

**GUIDE FOR GRADUATE STUDIES**  
**IN**  
***CONSTRUCTION ENGINEERING***  
***AND MANAGEMENT***

**DEPARTMENT OF CIVIL,  
ENVIRONMENTAL, AND  
ARCHITECTURAL ENGINEERING**

**UNIVERSITY OF COLORADO  
Boulder, CO**

**2008 - 2009**

# General Information, Faculty, & Advising

Welcome to the Construction Engineering and Management program. The following introductory information should be useful to you in familiarizing yourself with the program.

The first thing you need to do upon arriving at the University of Colorado- Boulder is meet with the faculty with whom you will be working. Drop by their offices or call to make an appointment. Get acquainted with them so that you can find out what courses they teach and what research they are doing. Inform them of your interests so that they will be able to properly advise you.

You will be assigned an academic advisor from among the faculty. Meet with this advisor and work out a course of study. This will be an outline of all the courses you plan to take for your degree. Feel free to discuss your proposed course with any member of the faculty; however, be aware that only your advisor can formally approve your courses.

All students will select a faculty member to act as your research advisor for your report, thesis, or dissertation. This faculty member does not necessarily have to be your academic advisor.

If you are a US citizen or a permanent resident, but are from another state, you should take steps to establish Colorado residency by obtaining a Colorado driver's license, registering your vehicle in Colorado, registering to vote, and paying Colorado State Income tax as soon as possible.

When you arrive on campus, you should introduce yourself to the following Construction Engineering and Management (CEM) faculty members:

<b>Name</b>	<b>Email</b>	<b>Phone</b>	<b>Office</b>
Paul Chinowsky	<a href="mailto:paul.chinowsky@colorado.edu">paul.chinowsky@colorado.edu</a>	(303) 735-1063	ECOT 647
James Diekmann	<a href="mailto:james.diekmann@colorado.edu">james.diekmann@colorado.edu</a>	(303) 492-7642	ECOT 640
Matthew Hallowell	<a href="mailto:matthew.hallowell@colorado.edu">matthew.hallowell@colorado.edu</a>	(303) 492-7994	ECOT 641
Keith Molenaar	<a href="mailto:keith.molenaar@colorado.edu">keith.molenaar@colorado.edu</a>	(303) 735-4276	ECOT 643
William Yearsley	<a href="mailto:william.yearsley@colorado.edu">william.yearsley@colorado.edu</a>	(303) 492-6651	ECOT 646

# CURRICULUM REQUIREMENTS

## MASTER OF SCIENCE DEGREE

You must obtain your advisors concurrence and complete the attached graduate academic advising sheet before you register for the second semester.

The **M.S. degree** may be obtained by completing one of two plans:

<b>Plan I: Thesis Option</b>	
Core coursework	21 hours
Elective coursework	3 hours
Thesis*	6 hours
<b>Total</b>	<b>30 hours</b>

<b>Plan II: Report Option</b>	
Core coursework	21 hours
Elective coursework	6 hours
Report*	3 hours
<b>Total</b>	<b>30 hours</b>

\*both the report and thesis options require the successful completion of an oral defense. MS theses must be formatted according to university guidelines.

### **M.S. Course Offerings:**

<b>Course ID</b>	<b>Term Offered</b>	<b>Req'd/ Elec.</b>	<b>Course Name</b>
CVEN 5246	Fall	R	Legal Issues
CVEN 5276	Fall	R	Engineering Risk and Decision Analysis
CVEN 6836	Fall	R	Research Methodology and Data Analysis
CVEN 5326	Spring	R	Construction Project Controls
CVEN 5226	Spring	R	Safety and Quality
CVEN 5316	Spring	R	Construction Accounting and Financial Mgt.
CVEN 5306	Spring	R	Engineering Organizations
CVEN 5286	Fall '09	E	Design of Construction Operations

Elective requirements may be satisfied by successfully completing any graduate-level courses offered in the Civil Engineering Department. Students may also take a **maximum of two** approved classes outside of Civil Engineering.

A list of recommended electives outside the CEM program is provided below. Identification of other electives not on the list is encouraged, but must be approved by your academic advisor. Please note, if you have experience in one or more of the core courses and you wish to substitute an elective course, please petition the faculty on the form provided at the end of this packet.

### **Civil Engineering Electives**

CVEN 5286 Design of Construction Operations  
CVEN 5555 Structural Reliability  
CVEN 5575 Adv Topics in Steel  
CVEN 5728 Foundation Engineering  
CVEN 5393 Water Resource Development/Management  
CVEN 5831 Construction Materials

### **Engineering Management**

EMEN 5050 Leadership & Management

### **Real Estate Development**

MBAR 6200 Real Estate Project Competition

It is assumed that each student entering the M.S. in Construction Engineering and Management program has completed fundamental courses in Structural Analysis, Geotechnical Design (Geotech I & II), and Fluid Mechanics. Additionally, introductory level construction course equivalents in Introduction of Construction (CVEN 3246), Construction Equipment and Methods (CVEN 3256), Construction Planning and Scheduling (AREN 4466), Cost Estimating (AREN 4416) and Construction Contracts (CVEN 4087) are required prerequisites. Each new graduate student's prior coursework will be assessed on a case-by-case basis. Students are expected to complete any deficient courses.

### **M.S. Degree Final Defense**

For both plans, a final defense is required after coursework and a report or thesis has been completed. The defense is oral and normally one hour in duration. It is the student's responsibility to complete the departmental and graduate school required forms when scheduling a defense. Questions about the proper forms and dates of submittal should be directed to the CEAE Graduate Advisor, Medford Moorer.

The thesis or report is prepared in consultation with the student's research advisor. The candidate is **REQUIRED** to provide to the committee a complete copy of the final draft of the report or thesis and a list of courses taken for graduate study members *two weeks*

*before the exam.* Failure to provide the report/thesis on the submittal date will postpone the examination to the following semester.

A report allows students to pursue a topic of special interest in greater depth than provided in any courses offered. A thesis involves the synthesis of original knowledge that contributes to a particular domain of civil engineering knowledge. Theses must follow the CU graduate school format requirements and be supervised by a faculty advisor in the CEAE Department. The thesis plan is strongly recommended for students that plan to pursue a Ph.D.; however, the thesis option is encouraged for any students that wish to explore a specific construction engineering and management topic in greater depth. The report option is suggested as a terminal degree for students that plan to pursue a career in the construction industry. Selected M.S. Reports/Theses will be presented as part of the Petry/CEM semi-annual seminar.

## *Doctor of Philosophy Degree*

The **Ph.D. program** requires approximately one additional year of coursework and, in addition to a Master's degree, and a dissertation. There are 3 examinations and a public presentation required for Ph.D. students. These include: preliminary, comprehensive, final committee defense examinations, and final public presentation. Each is described below.

Preliminary Exam: This exam must be scheduled and completed by the end of your first year in residence as a Ph.D. student. It should be noted that admission to the Ph.D. program is dependent upon successful completion of this examination. The exam is designed to determine the candidate's background knowledge in Civil Engineering and Construction Engineering and Management. It is a diagnostic exam to identify areas of weakness. Ph.D. students failing the exam twice will not be permitted to continue in the Ph.D. program. Students with undergraduate preparation in fields other than Civil or Architectural Engineering may be tested on fundamental Civil and Architectural Engineering subjects.

Comprehensive Exam: a Ph.D. candidate takes this exam after coursework and the preliminary examination are completed and before the dissertation begins. The focus of the examination is to evaluate the student's ability to conduct independent research. It is a two-part exam. The first part is a 5-day take home written exam. Each committee member provides 1 day of questions. Part 2 is an oral exam of at least two hours. During this exam the candidate may be asked to clarify or expand on the written portion. The oral exam also includes an oral presentation of the student's research proposal. It should be noted that the proposal must also be provided in written form to committee members 2 weeks prior to the examination date. The committee may approve the proposal at the time of the presentation or ask that the proposal be developed more fully.

Ph.D. Pre-Defense: This examination consists of an oral presentation of the candidate's research to their committee. It is closed to the public. It is taken only after the candidate's research and thesis writing are complete. The examination must be scheduled at least *six weeks prior to the graduate school's final date for defense* in the semester that the candidate expects to graduate to provide adequate time for comments of the committee to be incorporated for the candidate's public defense and written dissertation submission to the graduate school. The candidate must present the final written dissertation to their committee at least *two weeks prior to the examination* to allow the committee to prepare for the examination. The committee then meets in closed session to decide whether the work meets acceptable standards of scholarly work and is ready for a final defense.

Ph.D. Defense: This is the final step in obtaining a Ph.D. It is a public meeting at which the candidate presents and defends the work contained in the dissertation with those present. The candidate's committee and the public are welcome to attend.

### **Research/Teaching Assistantships**

Students on TA appointments are expected to take no more than 9 credit hours per semester. Students appointed as 50% TA's/RA's are required to work solely for their associated faculty. Any student working for outside departments, companies, etc. will lose their TA/RA appointment immediately.

# CONSTRUCTION COMPUTER LAB

The CEM group currently maintains two computer labs: The Construction Engineering and Management Computer Lab and the Construction Research Lab.

The CEM Computer Lab (ECCE 153) is for the use of all CEM graduate students and undergraduate taking construction courses. This lab is intended for both individual and group project use. The CEM Computer Lab is also home to CEM's TAs.

The CEM Research Lab (ECCE 150) is reserved for Ph.D. students working on research with CEM faculty. It is important that this lab maintains a quiet research environment and it is not intended class projects.

The computers in the Computing Lab have Microsoft Office, Primavera, Timberline, DPL, Crystal Ball, and communication software.

## LAB MANAGER

The lab manager is responsible for maintaining all computers in the lab, assisting students with computer questions, and performing general activities required to make the lab a positive work environment.

## KEY CODES

Access the lab using your BuffOne card. The lab manager will manage access to the lab.

## EMAIL

All students are required to get an electronic mail account for CU. If you prefer to use another email account (e.g. yahoo, gmail, etc.), you are still responsible for checking your CU email for important announcements (e.g. from the Department, Graduate School).

## **CONSTRUCTION LIST**

Sign up for the CEM Google group to receive updates, announcements, and other important information. How to sign up:

1. Use the following URL to go to the group page:  
<http://groups.google.com/group/cuconstruction/>
2. Click sign up
3. Create a Google groups profile (if you do not have one) and submit your information – make sure to use the email address that you check most frequently
4. Your application will be approved by the administrator and you will have access to the page and will receive group emails

## **THINGS TO DO!**

1. Volunteer to:
  - Run the spring golf tourney
  - Design this year's shirt
  - Organize a community volunteer outreach day

## **ANNUAL EVENTS**

1. CEM Holiday Party - December
2. Spring Golf Tourney - April'ish
3. End of Year Party - May
4. Volunteer activities - Anytime!

## **USEFUL WEBSITES**

The Graduate School: <http://www.colorado.edu/GraduateSchool/>

Research Policies: <http://www.colorado.edu/VCRsearch/researchpolicies.html>

Frequently-used forms: <http://www.colorado.edu/GraduateSchool/resources/forms.html>

Graduation Requirements: <http://www.colorado.edu/GraduateSchool/graduation.html>



**CIVIL, ENVIRONMENTAL, AND ARCHITECTURAL ENGINEERING**  
**GRADUATE STUDENT ACADEMIC ADVISING SHEET**

DATE: \_\_\_\_\_

NAME: \_\_\_\_\_

SEMESTER ADMITTED: \_\_\_\_\_

*All graduate students should have a planned program before they register for the second semester.*

Masters Thesis	_____
Masters Report	_____
Ph.D.	_____

The student named above and I, as the student's academic advisor, have examined his/her academic record. The attached list of courses represents his/her planned graduate program.

\_\_\_\_\_  
Faculty Academic Advisor/Date

\_\_\_\_\_  
Student Signature/Date



