MAT 310: LINEAR ALGEBRA

1. Basic Information

Instructor:

Yusheng Luo, yusheng.luo@stonybrook.edu, Math Tower 3-102

- Office hours:
  - Monday and Wednesday 4:00-5:00 pm via Zoom (Tentative)
  - by appointment via email
- MLC:
  - Wednesday 5:00-6:00 pm via Zoom (Tentative)

Time and location:

Tuesday/Thursday: 3:00-4:20 pm, Lgt Engr Lab 102.

Recitation:

- R01 Wednesday 11:45am-12:40pm at Harriman Hall 112 by Jordan Rainone
- R01 Wednesday 11:45am-12:40pm at Harriman Hall 116 by Daniil Glukhovskiy
- R03 Wednesday 4:25pm-5:20pm at Physics P116 by Jordan Rainone

Required Textbook:

- Linear Algebra Done Right (3rd Edition) by Sheldon Axler. (We aim to cover Chapter 1-8.)

2. Description

This is a second course in linear algebra. Students are assumed to have taken *MAT211: Introduction to linear algebra* or its equivalence. Students should also be familiar with proofs. A letter grade of at least a C in MAT 200 or MAT 250 is a prerequisite, though if one may obtain my permission by sending me an e-mail.

Unlike MAT211, this course is designed to give potential math majors, and those interested in mathematical theory and proof, a rigorous introduction to linear algebra. In other words, we will build the theory of finite-dimensional vector spaces and linear maps starting from the definitions and deducing further facts through mathematical proofs. Major topics will include vector spaces, bases and dimension, linear maps, eigenvalues and diagonalization, inner product spaces, the spectral theorem, and Jordan form.

We will study not only the above concepts and their applications, but also the methods by which one proves the foundational results in linear algebra. Consequently, this course has two major goals: to teach students linear algebra, and to teach students how to write rigorous mathematical proofs. Students should leave this course prepared to use linear algebra as well as to succeed in further theoretical courses in mathematics.

3. MAT310 vs MAT315

After the first midterm (Feb. 8th), the course will be divided into two sections MAT310 and MAT315.

- Only students who obtain above a certain score on the first homework and the first midterm will be invited to join MAT315, while there are no conditions on who can stay in MAT310. Note that the invitation to MAT315 is non-compulsory: invited students can still choose to remain in MAT310.
- MAT310 will spend more time on each topic. This means we discuss these topics in more detail, at the cost of omitting certain topics that are covered in MAT315.

4. Grading

Homework	35%
Midterm I	10%
Midterm II	25%
Final	30%

5. Homework

- Homework will be assigned on a weekly basis. **Late homework will not be accepted**, unless you have a *valid* excuse.
- You must submit your homework to your recitation instructor during the recitation hours.
- Your lowest score for homework will be dropped at the end of the semester.
- At this level of mathematics, clear and concise writing is critical. Your solutions will be judged for clarity of formulation in addition to having the correct idea.
- Working with other students is not only allowed but encouraged! However, **you must hand in your own solutions, and you must write the names of your collaborators on top of your homework.**
- **Use of internet forums, solution sets from previous classes and other resources by which you obtain a solution with little or no effort are strictly prohibited by Stony Brook policy!**
- If you are having trouble with the homework, you are always welcome to ask me or your recitation instructor during office hours or by email or by appointment.

6. Examss

Two midterms will be given during the semester in class and a comprehensive final exam will be given during the final examination period. No books, notes, calculators, or other electronic devices may be used on the exams.

Exam	Date	Time	Location
Midterm I	Feb. 8	3:00-4:20 pm	Lgt Engr Lab 102
Midterm II	March. 22	3:00-4:20 pm	Lgt Engr Lab 102
Final	May. 10	2:15-5:00 pm	TBA

7. Disabilities

If you have a physical, psychological, medical, or learning disability that may impact your course work, please contact Disability Support Services at http://studentaffairs.stonybrook.edu/dss/ or (631) 632-6748. They will determine with you what accommodations 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.shtml.

8. Academic Integrity

Each student must pursue his or her academic goals honestly and be personally accountable for all submitted work. 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. For more comprehensive information on academic integrity, including categories of academic dishonesty, please refer to the academic judiciary website at http://www.stonybrook.edu/uaa/academicjudiciary/

9. Critical Incident Management

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.

10. Student Absences Statement

Students are expected to attend every class, report for examinations and submit major graded coursework as scheduled. If a student is unable to attend lecture(s), report for any exams or complete major graded coursework as scheduled due to extenuating circumstances, the student must contact the instructor as soon as possible. Students may be requested to provide documentation to support their absence and/or may be referred to the Student Support Team for assistance. Students will be provided reasonable accommodations for missed exams, assignments or projects due to significant illness, tragedy or other personal emergencies. In the instance of missed lectures or labs, the student is responsible for reviewing recorded lectures. Please note, all students must follow Stony Brook, local, state and Centers for Disease Control and Prevention (CDC) guidelines to reduce the risk of transmission of COVID. For questions or more information click here: https://www.stonybrook.edu/commcms/comingback/students.php.