MAT 310 – LINEAR ALGEBRA: FALL 2018

Course Description

This is a linear algebra course "with proofs", which means students will be expected to understand the proofs given in the text book and will be expected to create some elememtary proofs on their own. It is also a fairly "abstract"linear algebra course, in that the use of coordinates and matrices will be kept to a minimum.

Here are some of the topics that we will cover: Vector spaces, subspaces, basis and dimensions; linear transformations and linear operators, kernals,Images, and the fundamental theorem of linear transformations; eigenvalues, eigenvectors and generalized eigenvectors; diagonalizable linear operators; characteristic polynomial for a linear operator and the Cayley-Hamilton Theorem; determinants and traces of linear operators; inner product spaces; selfadjoint operators and normal operators, and the spectral Theorem.

Course Teachers

Lowell Jones is teaching Lecture 01, which meets on Mondays and Wednesdays 8:30am-9:50am in Library W4525; contact at lejones@math.stonybrook.edu, or at 632-8248; office is room 2-111 in math building; office hours 12noon-1pm on Mondays and Wednesdays and 10am-11am on Thursdays.

Mohamed El Alami is teaching both recitation 01 (Tuesdays 4pm-4:53pm in Library E4310) and recitation 02 (Mondays 10am-10:53am in Earth and Space 181); contact at mohamed.elalami@stonybrook.edu; office is room 2-122 in the math building; office hours TBA.

Text

Linear Algebra Done Right, Third edition, by Sheldon Axler.

Homework
The homework assignment for any given week can be found by going to the "Calendar" on the Blackboard website for the lecture (viewed in monthly form) and clicking on the first class day of the appropriate week. For example, the first homework assignment can be found by going to August 27, 2018, and clicking on "HW 1 and topics". Problem sets will be assigned each week. Each homework set is due during the recitation class of the week following the assignment (unless otherwise stipulated). For example HW 1 will not be due on 9/3 (since there is no class on that day), but rather HW 1 will be due on 9/5. HW 2 will be due on 9/10, HW 3 will be due on 9/17, etc.

Exams

There is one inclass midterm on Wednesday October 10, 2018.

The final exam will take place on Monday December 17 , 8:30pm-11pm. (Room assignment for the final exam will be announced on this website towards end of semester.)

If you register for this course you must make sure that you have no schedule conflicts with the times of the midterm and final exam. Makeup exams will only be given in the event that circumstances beyond the student's control do not allow the student to take the exams at the assigned times; if this happens to you then contact your lecturer as soon as possible. **In particular, "schedule conflicts", such as having another exam scheduled at the same time as your mat 310 exam, are not reasons for a makeup to be given.**

Grading
Homework=30%

Midterm =30%

Final exam =40%

Americans with Disibilities Act:
If you have a physical, psychological, medical or learning disability that may impact on your abiltiy to carry out assigned course work, please contact Disabiltiy Support Services (DSS) at 631-632-6748. The DSS will review your concerns and determine, with you, what accommodations are necessary and appropriate. All information and documentation is confidential.

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 see the academic judiciary web site at http://www.stonybrook.edu/uaa/academicjudiciary/

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 saftey of the learning environment, or inhibits students' ability to learn. Further information about most academic matters can be found in the undergraduate Bulletin.

Approximate Schedule for Mat 530

The weekly homework assignements will be posted on the course calendar of our blackboard website.

Week of 8/27-8/31: cover section 1A and all of Chapter 4.

Week of 9/3-9/7: cover sections 1B-1C; class only on Wednesday.

Week of 9/10-9/14: cover sections 2A-2C.

Week of 9/17-9/21: cover sections 3A-3B.

Week of 9/24-9/28: cover sections 3C-3D.

Week of 10/1-10/5: cover sections 3E and 5A.

Week of 10/8-10/12: inclass midterm on Wednesday 10/12; no class on Monday 10/8.

Week of 10/15-10/19: cover sections 5B-5C.

Week of 10/22-10/26: cover section 8A and pages 252-255,261-262 of sections 8B and 8C.

Week of 10/29-11/2: cover sections 9A and 10A.
Week of 11/5-11/9: cover section 10A and part of section 10B. (Here it will be assumed that each student is familiar with the traditional definitions and properties of the "trace", "determinant", and "characteristic polynomial" of a square matrix, where these invariants of a matrix are defined in terms of the entries of the matrix. So students should review what they learned about these conceptes in mat 211, or some equivalent course, before this week begins.)

Week of 11/12-11/16: cover sections 6A-6B.

Week of 11/19-11/23: cover sections 6B-6C; class only on Monday.

Week of 11/26-11/30: cover sections 7A-7B.

Week of 12/3-12/7: cover sections 7A-7B.

Week of 12/10-12/14: cover sections 7A-7B; last class of semester is Monday December 10.