

Undergraduate Advising Civil & Environmental Engineering Spring 2007 for 2007-2008 Professor M. G. McNally

- UG Advising: Faculty, Counselors, Catalogue
- Degree Program Accreditation (ABET)
- CE & EnE Degree Program:
 - Mission Statement & Program Educational Objectives
 - Program Outcomes and Course Outcomes
 - Degree Requirements
- Performance Assessment of Degree Programs
- Professional Registration (EIT/FE, PE)

UNDERGRADUATE ADVISING PROCESS

- **Annual Process:** *every spring!*
 - Group Advising: separate session for Freshmen, Sophomores, and for Junior/Seniors
 - Individual Advising: select a faculty member by name, teaching and research area, or session format (either individual 15 minute session or small groups session). Sign-ups at Group Session.
 - If you are registering in the fall, 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

FRESHMEN/SOPHOMORE ISSUES

- What's New?
 - Student Activities (ASCE and others)
 - Freshman Seminars
- What Choices?
 - Degree program?
 - Science/math options?
 - Breadth options? When?
 - Upper Division Specializations? Minors?
- What other opportunities are available?
- Student clubs & professional associations
- Assessment (ABET) & Registration (FE, PE)

JUNIOR / SENIOR ISSUES

- What's New?
 - CEE16x, General & Transport Specializations
 - CEE55, CEE198 (EIT), CEE195(125), 181ABC
- What Choices?
 - Breadth options (general education)
 - Upper Division Specializations & Minors
 - Senior Design Projects and Specializations
- What other opportunities are available?
- 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 breadth 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 a sample of 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.

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/>

Program Educational Objectives:

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

1. Be knowledgeable of the historical context, the state-of-the-art, and emerging issues in the field of civil engineering and its role in contemporary society.
2. Demonstrate critical reasoning and requisite quantitative skills to identify, formulate, and resolve civil engineering problems, and to create designs that reflect economic, environmental, and social sensitivities.
3. Display a systems viewpoint, critical thinking, effective communication & interpersonal skills, a spirit of curiosity, and conduct reflecting a professional and ethical manner.
4. Exhibit a commitment to life-long learning and professional development, involvement in professional activity and public service, and achievement of professional licensure.
5. Reflect a broad intellectual training for success in multidisciplinary professional practice, in civil engineering or diverse related careers, and toward achieving leadership roles in industry, government, and academia.

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.

CE Course Requirements 1

Mathematics and Basic Science (48 units)

- Math2A-B-D-E-J, 3D, Phys7A-B, LA-B, Chem1A,L
- Science Option 1 (Phys 7D and 7LD, and one other math/science course) [*Recommend Chem 1B, 1LB*]
- Science Option 2 (Chem 1B-C and 1LB)

University Breadth Requirements (48+ units)

- General Education Plan in the works...

Engineering Professional Topics Courses

- Economics 20A-B and *Soc Ecol E8*
- Fulfills Breadth Area III

CE Course Requirements 2

Engineering Topics Courses (77 units):

- LD Core: EECS 10, CEE 11, CEE 20, 30, 80, 81A-B
- UD Core: CEE 110, 111, 121, 130, 130L, 150, 150L, 151A-B-C, 161, 170, and 171
- Senior Design Practicum: CEE 181A-B-C

Specialization or Concentration (4+ courses)

- Must complete senior design project in same area

Summary

- CEE courses ending in “0” or “1” are required
- A nominal total of 190 units (24+ design units)

BSCE: Freshman 2006-2007

Fall		Winter		Spring	
Math 2A	4	Math 2B	4	Math 2D	4
Phys 7A, L	5	Phys 7B, L	5	Phys/Chem	5-6
EECS 10	4	Chem 1A, L	5	CEE 81A	3
breadth	4	breadth	4	breadth	4
	17		18		16

- Science Option: Phys 7D,L or Chem 1B, L *
- Breadth Recommendation: WR39B-C, E8, or Lang

BSCE: Sophomore 2006-2007

Fall		Winter		Spring	
Math 2J	4	Math 3D	4	Math 2E	4
Math/Sci	4-6	CEE 81B	2	CEE 11	4
CEE 30	4	MAE 80	4	CEE 20	4
breadth	4	breadth	4	breadth	4
	16		14		16

- Science Option: math/sci elective or Chem 1C
- Breadth Recommendation: Econ 20A-B, V, VII

BSCE: Junior 2006-2007

Fall		Winter		Spring	
CEE 150, L	5	CEE 151A	4	CEE 151B	4
CEE 170	4	CEE 171	4	CEE 110	4
CEE 121	4	CEE 130, L	5	CEE 161	4
breadth	4	breadth	4	breadth	4
	17		17		16

- CEE122 and CEE123 Option in Transportation
- Civil Engineering “core”; consider pre-requisites!
- Breadth Recommendation: Humanities Sequence

BSCE: Senior 2006-2007

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
breadth	4	breadth	4	breadth	4
	14		14		14

- Specialization or concentration, and 181
- Breadth Rec: VII Multi-cultural; UD Writing (E190)
- CEE 181 A-B-C with UD Writing...

Specializations 1

General Civil Engineering:

Requires four courses from CEE122 or CEE123; CEE152, CEE153, CEE155, or CEE156; CEE162 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**, 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

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/>



Careers in Civil & Environmental Engineering
BSEnE Degree Program

EnE Program Educational Objectives:

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

1. Be knowledgeable of the historical context, the state-of-the-art, and emerging issues in the field of environmental engineering and its role in contemporary society.
2. Demonstrate critical reasoning and requisite quantitative skills to identify, formulate, and resolve environmental engineering problems, and to create designs that reflect legal, social, ecological, and economic sensitivities.
3. Display a systems viewpoint, critical thinking, effective communication & interpersonal skills, a spirit of curiosity, and conduct reflecting a professional and ethical manner.
4. Exhibit a commitment to lifelong learning and professional development in industry, government, and/or academia.
5. Recognize the multidisciplinary nature of environmental engineering and the limitations of disciplinary perspectives in the context of environmental analysis, design, engineering, policy, and management.

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 (72 units)

- Math 2A-B-D-J, 3D, 2E
- Phys 7A-B, 7LA-B
- Chem 1A-B-C, 1LB-LC, 51A, 51LA
- 4 units of Earth Sys Sci and 4 units of Bio Sci and 4 units of either ESS or BioSci

University Breadth Requirements (48+ units)

- General Education Plan in the works...

Engineering Professional Topics Courses

- Economics 20A-B and Soc Ecol E8
- Fulfills Breadth Area III

EnE Course Requirements 2

Engineering Topics Courses (72 units):

- LD Core: EECS 10, CEE 11, 20, 30, 80, 81A-B, thermo
- UD Core: CEE 110, 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 192 units

BS EnE: Freshman 2006-2007

Fall		Winter		Spring	
Math 2A	4	Math 2B	4	Math 2D	4
Phys 7A, L	5	Phys 7B, L	5	CEE 81A	3
EECS 10	4	Chem 1A	4	Chem 1B, L	6
breadth	4	breadth	4	breadth	4
	17		17		17

- Science Elective in Bio Sci or Earth Systems Sci
- Breadth Recommendation: WR39B-C, E8

BS EnE: Sophomore 2006-2007

Fall		Winter		Spring	
Math 2J	4	Math 3D	4	Math 2E	4
Chem 1C, L	6	Chem 51A, L	6	MAE 91	4
CEE 30	4	MAE 80	4	CEE 11	4
breadth	4	CEE 81B	2	CEE 20	4
	18		16		15

* Various options for MAE 91 (thermodynamics)

* Breadth Recommendation: Area VII, Lang

BS: EnE: Junior 2006-2007

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

- Consider pre-requisites!
- Breadth Recommendation: Humanities Sequence

BS EnE: Senior 2006-2007

Fall		Winter		Spring	
CEE 181A	2	CEE 181B	2	CEE 181C	2
Eng. Elect.	4	CEE 168	4	Eng. Elect.	4
breadth	4	Eng. Elect.	4	breadth	4
breadth	4	breadth	4	breadth	4
	14		14		14

- Remaining Breadth (include Econ 20A-B, UD Writing)
- Pre-requisites for Science and Engineering Electives

UCI Breadth Requirements 1

I. *Writing (12 units)*

- biggest shortcoming identified by employers
- 2 LD courses (WR39B-C) and 1 UD course (e.g., E190, soon 181)
- Take courses early in your program, make wise choices

II. *Natural Sciences*

- covered by school and department requirements

III. *Social & Behavioral Sciences (12 units)*

- *CEE Professional Topics Requirement*: Econ 20A-B, Soc Ecol E8

IV. *Humanistic Inquiry (12 units)*

- 3-course sequence
- double counting with Area VII (e.g., Art Hist 40A-B-C)

UCI Breadth Requirements 2

V. Mathematics & Symbolic Systems

- covered by school and department requirements

VI. Language other than English (units vary)

- equivalence of 3 years of HS language
- language 2A requirement now an option in expanded Breadth VII

VII. Multicultural Studies & Global Issues

- 4-12 units depending on double-counting (with Area IV)
- **Education Abroad Program** [<http://www.cie.uci.edu/academics/ce.html>]

Recommendation: Consider your breadth choices wisely, whether you choose a course sequence that contributes to your career, one that optimizes your program or schedule, or one just for fun.

General Education Proposal may replace current breadth...

Frequently Asked Questions

1. ABET evaluations versus UCI course evaluations?
2. Civil Engineering Specializations and Concentrations?
3. Pre-requisites, Design Units, Breadth, Double Majors?
4. Petitions: substitutions, variations, and aberrant behavior?
5. Student Clubs? [G-E-T I-N-V-O-L-V-E-D]
6. Independent Study and Research Opportunities?
7. Internships, Jobs?
8. Graduate School? (GRE)
9. Professional Practice? (EIT/FE, PE, professional associations)
10. Last, but not least: *please* complete the ABET and UCI course evaluations for every course, get to know your faculty, take the EIT/FE, and think about graduate school!

Further Information ?

Undergraduate Student News - Mozilla Firefox

File Edit View Go 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 the deadline for changing major?](#)
- [What is academic probation?](#)
- [What is an E.I.T.? What is the F.E. exam?](#)
- [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](#)
- [2006-2007 Teaching Plan](#)
- [2006-2007 Course Outlines](#)
- [UCI New Student Handbook](#)
- [WebSOC \(Online Schedule of Classes\)](#)
- [WebReg \(Online Course Registration\)](#)
- [Student Access](#)
- [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

Word on the Plaza

- Check Commencement 2005 information at <http://www.commencement.uci.edu>

Done

start Advising Microsoft Power... Undergraduate ... 1:21 PM

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/>

Further Information ?

HSSOE UG Affairs Office:

1. UG Counselors in ECT 101 (824-4334)
2. Web site: <http://undergraduate.eng.uci.edu/>
3. E-mail: <counselor@ 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 UG Advisor: McNally <mmcnally@uci.edu>
4. EnE UG Advisor: Sanders <bsanders@uci.edu>