MAE 2381: Experimental Methods and Measurements
Summer 2013 Syllabus

Instructor:	Dr. Eric M. Braun
Office:	Woolf Hall 323H
Email Address:	braun@uta.edu
Office Hours:	Wednesday 12:30–2:30 PM
	Open door policy; email to schedule a meeting at other times
Website:	All information will be posted on Blackboard (elearn.uta.edu)
Teaching Assistants:	TBD; contact information and availability will be posted on Blackboard

Meeting Information:	001 Lecture	Tuesday, Thursday	Nedderman Hall 110	12:30–1:50 PM
	002 Lab	Tuesday	Woolf Hall 319	2:00–5:30 PM
	003 Lab	Thursday	Woolf Hall 319	2:00–5:30 PM

Description of Course Content: Introduction to data analysis, incorporating statistics and probability, design and planning of engineering experiments for error prediction and control. Measurement and instrumentation, basic instruments, their calibration and use.

Student Learning Objectives:

- To provide a background in engineering measurements and measurement system performance.
- To convey the principles and practice for the design of measurement systems and measurement test plans, including the role of statistics and uncertainty analyses in design.
- To introduce data analysis and reduction.

Course Prerequisite: C or higher in MATH 2425 (Calculus II)

Required Textbook: R.S. Figliola and D.E. Beasley, Theory and Design for Mechanical Measurements, 5th ed., Wiley, 2011. *An abridged edition of this textbook is available in the UTA bookstore at a significantly reduced price.*

Lecture Topics:
Technical report writing and presentations
Ethics
Basic concepts of measurement methods for hardware and software
Experimental planning
Static and dynamic characteristics of signals
Measurement system behavior
Probability and statistics
Uncertainty analysis
Measurement instruments

Laboratory Info: Students will perform experiments in groups of three or four. The lab groups will be made by the GTAs. Specific instructions for the experiments and reports will be introduced in the first lab sessions.

Attendance: Mandatory for all labs. Any missed labs must be made up based on GTA availability in the case of excused absences.
Mandatory for lectures. Attendance will be checked and five or more unexcused absences will result in a letter grade reduction.

Examinations: Midterm, 7/9/13 in class
- Coverage – first half of semester lecture material

Final, 8/13/13, 12:30–2:30 PM
- Coverage – second half of semester lecture material

Assignments: About seven homework assignments, due at beginning of class
Seven laboratory experiments with technical reports, due at beginning of lab

Laboratory Experiments:
- During the first week of class, an introduction to the laboratory will be presented. Additional information and requirements for the lab not contained in this syllabus will be discussed.
- The seven lab experiments will be conducted on the weeks of 6/10, 6/18, 6/25, 7/9, 7/16, 7/23, and 7/30. The reports are completed individually and are due after one week.
- There will be no lab session during the week of 7/2.

Missed Exams, Late Assignment Submissions, Makeup Work, and Appeals Policy:
- Missed labs and exams must be made up immediately. A 20% penalty will be assessed for a lab that is missed with no prior notification of the instructor or GTA. A 0 grade will be assigned if there is no attempt to contact the instructor or GTA to make up the lab after one week. It is highly recommended that you contact the instructor or GTA if you believe you will miss a lab or exam so makeup work can be planned.
- Late homework assignments and lab reports will be penalized 15% of the total grade per day until they are submitted. A grade of 0 will be assigned after three days.
- Grade appeals must be made within one week after the return of the assignment by making an appointment with the instructor or GTA.
- Both a hard copy and a soft copy of the lab reports must be submitted. If either copy is not submitted on time, the -15%/day penalty will be assessed.

Lab Report Plagiarism Policy: All lab reports are submitted to the Blackboard SafeAssign program to check for plagiarism. It contains a database of reports from many previous semesters. Any instance of plagiarism will result in a 0 grade and a referral to the Office of Student Conduct.

Grading:		
	~7 homework assignments	25%
	7 lab reports	35%
	Midterm	20%
	Final	20%

Grade Grievances: Any appeal of a grade in this course must follow the procedures and deadlines for grade-related grievances as published in the current undergraduate catalog. See the following link for information: (http://wweb.uta.edu/catalog/content/general/academic_regulations.aspx#10)

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. For more information, contact the Office of Financial Aid and Scholarships (http://wweb.uta.edu/ses/fao).

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: At UT Arlington, academic dishonesty is completely unacceptable and will not be tolerated in any form, including (but 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" (UT System Regents' Rule 50101, §2.2). Suspected violations of academic integrity standards will be referred to the Office of Student Conduct. Violators will be disciplined in accordance with University policy, which may result in the student's suspension or expulsion from the University.

Student Support Services: UT Arlington provides a variety of resources and programs designed to help students develop academic skills (which includes report writing), deal with personal situations, and better understand concepts and information related to their courses. Resources include tutoring, major-based learning centers, developmental education, advising and mentoring, personal counseling, and federally funded programs. For individualized referrals, students may contact the Maverick Resource Hotline by calling 817-272-6107, sending a message to resources@uta.edu, or visiting www.uta.edu/resources.

Electronic Communication: UT Arlington has adopted MavMail as its official means to communicate with students about important deadlines and events, as well as to transact university-related business regarding financial aid, tuition, grades, graduation, etc. All students are assigned a MavMail account and are responsible for checking the inbox regularly. There is no additional charge to students for using this account, which remains active even after graduation. Information about activating and using MavMail is available at http://www.uta.edu/oit/cs/email/mavmail.php.

Student Feedback Survey: At the end of each term, students enrolled in classes categorized as lecture, seminar, or laboratory will be asked to complete an online Student Feedback Survey (SFS) about the course and how it was taught. Instructions on how to access the SFS system will be sent directly to students through MavMail approximately 10 days before the end of the term. UT Arlington's effort to solicit, gather, tabulate, and publish student feedback data is required by state law; student participation in the SFS program is voluntary.

Final Review Week: A period of five class days prior to the first day of final examinations shall be designated as Final Review Week. The purpose of this week is to allow students sufficient time to prepare for final examinations. During this week, there shall be no scheduled laboratory experiments; and no instructor shall assign any themes, research problems or exercises of similar scope that have a completion date during or following this week *unless specified in the class syllabus*. During Final Review Week, an instructor shall not give any examinations constituting 10% or more of the final grade, except makeup tests and laboratory examinations. In addition, no instructor shall give any portion of the final examination during Final Review Week. During this week, classes are held as scheduled. In addition, instructors are not required to limit content to topics that have been previously covered; they may introduce new concepts as appropriate.