MAE 3181-(001 & 004)

Materials and Structures Lab

(0-3)

Fall Semester 2010

Lab Course Syllabus

Instructor(s): Dr. D. Stefan Dancila

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Office Hours: Mondays and Tuesdays, 17:00:00-18:00 and/or by appointment.

GTAs: Julia Cline (juliaelaine.cline@mavs.uta.edu) and
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GTAs Office Hours: TBA

Section Information: MAE 3181-001&004 Materials and Structures Lab

Time and Place of Class Meetings: Woolf Hall 120, Mondays (MAE 3181-004) and Tuesdays (MAE 3181-001) 14:00-16:50, respectively.

There will be no class on Labor Day (September 6, 2010).

UTA Catalog MAE 3181 Course Description: Experiments to study materials behavior and deformation of structural elements common to aerospace vehicles. Semesters offered: Fall. Prerequisite: MAE 2381, MAE 3315 (or concurrent enrollment).

Lab Schedule:

Section	004	001	002	003	Experiment
Day	Monday	Tuesday	Wednesday	Thursday	
Week					
1				8/26/10	
2	8/30/10	8/31/10	9/1/10	9/2/10	
3	9/6/10	9/7/10	9/8/10	9/9/10	1
4	9/13/10	9/14/10	9/15/10	9/16/10	
5	9/20/10	9/21/10	9/22/10	9/23/10	2
6	9/27/10	9/28/10	9/29/10	9/30/10	
7	10/4/10	10/5/10	10/6/10	10/7/10	3
8	10/11/10	10/12/10	10/13/10	10/14/10	
9	10/18/10	10/19/10	10/20/10	10/21/10	4
10	10/25/10	10/26/10	10/27/10	10/28/10	
11	11/1/10	11/2/10	11/3/10	11/4/10	5
12	11/8/10	11/9/10	11/10/10	11/11/10	
13	11/15/10	11/16/10	11/17/10	11/18/10	6
14	11/22/10	11/23/10	11/24/10	11/25/10	
15	11/29/10	11/30/10	12/1/10	12/2/10	7
16	12/6/10	12/7/10	12/8/10	12/9/10	

Due to Labor Day observance, MAE 3181-004 students will have to attend one of the other sections for the week of 09/06/2010.

Generally, each lab will consist of three activity periods:

1. A lab preparatory period – the second part of lab class scheduled the week before the lab experiments are performed;
2. The performance of lab experiments - the following week;
3. A one hour wrap-up period - the beginning of the following lab class scheduled the week after the lab experiments are performed. Lab reports are due at the end of the wrap-up period.

Topics of Experiments

1 Displacement, deformation, and strain measurements
2 Tensile test
3 Pure bending and strain gage rosette
4 Torsion
5 Shear center
6 Buckling
7 Fracture mechanics

Student Learning Outcomes:

Students will learn to instrument test specimens and conduct materials and structures tests according to provided procedures and using provided test setups and equipment in order to measure displacements, deformations, strain, specific material properties and response, and verify the validity of specific hypotheses used in structural analysis. Specifically, upon course

completion students will be able to install strain gages, measure displacements, strain, and load, and use these measurements to determine stress, Young's modulus, Poisson's ratio, and verify Bernoulli's hypothesis, the buckling equation, and stress intensity factors.

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

Text: Lab notes and materials.

Descriptions of major assignments and examinations with due dates:

There will be no Midterm(s) or Final Exam for MAE 3181.

There will be no homework assignments for MAE 3181.

The entire set of assignments for MAE 3181 consists of lab reports, each corresponding to the set of experiments performed during the corresponding week's lab session.

For the purpose of performing experiments, students will organize themselves and work in teams. The performance of the experiments, including data collection, is to be performed jointly within each team. Students are encouraged to interact with the other members of the team and to contribute to experiment success. All members of any given team will therefore share and start from the same raw data. The members of the team need to be specified in each report. **However, all further work needs to be individual.**

All quizzes and lab reports should represent individual work.

All lab report assignments are designated as key assignments. In order to pass this class, students must submit and pass all key assignments. If any key assignment is not submitted and passed, the student will not pass the class even if he/she scores perfectly on all other assignments.

Lab reports are due at the end of the first hour of the corresponding lab session of the week following that during which the experiments are performed.

NB. Lab reports turned in late (after due date and time) will be considered late and penalized 20%.

Grading Policy:

Each lab report will be graded on a scale from 0 to 100 points. For a "Pass," each student lab report must score a minimum of 65 points out of 100.

For each lab there will be a pre- or post-lab session quiz, at the discretion of the instructor, graded on a scale of 0 to 100 points.

If all lab reports are a "Pass," the final numerical grade will be computed as a weighted average, with 90% weight on lab report grades and 10% weight on quiz grades.

The final letter grade will be determined by converting the numerical final grade according to the following ranges:

Final Numerical Grade	Letter Grade
85-100	A
75-84	B
65-74	C
50-64	D
0-49	F

Attendance Policy: Students are expected to attend all class meetings and to arrive on time.

Drop Policy: Students may drop or swap (adding and dropping a class concurrently) classes through self-service in MyMav from the beginning of the registration period through the late registration period. After the late registration period, students must see their academic advisor to drop a class or withdraw. Undeclared students must see an advisor in the University Advising Center. Drops can continue through a point two-thirds of the way through the term or session. It is the student's responsibility to officially withdraw if they do not plan to attend after registering. **Students will not be automatically dropped for non-attendance**. Repayment of certain types of financial aid administered through the University may be required as the result of dropping classes or withdrawing. Contact the Financial Aid Office for more information. The last day to drop a class for the Fall 2010 semester is November 5, 2010.

Lab Safety Policy: Students registered for this course must complete the University's required "Lab Safety Training" prior to entering the lab and undertaking any activities. Students will be notified via MavMail when their online training is available. Once notified, students should complete the required module(s) as soon as possible, but no later than their first lab meeting. Until all required Lab Safety Training is completed, a student will not be given access to lab facilities, will not be able to participate in any lab activities, and will earn a grade of zero for any uncompleted work. Once completed, Lab Safety Training is valid for the remainder of the same academic year (i.e., through next August) for all courses that include a lab. If a student enrolls in a lab course in a subsequent academic year, he/she must complete the required training again.

Americans with Disabilities Act: The University of Texas at Arlington is on record as being committed to both the spirit and letter of all federal equal opportunity legislation, including the *Americans with Disabilities Act (ADA)*. All instructors at UT Arlington are required by law to provide "reasonable accommodations" to students with disabilities, so as not to discriminate on the basis of that disability. Any student requiring an accommodation for this course must provide the instructor with official documentation in the form of a letter certified by the staff in the Office for Students with Disabilities, University Hall 102. Only those students who have officially documented a need for an accommodation will have their request honored. Information regarding diagnostic criteria and policies for obtaining disability-based academic accommodations can be found at www.uta.edu/disability or by calling the Office for Students with Disabilities 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. According to the UT System Regents' Rule 50101, §2.2, "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 in 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."

NB. Any violation of Academic Integrity will automatically result in a grade of F for the course.

Student Support Services Available: The University of Texas at Arlington has established a variety of programs to help students meet the challenges of college life. Support to students includes advising, counseling, mentoring, tutoring, supplemental instruction, and writing assistance. For a complete list of academic support services, visit the Academic Assistance resource page of the Office of Student Success Programs, www.uta.edu/uac/studentsuccess/academic-assistance. To help students address personal, academic and career concerns, individual counseling is also available. For more information, students are encouraged to contact Counseling Services www.counseling.uta.edu at (817) 272-3671 or visit a counselor in 216 Davis Hall.

Electronic Communication Policy: The University of Texas at Arlington has adopted the University "MavMail" address as the sole official means of communication with students. MavMail is used to remind students of important deadlines, advertise events and activities, and permit the University to conduct official transactions exclusively by electronic means. For example, important information concerning registration, financial aid, payment of bills, and graduation are now sent to students through the MavMail system. All students are assigned a MavMail account. ***Students are responsible for checking their MavMail regularly.*** Information about activating and using MavMail is available at http://www.uta.edu/oit/email/. There is no additional charge to students for using this account, and it remains active even after they graduate from UT Arlington.