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 CM Department 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 toward 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 toward making being a Chico State CM major the complete undergraduate educational and living experience for which we strive.
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 adviser or view it and other current advising information on the CSU, Chico Web.

General Education Requirements: 48 units

See “General Education Requirements” in The University Catalog and The Class Schedule for the designated WP courses for Cultural Diversity Requirement. For the Construction Management major, ENGL 130 is required. All students must complete the Writing Proficiency (WP) course. The Writing Proficiency (WP) course requirement is met by completing HIST 130 and POLS 155. For this major, HIST 130 may also be applied to General Education Breadth Area D1, D2, or D3.

Cultural Diversity Course Requirements: 6 units

See “Cultural Diversity” in The University Catalog. Most courses taken to satisfy these requirements may also apply to General Education.

American Institutions Requirement: 6 units

See the “American Institutions Requirement” under “Bachelor’s Degree Requirements.” For this major, this requirement is normally fulfilled by completing HIST 130 and POLS 155. For this major, HIST 130 may also be applied to General Education Breadth Area C1, C2, or C3, and POLS 155 may also be applied to General Education Breadth Area D1, D2, or D3.

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

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.

Lower-Division Requirements: 48 units

14 courses required:

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<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
<th>Notes</th>
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</thead>
<tbody>
<tr>
<td>ACCT 201</td>
<td>Intro to Financial Accounting</td>
<td>3.0</td>
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<tr>
<td>ACCT 202</td>
<td>Intro to Managerial Accounting</td>
<td>3.0</td>
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<tr>
<td>CHEM 107</td>
<td>Gen Chem for Applied Sciences</td>
<td>4.0</td>
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<tr>
<td>CIVL 120</td>
<td>Surveying for Non-Engineers</td>
<td>3.0</td>
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<tr>
<td>CMGT 100</td>
<td>Concepts of Construction</td>
<td>2.0</td>
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<tr>
<td>CMGT 110</td>
<td>Construction Graphics</td>
<td>3.0</td>
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<tr>
<td>CMGT 135</td>
<td>Construction Materials &amp; Syst</td>
<td>3.0</td>
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<tr>
<td>CMGT 210</td>
<td>Analysis Construction Drawing</td>
<td>3.0</td>
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<tr>
<td>CMGT 235</td>
<td>Electrical &amp; Mechanical Sys</td>
<td>3.0</td>
<td></td>
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<tr>
<td>ECON 102</td>
<td>Principles of Macro Analysis</td>
<td>3.0</td>
<td>*</td>
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<tr>
<td>ECON 103</td>
<td>Principles of Micro Analysis</td>
<td>3.0</td>
<td>*</td>
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<tr>
<td>MATH 120</td>
<td>Analytic Geometry and Calculus</td>
<td>4.0</td>
<td>FS *</td>
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<tr>
<td>PHYS 202A</td>
<td>General Physics</td>
<td>4.0</td>
<td>FS *</td>
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15 courses required:

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<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
<th>Notes</th>
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</thead>
<tbody>
<tr>
<td>BLAW 301</td>
<td>Managing the Legal Environment</td>
<td>3.0</td>
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<tr>
<td>CMGT 320</td>
<td>Computer-Aid Construction Mgmt</td>
<td>3.0</td>
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<tr>
<td>CMGT 330</td>
<td>Principles Soil Mech/Found</td>
<td>3.0</td>
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<tr>
<td>CMGT 340</td>
<td>Principles of Statics</td>
<td>3.0</td>
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<tr>
<td>CMGT 345</td>
<td>Mechanics of Materials</td>
<td>3.0</td>
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<tr>
<td>CMGT 440</td>
<td>Temporary Structures</td>
<td>3.0</td>
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<td>CMGT 450</td>
<td>Construction Estimating</td>
<td>3.0</td>
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<td>CMGT 455</td>
<td>Construction Cost Management</td>
<td>3.0</td>
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<td>CMGT 457</td>
<td>Project Control and Scheduling</td>
<td>3.0</td>
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<tr>
<td>CMGT 458</td>
<td>Heavy Const Estimating</td>
<td>3.0</td>
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<tr>
<td>CMGT 460</td>
<td>Legal Aspects of Construction</td>
<td>3.0</td>
<td>WP</td>
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<tr>
<td>CMGT 500</td>
<td>Communication in Business</td>
<td>3.0</td>
<td>WP</td>
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<tr>
<td>CMGT 503</td>
<td>Managing People/Bus Proc/Chg</td>
<td>3.0</td>
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<tr>
<td>CMGT 504</td>
<td>Human Resource Management</td>
<td>3.0</td>
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<tr>
<td>CMGT 345</td>
<td>Negotiation Techn for Conflict</td>
<td>3.0</td>
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<tr>
<td>CMGT 349</td>
<td>Management of Organizations</td>
<td>3.0</td>
<td>Inq</td>
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<tr>
<td>MINS 301</td>
<td>Corporate Tech Integration</td>
<td>3.0</td>
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<tr>
<td>MKTG 305</td>
<td>Survey of Marketing</td>
<td>3.0</td>
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<tr>
<td>PSYC 494</td>
<td>Industrial/Organizational Psy</td>
<td>3.0</td>
<td>Inq</td>
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<tr>
<td>REAL 301</td>
<td>Principles of Real Estate</td>
<td>3.0</td>
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<tr>
<td>SCMS 306</td>
<td>Operations Management</td>
<td>3.0</td>
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<tr>
<td>SCMS 340</td>
<td>Cost Management for Operations</td>
<td>3.0</td>
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Electives Requirement:

To complete the total units required for the bachelor’s degree, select additional elective course requirements from the total university offerings. You should consult with an adviser 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 adviser for specific information.

Honors in the Major
Honors in the Major is a program of independent work in your major. It involves 6 units of honors course work completed over two semesters. 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. Most importantly, however, 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 competition in shows; such experience is valuable for graduate school and later professional life.

Some common features of Honors in the Major program are
1. You must take 6 units of Honors in the Major course work. At least 3 of these 6 units are independent study (499H) 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 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 percent of majors in your department.
4. Your GPA in your major should be at least 3.5 or within the top 5 percent 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 adviser for further information.

The Faculty
K. Michael Borzage, 1985, Professor, Arch, MA, CSU Chico.
Lori A. Dixon, 1987, Assoc Professor, MSEE, CSU Chico.
Dennis M. Gier, 2004, Assoc Professor, MS, University of Dayton.
Thomas L. Heustis, 2001, Chair, Professor, MS, CSU Chico.
Richard Holman, 1996, Assoc Professor, MBA, CSU Chico.
Mark Maybee, 1998, Lecturer A, BS, CSU Chico.
James E. O’Bannon, 1975, Professor, PhD, U Missouri.
Christopher A. Souder, 2004, Assist Professor, BS, Cal Poly.
Bruce L. Yoakum, 1988, Professor Emeritus, PE, MS, U Michigan.
Rovane Younger, 1978, Professor, MS, Stanford U.
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. Formerly CM 090.

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. Formerly CM 091.

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. Formerly CM 093.

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 buildings projects, with specific emphasis on the uniform building code. Formerly CM 015.

CMGT 210 Analysis of Construction Drawings and Specifications 3.0 Fa/Spr
Prerequisites: CMGT 135.
A detailed study of construction drawings and specifications for residential, commercial, industrial, and civil projects. 2.0 hours discussion, 2.0 hours activity. Formerly CM 094.

CMGT 235 Electrical and Mechanical Systems 3.0 Fa/Spr
An introduction to the basic climate control, lighting, and electrical systems used in construction. Formerly CM 095.

CMGT 270 Design Fundamentals 3.0 Fall
Prerequisites: CMGT 110.
Corequisites: CMGT 135, CMGT 320, or permission of instructor.
Basic fundamentals of 2-D design are developed, including material and color boards, presentation boards, perspective, and rendering. 1.0 hour discussion, 6.0 hours laboratory. Formerly CM 021A.

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 hour discussion, 6.0 hours laboratory. Formerly CM 021B.

CMGT 320 Computer-Aided Construction Management 3.0 Fa/Spr
Introduction and development of Computer-Aided Construction Management (CACM software). Course will include PC-based disk operating system, 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. Formerly CM 140.

CMGT 330 Principles of Soil Mechanics and Foundations 3.0 Fa
Prerequisites: 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. Formerly CM 190.

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, timetable recording and analysis, mathematical simulation, ergonomics, human factors, and safety programs. 2.0 hours discussion, 3.0 hours laboratory. Formerly CM 193.

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. Formerly CM 193H.

CMGT 335 Construction Equipment 3.0 Spring
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. Formerly CM 195.

CMGT 340 Principles of Statics 3.0 Fall
Prerequisites: MATH 120 or equivalent; PHYS 202A. The fundamentals of engineering mechanics, including forces, static equilibrium, simple truss analysis and properties of sections. Formerly CM 196.

CMGT 345 Mechanics of Materials 3.0 Spring
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. Formerly CM 197.
CMGT 352 Electrical Construction Estimating 3.0 Fa/Spr
Prerequisites: CMGT 320.
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. Formerly CM 220.

CMGT 370 Design Project 3.0 Fall
Prerequisites: CMGT 300, 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 hour discussion, 6.0 hours laboratory. Formerly CM 121A.

CMGT 375 Architectural History 3.0 Spring
Prerequisites: ARTS 101.
This course presents a study of architectural history with an emphasis on contemporary projects. Formerly CM 125.

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. Formerly CM 198.

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. Formerly CM 199.

CMGT 440 Temporary Structures 3.0 Fall
Prerequisites: CMGT 345.
A study of temporary structures used in construction, including scaffold- ing, 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. Formerly CM 294.

CMGT 450 Construction Estimating 3.0 Fall
Prerequisites: CMGT 235, CMGT 320, 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. Formerly CM 296.

CMGT 455 Construction Cost Management 3.0 Spring
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. Formerly CM 297.

CMGT 457 Project Control and Scheduling 3.0 Spring
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. Formerly CM 292.

CMGT 458 Heavy Construction Estimating 3.0 Spring
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. Formerly CM 209.

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, 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. Formerly CM 290.

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, 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. Formerly CM 290H.

CMGT 470 Design Build Project 3.0 Fall
Prerequisites: CMGT 379.
A comprehensive development project will be undertaken, including basic architectural design practices, site considerations, project financing, feasibility studies, valuation and market conditions. 1.0 hour discussion, 6.0 hours laboratory. Formerly CM 221A.

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. Formerly CM 231.

CMGT 480 Construction Development Analysis 3.0 Spring
Prerequisites: CMGT 320.
Investigation, market research, finance, cost estimating, and land use with respect to the development process. 2.0 hours discussion, 3.0 hours laboratory. Formerly CM 291.

CMGT 489 Construction Management Cooperative Education 1.0-3.0 Fa/Spr
Prerequisites: CIVL 120, 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. Formerly CM 289.

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. Formerly CM 298.

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. Formerly CM 299H.

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. Formerly CM 398.