus prepared for a career path toward leadership in industry, government, and academia.
- CE Web Site: <http://undergraduate.eng.uci.edu/degreeprograms/civil/>

Educational Mission of the Environmental Engineering Program:

- To prepare students to begin a research or professional practice career path in Environmental Engineering or related discipline by a three-pronged approach: (1) Fundamentals. Provide a strong educational foundation of engineering fundamentals (mathematics, physical sciences, and engineering sciences), (2) Environmental Topics. Introduce students to land, air, and water resources; physical, chemical, and biological entities and processes important to these resources; and the legal, social, ecological, and economic frameworks within which these resources must be managed, (3) Analysis and Design. Develop analysis and design skill for land, air, and water resources that build upon Fundamentals and Environmental Topics. .
- EnE Web Site: <http://undergraduate.eng.uci.edu/degreeprograms/environmental/>