MAE 2312-001: Solid Mechanics Course Syllabus - Fall 2009

Instructor's Name: Dr. Haiying Huang

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Office Hours: MW 4:30-5:30pm

Course Number, Section Number and Course Title: MAE2312-001 Solid Mechanics

Time and Place of Class Meetings: Science Hall 333, TTh 11:00-12:20pm
Course web: webct.uta.edu, login with your NetID and password. Lecture notes, homework assignments, and solutions will be posted on WebCT.

Description of Course Content: This course covers the relationships between stresses strains and deflections in elastic and plastic bodies and the loads that produce them. Simple and combined stresses and failure theories for static and variable loading are discussed. Applications of material properties and principles of solid mechanics to the analysis and design of machine structure members are also included.

The topics listed below will be covered during this course.

1. Stress and Strain
2. Mechanical Properties of Materials
3. Axial load
4. Torsion
5. Bending
6. Transverse Shear
7. Combine Loading
8. Stress and Strain transformation
9. Analysis of Beams and Shafts-Stress and Deflection
10. Buckling of Columns

Student Learning Outcomes: The course is intended to provide students with a clear and thorough presentation of both the theory and application of the fundamental principles of mechanics of materials that used in mechanical Design.

Requirements: MAE 1312 Statics, Calculus I, II, & III

Required Textbooks and Other Course Materials: R.C. Hibbeler, Mechanics of Materials, 7th Edition, Prentice Hall, 2007 (For reading assignment; Homework problems will not be assigned from the book)

Descriptions of major assignments and examinations with due dates:

9/17/09	Exam #1 (Chapter 1, 2, & 3)
10/08/09	Exam #2 (Chapter 4 & 5)
12/29/09	Exam #3 (Chapter 6 & 7)
10/30/09	Last Day to Drop
11/19/09	Exam #4 (Chapter 4.7, 8, & 9)
12/03/09	Last Day of Class
12/7/09-12/11/09	Comprehensive Final Exam

Grading Policy: The final grades are based on the absolute number of points the students earned on the assignments and examinations, regardless of their relative standing in the course compared to other

students, *i.e.* **no curving for the final grade**. The following weighting factor is assigned to examinations and homework.

Grading System		**Grading Scale**
• homework	50 points	A 400 or above
• In-classroom assignments	50 points	B 350--399
• 1st Exam	85 points	C 300--349
• 2nd Exam	75 points	D 250--299
• 3rd Exam	75 points	F 249 or below
• 4th Exam	75 points	**Semester total: 500 points**
• Final exam	90 points	

Homework: Homework will be collected **before** the class starts. **Any homework submitted after the class starts will be treated as late homework**. Late homework will receive a 20% penalty per class. Special permission for late submission is based on case by case.

Attendance Policy: Attendance is strongly encouraged. In-classroom assignment will be given without advanced notice.

Drop Policy: Last day to drop is 4/03/2009. Refer to the University drop policy for details.

Americans with Disabilities Act:
The University of Texas at Arlington is on record as being committed to both the spirit and letter of federal opportunity legislation; reference Public Law 92-112 – The Rehabilitation Act of 1973 as amended. With the passage of federal legislation entitled *Americans with Disabilities Act (ADA)*, pursuant to section 504 of the Rehabilitation Act, there is renewed focus on providing this population with the same opportunities enjoyed by all citizens.

As a faculty member, I am required by law to provide "reasonable accommodations" to students with disabilities, so as not to discriminate on the basis of that disability. Student responsibility primarily rests with informing faculty of their need for accommodation and in providing authorized documentation through designated administrative channels. Information regarding specific diagnostic criteria and policies for obtaining academic accommodations can be found at www.uta.edu/disability. Also, you may visit the Office for Students with Disabilities in room 102 of University Hall or call them at (817) 272-3364.

Academic Integrity:
It is the philosophy of The University of Texas at Arlington that academic dishonesty is a completely unacceptable mode of conduct and will not be tolerated in any form. All persons involved in academic dishonesty will be disciplined in accordance with University regulations and procedures. Discipline may include suspension or expulsion from the University.

"Scholastic dishonesty includes but is not limited to cheating, plagiarism, collusion, the submission for credit of any work or materials that are attributable in whole or part to another person, taking an examination for another person any act designed to give unfair advantage to a student or the attempt to commit such acts." (Regents' Rules and Regulations, Series 50101, Section 2.2)

Warning: Any act of academic dishonesty will result in an F for this course.

Student Support Services Available:
The University of Texas at Arlington supports a variety of student success programs to help you connect with the University and achieve academic success. These programs include learning assistance, developmental education, advising and mentoring, admission and transition, and federally funded programs. Students requiring assistance academically, personally or socially should contact the Office of Student Success Programs at (817) 272-6107 for more information and appropriate referrals.

MAE2312-001: Tentative Lectures Schedule and Homework Assignments

(Fall 2009)

Further notice will be given if these assignments are changed.

Homework assignments will be handed out.

Date	Lecture (**sec. in text**)	Homework Assignments **Due**
8/25//09	Statics Review	
8/27/09	1.1 - 1.2	
9/01/09	1.3-1.5	HW #1 (Review, 1.1-1.2)
9/03/09	1.6-1.7, 2.1-2.2	
9/8/09	3.1-3.5	HW#2 (1.3-1.7, 2.1-2.2)
9/10/09	3.6-3.8	
9/15/09	Exam Review	HW#3 (3.1-3.5, 3.6-3.8)
9/17/09	Exam #1 (Ch. 1-3)	
9/22/09	4.2, 4.4	
9/24/09	4.1, 4.3, 4.5, 4.6	
9/29/09	5.1-5.3	HW#4 (Ch. 4)
10/01/09	5.4-5.5	
10/06/09	Exam #2 review	HW#5 (Ch. 5)
10/08/09	Exam #2 (Ch. 4-5)	
10/13/09	6.1	
10/15/09	6.3, 6.4	
10/20/09	7.1-7.3	HW#6 (Ch. 6)
10/22/09	7.4-7.5	
10/27/09	Exam #3 review	HW#7 (Ch. 7)
10/29/09	Exam #3 (Ch. 6, 7)	
11/03/09	4.7, 5.8, 6.9	
11/05/09	8, 6.5	
11/10/09	9.1, 9.3, 9.4	HW#8
11/12/09	9.5-9.7	
11/17/09	Exam #4 review	HW#9

11/19/09	Exam #4 (Ch. 4.7,8-9)	
11/24/09	10.1, 10.5~7	HW#10
11/26/09	12.1-12.2,12.5	
12/01/09	12.9	HW#11
12/03/09	13	
TBA	No class/Final	HW#12(optional)

Note: Only one homework problem will be selected for detailed grading. Homework problems that are not selected for detailed grading will be graded based on the free-body diagram if free-body diagram is required. Late homework will receive a 20% penalty per class. Late homework will not be accepted after the solution is posted in the web. **All homework received after class starts will be treated as late homework.**

Special permission for late submission will be based on case by case.