Math 3230: Introduction to Differential Equations

Time and Place: 11:15AM – 12:05PM on Mondays, Wednesdays, and Fridays in 335 Baker Laboratory.

Instructor: Justin Moore
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e-mail: justin@math.cornell.edu
office hours: Monday and Friday 12:15 – 1:15PM and by appointment.

Teaching assistant: Pok Wai (Victor) Fong
email: pf226@cornell.edu
office hours: Tuesday 2:00-4:00PM in 218 Malott.

Grading: You will need at least 60% to guaranteed a D, 70% for a C, 80% for a B and 90% for an A. The weighting of the grades will be:

<table>
<thead>
<tr>
<th>Percentage</th>
<th>Description</th>
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<tbody>
<tr>
<td>50%</td>
<td>homework and quizzes (lowest dropped)</td>
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<tr>
<td>30%</td>
<td>2 midterm examinations</td>
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<tr>
<td>+ 20%</td>
<td>final examination</td>
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100% total

This course offers an introduction to the theory of ordinary and partial differential equations. The lectures will be based on material from the following two texts:

[BN] *The Qualitative Theory of Ordinary Differential Equations* by Brauer and Nohel (Dover).

[ZT] *Introduction to Partial Differential Equations with Applications* by Zachmanoglou and Thoe (Dover).

Our goal will be to cover (in order): 1.1-1.7, 2.1-2.9, 3.1-3.5, 4.1-4.4 from [BN] followed by VII.1-2, VII.7-8, VI.1, VII.5-6, VI.5, VII.9-10, VII.13, VII.16, VIII.1-8, IX.1-4 from [ZT].

Homework and quizzes: Homework will be assigned in class once a week (tentatively on a Wednesday). Unless otherwise specified, homework assignments will be due one week from the day they are assigned at the beginning of class. Late assignments will generally not be accepted except as required by university policy. Your name and the page number must appear at the top of each sheet of paper handed in unless the assignment is stapled. Stapling is STRONGLY encouraged. The instructor and grader reserve the right to deduct points from and/or refuse to grade illegible homework. There will occasionally be scheduled quizzes throughout the semester. These will be announced in advance and will occur during class time. Their weight will be comparable to a homework assignment.

Challenge problems and extra credit: some weeks “challenge problems” will be assigned with the homework set. These are entirely optional. There are two options for submitting a challenge problem. First, each challenge problem may be substituted on a one-for-one basis for any regular homework problem (clearly indicate which problem is being substituted for;
substitutions must be at the level of entire problems, not parts of problems). In this case they will be graded out of the same number of points as the problem they are replacing. Alternately, they may be submitted in addition to the regular problems. In this case, they are treated as extra credit and the number of points awarded is multiplied by 1/4 and added to the regular homework total for that week. Students may submit as many or as few challenge problems as they like. Challenge problems are due with the rest of the homework set for that week.

Exams: there will be two midterm exams (tentatively on 10/9 and 11/20) and a final exam (time and date to be announced). The final exam will be cumulative and may include a takehome component.
Academic integrity: Students are expected to abide by Cornell’s code of academic integrity. Here are some relevant excerpts from the language of the code. Under “General Responsibilities”:

“A student shall in no way misrepresent his or her work.”
“A student shall in no way fraudulently or unfairly advance his or her academic position.”
“A student shall refuse to be a party to another student’s failure to maintain academic integrity.”
“A student shall not in any other manner violate the principle of academic integrity.”

The handbook gives the following examples of violations:

“The following actions are examples of activities that violate the Code of Academic Integrity and subject their actors to proceedings under the Code. This is not a definitive list.”

“Knowingly representing the work of others as one’s own.”
“Using, obtaining, or providing unauthorized assistance on examinations, papers, or any other academic work.”
“Unfairly advancing one’s academic position by hoarding or damaging library materials. Misrepresenting one’s academic accomplishments.”

Specific Guidelines for Courses:

“Examinations. During in-class examinations no student may use, give, or receive any assistance or information not given in the examination or by the proctor. No student may take an examination for another student. Between the time a take-home examination is distributed and the time it is submitted by the student for grading, the student may not consult with any persons other than the course professor and teaching assistants regarding the examination. The student is responsible for understanding the conditions under which the examination will be taken.”

“Course Assignments. Students are encouraged to discuss the content of a course among themselves and to help each other to master it, but no student should receive help in doing a course assignment that is meant to test what he or she can do without help from others. Representing another’s work as one’s own is plagiarism and a violation of this Code. If materials are taken from published sources the student must clearly and completely cite the source of such materials. Work submitted by a student and used by a faculty member in the determination of a grade in a course may not be submitted by that student in a second course, unless such submission is approved in advance by the faculty member in the second course. If a student is submitting all or part of the same work simultaneously for the determination of a grade in two or more different courses, all faculty members in the courses involved must approve such submissions.”