

**MAT310 VS. MAT315.** After the first midterm (Thursday, February 13), the course will be divided into two sections: MAT310 and MAT315. The main differences between these two sections are as follows:

- 1) **No barrier to entry.** 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.
- 2) **Fewer topics, but more in-depth.** 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 (most notably, tensors). For the list of topics we plan to cover in MAT310, see the Tentative Course Schedule.

**Course Instructor and TAs.**

Name	E-mail	Office Hours	MLC Hours
Jon Yang (Instructor)	<a href="mailto:jonguk.yang@stonybrook.edu">jonguk.yang@stonybrook.edu</a>	Tue 10:30 - 11:30, Fri 11:30 - 12:30 (Math Tower 4-115)	Thu 10:30 - 11:30
Ruijie Yang (TA)	<a href="mailto:ruijie.yang@stonybrook.edu">ruijie.yang@stonybrook.edu</a>	Tue 11:30 - 12:30 (Math Tower 2-114)	Wed 12:30 - 1:30, Thu 11:30 - 12:30
Emily Schaal (TA)	<a href="mailto:emily.schaal@stonybrook.edu">emily.schaal@stonybrook.edu</a>	Tue 2:00 - 3:00 (Math Tower S-240A)	Fri 10:00 - 12:00

Note: Any email about the course sent to the instructor **must contain** “MAT310” (as one word) somewhere in the subject line (otherwise, it is very possible that I will miss your email).

**Textbook.** *Linear Algebra Done Right (3rd edition)*, by Sheldon Axler.

**Course Website.** All the information about the course will be posted on Blackboard (<https://blackboard.stonybrook.edu/>).

**Marking Scheme.** Your final grade will be determined as follows:

Homework	20%
Midterm 1	20 %
Midterm 2	20 %
Exam	40 %
Course Grade	100%

**Midterms.** There will be two midterms in this course. They will be held in-class.

	Date	Time	Location
Midterm 1	Thursday, February 13th	2:30 PM to 3:50 PM	Javits 101
Midterm 2	Thursday, March 26th	2:30 PM to 3:50 PM	Javits 101

To request special consideration for missing the midterm, bring supporting documentation to the instructor in-person at least **one week before the test date**. In case of illness, bring a doctor’s note to the instructor in-person **within one week after the test date**. For students who have missed one test because of a legitimate reason, the weight of the missed test will be shifted to make the other test worth 25%, and the exam worth 55%. For students who have missed both tests because of legitimate reasons, the full weight of the tests will be shifted to the exam to make it worth 80%.

**Exam.** The exam will take place on **Thursday, May 14th**, from **5:30 PM to 8:00 PM** in **Javits 101**.

**Homework.** Homeworks will be assigned on the course website (almost) every week. They will be due the following **Thursday** at the **beginning of class**. Late submissions will NOT be accepted.

**Student Accessibility Support Center Statement.** If you have a physical, psychological, medical or learning disability that may impact your course work, please contact Student Accessibility Support Center, 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.

**Academic Integrity Statement.** 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. 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/academicintegrity/index.html>.

**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 University Community Standards 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. Further information about most academic matters can be found in the Undergraduate Bulletin, the Undergraduate Class Schedule, and the Faculty-Employee Handbook.

## Tentative Course Schedule.

Week	Topics and sections covered	Notes
01/27	Abstract vector spaces, subspaces, direct sums	
02/03	Span, linear independence	Homework 1 due
02/10	Basis, Dimension Theorem	<b>02/13</b> <b>Midterm 1</b>
02/17	Affine sets, introduction to transformations	Homework 2 due
02/24	Introduction to linear transformations, matrix and geometric transformations	Homework 3 due
03/02	Image space and kernel, invertibility, Rank-Nullity Theorem	Homework 4 due
03/09	Coordinates, similarity	Homework 5 due
03/16		<b>Spring break</b>
03/23	Complex numbers, polynomials	<b>03/26</b> <b>Midterm 2</b>
03/30	Eigenvalues, eigenvectors, eigenspaces, diagonalizability	Homework 6 due
04/06	Triangulation, nilpotent operators, generalized eigenspaces	Homework 7 due
04/13	Decomposition of an operator, Cayley-Hamilton Theorem, complex eigenvalues of a real operator	Homework 8 due
04/20	Introduction to inner product space, orthogonality	Homework 9 due
04/27	Orthonormal basis, Gram-Schmidt, minimization	Homework 10 due
05/04	Adjoint, Real Spectral Theorem	Homework 11 due
05/11		<b>05/14</b> <b>Exam</b>