

MAE 3321-001
Mechanical Behavior of Materials
Spring 2007
Tu-Th 11:00 a.m. – 12:20 p.m.
221 Woolf Hall

Instructor: Roger D. Goolsby

Office: 206A Woolf Hall

Office Hours: TTh 9:45 a.m. – 10:45 a.m.

Phone: (817) 272-2006

Mailbox: 204 Woolf Hall

E-mail: goolsby@uta.edu

Course web site: www-woolf.uta.edu
login: mae3321 password: 95mats02

Course Prerequisites: MAE 2321

Required Textbook: *Strength and Fracture Behavior of Engineering Solids*, 2nd edition., D. K. Felbeck and A.G. Atkins

Course Description: This course is concerned with the interrelationships between processing, structure and properties of engineering materials with emphasis on the mechanical behavior of metals, polymers, and composite materials.

Course Learning Goals/Objectives: Students should develop a thorough understanding of the factors affecting the mechanical behavior of materials.

Attendance Policy: Students are expected to attend each class. Each student will be required to sign a daily attendance record. It is the responsibility of students missing classes that their assignments are turned in on time. Make-up policies are detailed under the sections: Major Exams and Homework and Mini-exams.

Course Content: The textbook chapters listed below will be covered during this course. Considerable supplemental information is also provided via the web site, particularly for strengthening mechanisms, polymers, viscoelasticity, fracture and fatigue.

Chapter	Pages	Description
8	155-169	Phase Diagrams *** REVIEW ***
5	95-107, 115-121	Crystal Imperfections and Slip*** PARTIAL REVIEW ***
6	137-142	Grain Boundaries, Recrystallization
7	145-153	Single Phases*** PARTIAL REVIEW ***
9	172-191	Multiple Phases
10	196-219	Martensites and Tempered Martensites
12	243-260	Rate and Temperature-Dependent Mechanical Properties: Creep and Viscoelasticity
13	274-289	Polymers and Design with Time-Dependent Solids
14	308-315, 323-326 329-336 341-342	Fracture
18	427-447	Fracture by Gradual Crack Growth: Fatigue Crack Growth
17	390-409	Composites

Course Grading Policy: The final course grade will be based on homework, mini-exams and major exams as detailed below.

First Exam	30%
Second Exam	30%
Final Exam	30%
Homework, Mini-exams	<u>10%</u>
	100%

- Major Exams:**
- (a) Three major exams will be given (which includes a comprehensive final exam)
 - (b) Make-up policy - there will be a comprehensive make-up exam scheduled near the end of the semester for students missing one of the two mid-term exams during the semester.
 - (c) Electronic devices, including calculators, may **not** be used during any exams.

Homework and Mini-exams (missing assignments and late policy):

Students missing mini-exams will not have opportunity for make-up. Homework may be turned in late for 1/2 credit, if it is submitted within one week of the due date for the assignment.

American with Disabilities Act

The University of Texas at Arlington is on record as being committed to both the spirit and letter of federal equal opportunity legislation; reference Public Law 93112 - The Rehabilitation Act of 1973 as amended. With the passage of new 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 accommodation" to students with disabilities, so as not to discriminate on the basis of that disability. Student responsibility primarily rests with informing faculty at the beginning of the semester 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 University Hall or call them at (817) 272-3364. If you require an accommodation based on disability, I would like to meet with you in the privacy of my office during the first week of the semester to make sure that you are properly accommodated.

Academic Dishonesty

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, Part One, Chapter VI, Section 3, Subsection 3.2, Subdivision 3.22)

You may not copy any portion of another student's homework or the homework solutions from last year, including sharing spreadsheet formulas and output. You may discuss homework and solution techniques with a fellow classmate only after you have attempted to solve the problem. After the discussion you must work the problem by yourself.

It is your responsibility to know University policies on these matters.

Policy on Cheating

Students who violate University rules on scholastic dishonesty are subject to disciplinary penalties, including the possibility of failure in the course and dismissal from the University. Since dishonesty harms the individual, all students, and the integrity of the University, policies on scholastic dishonesty will be strictly enforced.