

**Syllabus for MAE 3319
Spring 2007
T-TH 8:00 AM – 9:20 AM
Woolf Hall Room 221**

Instructor: David Hullender

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Office Hours: T-TH 9:30 am – 11:00 am and by appointment

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Course WWW site for reference notes: www-woolf.uta.edu

User ID: mae3319 Password:

Course Prerequisites: MAE 2206, MAE 2323, Differential Equations

Required Textbook: *MODELING AND SIMULATION OF DYNAMIC SYSTEMS*

by R. L. Woods and K. L. Lawrence

Errata Information for Textbook: mae.uta.edu/~lawrence under “dynamic systems text”

Student Version of MATLAB with Controls Tool Box.

Course Description: Modeling and simulation of dynamic systems.

Course Learning Goals/Objectives: This course is intended to provide a comprehensive treatment of the modeling techniques of the major types of engineering systems, the solution techniques for the resulting differential equations, and the attendant mathematical procedures related to the representation of dynamic systems and determination of their response characteristics.

Attendance and Drop Policy: Class and exam attendance is mandatory. Reasons for absence from class must be documented in writing to the instructor. There are no make-up exams; an excused absence from an exam will result in one less exam being considered in the final grade computation. The Drop Policy is consistent with the University drop schedule; the student must be passing to receive a W/P.

Tentative Lecture Schedule and Reference Reading Assignments

Jan.	16	Objectives of course and background test
	18	Basic math concepts including linearization, Lesson 1
	23	Laplace transforms and solving differential eqns, Lesson 2 & Appendix F
	25	MATLAB basics, Appendix H
	30	Transfer functions, eigenvalues, and time constants, Lesson 3
Feb.	1	Lumped parameter models for mechanical systems, Chap. 3, Lesson 4
	6	Mechanical systems continued
	8	Exam #1 , closed book, no notes and no programmable calculators
	13	Use of symbolic math to solve simultaneous equations in Matlab
	15	Review of numerical integration algorithms, Lesson 5
	20	No Class. Work on assignment in computer lab.
	22	Expressing differential equations and transfer functions in state Variable format, Lessons 6 & 7 and Appendix G
	27	State variable equations continued
March	1	Digital data and digital simulation using MATLAB
	6	Mechanical systems with rotation, Lesson 8 and Chap. 3
	8	Exam #2 , closed book, no notes, comprehensive, and no programmable calculators
	13	Spring Break
	15	Spring Break
	20	Mechanical systems with rotation continued
	22	Simulation diagrams, Simulink, and
	27	No Class, work in computer lab on Key Assignment
	29	Properties of liquid systems, Lesson 9
April	3	Liquid systems continued, Lesson 10
	5	Valve driven linear hydraulic actuators, Lesson 11
	10	Lumped parameter models for fluid transients in lines, Lesson 12
	12	Exam #3 , closed book, no notes, comprehensive, and no programmable calculators
	17	Properties of gas systems, Lesson 13, Chap. 5
	19	Gas systems continued, Lesson 14
	24	Electrical systems, Chap. 4 and Lesson 15
	26	Thermal systems, Chap. 6 and Lesson 16
May	1	Finite difference equation approach to thermal systems
	3	Review and makeup
	8	Final Exam 8 am , closed book, no notes, comprehensive, and no programmable calculators

Specific Course Requirements s/Descriptions

Quizzes: 10 minute quiz at the beginning of almost every class; lowest two grades dropped before computing average to be used as score for a 4th exam.

Examinations: Closed book, comprehensive, and no programmable calculators

Homework: Under normal circumstances, accepted only on the day that it is due.

Students are required to do their own work!

Missed Exams & Quizzes: See Attendance and Drop Policy

Key Assignments: A passing grade is required to get a grade in the class.

Course Evaluation & Final Grade: The final average will be a weighted average of Homework (25%) and Exams & Key Assignments (75%).

Student Evaluation of Teaching: Forms will be handed out during the last two weeks of the semester.

Americans 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, here 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.**

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 suspensions 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 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.” (Regents’ Rules and Regulations, Part One, Chapter VI, Section 3, Subsection 3.2, Subdivision 3.22)

Teaching Assistant and Schedule: TBA