

Tufts University

Department of Mathematics

Fall 2009

Mathematics 38

Sections: **01** (Block B) Hasselblatt, **02** (Block C) Gutiérrez, **03** (Block H) Umarov.

**Text:** Reprint of M. M. Guterman, Z. H. Nitecki, *Differential Equations – A First Course*, 3<sup>rd</sup> ed., Saunders (1992).

**Prerequisites:** Mathematics 11–13 or 17–18.

**Course web page:** <http://www.tufts.edu/as/math/38/>

**Important dates:** There will be three exams given on Monday, **October 5**, Monday, **November 2**, and Monday, **November 23**, from **12:00 noon to 1:20 pm**. The final exam will be given on **Wednesday, December 16**, from **8:30 am to 10:30 am**. *Notify your instructor of any time conflicts with other examinations during the first week of classes.* Students who take two mathematics courses with any exams at the same time have to take these back to back and must notify *both* instructors during the first week of classes. *The exams are cumulative.*

**Dropping, adding and withdrawing:** *Tuesday, September 22*, is the last day to add courses. *Tuesday, October 13*, is the last day for sophomores, juniors and seniors to drop courses without record of enrollment, or to select the pass/fail option. *Friday, December 11*, is the last day to withdraw from courses and receive the grade of W.

**Homework:** Homework is due at the beginning of the next class. You are encouraged to collaborate, but you must hand in solutions written in your own hand. You receive one point if your homework contains (1) a bona fide attempt at *every* exercise (copying the statement does not suffice) and (2) the correct solution to at least 60% of the exercises (answers only are not enough). *Do not claim credit for any parts of solutions copied from the blackboard during class! This is plagiarism.* Your homework credit is  $H = u_{26}(n) \cdot (n - 20)/4$ , where  $n$  is the number of homework points and  $u$  is as on p. 449 of the text.

**Grades:** Your course average is computed from your lowest midterm score  $L$ , the other midterm scores  $T$  and  $T'$ , the final exam score  $F$ , and your homework credit  $H$  as the larger of these two numbers:  $.1L + .2T + .2T' + .5F + H$  or  $(L + T + T' + F)/4 + H$ . This average will be converted into a letter grade according to the conversion chart given on the Mathematics Department website at <http://math.tufts.edu/?pid=10>. If you must miss a midterm exam for a reason accepted by the Mathematics Department, then there is no  $T'$ , and we instead use the larger of  $.2L + .3T + .5F + H$  or  $(L + T + F)/3 + H$ .

**Missing examinations:** *We do not give make-up examinations* under any circumstances for the midterm exams, and *we do not drop the lowest exam grade*. Thus, missing an exam is a serious matter. An unexcused absence from any exam will be counted as a zero. Excuses will be accepted, at the discretion of the Mathematics Department, for genuine emergencies (for example, illness on the day of the exam or a death in the immediate family), for some unavoidable and unforeseen events of an extremely serious nature (your living quarters suffer a bad fire), or for a very limited category of foreseen, but unavoidable, serious events (your surgeon attests that you must have surgery during the semester rather than waiting until the semester ends).

*Requests to be excused must be accompanied by the appropriate documentation* (for example, a letter from Health Services stating that you are too ill to take the exam on that day or a note from your Academic Dean confirming that there has been a death in your immediate family). *If you are excused from an exam, you will also be required to sign an affidavit* stating the reason for missing the exam and pledging that your account is truthful.

Should you have a serious but foreseeable conflict with one of the exams, you must contact your instructor as soon as you become aware of it. The Mathematics Department will determine whether or not you will be excused from the exam. (For example, wanting to attend your sister's dance performance or having booked an inexpensive early flight home for Thanksgiving will not be deemed valid reasons for missing an exam.) If you are not excused, then you must take the exam or it will be counted as a zero. If you fail to inform your instructor or the Mathematics Department well in advance of a foreseeable conflict and then miss the exam, you will receive a zero on the exam. Unawareness of the date or time of an exam will not be considered a valid excuse, since this information is clearly announced on the syllabus.

**Cheating: Don't!** Mathematics Department policy requires you to sign your exam book before handing it in. *With your signature you are pledging that you have neither given nor received assistance on the exam.* If you question the grading on a particular problem, write a note explaining the issue (on the cover of the exam if it will fit there), and resubmit the exam booklet with the note *at the end of the class when the graded booklets were returned.* *Submitting an examination for regrading after altering original answers, submitting a fraudulent excuse for course work missed, cheating on an examination or bringing unauthorized materials into the room during an examination are all Level III offenses* for which one can expect an F in the course and suspension for a year or expulsion, and a permanent transcript notation. There is no appeal of grading consequences.

## Mathematics 38 Lecture and Test Schedule

	<b>B, H</b>	<b>C</b>	<b>Sec.</b>	<b>Homework</b>
1	9/8	9/8	1.1,2	p. 8: 1, 3, 7, 17, 18*, 19*, 20* & p. 16: 3, 5, 15, 17, 24
2	9/10	9/9	1.3	p. 25: 1, 3, 7, 8, 12, 19, 23, 25 & p. 37: 1, 5
3	9/11	9/11	1.6	p. 8: 4 & p. 56: 1, 3, 7, 11, 17, 19, 21
4	9/15	9/15	2.A	p. 8: 5 & p. 194: 1, 3, 5, 11, 16, 17, 19, 21, 31
5	9/17	9/16	2.2	p. 91: 1, 5* & p. 102: 1, 3, 7, 9, 13, 15, 17, 21, 23, 24
6	9/18	9/18	2.3	p. 113: 1-3, 9, 13, 15, 17, 31 & p. 196: 33
7	9/22	9/22	2.4	p. 103: 25 & p. 120: 1, 5, 9, 10, 13-15, 18;
8	9/24	9/23	2.5	p. 8: 6 & p. 129: 3, 5, 9, 11, 15, 18, 19, 22, 23
9	9/25	9/25	2.6	p. 136: 1, 5, 11, 13, 15, 19, 21, 23, 25
10	9/29	9/29	2.7	p. 9: 8 & p. 145: 1-3, 5, 11, 14, 15
11	10/1	9/30	2.8	p. 155: 1, 5, 7, 9, 15, 17 & p. 196: 34
	10/2	10/2	Review	
	<b>10/5</b>			<b>Exam 1: 12:00-1:20. Covers through 2.7</b>
12	10/6	10/6	2.9	p. 164: 1-4, 5a, 6, 8, 11 & p. 172: 3
13	10/8	10/7	5.2	p. 410: 1 & p. 421: 4, 5, 8-11, 13-15, 17, 19, 20, 22-24
14	10/9	10/9	5.3	p. 410: 5 & p. 432: 1, 3, 11, 13, 17, 19, 21 & p. 463: 11 <sup>†*</sup> , 12 <sup>†</sup> , 13 <sup>†*</sup>
15	10/15	10/14	5.4	p. 441: 1, 5, 9, 15, 18, 27, 29, 32 & p. 463: 14 <sup>†</sup> , 15 <sup>†*</sup> , 16 <sup>†</sup> , 17 <sup>†</sup>
16	10/16	10/16	5.5	p. 452: 3, 5, 7, 15, 17, 19, 23, 29
17	10/20	10/20	5.6	p. 9: 9 & p. 462: 3, 5, 11, 15, 19, 21, 25 & p. 479: 1
18	10/22	10/21	5.7	p. 473: 1, 3, 7, 9, 13-15, 19
19	10/23	10/23	3.2	p. 203: 1 & p. 219: 1, 2cd, 5, 7, 8, 11, 13, 19, 24ab, 25, 32, 33
20	10/27	10/27	3.3	p. 103: 26 & p. 196: 35 & p. 232: 1, 7, 9, 11, 13
21	10/29	10/28	3.4	p. 121: 19 & p. 241: 1-5, 7, 8, 11-14
	10/30	10/30	Review	
	<b>11/2</b>			<b>Exam 2: 12:00-1:20. Covers through 3.4</b>
22	11/3	11/3	3.5	p. 9: 10 & p. 254: 1*, 4*, 5*, 6*, 9*, 11*, 13
23	11/5	11/4	3.6	p. 265: 1-3, 6, 7, 9, 11, 13, 14*, 17*, 18*, 19*
24	11/6	11/6	3.7	p. 275: 1, 4*, 5*, 7, 8, 9, 11, 13
25	11/10	11/10	3.8	p. 103: 27 & p. 196: 36 & p. 284: 1, 3*, 5, 7, 11
26	11/12	11/11	3.9	p. 9: 11 & p. 295: 1, 5*, 7, 9, 13
27	11/13	11/13	3.10	p. 308: 3, 5, 7, 9, 13 & p. 26: 9 & p. 155: 3
28	11/17	11/17	3.11	p. 71: 1 & p. 320: 1, 4, 5, 6, 7, 8, 13 & p. 194: 2 - [Recommended: p. 321: 1-14]
29	11/19	11/18	4.1	p. 71: 3-6, 8, 21 & p. 332: 1, 5, 9 - [Start review homework now!]
	11/20	11/20	Review	
	<b>10/23</b>			<b>Exam 3: 12:00-1:20. Covers through 4.1</b>
30	11/24	11/24	4.2	p. 348: 1-3, 7, 8, 9, 11, 13, 15, 17, 19, 20 & p. 173: 4a
31	12/1	12/1	4.3	p. 9: 12 & p. 364: 9, 10, 14, 16, 17, 24
32	12/3	12/2	4.4	p. 377: 1, 3, 7, 9, 10, 12, 13a
33	12/4	12/4	4.5	p. 8: 2 & p. 63: 1 & p. 385: 1, 2, 4, 5, 7
34	12/8	12/8	4.6	p. 397: 1, 3, 4, 5, 8
35	12/10	12/9	4.6	p. 397: 9, 10, 11, Show that there is no closed integral curve in Exercise 4.5.5
36	12/11	12/11	Review	p. 17: 21 & p. 56: 5, 18 & p. 72: 15 & p. 113: 4 & p. 121: 16 & p. 129: 17 & p. 145: 7 & p. 155: 19 & p. 222: 34 & p. 233: 12 & p. 242: 15-17 & p. 255: 22 & p. 320: 11 & p. 348: 1, 3 & p. 421: 1, 7 & p. 441: 3, 17, 31 & p. 452: 1, 13 & p. 462: 2, 13 & p. 473: 5, 11. Optional: p. 284: 5 & p. 308: 3 & p. 433: 19 & p. 452: 9

**12/16**

**Final Exam: 8:30-10:30am**

\* Keep your answers to \*-problems for later assignments.

† In problems with "†" only find the partial-fractions decomposition.