

**Soph & Junior Advising
Civil & Environmental Engineering
Winter 2017 for 2016-2017 AY
Professor M. G. McNally
Professor Diego Rosso**




CEE@UCI

Soph & Junior Advising Process

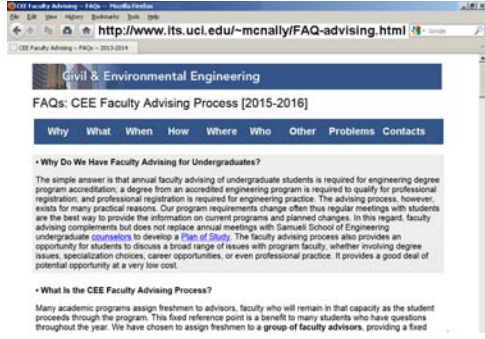
- **Faculty advising complements** other forms of advising:
 - HSSOE Counselors, Peer Advising, Professional mentors
- **Annual Process:** *every year!*
- **Format:** Each entering class will keep the same group of *faculty advisors* throughout the degree program
- **Mandatory Process:**
 - **Group Advising:** sessions for Freshmen in the Fall and separate sessions for Sophomores and for Juniors in the Winter
 - **Individual Advising:** select a faculty member by name, teaching and research area, or session format (sign-up on-line)
- **Sophs & Juniors are recommended** to see a faculty advisor often, but **must** see an advisor following Group Advising.
- **Penalty: Registration Hold** (not a good thing!)

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INDIVIDUAL ADVISING

- **All sophs & Juniors schedule an appointment with a designated faculty advisor this quarter.** You will **receive an email** with a web link to select an advisor. Your advisor will then email you with available advising slots scheduled over the next few weeks..
FAQs: <http://www.its.uci.edu/~mmcnally/FAQ-advising.html>
- **Individual advising** will be either *individual* or *small group* sessions:
 - **After** selecting an advisor, you will be able to **schedule** an appointment in winter quarter.
 - You must fulfill the individual requirement or a **hold** will be placed on next quarter's registration.

Advising FAQs



Advisers: Sophs 2016-17 (Class of 2019)

 Dr. Farzin Zareian EG 4141 Structures CEE150, CEE155 zareian@uci.edu	 Dr. Russ Detwiler ET 716E Water/Environ CEE171, CEE172 detwiler@uci.edu
 Dr. Ritchie AIRB 4014 Transportation CEE121, CEE124	 Dr. Saphores AIRB 4028 Transportation CEE111, CEE122 saphores@uci.edu
 Dr. Jiang ET 716E Env. Water Quality CEE 160, CEE 169 sjiang@uci.edu	






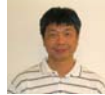
Advisers: Juniors 2016-17 (Class of 2018)

 Dr. Amir Aghakouchak ET 506A Water/Environmental CEE81B, CEE173 amir.a@uci.edu	 Dr. Betty Olson ET 844 Water/Environmental CEE60 bholson@uci.edu
 Dr. Mo Li EG 4145 Structures CEE30 Mo.Li@uci.edu	 Dr. Lizhi Sun EG 4139 Structures CEE 30, CEE 152 lsun@uci.edu CEE@UCI
 Dr. Will Recker AIRB 4074 Transportation CEE 111 wrecker@uci.edu	







Structural Engineering Faculty

 Dr. Sun EG 4139 Mechanics, Composites CEE 30, CEE 152	 Dr. Zareian EG 4141 Earthquake Engr CEE 150	 Dr. Qomi EG 4151 Structures, Materials CEE 151A
 Dr. Mosallam EG 4149 Composite Structures CEE 151C, ASCE	 Dr. Lemnitzer EG 4149 Geotechnical CEE130, CEE156	 Dr. Li EG 4145 Structures CEE@UCI

Hydrology & Water Resources Faculty

 Dr. Detwiler, ET 844C Groundwater Hydrology CEE 171, CEE 172	 Dr. Sanders, ET 844D Computational Hydrodynamics CEE 170	 Dr. Sorooshian, EH 5308 Hydrologic Systems CEE 176
 Dr. Vrugt, ET 844E Systems Modeling CEE 20	 Dr. Aghakouchak ET 506A Remote Sensing CEE81b, CEE173	 Dr. Hsu, EH 5320 Hydrologic Modeling CEE30 CEE@UCI

Water (cont'd.) Environmental Faculty

 Dr. Davis, ET 544E Coastal Engineering CEE 20, CEE 178	 Dr. Cooper, ET 305 Environmental Chemistry CEE 162	 Dr. Jiang, ET 716E Water Quality CEE 160, CEE 169
 Dr. Grant, ET 944D Environmental Engr CEE11	 Dr. Rosso, ET 844F Environmental Processes CEE163, CEE165 EnE UG Advisor	 Dr. Olson, ET 844 Environmental Microbiology CEE 60 CEE@UCI

Transportation Systems Engineering

 Dr. Jay, AIRB 4055 Transport Systems Anlys CEE 81a	 Dr. Jin, AIRB 4038 Traffic Flow, ITS CEE 110	 Dr. McNally, AIRB 4048 Travel Behavior & Modeling CEE123, CEE181abc
 Dr. Recker, AIRB 4074 Transport Systems Anlys CEE 111, Engr189	 Dr. Ritchie, AIRB 4014 ITS, Emerging Technology CEE121, CEE124	 Dr. Saphores, AIRB 4028 Transport Planning & Policy CEE 111, CEE122 CEE@UCI

Soph & Junior Issues

- **Academic Program:**
 - Specializations and Electives
 - Senior Design
- Grades and pre-requisites ... **letter grades!**
- Student Clubs & Professional Associations
- **E-Week:** February 2017 – Get Involved
- ASCE PSWC Student Conference: April 6th - 8th 2017 at UCI

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ABET Program Assessment

1. Stakeholders: students, faculty, alumni, and employers
2. Program Educational Objectives: accomplishments of graduates expected by a few years after graduation
3. Student Learning Outcomes: knowledge and skills to be attained by the time of graduation
4. Course Outcomes (or Performance Criteria) are restatements of Program Outcomes that define specific knowledge and skills to be attained in a specific course
5. Degree Requirements comprise core, specialization, labs, General Ed, and a capstone design experience

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Careers in Civil & Environmental Engineering
BSCe Degree Program

CE 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

PEOs 2016

Careers in Civil & Environmental Engineering
BSCe Degree Program

CE and EnE Student Learning 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, science, and engineering.
- b. An ability to design and conduct experiments, as well as to analyze and interpret data
- 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, manufacturability, and sustainability
- d. An ability to function on multidisciplinary teams
- e. An ability to identify, formulate, and solve engineering problems

SLOs 2016

Careers in Civil & Environmental Engineering
BSCe Degree Program

CE and EnE Student Learning Outcomes (continued)

- f. An understanding of professional and ethical responsibility
- g. An ability to communicate effectively
- h. The 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, and an ability to engage in life-long learning
- j. A knowledge of contemporary issues
- k. An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

SLOs 2016

Careers in Civil & Environmental Engineering
Sample Course Syllabus & Outcomes

ENGR 20 INTRODUCTION TO COMPUTATIONAL ENGINEERING PROBLEM SOLVING
(Required for CE and EnE. Selected Elective for MSE)

Catalog Date: ENGR 20 Introduction to Computational Engineering Problem Solving (Credit Status: 4) Introduction to computer programming within a numerical computing environment (MATLAB or similar) including types of data representation, graphical display of data, and development of modular programs with application to engineering analysis and problem solving. CEE20 and ENGR20 may not both be taken for credit. Civil Engineering and Environmental Engineering Engineering students have first consideration for enrollment. Only one course from ENGR 20, ENGR 15 may be taken for credit. (Design units: 1)

Required Textbook: Gerald W. Hackwood, *Numerical Methods with MATLAB - Implementation and Applications*, 2nd Edition, Pearson, 2006, ISBN: 0-201-30909-5.

Key Textbook: None

References: Student Edition of Matlab, Mathworks (recommended)

Coordinator: Jaeger Alexander Yngst

Relationship to Student Outcomes
This course relates to Student Outcomes: EAC a, EAC b, EAC c, EAC e, EAC g.

Course Learning Outcomes. Students will:

1. Use Matlab to perform a range of matrix and vector operations. (EAC a)
2. Use Matlab to write computer programs, structures and functions (subroutines). (EAC a, EAC e)
3. Use Matlab to plot data and mathematical functions. (EAC a, EAC g)
4. Use Matlab to find roots of nonlinear equations. (EAC a, EAC e)
5. Use Matlab to perform least squares fitting of a curve to data. (EAC a, EAC g)
6. Use Matlab skills in the context of a design process which leads to a modeling tool useful for engineering analysis purposes. (EAC c)
7. Prepare a report that describes an analysis tool (computer model) for an engineering system or component, the purpose for this tool, and an application of it. (EAC g)

Course Outcomes Student Learning Outcomes

<http://plaza.eng.uci.edu/course/outline/engrcee/>

2016

CE Course Requirements 1

Mathematics and Basic Science (48 units)

- Math2A-B-D-E, 3A-D
- Phys7C-D and 7LC-D, Chem 1A-B
- Science Elective (one BioSci or ESS course from list)
- **Elective** (two from Chem1LE, ENGR7A-B, LDEE)
[LDEE is one of (EECS70A, Engr54, MAE80, MAE91)]

General Education Requirements (44+ units)

- Provides flexibility, overlaps encouraged, etc.
- Engineering Professional Topics include Econ 20A-B and CEE60 (or SocEcol E8), E190W UD Writing

2016

CE Course Requirements 2

Engineering Topics Courses (77 units):

- LD Core: CEE 11, 20, 21, 30, 81A-B
- UD Core: CEE 110, 111, 121, 130, 130L, 150, 150L, 151A, 151C, 160, 170, and 171
- Elective (two from Chem1LE, ENGR7A-B, LDEE)
where LDEE is one of (EECS70A, Engr54, MAE80, MAE91)
- Engr Design Elective (one of 155, 172, 122 or 123)
(No double counting!)
- Senior Design Practicum: CEE 181A-B-C

Specialization (16 units)

- Must complete senior design project in same area

Summary: A nominal total of **188** units (22+ design units)

2016

BSCE: Freshman (effective 2015)

Fall		Winter		Spring	
Math 2A	4	Math 2B	4	Math 2D	4
Gen. Ed.	4	Phys 7C, L	5	Phys 7D, L	5
Chem 1A	4	Chem 1B	4	Sci. Elect.	4
Gen. Ed. Engr 7A *	2-4	Chem 1LE Or Engr 7B	2-3	CEE 81A	3
	14-16		15-16		16

- Science Elective: BioSci or ESS (NOT chemistry or physics)
- * Engr7A-B Option (Lower Division only)

2016

BSCE: Sophomore (effective 2015)

Fall		Winter		Spring	
Math 3A	4	Math 3D	4	Math 2E	4
CEE 30	4	CEE 11	4	LD Elect	4
CEE 20	4	CEE81B	3	CEE 21	4
Gen. Ed.	4	Gen. Ed.	4	Gen. Ed.	4
	16		15		16

- Gen Ed Recommendation: Econ 20A-B, **CEE60**
- LD Engr Elective: EECS70A, ENGR54, **MAE80**, MAE91

2016

BSCE: Junior 2016-2017

Fall		Winter		Spring	
CEE 150, L	5	CEE 151A	4	CEE 151C	4
CEE 170	4	CEE 171	4	CEE 110	4
CEE 121	4	CEE 130, L	5	CEE 160	4
E190W	4	Gen. Ed.	4	Gen. Ed.	4
	17		17		16

- Civil Engineering "core"; *pre-requisites are important!*

2016

BSCE: Senior 2017-2018

Fall		Winter		Spring	
CEE 181A	2	CEE 181B	2	CEE 181C	2
Engr Dsgn	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

- **Engr Design** Elective (122, 123, 155, or 172) – quarter varies!
- Can not double count the EDE!
- **Specialization Elective:** flexibility with 4th course!

2016

Specializations 1**General Civil Engineering:**

Requires four (**three**) courses from **CEE122** or **CEE123**;
CEE149, **CEE152**, **CEE151B**, **CEE155**, or **CEE156**;
CEE162, **CEE163**, **CEE165**, or **CEE169**;
CEE172, **CEE173**, **CEE176**, or **CEE178**;
 or CEE55 or courses from an approved list.

Environmental Hydrology & Water Resources:

Requires four (**three**) courses from CEE163, 165, 169,
 CEE172, 173, 176, or 178, or courses from an approved list.

2016

Specializations 2**Structural Engineering:**

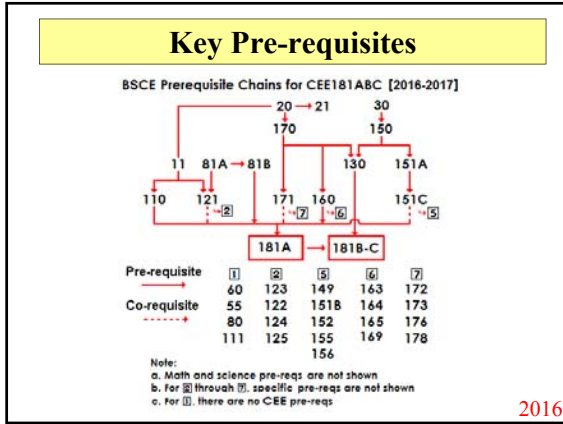
Requires **CEE155** (as the EDE) and four (**three**) courses from
 CEE149, CEE151B, CEE152, CEE156, MAE157, or courses
 from an approved list.

Transportation Systems Engineering:

Requires **CEE122** and **CEE123**, and two (**one**) courses from
 CEE124, CEE125, E189, EECS70A, or courses from an
 approved list.

Note: the 4th course is any UD HSSOE technical elective

2016



Careers in Civil & Environmental Engineering BS EnE Degree Program

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.

2016

EnE Course Requirements 1

Mathematics and Basic Science (64 units)

- Math 2A-B-D-E, 3A-D
- Phys 7C-D, 7LC-D
- Chem 1A-B-C, 1LC-D, 51A
- 4 units of Earth System Science and 4 units of Biological Sciences (*must choose from approved list*)

General Education Requirements (44+ units)

- Engineering Professional Topics Courses include:
- Economics 20A-B and CEE60 (or Soc Ecol E8)
- E190W for Upper Division Writing

2016

EnE Course Requirements 2

Engineering Topics Courses (81+ units):

- LD Core: CEE 11, 20, 21, 30, 81A, 81B, MAE91
- UD Core: CEE 110, 130, 130L, 150, 150L, 160, 162, 170
- Engr Sci Elective (Engr7A-B, EECS70A, Engr54, MAE80)
- Senior Design Practicum: CEE 181A-B-C
- Engineering Electives (2 from 2 areas/1 from other):
 - Water Supply and Resources (CEE171, 172, 173, 176, 178, ESS132)
 - Environmental Processes (CEE163, 165, 167)
 - Atmos Systems & Air Poll Control (MAE110, 115, 164, ESS 112)
- A nominal total of 189 units
- *Must verify Program of Study and unit counts with UG Office*

2016

BS EnE: Freshman 2014-2015

Fall		Winter		Spring	
Math 2A	4	Math 2B	4	Math 2D	4
CEE 20	4	Phys 7C, L	5	Phys 7D, L	5
Chem 1A	4	Chem 1B	4	Chem 1C, LC	6
Gen. Ed. *	4	Gen. Ed.	4	Gen. Ed.	4
	16		17		19

- Gen Ed Recommendation: WR39B-C or CEE60
- EECS10 and CEE20 replaced by CEE20 & CEE21 in Fall '13
- Engr 7A-B option in F/W for lower division only

2016

BS EnE: Sophomore 2015-2016

Fall		Winter		Spring	
Math 3A	4	Math 3D	4	Math 2E	4
CEE 81A	3	CEE 81B	3	MAE 91	4
CEE 30	4	Engr Sci	4	CEE 11	4
Chem 51A, Chem 1LD	4 1	Gen. Ed.	4	CEE 21	4
	16		15		16

- Gen Ed Recommendation: CEE60
- Engr Science Elective: EECS70A, ENGR54, MAE80, etc.

2016

BS EnE: Junior 2017-2018

Fall		Winter		Spring	
CEE 150, L	5	CEE 130, L	5	CEE 110	4
CEE 170	4	CEE 162	4	CEE 160	4
Sci. Elect. 1	4	Eng. Elect.	4	Sci. Elect. 2	4
E190W	4	Gen. Ed.	4	Gen. Ed.	4
	17		17		16

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

2016

BS EnE: Senior 2016-2017

Fall		Winter		Spring	
CEE 181A	2	CEE 181B	2	CEE 181C	2
Eng. Elect.	4	Eng. Elect.	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

2016

General Education Requirements

- General Education requirements:**
 - Writing (3 courses: 2 LD and 1 UD)
 - Arts and Humanities (3 courses)
 - Social and Behavioral Sciences (3 courses)
 - Multicultural Studies / International Issues (1)
- BSCE and BSEnE already cover:**
 - Science and Technology
 - Quantitative, Symbolic, Computational Reasoning
- Need to consult with HSSoE counselors**

2016

HSSOE UG Office

THE HENRY SAMUELL SCHOOL OF ENGINEERING
UNIVERSITY OF CALIFORNIA - IRVINE

Fall 2011 Course Learning Outcome Surveys Now Open
Engineering course learning outcome surveys are now again available. Students are asked to complete a brief survey for each enrolled undergraduate engineering course. These are similar to teaching evaluations but rather than focus on the quality of instruction, they focus on whether students have met the outcomes defined for each course. Course learning outcome surveys will remain open until January 8, 2012.

Winter 2011 Course Learning Outcome Surveys Now Available
Engineering course learning outcome surveys are now again available. Students are asked to complete a brief survey for each enrolled undergraduate engineering course. These are similar to teaching evaluations but rather than focus on the quality of instruction, they focus on whether students have met the outcomes defined for each course. Course learning outcome surveys will remain open until March 20, 2011.

Fall 2010 Course Learning Outcome Surveys Now Available
Engineering course learning outcome surveys are now again available. Students are asked to complete a brief survey for each enrolled undergraduate engineering course. These are similar to teaching evaluations but rather than focus on the quality of instruction, they focus on whether students have met the outcomes defined for each course.

Fall 2009 course learning outcome surveys are now closed. Thank you for participating.

<http://plaza.eng.uci.edu>

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CEE UG Programs

THE HENRY SAMUELL SCHOOL OF ENGINEERING
UNIVERSITY OF CALIFORNIA - IRVINE

Undergraduate Programs

Undergraduate programs are designed to provide students with a strong foundation in engineering and science, while also offering opportunities for personal and professional growth. The school's programs are designed to be challenging and to provide students with the skills and knowledge they need to succeed in their careers and in life.

<http://www.eng.uci.edu/dept/cee/>

Department Scholarships

Civil and Environmental Engineering offers annual scholarship opportunities for qualified undergraduate students:

- **Emeriti Scholarships**, supported by the UCI CEE Affiliates:
 - **Jan Scherfig Scholarship**: for **freshmen** returning in the fall
 - **Gary Guymon Scholarship**: for **sophomores** returning in the fall
 - **Robin Shepherd Scholarship**: for **juniors** returning in the fall
- **Huit Zollars Civil Engineering Scholarship**:
- **Applications** for the \$1,000 scholarships are submitted online in Winter Quarter (check your UCI email!)
- Other HSSOE and UCI Scholarships:
 - <http://www.ofas.uci.edu/content/Scholarships.aspx>

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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 *reduced benefit* (on grades) and *increased cost* (of not finishing your degree).
- The [UCI Policy on Academic Honesty](http://www.senate.uci.edu/senateweb/default2.asp?active_page_id=754) is defined at:
http://www.senate.uci.edu/senateweb/default2.asp?active_page_id=754
- Take note of the descriptions of **cheating, dishonest conduct, plagiarism, and collusion**.
- Ask your instructors to discuss course policies on Academic Honesty, including policies on joint work on HW, labs, or other required tasks.
- Full details are posted on-line at: <http://honesty.uci.edu/>

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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 (FE)** 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. ... soon 30 units of post-graduate continuing education
 - c. Successfully pass the **Principles and Practice of Engineering (PE)**
 - d. <http://www.ncees.org/exams/professional/>

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Education Abroad Program

The screenshot shows a webpage titled 'EAP Planning for Civil Engineering' from UCIrvine International Education. It includes a sidebar with navigation links like 'Academic Planning', 'Financial Strategies', and 'EAP Program Model'. The main content area has a section titled 'Why study Civil Engineering abroad?' with a paragraph explaining the benefits of international exposure for civil engineering students, including exposure to different problem-solving methods and global engineering practices. A photo of a modern building is also visible.

<http://www.cie.uci.edu/>

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Student Clubs

This block contains two screenshots of student club websites. On the left is the website for the American Academy of Environmental Engineers at UC Irvine, which lists membership benefits and contact information. On the right is the website for the American Society of Civil Engineers (ASCE) at UC Irvine, featuring a 'Welcome to the Division at UCI' message and a photo of a student working in a lab.

Summary

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

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Contact Information

HSSOE UG Affairs Office:

1. UG Counselors in REC 305 (824-4334)
2. Web site: <http://plaza.eng.uci.edu/>

Civil & Environmental Engineering:

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

UCI General Catalogue: Your *contract* with UC
<http://www.editor.uci.edu/catalogue/engr/engr.6.htm>

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