

MAE 3181-001
Measurements and Structures Lab
Fall 2009
Tues 2:00 – 4:50 pm
224 & 120 Woolf Hall

Instructor: Roger D. Goolsby

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Instructor's Office Hours: MW 1:30 – 2:30

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Course Prerequisites: MAE 2381, MAE 3315 (or concurrent enrollment).

Required Textbook: None, but lab notes will be provided.

Course Description: Experiments to study materials behavior and deformation of structural elements common to aerospace vehicles.

Course Learning Goals/Objectives: The course is intended to provide students with hands-on experience on applications of the fundamental principles of mechanics of materials that are used in aircraft structural design.

Attendance Policy: Students must be present for each lab experiment. Each student will be required to sign a daily attendance record. A student not attending a lab session will have the final course grade average reduced by 5 percentage points for each non-attendance for a lab experiment.

Lab Etiquette: In the lab, all electronic devices must be silenced. Laptops are not to be open during class. Please: no earphones or texting during class.

Course Content:

The lab experiments listed below will be conducted.

Lab 1: Tensile Test of Ductile and Brittle Materials

Lab 2: Strength Reduction Due to Notch

Lab 3: Pure Bending Test

Lab 4: Torsion Tests of Aluminum, Steel, and PVC

Lab 5 Combined Bending and Torsion

Lab 6: Box Beam Bending

Lab 7: Elastic and Inelastic Buckling

Course Grading Policy:

The final course grade will be based on lab attendance and lab reports. No exams will be given in this course. The grading system detailed below will be followed.

Tentative Grading Scale

Lab Reports (7 Labs)

Each lab equally counts for 100 points

Maximum point total 700

A \geq 90 % (score 630 or above)

B 89 %– 80 % (score 629 - 560)

C 79 %– 70 % (score 559 - 490)

D 69 %– 60 % (score 489 - 420)

F < 60 % (score 419 and below)

Late policy: Lab reports are due one week after completion of the lab experiment. They are to be turned in at the beginning of the scheduled class meeting time. Five (5) points will be deducted for each day a report is late. Reports more than seven days late will not be accepted, and a grade of 0 will be assigned.

Lab Report Format and Grading Policy

Cover Page:	Course#, Group #, Lab #, Name, and Date	
Table of Contents	(with page labeled as I, ii, etc., Roman numeral)	(2 pts)
List of Symbols	(also page labeled in Roman numeral)	(1 pt)
Abstract		(1 pt)
Introduction		(10 pts)
Experimental Methods and Set-up		(10 pts)
Results and Analysis		(20 pts)
Discussion		(15 pts)
Conclusions and Recommendations		(10 pt)
Appendices		(12 pts)
Appendix A – Original Data Sheets		(5 pt)
Appendix B – List of Equations		(2 pts)
Appendix C – Sample Calculations		(5 pts)
Other		(8 pts)
Spelling and Grammar		
Font: New Roman or Arial font with size of 12		
Paragraph: 1.5 lines or double preferable neatness		

Note: A hard copy of the report is required. All of the write-ups must be typed. Original data sheets, equations, sample calculations, and photographs of experimental set-up can be in handwriting.

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 of 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 previous years, 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. You are not to use solutions manuals for the text used in this course for homework problems.

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

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.

E-Culture Policy

The University of Texas at Arlington has adopted the University e-mail address as an official means of communication with students. Through the use of e-mail, UT Arlington is able to provide students with relevant and timely information, designed to facilitate student success. In particular, important information concerning registration, financial aid, payment of bills, and graduation may be sent to students through e-mail.

All students are assigned an e-mail account and information about activating and using it is available at www.uta.edu/email. New students (first semester at UT Arlington) are able to activate their e-mail account 24 hours after registering for courses. There is no additional charge to students for using this account, and it remains active as long as a student is enrolled at UT Arlington. Students are responsible for checking their e-mail regularly.

Drop Policy & Grade Grievance Policy

Please refer to the university drop and grade grievance policies.