COURSE SYLLABUS
MAT 485   Fall 2015   Section M003
Differential Equations and Matrix Algebra for Engineers
Sect: M003 Tuesday-Thursday, 9:30 am, 10:50 pm, Carnegie 100

Instructor: Paul Tuttle**,**

Office: Room 207 Carnegie Hall

Office Hours:

- Monday – 2:00 pm to 4:00 pm

I am available after class. If I find these hours to be inadequate, I will add extended office hours. Also, I'm available outside of these hours by appointment.

Phone: 243-4808 (cell - Please text)

Email: pgtuttle@syr.edu

Course Supervisor: Professor Eugene Poletsky, Room 206 Carnegie, 315-443-1486, eapolets@syr.edu. Please inform your instructor of any problems that you have with this course. Problems not satisfactorily resolved with your instructor should be brought to the attention of the course supervisor without delay.

All Class Related Material is on Blackboard

Text: *Differential Equations & Linear Algebra (Second Edition)* by Farlow, Hall, McDill, and West, Prentice Hall, 2007. We expect to cover Chapters 1-8 with some omissions. The sections to be covered and the list of assigned homework problems from every section are given below.

Prerequisites: MAT 397. Credit cannot be given for both MAT 485 and MAT 514 or for both MAT 485 and MAT 331. MAT 485 does not count towards mathematics major, and students in CIS should not take it.

Learning Goals: Solutions of ordinary differential equations and such, Laplace transforms, vector spaces, matrix algebra, linear systems, eigenvalues and eigenvectors.

Exams: There are two in-class exams, tentatively scheduled on

Thursday, Oct. 8th.

Thursday, Nov. 19th

The Final exam is on

Sect M003: Dec. 18th, 5:15pm – 7:15, Carnegie Room 115

It is comprehensive. There are no make-up semester exams, and the *Final exam will not be given at any other time.*

BEHAVIOR

Exams: If you need to take a break during exams, leave your cell phone of the table. Pick it up upon your return.

Homework and Quizzes:

Solving the homework problems is crucial for your success! Homework is assigned approximately weekly. Late homework will not be accepted. The two lowest homework scores will be dropped. Homework will be graded based on my selection of one or two representative, randomly selected, problems (depending on the length of the assignment).

Quizzes will be held approximately weekly. There are no make-up quizzes. The two lowest quiz scores will be dropped.

Helpful Warnings:

1. **The material builds upon itself rapidly! Keep up on a daily basis.**
2. **Internalizing math goes in stages. Do the homework and prepare for quizzes!**
3. **Try to think of why each method works and why it applies! As the semester goes on, that will be much easier to remember than specific formulas.**

Course Grades: The Final grades will be computed as follows:

- 2 Exams 25% each
- Homework 5%
- Quizzes 15%
- Final 30%

In addition, half of the lowest exam score may be replaced by the score on the final.

Calculator Policy: A calculator is not required for this course. In particular, no calculators will be allowed on the exams or quizzes. Use or availability of any calculator or other electronic device on the exams or quizzes will be a violation of the Academic Integrity Policy. You may

use calculators for learning purposes and for solving homework. On exams and quizzes complete solutions, and not merely answers, must be presented to receive credit

Attendance: You are expected to attend class and to participate in it. If you miss a class, you are responsible for obtaining notes and any announcement from that class from another student.

Students with Disabilities: If you believe that you need accommodations for a disability, please contact the Office of Disability Services (ODS), http://disabilityservices.syr.edu, located in Room 303 of 804 University Avenue, or call (315) 443-4498 for an appointment to discuss your needs and the process for requesting accommodations. ODS is responsible for coordinating disability-related accommodations and will issue students with documented disabilities Accommodation Authorization Letters, as appropriate. Since accommodations may require early planning and generally are not provided retroactively, please contact ODS as soon as possible. Making arrangements with ODS takes time. Do not wait until just before the first test.

Academic Integrity: The Syracuse University Academic Integrity Policy holds students accountable for the integrity of the work they submit. Students should be familiar with the Policy and know that it is their responsibility to learn about instructor and general academic expectations with regard to proper citation of sources in written work. The policy also governs the integrity of work submitted in exams and assignments as well as the veracity of signatures on attendance sheets and other verifications of participation in class activities. Serious sanctions can result from academic dishonesty of any sort. For more information and the complete policy, see http://academicintegrity.syr.edu

Complete academic honesty is expected of all students. Any incidence of academic dishonesty as defined by the SU Academic Integrity Policy will result in both course sanctions and formal notification of the College of Arts and Sciences.

Religious Observances: Syracuse University's religious observances policy, found at http://supolicies.syr.edu/emp_ben/religious_observance.htm, recognizes the diversity of faiths represented among the campus community and protects the rights of students, faculty, and staff to observe religious holy days according to their tradition. Under the policy, students are provided an opportunity to make up any examination, study, or work requirements that may be missed due to are religious observance provided they notify their instructors before the end of the second week of classes. For fall and spring semesters, an online notification process is available through MySlice (Student Services -> Enrollment -> My Religious Observances) from the first day of class until the end of the second week of class.

Assigned Homework (Preliminary)

Section	Problems
1.2	3, 5, 7
1.3	11, 13, 14, 16, 21, 23
2.1	1, 3, 5
2.2	3, 7, 9, 11, 15, 17, 19
2.3	7, 11, 13
2.4	3, 4, 5, 16, 21(a)
2.5	4 (with a=4, b=2), 23, 26, 27
4.1	13(c), 17 (and graph both by hand)
4.2	3, 5, 8, 15, 17, 56, and #46 of section 4.1
4.3	1, 3, 5, 11, 13, 62, 63
4.4	9, 11, 13, 14, 53, 23, 25, 27, 29, 33, 34,
4.5	1, 3, 4
3.1	7, 12, 23, 34(a)(b), 51
3.2	1, 25, 33, 34, 36, 53, 61, 62
3.3	6, 7, 10, 12, 20, 21
3.4	1, 3, 4, 16 (note pattern!), 17, 23, 24
3.5	…… no assigned problems …..
3.6	1, 3, 10, 11, 19, 20, 22 (think!), 44, 45, 49, 51, 63, 64
5.1	1, 9, 10, 35, 37 (row tuples are really column vectors)
5.2	3, 5, 25, 29, 31 (just and kernel, image for #25, 29, 31)
5.3	5, 15, 27, 29, 30
6.1	1, 5
6.2	11, 17, 19, 21, 23, 24, 25 (no sketch for 21, 23, 24)
6.3	3, 5, 11, 13
6.4	1, 2, 3, 4, 5, 6
7.2	2, 7, 21, and this one: x' = y, y' = x^2 - 3x (ignore instructions for #21; do it as per instructions for #7.)
8.1	2, 13, 41, 45, 49
8.2	3, 5, 7, 8, 11, 13
8.3	17, 20, 28, 30, 35, 36, 51, 52