Math 2552: Differential Equations, Spring 2016

Instructor: Yao Yao
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Office: Skiles 259
Office hours: Tuesday 2pm-3pm and Wednesday 3-4pm, or by appointment.
Class Webpage: http://www.math.gatech.edu/~yaoyao/2552.html

Lecture time and place: TR 9:35–10:55am, Howey (Physics) Building L3

Recitations:

<table>
<thead>
<tr>
<th>Section</th>
<th>Time</th>
<th>Room</th>
<th>TA</th>
<th>Email</th>
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<tbody>
<tr>
<td>D1</td>
<td>MW 9:05-9:55am</td>
<td>Skiles 154</td>
<td>Aditya Ragunathan</td>
<td><a href="mailto:aragunathan3@gatech.edu">aragunathan3@gatech.edu</a></td>
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<tr>
<td>D2</td>
<td>MW 9:05-9:55am</td>
<td>Skiles 156</td>
<td>Ankit Dhal</td>
<td><a href="mailto:adhal3@gatech.edu">adhal3@gatech.edu</a></td>
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<tr>
<td>D3-D4</td>
<td>MW 9:05-9:55am</td>
<td>Skiles 168</td>
<td>Hagop Tossounian</td>
<td><a href="mailto:htossounian3@gatech.edu">htossounian3@gatech.edu</a></td>
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Course description: The course introduces the students to the basic theory of differential equations. The main emphasis is put on analytical methods for obtaining solutions of elementary equations. We will also discuss applications, modeling of physical phenomena by differential equations and we will learn the basics of the qualitative analysis of equations. The following topics will be covered:

- Introduction to differential equations, Section 1.1–1.3, (~2 lectures).
- First order differential equations, Section 2.1–2.7, (~3–4 lectures).
- Systems of first order linear equations, Section 3.1–3.6, 6.1–6.7, (~7–9 lectures).
- Second order linear equations, Section 4.1–4.7, (~4–5 lectures).
- The Laplace transform, Section 5.1–5.8, (~4–5 lectures).
- Nonlinear differential equations and stability, Section 7.1–7.4, (~2–3 lectures).

Textbook: Differential Equations: An Introduction to Modern Methods and Applications (3rd edition), by Brannan and Boyce, Wiley 2015. The textbook is required. If you have a different edition, it is your responsibility to make sure that you have the correct homework assignments.

Grading scheme: Grades will be based on quizzes (25%), two midterm exams (20% each) and the final exam (35%). Letter grades will be based on the accumulated points according to the standard cutoffs: A: 90-100%, B: 80-89%, C: 70-79%, D: 60-69%, F: 0-59%. If necessary, these cut-offs may get lowered to arrive at a standard grade distribution for the course.
Homework: After each class, some recommended homework problems will be posted at the class webpage http://www.math.gatech.edu/~yaoyao/2552.html. They will not be collected, however many quiz and exam problems will be similar to the homework problems, so you should do the homework in order to succeed in this class.

Quizzes: There will be six short quizzes (15-25min) given in recitations on Wednesdays. The tentative dates are: Jan 20, Feb 3, Feb 24, Mar 9, Apr 6, Apr 20. Each quiz will consist of 2-3 problems similar to the homework problems assigned in the previous two weeks. Quizzes will be graded by the TA. There will be no make up quizzes, however the lowest quiz score will be dropped.

Exams: The midterm exams will be tentatively held in class on Thursday, Feb 11th, and Thursday, March 17th (any changes will be announced in class and on the course website). The final exam will be held on Thursday, May 5th from 8:00-10:50am. All exams and quizzes are closed-book, closed-notes, and you are not allowed to use calculators or cell phones.

There will be no make-up exams. If a midterm exam is missed with a legitimately documented reason, your grade will be reweighted appropriately. Acceptable excuses for missing a midterm include only medical emergency and official university excuses, with a note from a doctor or an appropriate official. The score for an unexcused absence from an exam will be zero.

The final exam is cumulative, and you must take the final exam to pass this class.

Student accommodation: Upon request, Georgia Tech provides appropriate academic accommodations for qualified students with disabilities. For more information, contact the office of disability services (http://www.adapts.gatech.edu/). If you plan to use accommodations, you need to notify your instructors early in the semester.

Academic Integrity: You may use any help, including working with your classmates, for the homework. However, during the quizzes and exams, you may not use any books, notes, calculators, mobile phones, or any outside help. Please be aware of the Georgia Tech Honor Code (http://www.honor.gatech.edu) and follow it carefully. Cheating on the quizzes/exams will be treated very seriously, and any misconducts will be reported directly to the Office of Student Integrity.