

## MAT 485, Fall 2016

### Differential Equations and Matrix Algebra for Engineers

#### COURSE SYLLABUS (Sections MAT 485-M001 and MAT 485-M002)

**Textbook:** *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 414 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, Laplace transforms, vector spaces, matrix algebra, linear systems, eigenvalues and eigenvectors.

**Grading:** There will be two exams during the semester and a cumulative final exam, as well as graded homework and quizzes. The dates for the exams and the due dates for the homework will be announced in class by your instructor. The course grade will be computed as follows: each semester exam is worth 25%, homework, quizzes, and class participation 20%, and the final exam 30% of your grade. To receive credit, you will have to show all details of your work on each exam, quiz or assignment!

**Make-ups:** No make-up exams or quizzes will be given. If you expect to miss an exam for a legitimate reason, discuss this, in advance, with your instructor, who may then substitute the relevant score from your final examination for the missing exam. Late homework will not be accepted.

**Calculators:** 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:** Attendance is required. Missing class is among the most common reasons for poor performance in the course. Students are responsible for all the announcements made in class (about assignments, due dates, etc). If you miss a class, you are responsible for obtaining notes for that class from a student who attended.

**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 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>

**Religious Observances:** 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.

**Tips for Success:** Don't fall behind! The material builds upon itself rapidly, so try to keep up on a daily basis. It is absolutely essential that you understand how to solve all the assigned problems. Once you understand how to solve a problem, write down your solution neatly and in full detail with explanations that make your reasoning clear. This will make your old homework assignments more useful to you when you are studying for an exam. Expect to work hard, be persistent and patient.

## Assigned Homework

**Section**

**Problems**

1.2	3, 5, 7
1.3	11, 13, 18, 21, 23, 25, 51
2.1	1, 3, 5
2.2	3, 5, 7, 11, 15, 17, 19
2.3	1, 2, 7, 11, 13
2.4	3, 5, 7, 15, 21(a)
2.5	14, 23, 27
3.1	1, 3, 7, 11, 12, 23, 34(a,b), 51, 55, 79, 81
3.2	1, 11, 25, 31, 33, 53, 62, 64
3.3	6, 8, 9, 12, 20
3.4	1, 3, 4, 15, 16, 23, 39, 41
3.5	1, 5, 11, 13, 15, 19, 20, 22, 53, 54, 55
3.6	1, 2, 7, 9, 10, 19, 20, 22, 43, 44, 49, 51, 63, 64
4.1	1, 3, 14, 17, 19, 23, 25, 46
4.2	1, 3, 5, 8, 15, 17, 56, 59
4.3	1, 3, 5, 11, 13, 62, 64
4.4	1, 2, 3, 7, 9, 10, 19, 25, 27, 46
4.5	1, 2, 9
5.1	1, 2, 7, 23, 33, 34, 38
5.2	3, 5, 13, 25, 31, 68, 70, 72, 78
5.3	1, 2, 3, 19, 21, 24
6.1	1, 2, 5, 6
6.2	9, 11, 21, 23, 25, 29, 31
6.3	1, 3, 5, 13, 30, 32
6.4	1, 2, 3, 4, 5, 6, 7, 8
7.1	
7.2	1, 3, 5, 7, 9, 11, 12
8.1	1, 2, 5, 9, 11, 12, 17, 32, 33, 41, 45, 49
8.2	1, 3, 5, 9, 11, 13
8.3	17, 20, 24, 28, 30, 33, 34, 36, 50