Math 205 Spring 2016–Syllabus

Course Information and Policies

Instructors: Prof Dodson (section 110), Prof Dodson (section 111), Prof Yu (section 112), Prof Coll (section 113), Prof Neel (section 114) and Prof Coll (section 115).

Content: This course provides an introduction to ordinary differential equations (mainly separable and linear differential equations and systems of linear differential equations) and to linear algebra (including systems of linear equations, matrices, eigenvalues and eigenvectors, and vector spaces). Physical applications are also discussed. This corresponds to most of the first seven chapters of the text for the course; see the schedule of lectures below for details.

Prerequisites: Math 22 or 32.

Coursesite: There will be two Coursesite sites for this course, and you will automatically be enrolled in both. One site will have all information that is common to all sections of the course. The second site is for each individual section.

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Text: *Differential Equations and Linear Algebra*, third edition, by Stephen W. Goode and Scott A. Annin. ISBN-13: 978-0-13-045794-3.
The text will be supplemented by the *Math 205 Linear Algebra Supplement*, posted on Coursesite.

Attendance: Attendance is required.

Exams: There will be two 4 o'clock exams. The first is on Thursday, March 3; and the second is on Thursday, April 14. There will a final exam at a date and time to be set by the registrar. Students are reminded not to make travel plans for the end of the semester until after the Registrar announces the schedule, as there is no make-up for these travel plan conflicts. Make-up 4 o'clock exams will require a note from a doctor or a dean, and make-up finals are given according to university policy. In no case will a make-up exam be easier than the regularly-scheduled exam. If you are aware of a conflict with an exam, please inform your instructor as soon as possible.

Homework: Homework will be of two sorts:
1. There will be regular graded homework assignments, roughly on a weekly basis, posted on Coursesite. In order for you to receive full credit for your homework,

your homework must not only be mathematically correct, but also legible and intelligible, and, where relevant, grammatically correct as well. Late homework will **not** be accepted. In part to compensate for this (and for illness, bad luck, etc.), the lowest fifth of the homework will be dropped (that is, 80% of the total homework points will earn 100% of the homework grade). Students may discuss the homework with other students, but must write their solutions individually. Copying of hand-written, typed, or on-line solutions is not allowed under any circumstances and will be reported as plagiarism. (More information about academic integrity can be found at `www.lehigh.edu/~indost/conduct/aiforstudents.shtml`.)

Some sections may include in-class quizzes, as part of the homework grade.

2. In addition to the homework which is handed in and graded, the syllabus lists practice problems for each section of the book that we will cover. These problems are intended to supplement the homework, and you are expected to do them. They are not to be handed in or graded, so it is up to you to take advantage of them.

Note that doing both the assigned homework and the practice problems is the best way to learn the material and ultimately succeed in the course.

Grading: The homework will count for 20% of the final grade, each 4 o'clock for 20%, and the final for 40%. Students earning 90% of the total will receive at least an A-, 80% will be at least a B-, and so on.

Calculators: No calculators, computers, or electronic devices of any sort can be used on any exams. You should keep this (and the fact that exams are closed book) in mind when doing the homework.

Additional Help: The math department runs the Math Help Center, located in Christmas-Saucon B001. Students can drop in for help whenever it is staffed; a schedule is generally posted outside. In addition the university provides the Writing and Math Center (see `www.lehigh.edu/~incent/index.shtml` and the Peer Tutoring service (see `http://studentaffairs.lehigh.edu/success`).

Disabilities: If you have a disability for which you are or may be requesting accommodations, please contact both the instructor and the Office of Academic Support Services, University Center C212 (610-758-4152), as early as possible in the semester. You must have documentation from the Academic Support Services office before accommodations can be granted. Furthermore, you must make arrangements for accommodations at least one week before the respective exams.

Diversities: Lehigh University endorses The Principles of Our Equitable Community (http://www4.lehigh.edu/diversity/principles). We expect each member of this class to acknowledge and practice these Principles. Respect for each other and for differing viewpoints is a vital component of the learning environment inside and outside the classroom.

Schedule of lectures and homework

The following schedule is tentative and subject to revision as necessary. Assignments listed as "Homework assignment number n" are assigned on the day of the last lecture of the week they are listed under and are due on the day of the last lecture of the following week.

In general, answers to the odd-numbered problems are given in the back of the text. Fully worked-out solutions to a number of practice problems will be posted on Coursesite; these problems are denoted by ^{s} below.

Note: Occasionally the book gives directions to solve homework problems by a specific method. Unless otherwise instructed, you may use any correct method to solve the problems.

Week 1 (Jan. 25)   **1.1:** 7^s, 9, 11
                   1.2: 7^s, 9, 11, 16
                   1.3: 9, 12, 13^s
                   1.4: 3, 5, 6, 7^s, 13, 19^s
                   1.5: 1, 2, 3^s, 15
                   1.6: 3, 5, 7, 9^s, 12, 13^s, 15, 17^s
                   Homework assignment 1
                   Due Feb. 4 (for Dr. Coll's sections)
                   Due Feb. 5 (all other sections)

Week 2 (Feb. 1)   **1.7:** 1, 3^s, 5, 6
                   2.1: 10, 11, 15^s, 17
                   2.2: 1, 3, 9^s, 11, 13, 15^s
                   2.3: 1^s, 3, 5, 7, 9^s
                   Homework assignment 2
                   Due Feb. 11 (for Dr. Coll's sections)
                   Due Feb. 12 (all other sections)

Week 3 (Feb. 8)   **2.4:** 9, 11^s, 13, 15^s, 17, 21, 23^s, 25^s
                   2.5: 3, 5, 7, 9^s, 11, 13, 15, 17, 19^s, 33, 35, 37^s, 47^s
                   2.6: 4, 9^s, 10, 11^s, 14, 18, 19, 21^s
                   Homework assignment 3
                   Due Feb. 18 (for Dr. Coll's sections)
                   Due Feb. 19 (all other sections)

Week 4 (Feb. 15)	**3.1:** 9, 11^s, 13, 17
	3.2: 3, 9^s, 11, 15^s
	3.3: 11^s, 13, 15^s, 19
	3.4: 1, 3^s, 5, 7, 8
	4.1: 1, 3^s
	Homework assignment 4
	Due Feb. 24 (for Dr. Coll's sections)
	Due Feb. 25 (all other sections)
Week 5 (Feb. 22)	**4.2:** 3, 4, 5^s
	4.3: 3, 5, 6, 13^s, 15, 18, 20, 21^s
	4.4: 1, 5, 7, 9^s, 11, 13, 15^s, 23^s
Exam 1 (March 3)	
Week 6 (Feb. 29)	**4.5:** 1, 3, 5, 7^s, 9^s, 29^s
	4.6: 2, 3^s, 4, 5^s, 9, 11, 13^s, 14, 21^s, 22
	Homework assignment 5
	Due Mar. 10 (for Dr. Coll's sections)
	Due Mar. 11 (all other sections)
Week 7 (Mar. 7)	**4.7:** Coursesite 1^s, 3^s, 7, 9
	4.8: 3, 7^s, 9
	4.9: 3, 4, 9^s, 11
	Homework assignment 6
	Due Mar. 24 (for Dr. Coll's sections)
	Due Mar. 25 (all other sections)
Spring break (Mar. 14)	
Week 8 (Mar. 21)	**5.1:** 1^s, 3^s, 11, 17^s, 23^s, 24, 25
	5.3: 1, 3^s, 5^s, 7, 8, 9
	5.4: 1^s, 3^s, 5, 9, 10 ,11^s, 25, 27
	Homework assignment 7
	Due Mar. 31 (for Dr. Coll's sections)
	Due Apr. 1 (all other sections)
Week 9 (Mar. 28)	**5.6:** 1, 9^s, 11, 13^s, 15^s, 17, 19^s, 23^s
	5.7: 1, 3, 4, 5^s, 7, 9, 13^s, 15, 20, 21^s, 23, 25^s
	5.8: 1^s, 3^s, 7^s, 9, 12, 13
	Homework assignment 8
	Due Apr. 7 (for Dr. Coll's sections)
	Due Apr. 8 (all other sections)
Exam 2 (April 14)	
Week 10 (Apr. 4)	**5.5:** Coursesite 1^s, 3, 5^s, 7^s, 11^s
	6.1: 7, 9, 20, 21^s

Week 11 (Apr. 11) **6.2:** 5, 6, 7, 8, 9, 10, 11, 13^s, 15, 19^s, 20, 21, 23^s, 29, 30, 31, 33^s
6.3: 17, 19^s, 21^s, 27^s, 29, 31^s, 33
Homework assignment 9
Due Apr. 21 (for Dr. Coll's sections)
Due Apr. 22 (all other sections)

Week 12 (Apr. 18) **6.5:** 5, 7, 9^s, 23^s
6.6: 1^s
7.1: 15, 17^s
Homework assignment 10
Due Apr. 28 (for Dr. Coll's sections)
Due Apr. 29 (all other sections)

Week 13 (Apr. 25) **7.4:** 1^s, 2, 3^s, 4, 5, 6, 9^s, 13, 17, 19^s
7.6: 1^s, 2, 3^s, 4
Homework assignment 11
Due May 2 (all other sections)
Due May 3 (for Dr. Coll's sections)

Week 14 (May 2) **7.2:** 3^s, 7, 9
7.3: 1^s, 3, 5^s
review and catch-up