Freshmen & Transfer Advising Civil & Environmental Engineering Fall 2018 for 2018-2019 AY

Professor M. G. McNally Professor Diego Rosso







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Advising 101

- What was in your Toolbox 4 years ago?
- Learn how to learn...
 - * What can you add to your toolbox?
- Basic Knowledge:
 - * Math, Science, and computational skills are fundamental to engineering, but so are...
- Attitudes & Behaviors:
 - * Creativity and Innovation; Global Perspective;
 - * Teamwork and Leadership; Ethical Reasoning;
 - * Entrepreneurial Thinking

What will you need in your Toolbox in 4 years?

Some Definitions

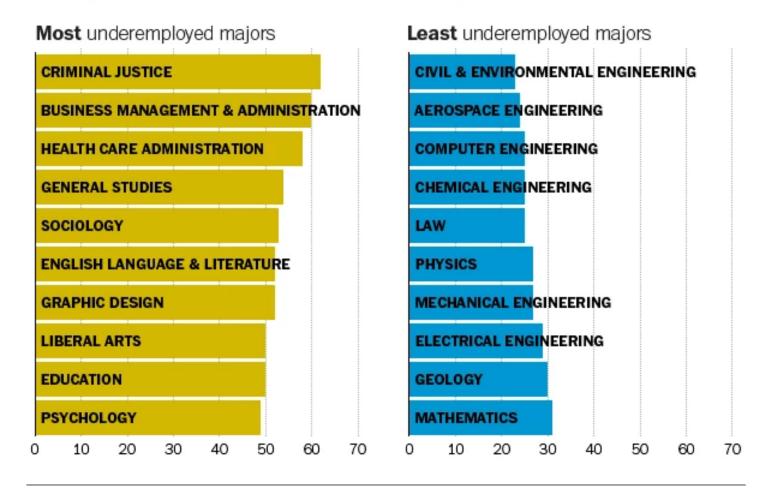
- CEE: Civil and Environmental Engineering
- HSSOE: Henry Samueli School of Engineering
- BSCE: Bachelor of Science in Civil Engineering
- BSEnE: Bachelor of Science in Environmental Engineering
- Faculty Advising: An annual meeting with a <u>faculty</u> member
- Faculty Advisor Cohort: the designated group of faculty members who serve as faculty advisors during your program
- UG Advisors: a faculty member who manages your program
- HSSOE Counselors: school staff that help you develop and complete your academic program
- ABET: accreditation organization for our engineering programs



Is CEE a Good Choice?

The college majors most and least likely to lead to underemployment

% saying they are underemployed in a recent PayScale survey, by undergraduate major



Source: PayScale

Freshmen Advising Topics

- The UG Advising Process
- The UCI General Catalogue
- Programs, Policies, Participation, Performance
- Academic Honesty
- Performance Assessment and Accreditation
- Questions? E-mail us at:
 - mmcnally@uci.edu or bidui@uci.edu
- Answers? Read your UCI e-mail regularly!



Faculty 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 cohort of *faculty advisors* throughout the degree program
- Mandatory Process: Freshmen must complete either:
 - 1. <u>Group Advising</u>: sessions for Freshmen in the Fall (and separate sessions for Sophomores and for Juniors in the Winter)
 - 2. <u>Individual Advising</u>: select a faculty member by name, teaching and research area, or even schedule availability
- **Freshmen** are *recommended* to see a faculty advisor often, but *must* meet in a group <u>or</u> individual session once per year.
- **Penalty: Registration Hold** (not a good thing!)



Group or Individual Advising

• FAQs for Freshmen faculty advising, including a list of faculty advisors, can be found at:

http://www.its.uci.edu/~mmcnally/FAQ-Fresh-advising.html

- If you miss a group session, you must schedule an appointment with a faculty advisor. Call, email, or visit office hours for individual advising.
- Transfer students are assigned to an appropriate faculty cohort for advising
 - Sophomores, juniors, and seniors should meet with their faculty advisors in Winter group sessions

http://www.its.uci.edu/~mmcnally/FAQ-advising.html

Advising FAQs

http://www.its.uci.edu/~mmcnally/FAQ-Fresh-advising.html

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Civil & Environmental Engineering

FAQs: CEE Freshmen Advising Process [2018-2019]

Why What When How Where Who Other Problems Contacts

E-mail Notices on the Faculty Advising Process

Your official UCI email serves as the **only** communication path from the Department of Civil and Environmental Engineering regarding the mandatory Faculty Advising Process, as well as other program matters. You are solely responsible for regularly checking your UCI email and responding as appropriate. No other media options are currently used.

Why Do We Have Faculty Advising for Undergraduates?

The simple answer is that annual faculty advising of undergraduate students is required for engineering degree program accreditation; a degree from an accredited engineering program is required to qualify for professional registration; and professional registration is required for engineering practice. The advising process, however, exists for many practical reasons. Our program requirements evolve thus regular meetings with students are the best way to provide information on current programs and planned changes. In this regard, faculty advising complements but does not replace annual meetings with Samueli School of Engineering (HSSOE) counselors to develop a Plan of Study. The faculty advising process also provides an opportunity for students to discuss a broad range of issues with program faculty, whether involving degree issues, specialization choices, career opportunities, or even professional practice. It provides a good deal of potential opportunity at a very low cost.

What Is the CEE Faculty Advising Process for Freshmen?

Many academic programs assign freshmen to advisors, faculty who will remain in that capacity as the student proceeds through the program. This fixed reference point is a benefit to many students who have questions throughout the year. We have chosen to assign freshmen to a **cohort of faculty advisors**, providing a fixed group of advisors for the same group of students over the entire time that they are in the degree program. Each advising cohort has a faculty member from each research area (structures, transportation, and water resources

CEE Chair and UG Advisers



Dr. Jiang, Chair AIRB 4055 Environmental CEE 160 sjiang@uci.edu



Dr. McNally, CE UG Advisor AIRB 4048 Transportation CEE 123 mmcnally@uci.edu



Dr. Rosso, EnE UG Advisor ET 844F Environmental CEE163, CEE165 bidui@uci.edu

Advisers: Freshmen 2018-19 (Class of 2022)



Dr. Aghakouchak
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Water/Environmental
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Dr. Recker
AIRB 4074
Transportation
CEE 111
wwrecker@uci.edu



Dr. Ritchie
AIRB 4014
Transportation
CEE121, CEE124
sritchie@uci.edu



Dr. Sun
EG 4139
Structures
CEE 30, CEE 152
Isun@uci.edu



Dr. Li EG 4145 **Structures** CEE30 Mo.li@uci.edu



Dr. Sanders
ET 844D
Water/Environment
CEE 170
bsanders@uci.edu

Advisers: Sophomores 2018-19 (Class of 2021)



Dr. Jayakrishnan AIRB 4055 **Transportation** CEE 81A rjayakri@uci.edu



Dr. Hsu
EH 5320
Water Resources
CEE176
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Dr. Lemnitzer
EG 4149
Geotech / Structures
CEE130, CEE156
lemnitzer@uci.edu



Dr. Qomi
EG 4151
Structures
CEE 151a
mjaq@uci.edu



Dr. Vrugt
ET 844E
Water / Systems
CEE 20
jasper@uci.edu

Advisers: Juniors 2018-19 (Class of 2020)



Dr. Davis
ET 544E
Water / Environmental
CEE 21, CEE 178
davis@uci.edu



Dr. Jin
AIRB 4038
Transportation
CEE 122
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Dr. Mosallam
EG 4167
Structures
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Dr. Sorooshian
EH 5308
Hydrologic Systems
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Dr. Lanning
EG 4167
Structures
CEE 155, CEE 181
Joel.Lanning@uci.edu

Advisers: Seniors 2017-18 (Class of 2019)



Dr. Zareian
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Structures
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zareian@uci.edu



Dr. Detwiler ET 716E Water/Environ CEE171, CEE172 detwiler@uci.edu



Dr. Saphores
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Dr. Lanning
EG
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Dr. Hyland AIRB 4022 **Transportation** CEE110 hylandm@uci.edu



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ET 516F
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Freshmen Issues

Important Information for Freshmen & Transfers:

- Who are your Faculty Cohort Advisors?
- Who are your HSSOE Counselors?
- Grades and pre-requisites
- Plan of Study (see counselors in UG Office)

Important Information for Subsequent Years:

- Program choices:
 - Degree programs, Specializations, Minors
 - Student Clubs & Professional Associations
- Assessment (ABET) & Registration (FE, PE)



ABET Program Assessment

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

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

CE and EnE Student Outcomes (ABET 1-7):

By graduation, students must have the ability to:

- 1. to **identify**, **formulate**, and **solve** complex engineering problems by applying principles of engineering, science, and mathematics;
- 2. to apply engineering **design** to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors;
- 3. to communicate effectively with a range of audiences;
- 4. to recognize **ethical** and professional **responsibilities** in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts;
- 5. to function effectively on a **team** whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives;
- 6. to develop and conduct appropriate **experimentation**, analyze and interpret data, and use engineering judgment to draw conclusions;
- 7. to acquire and apply **new knowledge** as needed, using appropriate learning strategies.

ENGRCEE 20 INTRODUCTION TO COMPUTATIONAL ENGINEERING PROBLEM SOLVING

(Required for CE and EnE. Selected Elective for MSE.)

Catalog Data: ENGRCEE 20 Introduction to Computational Engineering Problem Solving (Credit Units: 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 ENGR15 may not both be taken for credit. Civil Engineering and Environmental Engineering Engineering majors have first consideration for enrollment. Only one

Student

Learning

Outcomes

course from ENGRCEE 20, ENGR 15 may be taken for credit. (Design units: 1)

Required Textbook: Gerald W. Recktenwald, Numerical Methods with MATLAB: Implementations and Applications. 2nd Edition, Pearson, 2000, ISBN-13 978-

0201308600.

Rec Textbook: None

References: Student Edition of Matlab, Mathworks. (recommended)

Coordinator: Jasper Alexander Vrugt

Relationship to Student Outcomes

This course relates to Student Outcomes: EAC1, EAC2, EAC3, EAC6

Course Learning Outcomes. Students will:

Course Outcomes

- Use Matlab to perform a range of matrix and vector operations. (EAC 1)
- 2. Use Matlab to write computer programs, structures and functions (subroutines). (EAC 1, EAC 2)
- 3. Use Matlab to plot data and mathematical functions. (EAC 1, EAC 3)
- 4. Use Matlab to find roots of nonlinear equations. (EAC 1)
- Use Matlab to perform least-squares fitting of a curve to data. (EAC 1, EAC 6)
- 6. Use Matlab skills in the context of a design process which leads to a modeling tool useful for engineering analysis purposes. (EAC2)
- 7. Prepare a report that describes an analysis tool (computer model) for an engineering system or components, the purpose for this tool, and an application of it. (EAC 3)

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

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)

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

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)
- Senior Design Practicum: CEE 181A-B-C

Specialization (16 units)

Must complete senior design project in same area

Summary: A nominal total of 184 units (22+ design units)

BSCE: Freshman 2018-2019

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)

BSCE: Sophomore 2019-2020

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

BSCE: Junior 2020-2021

Fall		Winter		Spring	
CEE 150, L	5	CEE 151A	4	CEE 151C	4
CEE 170	4	CEE 171	4	CEE 160	4
CEE 121	4	CEE 130, L	5	CEE 110	4
		E190W	4	Gen. Ed.	4
	13		17		16

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

BSCE: Senior 2021-2022

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

[•]Specialization Elective: flexibility with 4th course!

Specializations 1

General Civil Engineering:

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Requires four (three) courses from CEE122 or CEE123; CEE149, CEE151b, CEE152, CEE155, or CEE156; CEE162, CEE163, CEE165, or CEE169; CEE172, CEE173, CEE176, or CEE178; or CEE55 or courses from an approved list.
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Environmental Hydrology & Water Resources:

Requires four (three) courses from CEE163, 164, 165, 169, CEE172, 173, 176, or 178, or courses from an approved list.

Specializations 2

Structural Engineering:

Requires CEE155, and three (two) courses from CEE149, CEE151B, CEE152, CEE156, MAE157, or courses from an approved list.

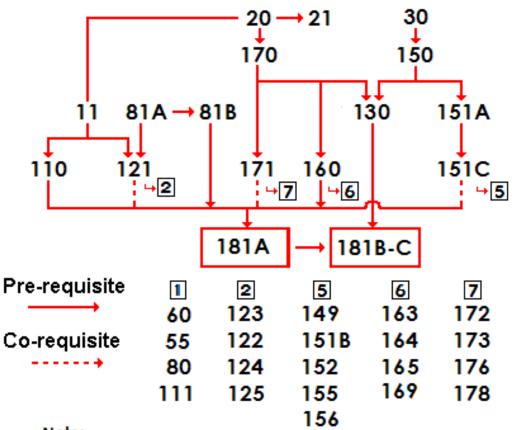
Transportation Systems Engineering:

Requires CEE122 and CEE123, and two (one) courses from CEE124, CEE125, Engr189, EECS70A, or courses from an approved list.

Note: 4th course may be any UD HSSOE technical elective

Pre-requisites are Important!

BSCE Prerequisite Chains for CEE181ABC [2016-2017]



Note:

- a. Math and science pre-regs are not shown
- b. For 2 through 7, specific pre-regs are not shown
- c. For 1, there are no CEE pre-reqs

EnE 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 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

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
- LD Engr 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, 169)
 - Atmos Systems & Air Poll Control (MAE110, 115, 164, ESS 112)
- A nominal total of 189 units
- Must verify Plan of Study and unit counts with UG Office

BS EnE: Freshman 2018-2019

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	Chem 1C, LC	6
Gen. Ed. *	4	Gen. Ed.	4	CEE 81A	3
	16		17		18

- Gen Ed Recommendation: WR39B-C or CEE60
- Engr 7A-B Option (lower division only)

BS EnE: Sophomore 2019-2020

Fall		Winter		Spring	
Math 3A	4	Math 3D	4	Math 2E	4
CEE 20	4	CEE 81B	3	CEE 21	4
CEE 30	4	CEE 11	4	Engr Sci	4
Chem 51A,	4	Gen. Ed.	4	MAE 21	4
Chem 1LD	1				
	17		15		16

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

BS EnE: Junior 2020-2021

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

BS EnE: Senior 2021-2022

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

General Education Requirements

1. General Education requirements:

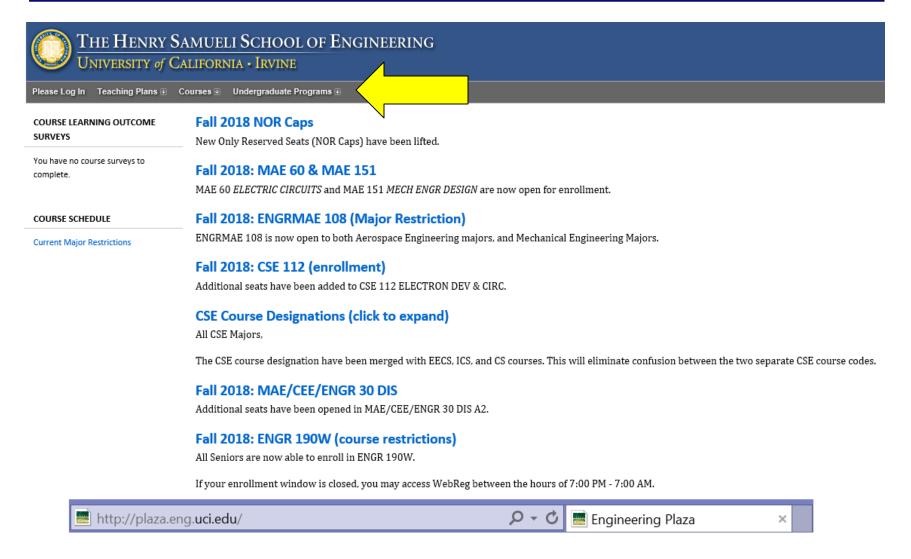
- I. Writing (3 courses: 2 LD and 1 UD)
- III. Social and Behavioral Sciences (3 courses)
- IV. Arts and Humanities (3 courses)
- VI. Language (if not 3+ years of H.S. language)
- VII. Multicultural Studies / VIII. International Issues (1)

2. BSCE and BSEnE already cover:

- II. Science and Technology
- V. Quantitative, Symbolic, Computational Reasoning

3. Need to consult with HSSoE counselors

HSSOE UG Office



CEE Home Page





MISSION >

FACTS & FIGURES >>

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CONTACT INFO

Address:

Department of Civil and Environmental Engineering E4130 Engineering Gateway Building Irvine, CA 92697-2175

Phone: (949) 824-5333

cee@uci.edu







MESSAGE FROM CHAIR



Welcome to the UC Irvine Department of Civil and Environmental Engineering in the Samueli School. Our mission is to provide students with a broad,

fundamental and flexible educational approach and to expand engineering knowledge through an active and exciting undergraduate and graduate research program.

Starting in the late 1960s as programs in civil and environmental engineering, the department has a long history of offering a rich and diverse educational experience to students. Courses are taught by worldclass scholars who maintain connections with industry and are involved in developing innovative technologies

RESEARCH THRUSTS







DEPARTMENT NEWS

September 5, 2018

Advanced Power and Energy Program Receives CEC Grant for California Renewable Hydrogen Deployment Road

August 29, 2018

Horiba Group Commits \$9 Million to UCI for New Institute

August 15, 2018

CEE Grad Student Selected as a Voice for Science

August 3, 2018

UCI Engineers Host Workshops in East Africa on UCI-developed Precipitation Technology

View more News »

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 the next fall
 - Gary Guymon Scholarship: for sophomores returning the next fall
 - Robin Shepherd Scholarship: for juniors returning the next 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

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 *decreases in benefit* (on grades) and *increases in cost* (of not finishing your degree).
- The UCI Policy on Academic Honesty is defined at: http://www.editor.uci.edu/catalogue/appx/appx.2.htm#academic
- 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.
- Academic Integrity & Student Conduct: http://aisc.uci.edu/

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...

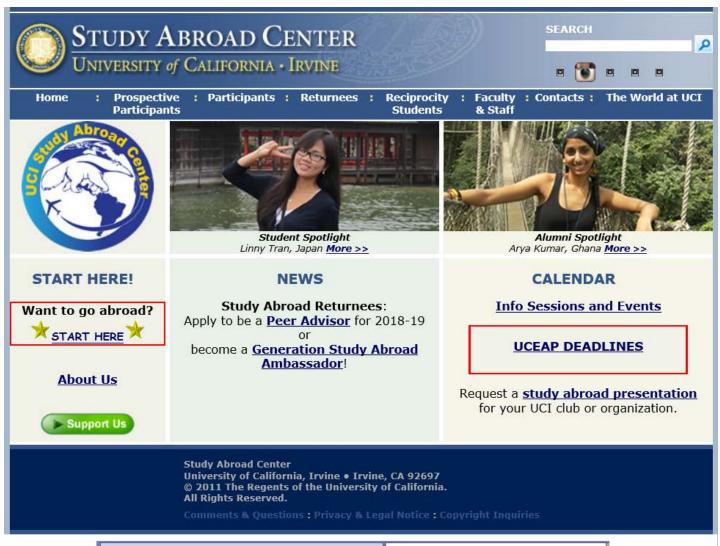
- a. Complete a BS from an accredited institution (UCI!)
- b. Successfully complete the *Fundamentals of Engineering* (FE) exam (material covered includes physics, chemistry, thermo, circuits, mathematics, statics & dynamics, engineering economics, fluids, engineering ethics, strength of materials, computers, etc.)
- c. http://www.ncees.org/exams/fundamentals/

3. Steps Toward Licensure: Then...

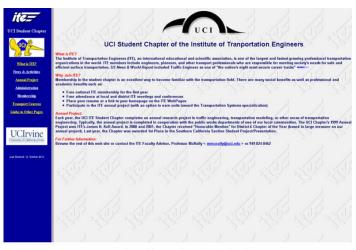
- a. After 2 years of work under professional engineers ...
- b. ... soon 30 units of post-graduate continuing education
- c. Successfully pass the *Principles and Practice of Engineering* (PE)
- d. http://www.ncees.org/exams/professional/



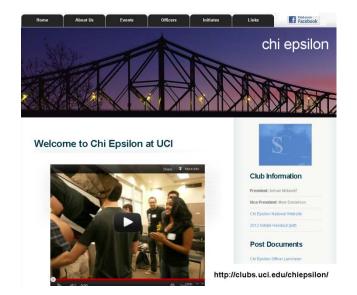
Study Abroad Program



Student Clubs



http://www.its.uci.edu/ite/





Professional engineering chapter at UCI for engineers interested in the environment:

- · learn outside of the classroom with your peers
- · discover the diversity of environmental topics
- network with industry for after graduation

Meetings: Wednesdays of Even Weeks, 5:00-7:00, ICF 103

Email: aaee.uci@gmail.com

Facebook: American Academy of Environmental Engineers at UCI



Summary

- 1. Academic Honesty...
- 2. Faculty Advising versus HSSOE Counselors
- 3. ABET and 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)

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://catalogue.uci.edu/thehenrysamuelischoolofengineering/departmentofcivilandenvironmentalengineering/

