

Math 320: Linear Algebra and Differential Equations

Lecture 1, MWF 9:55–10:45 a.m., B239 Van Vleck

Syllabus for Semester II, 2013/2014

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Text: Differential Equations and Linear Algebra, 3d Edition, by Edwards and Penney.

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Course Content: We will cover roughly chapters 1–8 in the text. The main topics include: first order differential equations; mathematical models; linear systems and matrices; vector spaces; higher order linear differential equations; eigenvectors and eigenvalues; linear systems of differential equations; matrix exponential methods.

Exams and Grades: The course grade is based mainly on two in-class exams and the final exam. Each of the in-class exams is worth 100 points, and the final exam is worth 150 points. In addition, your TA will assign you a score worth at most 50 points, based on your performance in the discussion section.

The final exam is Friday, May 16, at 7:45–9:45 a.m.

Homework: To learn the material well, you need to work out lots of homework problems. At the end of the syllabus there is a list of exercises, to be collected by your TA. Your TA will explain the rules and due dates. This list represents the minimal homework requirement; it is recommended that you do many more exercises from the text. Here is some extra motivation to do this:

For each exam including the final, the test questions will be based on, and in many cases taken verbatim from, the exercises at the back of the relevant sections in the text.

Discussion Sections: As a student in this course you have been assigned a discussion section. This will meet once a week and is run by your TA. In the discussion section you have the opportunity to ask questions about examples from the lecture; go over the assigned homework problems; or other exercises from the book that may be troubling you. The TA will also have office hours each week for routine help with the exercises etc. I have office hours for non-routine help.

Calculators and Exams: Calculators and/or computer software may be used to help with homework problems, but are not permitted during exams. During an exam no books, notes, calculators, cell phones, pagers, or any electronic devices will be allowed.

Remarks: (1) The final exam is cumulative.

(2) I will create the in-class exams and final. These are graded jointly by myself and the TA. The graded exams will be returned to the student in their discussion section.

(3) Any questions about the grading of an in-class exam must be brought to the instructor's attention within two weeks of the day that exam is handed back in class.

(4) On the exams, cross out or erase material that you don't want counted. Incorrect reasoning will be counted against you.

(5) On the exams, an appropriate amount of reasoning must be shown. Correct answers alone may earn little or no credit.

Tentative Schedule:

Week	M	W	F
Jan 22	Holiday	1.1	1.2
Jan 27	1.3	1.4	1.5
Feb 3	2.1	2.2	2.4
Feb 10	3.1	3.2	3.3
Feb 17	3.4	3.5	3.6
Feb 24	3.6	Review	Exam I
Mar 3	4.1	4.2	4.3
Mar 10	4.4	4.5	4.6
Mar 17		Spring Recess	
Mar 24	4.7	5.1	5.2
Mar 31	5.3	5.5	6.1
Apr 7	6.2	6.3	Review
Apr 14	Exam II	7.1	7.2
Apr 21	7.3	7.5	8.1
Apr 28	8.1	8.2	8.2
May 5	8.3	Review	Review

Homework assignments:

Section	Exercises
1.1	8, 9, 10, 11, 16, 24, 26, 35, 36
1.2	6, 7, 9, 10, 16, 18, 32, 43, 44
1.3	3, 12, 15, 16, 18, 20, 21, 22, 25, 26
1.4	3, 6, 10, 12, 22, 23, 26, 27, 30, 42, 43, 46
1.5	3, 5, 10, 14, 17, 18, 23, 26, 31, 37, 44
2.1	1, 4, 5, 7, 13, 15, 17, 30, 31
2.2	5, 7, 8, 11, 12, 20, 23
2.4	5, 6, 9, 10, 13, 16, 30
3.1	1, 5, 7, 10, 15, 20, 24, 28, 31, 33, 34
3.2	4, 12, 16, 17, 19, 26, 27, 28
3.3	2, 3, 6, 10, 11, 13, 31, 32, 35, 36, 37
3.4	3, 5, 6, 10, 11, 15, 16, 19, 27, 32
3.5	11, 15, 16, 18, 34, 35, 36, 41, 42
3.6	2, 4, 8, 19, 30, 46, 48, 49, 52, 58
4.1	7, 12, 18, 20, 22, 24, 26, 28, 32, 34, 36, 40
4.2	2, 6, 8, 12, 16, 17, 18, 21, 22, 27
4.3	9, 12, 15, 16, 18, 20, 21, 22, 24
4.4	3, 6, 8, 14, 22, 23
4.5	3, 5, 8, 13, 15, 17, 21, 23, 24, 30, 31, 32
4.6	2, 3, 5, 8, 17, 20, 23, 24, 28, 30, 31, 32
4.7	2, 4, 5, 16, 17, 19, 20, 23, 26, 29
5.1	10, 19, 24, 26, 32, 34, 42, 48, 53, 54, 55
5.2	12, 16, 23, 28, 30, 39, 41
5.3	9, 16, 23, 26, 35, 38, 40, 49, 52, 53, 57
5.5	9, 10, 16, 25, 26, 37, 49, 50, 53, 61, 62
6.1	3, 4, 14, 18, 22, 28, 30, 38
6.2	2, 5, 8, 14, 29, 30, 31, 32, 34, 36
6.3	2, 5, 8, 13, 25, 31, 34, 36, 38
7.1	1, 2, 3, 4, 8, 24, 26, 27
7.2	7, 9, 10, 12, 14, 16, 23, 25, 33
7.3	2, 4, 6, 7, 8, 11, 15, 21, 24, 26, 27, 28
7.5	3, 4, 6, 8, 11, 16, 19
8.1	2, 5, 8, 9, 13, 17, 21, 25, 28, 31, 32, 34
8.2	2, 5, 9, 11, 13, 19, 22, 25, 28, 31
8.3	2, 4, 6, 7, 8, 11, 15