**[Math 2552 D, Spring 2020] Syllabus**

**Differential Equations, Math 2552, Sections D1-D3, 4 credit hours**

**Lectures:** TR 9:30am-10:45am, Boggs B5

**Instructor**  
Victor Vilaça Da Rocha  
vrocha3@gatech.edu  
Skiles 022

**Office Hours (in Clough 248)**  
Monday & Wednesday: 2-3pm (online after 3/30)

**Studio Information**

<table>
<thead>
<tr>
<th>Section</th>
<th>Time</th>
<th>Location</th>
<th>Instructor</th>
<th>Email</th>
<th>Office</th>
<th>Office Hours</th>
</tr>
</thead>
</table>
| D1       | MW 9:05am-9:55am, Skiles 156 (BlueJeans after 3/30) | Xiaonan Liu, Email: xliu729@gatech.edu  
Office Hours: Thursday: 4-5pm (Clough 280) (online after 3/30) | | |
| D2       | MW 9:05am-9:55am, Skiles 257 (BlueJeans after 3/30) | Kevin Shu, Email: kshu8@gatech.edu  
Office Hours: Friday: 1-2pm (Clough 280) (online after 3/30) | | |
| D3       | MW 10:10am-11:00am, Skiles 156 (BlueJeans after 3/30) | Xiaonan Liu, Email: xliu729@gatech.edu  
Office Hours: Thursday: 4-5pm (Clough 280) (online after 3/30) | | |

**General Information**

**Description**

**Pre- &/or Co-Requisites**
MATH 1502 OR MATH 1512 OR MATH 1555 OR MATH 1504 ((MATH 1552 OR MATH 15X2 OR MATH 1X52) AND (MATH 1522 OR MATH 1553 OR MATH 154 OR MATH 1564 OR MATH 1X53)). We will need to do a lot of calculus (differentiation and integration) and linear algebra (solving linear systems and computing eigenvalues and eigenvectors).

**Course Goals and Learning Outcomes**
Upon successful completion of this course, you should be able to solve first order linear diff eqs, solve separable diff eqs, solve linear systems of diff eqs with constant coefficients, solve higher order linear diff eqs with constant coefficients, solve some real world problems by using diff eqs, analyze the stability/instability of solutions of some linear and nonlinear diff eqs, and numerical methods.

**Course Requirements & Grading**
There will be Weekly Online Homework, 5 Quizzes (25 minutes), 2 Midterms (50 minutes), and a cumulative Final Exam (2 hours 50 minutes).

<table>
<thead>
<tr>
<th>Test</th>
<th>Date</th>
<th>Place</th>
<th>Coverage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quiz 1</td>
<td>1/22 (Wed), Length 25 min</td>
<td>Studio room</td>
<td>Lectures and Studios 1/06-1/15</td>
</tr>
<tr>
<td>Quiz 2</td>
<td>2/05 (Wed), Length 25 min</td>
<td>Studio room</td>
<td>Lectures and Studios 1/16-1/29</td>
</tr>
<tr>
<td>Midterm 1</td>
<td>2/13 (Thu), Length 50 min</td>
<td>Lecture room</td>
<td>Lectures and Studios 2/06-2/05</td>
</tr>
<tr>
<td>Quiz 3</td>
<td>2/26 (Wed), Length 25 min</td>
<td>Studio room</td>
<td>Lectures and Studios 2/06-2/19</td>
</tr>
<tr>
<td>Quiz 4</td>
<td>3/11 (Wed), Length 25 min</td>
<td>Studio room</td>
<td>Lectures and Studios 2/20-3/04</td>
</tr>
<tr>
<td>Midterm 2</td>
<td>4/7 (Tue), 9:30am-11:30am EST</td>
<td>Take home</td>
<td>Lectures and Studios 2/06-3/31</td>
</tr>
<tr>
<td>Quiz 5</td>
<td>4/13 (Mon), 10:15am-11:30am EST</td>
<td>Take home</td>
<td>Lectures and Studios 3/31-4/06</td>
</tr>
<tr>
<td>Final Exam</td>
<td>4/30 (Thu) 11:20am-3:20pm EST</td>
<td>Take home</td>
<td>The whole semester</td>
</tr>
</tbody>
</table>
**Online Homework**

Homework will be assigned through WeBWorK which will be accessed through Canvas. Assignments will be due regularly (almost weekly). The homework is accessed under the Assignments tab in Canvas. The warmup assignment for the first week of class on WeBWorK is just for practice and will not be graded.

Assignments will be open at least one week before they are due. Your two lowest homework scores will be dropped. **No late homework will be accepted — no exceptions.** Each homework assignment counts the same amount toward your grade.

**Extra Credit Opportunities**

Your participation in the studio will be measured by your TA. The studio grade will count as extra credit (maximum 2%) and will be added onto the course average, affecting all borderline grades.

Note: An easy trial exam may replace the studio participation after 3/30.

**Description of Graded Components**

Your course average will be the highest of the following three numbers:

<table>
<thead>
<tr>
<th>Weighted Average One</th>
<th>5% (Online Homework) +30%<em>(Quizzes) +34%</em>(Midterms) +31%*(Final)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weighted Average Two</td>
<td>5% (Online Homework) +24%<em>(Four Better Quizzes, the Lowest One Dropped) +34%</em>(Midterms) +37%*(Final)</td>
</tr>
<tr>
<td>Weighted Average Three</td>
<td>5% (Online Homework) +30%<em>(Quizzes) +17%</em>(The Better Midterm) +11%<em>(The Lower Midterm) +37%</em>(Final)</td>
</tr>
</tbody>
</table>

The extra credit (maximum 2%) will be added onto the course average at the end of the semester by your TA.

**Grading Scale**

Your final grade will be assigned as a letter grade according to the following scale:

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>90-100%</td>
<td>80-89.999%</td>
<td>70-79.999%</td>
<td>60-69.999%</td>
<td>0-59.999%</td>
</tr>
</tbody>
</table>

**Course Materials**

**Course Text**

James R. Brannan and William E. Boyce, Differential Equations (an introduction to modern methods and applications), 3rd edition, John Wiley & Sons, 2015. ([Publisher's website for the text](https://example.com))

You can purchase the text at Georgia Tech Bookstore.

We plan to cover Chapters 1-8 of the text.
Course Websites

  includes lecture topics, suggested exercises, exam schedule, lecture slides, and supplementary materials.

- **CANVAS** will be used for the gradebook and announcements.
  
  We will use BlueJeans to live stream and record lectures and studios. Lecture videos and studio videos will be available on CANVAS.

- **Gradescope** will be used to return the exams (quizzes, midterms, and the final exam).
  Students will scan and upload solutions of Midterm 2, Quiz 5, and the Final Exam to Gradescope.

- **Piazza (online discussion forum)**: [https://piazza.com/gatech/spring2020/math2552](https://piazza.com/gatech/spring2020/math2552)
  The Piazza forum is highly catered to getting your help fast and efficiently from classmates, the TAs, and myself. Rather than emailing questions to the teaching staff, I encourage you to post your questions on Piazza if your questions have nothing to do with your privacy. You may post on Piazza anonymously if that makes you more comfortable. Everyone in class should feel absolutely free to ask questions, discuss, help, comment, explore, and exchange ideas on Piazza.

  The only restriction I like to impose on Piazza is: **please do not discuss exam problems and solutions.** Of course you are welcome to discuss them with me and your TA in private.

Course Expectations & Guidelines

**Academic Integrity**

Georgia Tech aims to cultivate a community based on trust, academic integrity, and honor. Students are expected to act according to the highest ethical standards. For information on Georgia Tech's Academic Honor Code, please visit [http://www.catalog.gatech.edu/policies/honor-code/](http://www.catalog.gatech.edu/policies/honor-code/) or [http://www.catalog.gatech.edu/rules/18/](http://www.catalog.gatech.edu/rules/18/).

Any student suspected of cheating or plagiarizing on a quiz, exam, or assignment will be reported to the Office of Student Integrity, who will investigate the incident and identify the appropriate penalty for violations.

**Accommodations for Students with Disabilities**

If you are a student with learning needs that require special accommodation, contact the Office of Disability Services at (404)894-2563 or [http://disabilityservices.gatech.edu/](http://disabilityservices.gatech.edu/), as soon as possible, to make an appointment to discuss your special needs and to obtain an accommodations letter. Please also e-mail me as soon as possible in order to set up a time to discuss your learning needs.

**NETIQUETTE**: Our course will move to online starting 3/30 (Mon). Netiquette is the etiquette of online behavior. In all means of communication in this online course, you will need to follow the same rules of behavior as you would in a face-to-face course when communicating with the
other students, teaching assistants, and instructors in the class. This means that you will have to respect others: negative personal comments are strictly prohibited. Please also respect your fellow classmates by turning off your microphone and web cam when appropriate.

Exam Procedure

- All exams (quizzes, midterms, and the final) are closed books and closed notes. Calculators, computers, electronic devices etc. are not allowed.
- Quizzes are given in the studio room.
- Midterms and the Final Exam are given in the lecture room.
- Midterm 2, Quiz 5, and the Final Exam are take-home assessments with time limits.
  - Problems will be released on CANVAS at a pre-announced time.
  - You have to solve the problems by yourself, and are not allowed to discuss problems and solutions with other people.
  - During the time interval from the release time and submission deadline, I will be online. If you have questions about the exam, you can send CANVAS messages to me.
  - You will scan your solutions into a PDF file, and upload it to Gradescope by a pre-announced deadline.
  - In order to solve possible technical issues beforehand, we will have a trial exam.

Re-Scheduled/Missed Exams

NO MAKE-UP EXAMS! In general, no make-up exams will be given and any missed exam results in a "0" score.

- If you have a valid reason to request a make-up exam, please contact Dr. Chen as early as possible. Only extraordinary cases will be considered.
- In the case of illness and emergency, please also contact the Office of Dean of Students immediately. The Dean’s office will verify the case, determine the severity of the problem, and then interact with Dr. Chen if necessary.
- Requests for student organization excused absences must be made no later than two weeks prior to the date of the event. No late requests will be honored. Please have your advisor send me a written notice or an e-mail.
- Students who are absent because of participation in a particular religious observance will be permitted to make up the work missed during their absence with no late penalty, provided the student informs Dr. Chen of the upcoming absence, in writing, within the first two weeks of class, and provided the student makes up the missed material within the timeframe established by the course instructor.
- If you have off campus interviews for jobs or graduate/professional schools on the test dates, please contact me as early as possible with a supporting document.

Regrading Requests

Any regrading request should be submitted on gradescope, with an explanation of the reason, within two weeks of the date the exam has been returned to you.

Exercises

Exercises will be assigned on http://people.math.gatech.edu/~vrocha3/2552D.html
These exercises are different from the online homework on WebWork and are not collected. I do strongly suggest you to attempt all of the assigned exercises. In order to get a good understanding of the course material, the minimum work you need to do consists of three parts: read the text, review the examples discussed in lectures and studios, do online homework, and solve exercise problems.

**Student-Faculty Expectations Agreement**

At Georgia Tech we believe that it is important to strive for an atmosphere of mutual respect, acknowledgement, and responsibility between faculty members and the student body. See [http://www.catalog.gatech.edu/rules/22/](http://www.catalog.gatech.edu/rules/22/) for an articulation of some basic expectation that you can have of me and that I have of you. In the end, simple respect for knowledge, hard work, and cordial interactions will help build the environment we seek. Therefore, I encourage you to remain committed to the ideals of Georgia Tech while in this class.
Campus Resources for Students

In your time at Georgia Tech, you may find yourself in need of support. Below you will find some resources to support you both as a student and as a person.

Academic support

- Center for Academic Success [http://success.gatech.edu](http://success.gatech.edu)
  - 1-to-1 tutoring [http://success.gatech.edu/1-1-tutoring](http://success.gatech.edu/1-1-tutoring)
  - Peer-Led Undergraduate Study (PLUS) [http://success.gatech.edu/tutoring/plus](http://success.gatech.edu/tutoring/plus)
  - Academic coaching [http://success.gatech.edu/coaching](http://success.gatech.edu/coaching)
- Residence Life’s Learning Assistance Program [https://housing.gatech.edu/learning-assistance-program](https://housing.gatech.edu/learning-assistance-program)
  - Drop-in tutoring for many 1000 level courses
- OMED: Educational Services ([http://omed.gatech.edu/programs/academic-support](http://omed.gatech.edu/programs/academic-support))
  - Group study sessions and tutoring programs
- Communication Center ([http://www.communicationcenter.gatech.edu](http://www.communicationcenter.gatech.edu))
  - Individualized help with writing and multimedia projects
- Academic advisors for your major [http://advising.gatech.edu/](http://advising.gatech.edu/)

Personal Support

Georgia Tech Resources

- The Office of the Dean of Students: [https://studentlife.gatech.edu/](https://studentlife.gatech.edu/); 404-894-6367; Smithgall Student Services Building 2nd floor
- Counseling Center: [http://counseling.gatech.edu](http://counseling.gatech.edu); 404-894-2575; Smithgall Student Services Building 2nd floor
  - Services include short-term individual counseling, group counseling, couples counseling, testing and assessment, referral services, and crisis intervention. Their website also includes links to state and national resources.
  - Students in crisis may walk in during business hours (8am-5pm, Monday through Friday) or contact the counselor on call after hours at 404-894-2204.
- Students’ Temporary Assistance and Resources (STAR): [https://studentlife.gatech.edu/content/star-services](https://studentlife.gatech.edu/content/star-services)
  - Can assist with interview clothing, food, and housing needs.
- Stamps Health Services: [https://health.gatech.edu](https://health.gatech.edu); 404-894-1420
  - Primary care, pharmacy, women’s health, psychiatry, immunization and allergy, health promotion, and nutrition
- OMED: Educational Services: [http://www.omed.gatech.edu](http://www.omed.gatech.edu)
Women’s Resource Center:  http://www.womenscenter.gatech.edu; 404-385-0230
LGBTQIA Resource Center:  http://lgbtqia.gatech.edu/; 404-385-2679
Veteran’s Resource Center:  http://veterans.gatech.edu/; 404-385-2067
Georgia Tech Police: 404-894-2500

Statement of Intent for Inclusivity
As a member of the Georgia Tech community, I am committed to creating a learning environment in which all of my students feel safe and included. Because we are individuals with varying needs, I am reliant on your feedback to achieve this goal. To that end, I invite you to enter into dialogue with me about the things I can stop, start, and continue doing to make my classroom an environment in which every student feels valued and can engage actively in our learning community.