

CE 461 – Structural Analysis

Fall Semester, 2006

Instructor:

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Office Hours: Mon, 11:00 – 12:00

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Teaching Assistant:

Katherine L. Molstad

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Office Hours:

Class Hours and Location:

Lecture: MWF 10:00-10:50 2117 Learned Hall

Recitation / Lab: M 3:30-5:20 2117 Learned Hall

Required Textbook:

Hibbeler, R.C. (2006). Structural Analysis, 6th Edition, Pearson Prentice Hall, Upper Saddle River, NJ.
(ISBN: 0131470892)

Suggested Reading:

Kassimali, A. (2005). Structural Analysis, 3rd Edition, Thompson Engineering, Inc.
(ISBN: 0534391680)

Grading:

Assignments/Quizzes:	20%	Due as indicated at time of distribution
Exam 1:	20%	Monday, 09/11/2006, 3:30 – 5:20
Exam 2:	20%	Monday, 10/09/2006, 3:30 – 5:20
Exam 3:	20%	Monday, 11/06/2006, 3:30 – 5:20
Final Exam:	20%	Friday, 12/15/2006, 7:30 – 10:00

Your grade will be based upon percentages described above. A straight grading scale will be used, with a 90% or greater being an “A”, an 80%-89% being a “B”, etc.

Grades will not be curved on an individual basis. If at the end of the quarter the aggregate class grade is significantly lower than expected by the instructor, all of the class grades may be shifted by the same amount.

Course Schedule:

I have provided you with a tentative course schedule, shown in the table below. It is meant to tell you where we are going, and roughly in what order we are going to progress through the material. This is a tentative schedule – a “living document,” if you will! Dates and events are not written in stone and are subject to change.

Lesson Plan	Topic	Tentative Dates of Coverage
1	Stability and Determinacy of Beams and Frames	Weeks 1 & 2
2	Stability and Determinacy of Trusses; Method of Joints; Method of Sections	Weeks 2 & 3
3	Internal Forces in Beams and Frames; Shear and Moment Diagrams	Weeks 3 & 4
4	Influence Lines for Determinate Structures	Weeks 4, 5, and 6
5	Elastic Beam Theory and the Direct (Double) Integration Method	Weeks 6 & 7
6	Conjugate Beam Method	Weeks 8 & 9
7	Work and Energy; Method of Virtual Work	Weeks 9 & 10
8	Castigliano’s Second Theorem	Weeks 10 & 11
9	Force Method of Analysis (Indeterminate Structures)	Weeks 11 & 12
10	Influence Lines for Indeterminate Structures	Weeks 12 & 13
11	Stiffness Method – Slope Deflection (Indeterminate Structures)	Weeks 13 & 14
12	Stiffness Method – Moment Distribution (Indeterminate Structures)	Weeks 15 & 16
13	Columns	Week 17

Class Guidelines

1. **Prerequisites:** Basic Strengths of Materials, Statics, and a working knowledge of Calculus. If you do not have a sufficient background for this class, it is your job to remedy the disparity.
2. **Grade Changes:** If an error has been made in calculating one of your grades (i.e., the addition of points was performed incorrectly), it will be fixed. However, grades will NOT be changed for any other reason.
3. **Attendance:** No points will be assigned for attendance. This being said, attendance to class will be critical to your success on homework, quizzes, and examinations. I will take attendance from time to time, and this may help my decision in borderline grades.
4. **Quizzes:** Quizzes may be administered periodically to ensure that students are reading the material, keeping up with the homework, and comprehending the material. I reserve - and will exercise - the right to give unannounced quizzes. If you are not present for any quiz (announced or unannounced) for any reason, under no circumstances will you be able to make up the grade. Each quiz grade will be counted as a homework grade.
5. **Assigned Reading:** Please keep up with the assigned reading. I am not going to verbally assign readings, but they are listed on each lesson plan. Reading the assigned sections before you come to class will truly benefit your learning. This is your responsibility.
6. **Personal Electronic Devices:** Cell phones, pagers, PDAs, beeping calculators, etc., are a normal part of daily life, but they are extremely distracting in a classroom setting. I will turn off my cell phone, etc., before coming into class, and I expect you to do the same. This is common courtesy.
7. **Email:** Email is very convenient, and it is also somewhat unreliable. While I encourage you to contact me via email concerning less important points such as homework questions, other, more critical issues should not be conducted over email. If you have concerns about a missed exam, etc., please come and see me to discuss the matter.
8. **Punctuality:** *Please make every effort to be on time.* It is extremely rude to walk into class late. I understand that this may happen on the rare occasion, and if it does, please enter quietly through the back door and sit in the rear of the classroom. Repeat tardiness will not be tolerated.

Homework Policy

1. **Presentation of Work:** **THIS IS IMPORTANT!!!** As an engineer, you are expected to present work that is neat, clear, and readily understandable. All homework is to be submitted on engineering paper – it is sold in the book store(s).
 - Write on the front side of engineering paper only, do not write in the margins, and always use a pencil.
 - Label each page with your name, date, assignment number, problem number, and page number (i.e., page 2 / 10).
 - I do not require the problem statements to be written out with the problems, but it may be useful to you as a future reference to do so.
 - Any mistakes should be erased completely and reworked. Do not scratch work out – it is sloppy to do so.
 - Figures should be drawn with a straight edge or french curve – do NOT freehand figures.
 - Always start a new problem on a new page.
 - Always write on the front of engineering paper – the back is not meant to be written upon. (The back is the side with the dark lines.)
 - Ensure that your written work logically progresses in an orderly progression down the page. Please do not scrunch work together such that it is unreadable or sloppy – paper is not that expensive. A complete stranger and non-engineer should be able to decipher your work and understand the logical progression of your solution.
 - Neatly box in or underline your answers, and provide a summary at the end of the problem.
 - Please staple your work in the upper left hand corner before submitting it.

I have provided to each of you an example of an assignment as I expect to see yours completed. It is intended to be helpful and to clarify my expectations. Please take the time to look through it. If your homework does not adhere to these guidelines, you run a very high risk of having points deducted at my discretion, or your homework being returned un-graded.

2. **Office Hours:** I will hold office hours as noted at the top of the first page. Please try to adhere to the office hours. If you have a pressing question, you may stop by my office and see if I am there outside of office hours. However, I certainly appreciate you recognizing that I have set aside two hours per week *for you*. Please take advantage of that time, and keep to those time slots as best as possible.
3. **Late Policy:** All homework is due at the beginning of class. Any homework that is submitted after I have collected the homework may be considered one day late. Homework will be accepted one day late for a grade reduction of 25%. If the assignment is two days late, the reduction will be 50%. Work will not be accepted after two days. Late work must be personally handed to me or placed in my mailbox with a time stamp from the CEAE receptionist. If for some reason you cannot be on

campus, scan it in and email it to me. I will use the “received” time on my email program as the time stamp. If the email/attachment does not come through (or it is illegible when I open it) the aforementioned late penalties will continue to apply. I have already pointed out the shortcomings of email, and this case is no exception. DO NOT slide any work under my office door; it will not be graded, and will likely be trampled to death.

- 4. Cheating:** You are allowed and encouraged to work together on homework problems. There is a very clear distinction, however, between working together and copying work (from a friend or any other source). *Copied* work is unacceptable, and a grade of zero will be assigned for any such submissions. If it happens more than once, the student(s) will be assigned a grade of “F” for the quarter, and the occurrence will be reported to the Academic Affairs Committee.

Examination / Quiz Policy

All exams and quizzes will be closed-note, closed-book unless otherwise noted by the instructor.

- 1. Cheating:** Cheating will be dealt with severely. If it is discovered that any student has solicited any help - direct or indirect - and that all work is not original and their own, that student(s) will receive a failing grade for the course and disciplinary action will be taken through the college's academic affairs committee.
- 2. Electronic Devices:** Cell phones, PDAs, laptops, walkmans, recorded media (MP3 player, CD player, etc.), headphones, or any calculator with a keyboard or wireless features will not be allowed during any quiz or examination. Use of any such device may result in the early collection of the test and a subsequent grade of zero. I reserve the right to examine your calculator during an examination.
- 3. Identification:** Bring your student ID with you to examinations. Please set your ID on the desk as you take the examination. I may check them, and if you do not bring yours I retain the right to refuse to administer the test to you.
- 4. Makeup Exams:** In general, makeup exams are given only when the student misses an exam due to extreme emergency, such as, but not limited to: student illness (*explicit* doctor's excuse required), dependent family member ill (*explicit* doctor's excuse required), death in family (proof may be required), civic duty, such as military service or jury duty (proof may be required, advanced notice required if possible). The instructor is the sole judge of what constitutes an extreme emergency and the validity of any excuse. I am not required to give makeup exams and may refuse to give a makeup exam since there is no guarantee, expressed or implied, that a makeup exam will be given. Therefore, you should make every effort to be in attendance on examination dates. Note that automobile malfunctions, missing the bus or a ride, oversleeping, etc. do *not* constitute an extreme emergency and are not considered valid excuses. Exam dates are given in advance, so working students are expected to make proper arrangements with their employer to avoid any possible conflict. Makeup exams, when given, may appear to be more difficult than the primary exam. Students missing an exam without a valid excuse will receive a grade of "0" for that exam. False excuses are considered academic dishonesty and will be reported to the Committee on Academic Standards.
- 5. (Light-Hearted) Suggestions for Test-Taking:** Get plenty of sleep the night before, and eat a *light* meal before the test (stay away from turkey, though, it has natural sleep-inducing effects). Don't overload on caffeine, it can make you jumpy and nervous. And of course, make sure that you are well-prepared – keep up to date with assignments and reading, and ask questions when you don't understand. You may bring some food and drink into the test with you (if you plan to share), but please don't bring in crunchy potato chips in a crinkly bag, as I am sure it will annoy your neighbor and myself.