

**Program**

**BS in Construction Management**

**The Construction Management Industry**

The construction industry is one of the largest industries driving today's world economy. Due to the extraordinary sophistication of modern construction operations and the high skill level required of construction managers there is a near unlimited demand for university-educated construction project and corporate managers.

**The Construction Management Department**

In 1989 Chico State University's Department of Construction Management was established to help satisfy industry demand. Today Chico State's Bachelor of Science Degree in Construction Management is the largest program of its type in California and one of the largest in the country, and it is fully accredited by the ACCE (American Council for Construction Education). The success of our alumni within the industry, the many regional and national awards won by our undergraduates, the construction industry's continual aggressive recruiting of our graduates, and the construction industry's continuing financial support of our program provide evidence of our success.

**The CM faculty**

Since its inception, the Department of Construction Management has hired faculty with a beneficial blend of academic preparation, successful teaching experience at the college and/or university level, and a minimum of five years actual experience managing construction operations. This faculty hiring practice underscores our commitment that our CM faculty teaches not only from a base of significant academic and prior instructional accomplishment, but that they also teach with the benefit of deep personal experience within the construction management industry itself. Construction companies that routinely recruit and hire our graduates tell us that this practical experience on the part of our faculty tends to make the biggest difference in the quality of our program for our students.

**The CM Curriculum**

The CM Curriculum is designed to provide a broad base of knowledge and skills targeted towards the management of building, heavy/civil, and selected specialty trade construction operations.

The Bachelor of Science in Construction Management degree curriculum focuses on educating graduates to manage construction operations (including project estimating, bidding, buy-out, and construction project operations) at the project and corporate level. To obtain this degree students complete a 128-unit blend of selected construction management courses plus an appropriate compliment of business, law, math, science, and other University general education courses.



**The CM Career Outlook**

Chico State Construction Management graduates historically experience an extraordinarily bright career horizon immediately upon graduation. Virtually all CM students are aggressively recruited by both local and nationally-based construction companies of all shapes, types and sizes. One third of the largest 50 construction companies in the nation regularly recruit Chico State CM graduates, and the majority of our graduates accept entry level management positions with one of these general building, heavy/civil, or specialty subcontracting firms.

**Being a CM student**

The majority of Chico State CM students tell us that being a Chico State CM student feels a lot like being part of a family. The faculty and students here recognize the importance of both hard work and time spent together out of the classroom. The curriculum and courses are challenging and rewarding, and the CM learning experience is complimented by extra-curricular opportunities that include a variety of internships with construction companies.

We believe one of the most enjoyable and meaningful "CM-out-of-the-Classroom" experiences is the IOTA IV Chapter of Sigma Lambda Chi (the international honor society for leaders in construction). IOTA IV's fundamental purpose is to recognize outstanding students in the field of construction based upon scholarship, leadership and character, and our IOTA IV chapter does that—and much more. The Chico State IOTA IV chapter also organizes a variety of "total CM family" activities and events throughout the school year. These activities and events all work towards making being a Chico State CM major the complete undergraduate educational and living experience for which we strive.

Our student chapters of the AGC, MCAA, and NECA organize field trips, community service projects, and many other exciting events.

**Construction Management**

College of Engineering, Computer Science, and Construction Management  
 Dean: Michael Ward

**Department of Construction Management**  
**Langdon Hall 103**  
**530-898-5216**  
**e-mail: cm@csuchico.edu**  
**http://cm.csuchico.edu/**  
**Chair: Lori A. Brown**

- Advisors:**  
**Joel Arthur**  
**Mike Borzage**  
**Douglas Chelson**  
**Dennis Gier**  
**Richard Holman**  
**Kris Knapp**  
**Willem Kymmell**  
**James E. O'Bannon**  
**John Schwarz**  
**Chris Souder**  
**Rovane Younger**

# The Bachelor of Science in Construction Management

## Total Course Requirements for the Bachelor's Degree: 128 units

See "Requirements for the Bachelor's Degree" in the *University Catalog* for complete details on general degree requirements. A minimum of 40 units, including those required for the major, must be upper division.

A suggested Major Academic Plan (MAP) has been prepared to help students meet all graduation requirements within four years. Please request a plan from your major advisor or view it and other current advising information at <http://em.csuchico.edu/aap/ProgramSearch>.

## General Education Requirements: 48 units

See "General Education Requirements" in the University Catalog and the Class Schedule for the most current information on General Education Requirements and course offerings. The course requirements marked below with an asterisk (\*) may also be applied toward General Education.

1. Select only one course from Breadth Area C (C1, C2, or C3) because HIST 130 meets one Area and the other is waived. POLS 155 may be applied to General Education Breadth Area D1, D2, or D3.
2. Upper-division theme modification has been approved for this major. See the General Education chapter in the *University Catalog* for specifics on how to apply this modification.

## Diversity Course Requirements: 6 units

See "Diversity Requirement" in the University Catalog. Most courses taken to satisfy these requirements may also apply to General Education.

## U.S. History, Constitution, and American Ideals: 6 units

See "U.S. History, Constitution, and American Ideals" under "Bachelor's Degree Requirements". For this major, this requirement is normally fulfilled by completing HIST 130 and POLS 155 or approved equivalents.

## Literacy Requirement:

See "Mathematics and Writing Requirements" in the University Catalog. Writing proficiency in the major is a graduation requirement and may be demonstrated through satisfactory completion of a course in your major which has been designated as the Writing Proficiency (WP) course for the semester in which you take the course. Students who earn below a C- are required to repeat the course and earn a C- or better to receive WP credit. See the Class Schedule for the designated WP courses for each semester. You must pass ENGL 130 (or its equivalent) with a C- or better before you may register for a WP course.

## Course Requirements for the Major: 93 units

Completion of the following courses, or their approved transfer equivalents, are required of all candidates for this degree.

**Minimum GPA for acceptance in the major:** for both continuing and transfer students, a minimum cumulative GPA of 2.0 is prerequisite for being accepted as a Construction Management major.

Priority for enrollment in all Construction Management (CMGT) courses will be given to CMGT majors. Construction Management students taking any CMGT course for the first time will be granted priority over CMGT students who are attempting to repeat a course.

**Enrollment in any mathematics course requires a grade of C- or higher in all prerequisite courses or their transfer equivalents.**

## Lower-Division Requirements: 45 units

### 14 courses required:

ACCT 201	Intro to Financial Accounting	3.0	FS
ACCT 202	Intro to Managerial Accounting	3.0	FS
Prerequisites: ACCT 201 (or ABUS 261 for ABUS majors only).			
CHEM 107	Gen Chem for Applied Sciences	4.0	FS *
Prerequisites: Intermediate Algebra.			
CMGT 100	Concepts of Construction	2.0	FS
CMGT 110	Construction Graphics	3.0	FS
CMGT 120	Computer-Aid Construction Mgmt	3.0	FS
CMGT 135	Construction Materials & Syste	3.0	FS
CMGT 210	Analysis Construction Drawing	3.0	FS
Prerequisites: CMGT 100, CMGT 110, CMGT 135.			
CMGT 235	Electrical & Mechanical Sys	3.0	FS
Prerequisites: CMGT 210, PHYS 202B.			
ECON 102	Principles of Macro Analysis	3.0	FS *
ECON 103	Principles of Micro Analysis	3.0	FS *
MATH 120	Analytic Geometry and Calculus	4.0	FS *
Prerequisites: Completion of ELM requirement; both MATH 118 and MATH 119 (or high school equivalent); a score that meets department guidelines on a department administered calculus readiness exam.			

PHYS 202A General Physics 4.0 FS \*  
Prerequisites: High school physics or faculty permission. High school trigonometry and second-year high school algebra or equivalent (MATH 051 and MATH 118 at CSU, Chico).

PHYS 202B General Physics 4.0 FS  
Prerequisites: PHYS 202A.

## Minimum Grade Requirement

The following courses or their equivalents must each be completed with a minimum grade of C prior to enrollment in any required 300-level CMGT course: ACCT 201, CMGT 100, CMGT 120, CMGT 135, CMGT 210, and PHYS 202A.

## Upper-Division Requirements: 48 units

### 15 courses required:

BLAW 302	Managing the Legal Environment	3.0	FS
Prerequisites: At least junior standing.			
BLAW 414	Labor Law/Collective Bargain	3.0	FS
Prerequisites: At least junior standing or faculty permission.			
CMGT 330	Principles Soil Mech/Found	3.0	FS
Prerequisites: CHEM 107, PHYS 202A. We recommend CMGT 135 as appropriate background.			
CMGT 332	Construction Method Analysis	3.0	FS
Prerequisites: CMGT 135.			
CMGT 335	Construction Equipment	3.0	FS
Prerequisites: CMGT 330.			
CMGT 340	Principles of Statics	3.0	FS
Prerequisites: MATH 120 or equivalent; PHYS 202A.			
CMGT 345	Mechanics of Materials	3.0	FS
Prerequisites: CMGT 340.			
CMGT 360	Const Contracting Sys	3.0	FS
Prerequisites: CMGT 210			
CMGT 440	Temporary Structures	3.0	FS
Prerequisites: CMGT 345.			
CMGT 450	Construction Estimating	3.0	FS
Prerequisites: CMGT 120, CMGT 235, CMGT 332, CMGT 335.			
CMGT 455	Construction Cost Management	3.0	FS
Prerequisites: CMGT 450.			
CMGT 457	Project Control and Scheduling	3.0	FS
Prerequisites: CMGT 450.			
CMGT 458	Heavy Const Estimating	3.0	FS
Prerequisites: CMGT 335.			
CMGT 460	Legal Aspects of Construction	3.0	FS WP
Prerequisites: ENGL 130 (or its equivalent) with a grade of C- or higher, BLAW 302, BLAW 414, senior standing.			
MGMT 300	Communication in Business	3.0	FS WP
Prerequisites: ENGL 130 (or its equivalent) with a grade of C- or higher.			
<b>3 units selected from:</b>			
ACCT 320	Cost Accounting	3.0	FS
Prerequisites: ACCT 202; BADM 103 or MATH 105 or MATH 108.			
CMGT 200	Build Codes/Municipal Process	3.0	FS
CMGT 352	Electrical Const Estimating	3.0	FS
Prerequisites: CMGT 120.			
CMGT 380	Green Bldg Pract & LEED Cert	3.0	FS
FINA 290	Personal Investment Management	3.0	Inq
FINA 307	Survey of Finance	3.0	FS
Prerequisites: ACCT 201, ECON 103.			
MGMT 303	Survey of Management	3.0	FS
MGMT 304	Human Resource Management	3.0	FS
MGMT 345	Negotiation Techn for Conflict	3.0	FA
MGMT 349	Management of Organizations	3.0	Inq
MINS 301	Corporate Tech Integration	3.0	FS
MKTG 305	Survey of Marketing	3.0	FS
PSYC 494	Industrial/Organizational Psy	3.0	Inq
REAL 301	Principles of Real Estate	3.0	FS
Prerequisites: ECON 102, ECON 103.			
SCMS 306	Operations Management	3.0	FS
Prerequisites: Business Administration or Business Information Systems status required for business majors. Completion of General Education Breadth Area A4 requirements required for all majors.			
SCMS 340	Cost Management for Operations	3.0	SP

## Electives Requirement:

To complete the total units required for the bachelor's degree, select additional elective courses from the total University offerings. You should consult with an advisor regarding the selection of courses which will provide breadth to your University experience and possibly apply to a supportive second major or minor.

## Grading Requirement:

All courses taken to fulfill major course requirements must be taken for a letter grade except those courses specified by the department as Credit/No Credit grading only.

**Advising Requirement:**

Advising is mandatory for all majors in this degree program. Consult your undergraduate advisor for specific information.

**Honors in the Major**

Honors in the Major is a program of independent work in your major. It requires 6 units of honors course work completed over two semesters.

The Honors in the Major program allows you to work closely with a faculty mentor in your area of interest on an original performance or research project. This year-long collaboration allows you to work in your field at a professional level and culminates in a public presentation of your work. Students sometimes take their projects beyond the University for submission in professional journals, presentation at conferences, or academic competition. Such experience is valuable for graduate school and professional life. Your honors work will be recognized at your graduation, on your permanent transcripts, and on your diploma. It is often accompanied by letters of commendation from your mentor in the department or the department chair.

Some common features of Honors in the Major program are

1. You must take 6 units of Honors in the Major course work. All 6 units are honors classes (marked by a suffix of H), and at least 3 of these units are independent study (399H, 499H, 599H) as specified by your department. You must complete each class with a minimum grade of B.
2. You must have completed 9 units of upper-division course work or 21 overall units in your major before you can be admitted to Honors in the Major. Check the requirements for your major carefully, as there may be specific courses that must be included in these units.
3. Your cumulative GPA should be at least 3.5 or within the top 5% of majors in your department.
4. Your GPA in your major should be at least 3.5 or within the top 5% of majors in your department.
5. Most students apply for or are invited to participate in Honors in the Major during the second semester of their junior year. Then they complete the 6 units of course work over the two semesters of their senior year.
6. Your honors work culminates with a public presentation of your honors project.

While Honors in the Major is part of the Honors Program, each department administers its own program. Please contact your major department or major advisor to apply.

**The Faculty**

- Joel F. Arthur, 1986, Professor, PE, PhD, UC Davis.
- K Michael Borzage, 1985, Professor, MA, CSU Chico.
- Lori A. Brown, 1987, Chair, Assoc Professor, MSEE, CSU Chico.
- Douglas Chelson, 2006, Assist Professor, MBA, U Oregon.
- John K. Egbert, 2007, Lecturer A, MS, UC Davis.
- Dennis M. Gier, 2004, Assoc Professor, MS, U Dayton.
- Richard G. Holman, 1996, Assoc Professor, MBA, CSU Chico.
- Kris K. Knapp, 2007, Lecturer B, MBA, Calif SU Fresno.
- Willem Kymmell, 2001, Assoc Professor, MA, Carnegie Mellon U.
- Mark O. Maybee, 1998, Lecturer A, BS, CSU Chico.
- James E. O'Bannon, 1975, Professor, PhD, U Missouri.
- Spencer Rogers, 2006, Lecturer A, BA, CSU Chico.
- John D. Schwarz Jr, 2001, Assoc Professor, MA, JD, U of Calif Hastings Col of th.
- David Shirah, 2007, Lecturer B, BS, CSU Chico.
- Christopher A. Souder, 2004, Assist Professor, MS, CSU Chico.
- Rovane Younger, 1978, Professor, MS, Stanford U.

**Emeritus Faculty**

- Stuart H. Bartholomew, 1984, Professor Emeritus, PE, MS, UC Berkeley.
  - Bruce L. Yoakum, 1988, Professor Emeritus, PE, MPH, RD, EdD, U Michigan.
- PE designates Registered Professional Engineer

**Construction Management Course Offerings**

Please see the section on "Course Description Symbols and Terms" in the University Catalog for an explanation of course description terminology and symbols, the course numbering system, and course credit units. All courses are lecture and discussion and employ letter grading unless otherwise stated. Some prerequisites may be waived with faculty permission. Many syllabi are available on the Chico Web.

**CMGT 100 Concepts of Construction 2.0 Fa/Spr**

An overview of construction trends, methods, materials, practices, contracts, laws, and codes. (002055)

**CMGT 100X Construction Management Career Preparation 1.0 Fa/Spr**

Corequisites: CMGT 100.  
This course helps Construction Management students prepare for careers in the construction industry. It provides students with the opportunity for creating their resumes, learning successful interviewing techniques, obtaining internships, and exploring the many different possible careers in the construction industry. Credit/no credit grading only. (020453)

**CMGT 110 Construction Graphics 3.0 Fa/Spr**

Develops the graphic communication knowledge and skills needed by the construction management professional. Establishes a working vocabulary of symbols, details, and views used in construction drawings. 2.0 hours discussion, 3.0 hours laboratory. (002056)

**CMGT 120 Computer-Aided Construction Management 3.0 Fa/Spr**

Introduction and development of Computer-Aided Construction Management (CACM) software. Course will include PC-based disc operating systems, spreadsheets, and database management software typically or predominantly used in the construction industry, and specialized CACM software. A working knowledge will be developed by applications to specific and unique construction problems. 2.0 hours discussion, 3.0 hours laboratory. Special fee required; see the Class Schedule. (002061)

**CMGT 135 Construction Materials and Systems 3.0 Fa/Spr**

A comprehensive study of the principal materials used in the construction industry and the various systems employing these materials to build structures. (002057)

**CMGT 200 Building Codes and the Municipal Process 3.0 Fa/Spr**

A study of the network of local and regional regulatory agencies controlling the design and construction of building projects, with specific emphasis on the uniform building code. (002054)

**CMGT 210 Analysis of Construction Drawings and Specifications 3.0 Fa/Spr**

Prerequisites: CMGT 100, CMGT 110, CMGT 135.  
A detailed study of construction drawings and specifications for residential, commercial, industrial, and civil projects. 2.0 hours activity, 2.0 hours discussion. (002058)

**CMGT 235 Electrical and Mechanical Systems 3.0 Fa/Spr**

Prerequisites: CMGT 210, PHYS 202B.  
An introduction to the basic climate control, plumbing, and electrical systems used in construction. (002059)

**CMGT 235X Electrical and Mechanical Systems Problem Session 1.0 Fa/Spr**

Corequisites: CMGT 235  
Designed to supplement CMGT 235 with additional applications. Provides the student with the opportunity for additional assistance in developing problem-solving abilities. 2.0 hours activity. (020772)

**CMGT 270 Design Fundamentals 3.0 Fall**

Prerequisites: CMGT 110.  
Corequisites: CMGT 120, CMGT 135, or permission of instructor.  
Basic fundamentals of 2-D design are developed, including material and color boards, presentation boards, perspective, and rendering. 1.0 hours discussion, 6.0 hours laboratory. (000687)

**CMGT 271 Project Design 3.0 Spring**

Prerequisites: CMGT 270.  
Design requirements for building space will be discussed, including basic human space, and ADA (Americans with Disabilities Act) requirements. Students will apply these principles to various design situations. 1.0 hours discussion, 6.0 hours laboratory. (000688)

**CMGT 330 Principles of Soil Mechanics and Foundations 3.0 Fa/Spr**

Prerequisites: CHEM 107, PHYS 202A. We recommend CMGT 135 as appropriate background.  
A study of the properties and behaviors of soils when used as construction material. Included are compaction, permeability, compressibility, shear strength, etc. Laboratory and field tests are performed. Introduction to the design principles of foundations and earth structures. 2.0 hours discussion, 3.0 hours laboratory. (002063)

**CMGT 332 Construction Method Analysis 3.0 Fa/Spr**

Prerequisites: CMGT 135.  
Provides methods and techniques to analyze all facets of a construction project or task, including preplanning techniques, processes of analysis and improvement, timelapse recording and analysis, mathematical simulation, ergonomics, human factors, and safety programs. 2.0 hours discussion, 3.0 hours laboratory. Special fee required; see the Class Schedule. (002064)

## Construction Management

### CMGT 332H Construction Methods Analysis - Honors 3.0 Fa/Spr

Prerequisites: Admission to the department's Honors in the Major program, faculty permission.  
This is an Honors in the Major course which is open to students by invitation only. In addition to the course content of CMGT 332, this course will involve the selection and start of a significant project in some aspect of construction methods analysis. The student will select the project topic with the assistance of the faculty member. The project will be completed in CMGT 499H. 2.0 hours discussion, 3.0 hours laboratory. (002065)

### CMGT 335 Construction Equipment 3.0 Fa/Spr

Prerequisites: CMGT 330.  
A study of the equipment used in the construction industry. Included are the types, capabilities, selection, purchase/lease/rent options, and balancing of equipment. Special fee required; see the Class Schedule. (002066)

### CMGT 340 Principles of Statics 3.0 Fa/Spr

Prerequisites: MATH 120 or equivalent; PHYS 202A.  
The fundamentals of engineering mechanics, including forces, static equilibrium, simple truss analysis and properties of sections. (002067)

### CMGT 340X Statics Problem Session 1.0 Fa/Spr

Corequisites: CMGT 340  
Supplements CMGT 340 with additional applications. Provides students with the opportunity for additional assistance in developing problem-solving abilities. 2.0 hours activity. Credit/no credit grading only. (020450)

### CMGT 345 Mechanics of Materials 3.0 Fa/Spr

Prerequisites: CMGT 340.  
The mechanics of stress, strain, and deflection within the typical structural elements encountered in construction formed of timber, steel, and reinforced concrete. Rationale for sizing major structural elements and for design of their connections. (002069)

### CMGT 345X Strengths Problem Session 1.0 Fa/Spr

Corequisites: CMGT 345.  
Supplements CMGT 345 with additional applications. Provides students with the opportunity for additional assistance in developing problem-solving abilities. 2.0 hours activity. Credit/no credit grading only. (020452)

### CMGT 352 Electrical Construction Estimating 3.0 Fa/Spr

Prerequisites: CMGT 120.  
Costs dictated by the contract documents for the electrical systems in residential, commercial, industrial, specialty, and line construction projects are studied. The course utilizes the computer estimating software Win EST 6000 by McCormick Estimating Systems, Inc. 2.0 hours discussion, 3.0 hours laboratory. (002073)

### CMGT 360 Construction Contracting Systems 3.0 Fa/Spr

Prerequisites: CMGT 210  
The construction industry has evolved from the ancient "master-builder" method for contracting construction to many sophisticated and complex hybrid methods of contracting construction projects. This course covers the current common contracting methods, including their administration under the broad definitions of Design-Bid-Build, Construction Management At-Risk, and Design-Build. Contract pricing methods include Lump-Sum and Unit-Price, Cost-Plus Fee (% fee, Fixed Fee, and variable %), Guaranteed maximum price (with returned or shared savings). (020325)

### CMGT 370 Design Project 3.0 Fall

Prerequisites: CMGT 200, CMGT 271, and successful completion of a portfolio review.  
Students will develop a comprehensive architectural design project, including programming of needs, building costs, market conditions, and architectural styles, concluding in a comprehensive design presentation. 1.0 hours discussion, 6.0 hours laboratory. Special fee required; see the Class Schedule. (000691)

### CMGT 375 Architectural History 3.0 Spring

Prerequisites: ARTH 101.  
This course presents a study of architectural history with an emphasis on contemporary projects. (000693)

### CMGT 380 Green Building Practices and LEED Certification 3.0 Fa/Spr

This course explores how new buildings are designed and constructed using green building strategies. Students learn how LEED Accredited Professionals manage the building certification process and the documents required by the US Green Building Council to verify that the requirements for LEED certification are met. The course also prepares students to take the USGBC LEED AP Accreditation exam. (020504)

### CMGT 398 Special Topics 1.0-3.0 Fa/Spr

Prerequisites: Faculty permission.  
This course is for special topics offered for 1.0-3.0 units. Typically the topic is offered on a one-time-only basis and may vary from term to term and be different for different sections. See the Class Schedule for the specific topic being offered. (002070)

### CMGT 399 Special Problems 1.0-3.0 Fa/Spr

Prerequisites: Faculty permission.  
This course is an independent study of special problems offered for 1.0-3.0 units. You must register directly with a supervising faculty member. You may take this course more than once for a maximum of 6.0 units. Credit/no credit grading only. (002071)

### CMGT 440 Temporary Structures 3.0 Fa/Spr

Prerequisites: CMGT 345.  
A study of temporary structures used in construction, including scaffolding, ground support systems, dewatering systems, decking/ramps/bridges, and concrete shoring and form work. The emphasis is on factors affecting cost, the legal significance, and the engineering basis for the design of the structures. (002079)

### CMGT 440X Temporary Structures Problem Session 1.0 Fa/Spr

Corequisites: CMGT 440.  
Supplements CMGT 440 with additional applications. Provides students with the opportunity for additional assistance in developing problem-solving abilities. 2.0 hours activity. Credit/no credit grading only. (020451)

### CMGT 450 Construction Estimating 3.0 Fa/Spr

Prerequisites: CMGT 120, CMGT 235, CMGT 332, CMGT 335.  
Material takeoff processes and estimating, using a methodical approach with suggested check lists and techniques for arriving at a reliable estimate of the cost of a construction task or project, to include direct, indirect, and contingency costs and profits. 2.0 hours discussion, 3.0 hours laboratory. Special fee required; see the Class Schedule. (002080)

### CMGT 455 Construction Cost Management 3.0 Fa/Spr

Prerequisites: CMGT 450.  
Construction cost monitoring and analysis instruments that are developed from the project estimate. These include budgets, billing instruments, and scheduling data. Also included will be the development of overhead allocation systems. 2.0 hours discussion, 3.0 hours laboratory. Special fee required; see the Class Schedule. (002081)

### CMGT 457 Project Control and Scheduling 3.0 Fa/Spr

Prerequisites: CMGT 450.  
Includes critical path method techniques, planning, logic, scheduling and updating, diagramming, analysis, and the use of computer for scheduling. 2.0 hours discussion, 3.0 hours laboratory. Special fee required; see the Class Schedule. (002078)

### CMGT 458 Heavy Construction Estimating 3.0 Fa/Spr

Prerequisites: CMGT 335.  
Rationale and technique of analysis of the work operations required for heavy construction work as distinct from residential and building construction. Format and preparation of competent heavy construction cost estimates with an emphasis on computer applications. Problems of project selection and preparation of competitive bid for the firm-price heavy construction project. 2.0 hours discussion, 3.0 hours laboratory. Special fee required; see the Class Schedule. (002072)

### CMGT 460 Legal Aspects of Construction 3.0 Fa/Spr

Prerequisites: ENGL 130 (or its equivalent) with a grade of C- or higher, BLAW 302, BLAW 414, senior standing.  
Overview of basic construction laws, construction-related acts and orders, rules and regulations affecting construction, mechanic lien laws, and construction contracts. This is a writing proficiency, WP, course; a grade of C- or better certifies writing proficiency for majors. (002075)

### CMGT 460H Legal Aspects of Construction - Honors 3.0 Fa/Spr

Prerequisites: Admission to the department's Honors in the Major program, ENGL 130 (or its equivalent) with a grade of C- or higher, BLAW 302, BLAW 414, senior standing, faculty permission.  
This is an Honors in the Major course which is open to students by invitation only. In addition to the course content of CMGT 460, this course will involve the selection and start of a significant project in some aspect of construction law. The student will select the project topic with the assistance of the faculty member. The project will be completed in CMGT 499H. This is a writing proficiency, WP, course; a grade of C- or better certifies writing proficiency for majors. (002076)

**CMGT 470 Design Build Project 3.0 Fall**

Prerequisites: CMGT 375.  
A comprehensive development project will be undertaken, including basic architectural design practices, site considerations, project financing, feasibility studies, value, and market conditions. 1.0 hours discussion, 6.0 hours laboratory. Special fee required; see the Class Schedule. (000696)

**CMGT 471 Project Administration 3.0 Fa/Spr**

Prerequisites: CMGT 460.  
A study of the fundamentals of project practice, including AIA standard documents, services, cost benefit analysis, margin and marketing, project documentation, change orders, claims. (000698)

**CMGT 480 Construction Development Analysis 3.0 Spring**

Investigation, market research, finance, cost estimating, and land use with respect to the development process. 2.0 hours discussion, 3.0 hours laboratory. (002077)

**CMGT 485 Construction Management Competition 3.0 Fa/Spr**

This course prepares interested students for regional and national construction management competitions sponsored by the Associated Schools of Construction, National Association of Home Builders, Associated Builders & Contractors, and other competition sponsors. Areas of preparation include construction management business and cost management, contracts, plan reading, specifications, estimating, scheduling, equipment, safety, team building, leadership, and presentation skills. (020396)

**CMGT 489 Construction Management Cooperative Education 1.0–3.0 Fa/Spr**

Prerequisites: CMGT 210, 60 units within the CMGT major, faculty permission. This course is an internship offered for 1.0-3.0 units. You must register directly with a supervising faculty member. This program is designed to provide the student with management and administrative experiences within the construction industry. You may take this course more than once for a maximum of 15.0 units. (002074)

**CMGT 498 Special Topics 1.0–3.0 Fa/Spr**

This course is for special topics offered for 1.0-3.0 units. Typically the topic is offered on a one-time-only basis and may vary from term to term and be different for different sections. See the Class Schedule for the specific topic being offered. (002082)

**CMGT 499H Honors Project in Construction Management 3.0 Fa/Spr**

Prerequisites: Admission to the department's Honors in the Major program; CMGT 332H or CMGT 460H with a grade of B or higher; faculty permission. Open by invitation to construction management majors who have a GPA of 3.5 or higher. The culminating work of this course will be the written and oral presentation of a project of value in the field of construction management. (002084)

**CMGT 697 Independent Study 1.0–3.0 Fa/Spr**

Prerequisites: Faculty permission. This course is a graduate-level independent study offered for 1.0-3.0 units. You must register directly with a supervising faculty member. You may take this course more than once for a maximum of 6.0 units. (002086)

