

MAT 485 Spring 2015 Section 1

MW 12:45–2:05, Carnegie 122

Instructor and Course Supervisor: Professor Dan Zacharia

Office: 229C Physics building.

Tentative Office Hours: MW 10:00-11:30 and by appointment.

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Text: *Differential Equations & Linear Algebra* (2nd Edition) by Farlow, Hall, McDill, and West, Prentice Hall, 2007.

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 systems of such, Laplace transforms, vector spaces, matrix algebra, linear systems, eigenvalues and eigenvectors.

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

Wednesday, February 25 and Wednesday, April 8.

The final exam is on

Friday, May 1, 10:15AM–12:15PM

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

Homework and Quizzes: *Solving the homework problems is crucial for your success!*

Quizzes will be held approximately weekly. There are no make-up quizzes.

Course Grades: The final numerical grades will be computed as follows:

2 Exams	27.5% each
Quizzes	15%
Final	30%

Your course grade will be computed as follows.

93-100	A	77-79	C+
90-92	A–	73-76	C
87-89	B+	70-72	C–
83-86	B	65-69	D
80-82	B–	0-64	F

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

Helpful Warnings:

1. The material builds upon itself *rapidly!* Keep up on a daily basis.
2. Internalizing math goes in stages. 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.

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 participate in it. If you miss a class, you are responsible for obtaining notes and any announcements 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.

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 & Sciences.

Religious observances policy: SU religious observances policy recognizes the diversity of faiths represented among the campus community and protects the rights of students, faculty, and staff to observe religious holidays 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.

Section Homework 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 # 14, 23, 26, 27
- 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
- 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
- 5.1 # 1, 9, 10, 35, 37 (row tuples are really column vectors)
- 5.2 # 3, 5, 25, 29, 31 (just find 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 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 # 5, 7, 11
- 8.3 # 17, 20, 28, 30, 35, 36, 51, 52