



- Yu Li
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MAT 303: Calculus IV with Applications

Spring 2019

Course Description: This course will introduce basic methods for solving ordinary differential equations, with a particular emphasis on linear differential equations with constant coefficients and systems of differential equations. Differential equations are the language in which the laws of physics are expressed, and have numerous applications in the physical, biological, and social sciences. We will discuss many standard applications. We will also briefly discuss some numerical methods for solving differential equations.

Textbook: Edwards & Penney, Differential Equations and Boundary Value Problems: Computing and Modeling, 5th Edition. You can use other editions, but be aware that numeration of the exercises might be different.

Instructor: Yu Li, Math Tower 4-101B. Office Hours: MW 11:30am-12:30am. Email: yu.li.4@stonybrook.edu.

Course Assistant: Jaroslaw Jaracz, Math Tower 5-125B, Office Hours: W 3:00pm-4:00pm. Email: jjaracz@math.stonybrook.edu.

Class schedule: MWF 10:00am-10:53am Library E4320.

Homework: Homework is a fundamental part of this course. Assignments will be posted on the course website at the beginning of each week and will be due to your TA (at the start of recitation) of the following week. Late homework will not be accepted.

| Week | Lectures | Homework |
|------|---|---|
| 1/28 | 1.1,1.2 | 1.1: #8,15,29,31,36; 1.2: #10,16,27 |
| 2/4 | 1.3,1.4 <u>A web app on slope fields</u> | 1.3: #21,22,28,32; 1.4: #5,17,21,27,33,37,44,64 |
| 2/11 | 1.5 | 1.5: #5,9,14,16,20,24,29,34,37,39,40 |
| 2/18 | 1.5, 1.6 | 1.6: #3,4,7,8,11,13,20,25,27,30,31,33,38,71 |
| 2/25 | 1.6, Midterm 1 on 3/1 | No Homework |
| 3/4 | 3.1 | 3.1: #1,3,8,13,15,19,21,23,25 |
| 3/11 | 3.1, 3.2 | 3.1: #31,33,36,39,42,51; 3.2: #1,3,5,8,9,11,13,16,20,22,24 |
| 3/18 | Spring Recess | No Homework |

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|------|--------------------------|---|
| 3/25 | 3.3, 3.5 | 3.3: #1,3,7,10,16,18,21,23,26,27,30,37,48,49 |
| 4/1 | 3.5, Midterm 2 on 4/5 | No Homework |
| 4/8 | 4.1,4.2,5.1 | 4.1: #1,5,7,18,20,23,25; 4.2: #1,5,6,9,12,17,21,24,29 |
| 4/15 | 5.1,5.2 | 5.1: #3,5,6,7,11,14,25,27,34,36,41 |
| 4/22 | 5.2,5.5 | 5.2: #1,3,6,11,15,17,12,26,38,40,41 |
| 4/29 | 5.5,5.6 | 5.5: #1,3,7,11,13,16,25,27; 5.6: #1,4,7 |
| 5/6 | 5.7, Review | |

Exams: There will be two in-class midterms on **Friday, March 1** and **Friday, April 5**. The final exam is on **Monday, May 20, 8:00am-10:45am** and the room is Library E4320.

If you register for this course you must make sure that you are available at these times, as there will be **no make-ups** for missed exams.

Course grade is computed by the following scheme:

Homework: 20%

Midterm Test I: 20%

Midterm Test II: 20%

Final Exam: 40%

Help: The [Math Learning Center](#) (MLC) is located in Math Tower S-235, and

offers free help to any student requesting it. It also provides a locale for students wishing to form study groups. The MLC is open 9am-7pm Monday through Friday. A list of graduate students available for hire as private tutors is maintained by the Undergraduate Mathematics Office, Math Tower P-143.

Disability Support Services (DSS)

If you have a physical, psychological, medical or learning disability that may impact your course work, please contact Disability Support Services, ECC (Educational Communications Center) Building, room 128, (631) 632-6748. They will determine with you what accommodations, if any, are necessary and appropriate. All information and documentation is confidential. Students who require assistance during emergency evacuation are encouraged to discuss their needs with their professors and Disability Support Services. For procedures and information go to the following website: <http://www.stonybrook.edu/ehs/fire/disabilities>

Academic Integrity

Representing another person's work as your own is always wrong. Faculty are required to report any suspected instances of academic dishonesty to the Academic Judiciary. Faculty in the Health Sciences Center (School of Health Technology & Management, Nursing, Social Welfare, Dental Medicine) and School of Medicine are required to follow their school-specific procedures. For more comprehensive information on academic integrity, including categories of academic dishonesty, please refer to the academic judiciary website at http://www.stonybrook.edu/commcms/academic_integrity/index.html

Critical Incident

Management Statement

Stony Brook University expects students to respect the rights, privileges, and property of other people. Faculty are required to report to the Office of Judicial Affairs any disruptive

behavior that interrupts their ability to teach, compromises the safety of the learning environment, or inhibits students' ability to learn. Faculty in the HSC Schools and the School of Medicine are required to follow their school-specific procedures.

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|---|--|------------------------------|-----|----|
| Ĉ | Final practice exam ans... | Yu Li, May 12, 2019, 10:1 | v.1 | d' |
| Ĉ | Midterm 1 Practice Pro... | Yu Li, Feb 17, 2019, 6:09 | v.1 | d' |
| Ĉ | Midterm 1 practice ans... | Yu Li, Feb 24, 2019, 1:44 | v.1 | d' |
| Ĉ | Midterm 2 Practice Pro... | Yu Li, Mar 31, 2019, 1:55 | v.1 | d' |
| Ĉ | Practice final exam.pdf | (1)Yu Li, May 12, 2019, 10:1 | v.1 | d' |
| Ĉ | Solutions of the ODE in... | Yu Li, Feb 11, 2019, 1:47 | v.1 | d' |
| Ĉ | midterm 2 practice ans... | Yu Li, Mar 31, 2019, 1:55 | v.1 | d' |