

Construction Management Department
California State University, Chico

CMGT 345 – Mechanics of Materials
Course Syllabus

A. Prerequisites

CMGT 340 – Principles of Statics

B. Meeting Time & Location

CMGT 345-1 Class # T/TH 8:00AM – 9:15AM O’Connell, Room 124

C. Instructor

Mike Guzzi

Office Hours: Monday 5-6 pm, Friday 4-5 pm, Langdon, Room 101

Office Phone: 530-898-4336

Email: maguzzi@csuchico.edu

TA: Marisa Davini; mdavini1@mail.csuchico.edu

Wednesday, 5-7 pm CMGT 345 study session with TA; Langdon, Room 200

D. Catalog Description:

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. 3 hours discussion.

The objective of this course is to provide the construction management student with a solid understanding of how various structural materials respond under different loading conditions. The course will cover the concepts for analyzing and designing beams and columns including shear and moment diagrams and their application to selection of adequate structural members under given loading conditions. Structural Steel, Reinforced Concrete and Timber materials will be discussed and analyzed.

This is the second course in a three course series of CMGT 340-345-440. The material covered in this course will be used extensively in the 440 course that follows.

E. Course Learning Outcomes (CLO):

Upon successful completion of this course, the student will:

1. Understand the effects of forces and moments on, and engineering properties of, real construction structural materials. This includes analyzing and designing components considering the three S’s of Mechanics of Materials: Strength, Serviceability, and Stability.
2. Understand the internal stress and strain state created under loading of long, slender axis symmetric structural elements (struts, beams and columns).
3. Demonstrate the ability to construct shear force and bending moment diagrams for transversely loaded elements (beams) **(Direct Assessment: ACCE-SLO #19)**.
4. Demonstrate the ability to analyze and design steel and timber beams for shear and moment and to check beam deflections under given loading **(Direct Assessment: ACCE-SLO #19)**.
5. Understand how to calculate stresses at a point under combined loading and apply Mohr’s Circle to calculate maximum shear and normal stresses.

6. Demonstrate the ability to analyze steel and timber columns (**Direct Assessment: ACCE-SLO #19**).
7. Understand how to analyze and design bolted and welded steel connections

Student Learning Outcomes (SLO):

The American Council for Construction Education (ACCE) prescribes 20 Student Learning Outcomes (SLO) as Educational Objectives for an undergraduate degree program in Construction Management. For a list of these 20 SLOs visit the Chico State Department of Construction Managements website www.csuchico.edu/cm and the SLO link under ACCE Accreditation drop down menu.

The following SLOs are supported by this course in the form of I=Introduction, R=Reinforced, or DA-Direct Assessment:

- SLO #19: Understand the basic principles of structural behavior.

ACCE Assessment Mapping:

<u>SLO</u>	<u>CLO</u>	<u>Assessment Type / When</u>	<u>Target</u>
19	3	V and M diagram Quiz and Final	70% will earn "70%" or better
19	4	Beam Design Quiz and Final	70% will earn "70%" or better
19	6	Column analysis Quiz and Final	70% will earn "70%" or better

F. Course Resource Materials Requirements:

Textbook: *Statics and Strength of Materials*, Cheng, Fa-Hwa, 2nd Edition, Glencoe/McGraw-Hill, 1997.

Required

Course Pack: A course pack will be built from handouts provided throughout the semester

Laptop Computer: A computer will not be required for assigned activity work. There are no university provided computers in classroom.

G. Course Requirements:

Honesty in the Classroom

You are expected to be familiar with the University’s policy on academic integrity. As such, there will be no tolerance for dishonesty, sharing of work, and especially copied work. Ethical standards as established by the university will be strictly upheld (see THE UNIVERSITY CATALOG).

Tobacco Products

The use of any type of tobacco product (smokeless, chewable or otherwise) is not permitted in any building at California State University, Chico. If you chew tobacco products, please refrain during class time.

Electronic Devices

The use of pagers, phones, MP3 players and other electronic devices (excluding laptops) is not permitted in class. If you must take a call (work or emergency), please EXIT the classroom before answering the call.

Withdrawal from Class

Please refer to the Academic Calendar Deadlines as published in the University Catalog.

Professional Work

As a student looking towards gaining an internship within the construction industry, *it is expected that your completed work will be professional in presentation*. Consider this course as practice in presenting professional quality industry work to your future employer.

H. Instructional Methods:

This course is designed around the following methods of presenting material to the student:

1. Class discussions and assigned readings.

I. Assignments:

Homework will be assigned on a regular basis. When homework is collected, it will be collected at the *beginning* of class. Late homework will **not** be accepted. Homework will be assigned for each day of class per the course schedule. Homework will be given on Tuesday and Thursday corresponding to the days lectures and both sets of homework will be collected the following Tuesday at the beginning of class.

Homework must be neat, organized, and completed on Engineering Calculation paper. Where applicable, free body diagrams should be included. Use a straight edge or paper grid to draw clear and concise free body diagrams. Proper units must be used at all times.

All homework solutions handed in must conform to the following:

- Indicate the problem number and the statement of the problem (if helpful) followed by the answer/calculations.
- Answers should be well identified by underlining or boxing.
- Place your name, course-section, date, and homework assignment number across the top your paper.

Failure to follow the homework guidelines will result in a loss of points. [Refer to the sample homework solution handed out in class today.]

Readings

Readings are noted in the course calendar. You are encouraged to have the required reading completed prior to class, as this will facilitate your comprehension of discussion materials.

Group Work

You are encouraged to study and work in groups, however all submitted work must be your own.

Course Work Binder

You will be required to keep all course work in a tabbed binder. Binders will be graded during exams and is a requirement for successful completion of the course.

J. Assessments:

Assessments are the basis of determining your ability to create, analyze, apply, and understand the Course Learning Outcomes (CLO) and Student Learning Outcomes (SLO) provided by ACCE. Instructional target goals have been established (as noted above) and the results of the assessment in these areas will be used to determine the success of the student and instructor for this course.

Quizzes

Quizzes will be given based upon the class discussions, assigned readings, and homework. Weekly quizzes will generally be given the last fifteen minutes of the Thursday class period. The quizzes will cover material from prior lecture topics. Your lowest quiz score will be dropped. No makeup quizzes will be given.

Advisory Note!

There will be NO make-up quizzes, unless arranged prior. If you forget to take the quiz, do not come to me after the fact. It is your responsibility to attend class and complete the quiz.

Exams

There will be one midterm exam and a comprehensive final exam. Exam and quiz solutions are to include all relevant work in a logical order, with explanations where necessary. Examinations and quizzes are due when called. Points will be deducted for tardy submittals. There will not normally be a make-up for anyone missing an exam. If a student is unable to take an exam due to an emergency or illness, the instructor should be notified in advance. A prorated examination score may be given for excused absences. Unexcused absences will yield a score of zero. Please come prepared to stay the whole exam period; no one may leave prior to the end of the exam period. No makeup exams will be given except for a serious and compelling reason as outlined by the University Catalog.

Participation, Attitude, and Attendance

A portion of your course grade will be based on participation, attitude and **attendance**. On time attendance is required as is keeping all course notes, homework and quizzes in a binder in a neat and orderly fashion.

K. Grading/Evaluation:

All point totals shown are approximate and subject to revision during the course of the semester. **Final Course Grades are computed as follows:**

Homework	10%
Quizzes	30%
Midterm Exam	25%
Comprehensive Final Exam	25%
Participation/Miscellaneous	10%

Grades are generally assigned by the following distribution, although the professor reserves the right to modify the distribution.

A	=	94 -100% (Exceptional)	C+	=	77 – 79% (Above Average)
A-	=	90 – 93% (Excellent)	C	=	73 – 76% (Average)
B+	=	87 – 89% (Very Good)	C-	=	70 – 72% (Below Average)
B	=	83 – 86% (Good)	D	=	60 – 69% (Inadequate)
B-	=	80 – 82% (Adequate)	F	=	< 60% (Failing)

L. Topical Outline

Refer to the course work calendar posted on Blackboard Learn.

M. University Policies and Campus Resources

Disruptive Behavior

Students are required to adhere to the behavior standards articulated in the Campus Policies and Code of Student Conduct, and to refrain from disrupting classes and other academic settings. "Disruptive behavior" means conduct that materially and substantially interferes with or obstructs the teaching or learning process in the context of a classroom or educational setting. Disruptive behavior includes conduct that distracts or intimidates others in a manner that interferes with instructional activities, fails to adhere to an instructor's appropriate classroom rules or instructions, or interferes with the normal operations of the University. Disruption in the classroom may include:

- Persistent speaking without permission.
- Side conversations.
- Excessive talking.
- Engaging in activities not related to the class, or other overt inattentiveness including but not limited to sleeping, talking to others, doing work for another class, checking e-mail, and exploring the Internet.
- Ringing cell phones or using a cell phone.
- Using mobile devices or laptop computers in the classroom for non-course related purposes.
- Eating/drinking in class without permission.
- Monopolizing class discussion and refusing to defer to instructor, or listen to others; persisting when the instructor has indicated that the student's remarks are off topic and it is time to move on.
- Chronically entering late/leaving early, moving about the classroom when not appropriate for the classroom activity.
- Filming, photographing, or taping the class without the instructor's prior permission.
- Disputing authority or arguing with faculty and other students.
- Yelling, arguing, swearing, bullying, or other harassing or intimidating behavior.
- Inappropriate, disrespectful, or uncivil responses to the comments, opinions, presentations, etc. of others in the classroom.
- Physically or verbally abusive conduct.
- Failure to adhere to the instructor's rules or instructions.
- Vulgar or obscene language, slurs or other forms of intimidation.
- Threats of any kind.
- Improper use of equipment, materials or resources.
- Destruction of property.
- Coming to class under the influence of alcohol or another controlled substance.
- Bringing individuals to class who are not enrolled, including infants/children.
- Any behavior that puts the health or safety of the instructor or other students in the classroom in jeopardy.

Academic integrity

Students are expected to be familiar with the University's Academic Integrity Policy and the University's policy on academic honesty. I take this issue very seriously, and will not tolerate any form of dishonesty such as plagiarism or cheating. Your own commitment to learning, as evidenced by your enrollment at California State University, Chico, and the University's Academic Integrity Policy requires you to be honest in all your academic course work. Faculty members are required to report all infractions to the Office of Student Judicial Affairs. The policy on academic integrity and other resources related to student conduct can be found at: <http://www.csuchico.edu/prs/EMs/2004/04-036.shtml>

Campus Policy in Compliance with the American Disabilities Act

If you need course adaptations or accommodations because of a disability, or if you need to make special arrangements in case the building must be evacuated, please make an appointment with me as soon as possible, or see me during office hours. Students with disabilities requesting accommodations must register with the ARC Office (Accessibility Resource Center) <http://www.csuchico.edu/prs/EMs/2005/05-019.shtml> to establish a record of their disability.

Special accommodations for exams require ample notice to the testing office and must be submitted to the instructor well in advance of the exam date.

Student Computing

Computer labs for student use are available <http://www.csuchico.edu/prs/EMs/2007/07-001.shtml> located on the 1st floor of the Merriam Library Rm 116 and 450, Tehama Hall Rm.131 and the BMU Rm 301.

Student Services

Student services are designed to assist students in the development of their full academic potential and to motivate them to become self-directed learners. Students can find support for services such as skills assessment, individual or group tutorials, subject advising, learning assistance, summer academic preparation and basic skills development. Student services information can be found at: <http://rce.csuchico.edu/alci/student-services>

Disability Services

Any student who feels s/he may need an accommodation based on the impact of a disability should contact me privately to discuss your specific needs. Please also contact the Accessibility Resource Center office to coordinate reasonable accommodations for students with documented disabilities. Accessibility Resource Center online: <http://www.csuchico.edu/arc/instructors/support-services.shtml>.

Student Learning Center

The mission of the Student Learning Center (SLC) is to provide services that will assist CSU, Chico students to become independent learners. The SLC prepares and supports students in their college course work by offering a variety of programs and resources to meet student needs. The SLC facilitates the academic transition and retention of students from high schools and community colleges by providing study strategy information, content subject tutoring, and supplemental instruction. The SLC is online at <http://www.csuchico.edu/slc/>. The University Writing Center has been combined with the Student Learning Center.

N. Other

Title IX: Confidentiality and Mandatory Reporting

As a Chico State instructor, one of my responsibilities is to help create a safe learning environment for Chico State students. It is my goal that you feel able to share information related to your life experiences in classroom discussions, in your written work, and in our one-on-one meetings. I will seek to keep information you share private to the greatest extent

possible. **However, I am required to share information regarding sexual misconduct with the University.**

Students may speak to someone confidentially by contacting the Counseling and Wellness Center (898-6345) or Safe Place (898-3030). Information about campus reporting obligations and other Title IX related resources are available here: <http://www.csuchico.edu/title-ix>.