

MAT 331

First Course in Linear Algebra

Fall 2017

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Contact

This course meets MWF from 9:30 AM to 10:25 AM in 120 Carnegie Building. Sadly, there is no Recitation for MAT 331. My Office Hours are W from 8:25 AM to 9:20 AM, R from 9:30 AM to 10:50 AM, and F from 11:40 AM to 12:35 PM. *These times are deliberately non-uniform, to increase the chance that every student can visit at least once per week.* If you cannot attend any of these, contact me for a special appointment. My email is sjrostatam@syr.edu, and my office is 313C Carnegie Building.

Logistics

I will use Blackboard to host documents and communicate. Be sure that you can operate Blackboard and that you can send/receive email via your @syr.edu address. If you have trouble with either of these things, please feel free to visit me for help. *You are expected to check email and Blackboard at least once per day.*

Motivation

Linear Algebra is, together with Calculus, the most widespread and important branch of Mathematics. Anyone who uses math probably uses Linear Algebra. On the other hand, people use Linear Algebra in different ways. Some work with matrices that transform physical space. Some work with matrices that are, initially, not much more than spreadsheets. Some work with matrices that represent something like a derivative. In an introductory course, we will not go too deeply into any single thing, but there is *much* more to do and say about each topic.

Content

The official textbook for this course is *Linear Algebra and its Applications* (5th Edition) by David Lay. We will cover most of the material in this textbook up to and including Chapter 6, with Chapter 4 receiving less attention than the others. Roughly speaking, our topics are Linear Systems and Reduced Echelon Form, Linear Transformations and Matrices, Inverses, Determinants, Inner Products and Norms, Eigenvalues and Diagonalization.

Coursework

Homework will be assigned after most lectures, and due the following lecture. A short quiz will occur in most lectures. The topic of the quiz can be anything up to and including the previous lecture, although obvious sources of questions for the quiz are the previous lecture and the previous homework. All exams will be “in class”, without books/notes.

Technology

For all coursework, sophisticated computational devices (e.g. graphing calculators), are prohibited. However, scientific calculators are allowed for straightforward arithmetic purposes, and will sometimes be required during the semester. Although “real” Linear Algebra is done with the aid of a computer, I cannot assume prior programming experience, and it is not possible to introduce it here. On the other hand, I will occasionally use MATLAB to illustrate something that would otherwise be impractical.

Scoring

Categories of work, and their relative weights, are:

- Homework (\approx Daily) 15%
- Quiz (\approx Daily) 10%
- Imperatives 5%
- Midterm 1 (\approx Oct 09) 20%
- Midterm 2 (\approx Nov 13) 20%
- Final Exam (Cumulative, Dec 13*) 30%

The “Imperatives” category will be explained by me on the first day. The assignment of letter grades to scores will largely follow the usual Syracuse University standard.

* Although the exact time of the Final Exam is not yet known, it will occur sometime between 8:00 AM and 2:30 PM on Dec 13. *You must be available until the end of this interval!* The location is not yet known.

Advice

It is important that you complete the homework with minimal assistance. “Assistance” includes solution manuals, the internet, tutors, friends, and the textbook (if used to copy examples). It is difficult, but necessary, to resist these opportunities. In reality, you rarely see mathematics exactly as you see it in a course like this – otherwise, “WolframAlpha user” would be the only job. Instead, you must adjust and transport ideas to new situations. The only way to do this, a delicate and subtle business, is to understand every detail of our version. The only reliable way to know every detail is to struggle through it.

Integrity

Syracuse University’s Academic Integrity Policy reflects the high value that we, as a university community, place on honesty in academic work. The policy defines our expectations for academic honesty and holds students accountable for the integrity of all work they submit. Students should understand that it is their responsibility to learn about course-specific expectations, as well as about university-wide academic integrity expectations. The policy governs appropriate citation and use of sources, the integrity of work submitted in exams and assignments, and the veracity of signatures on attendance sheets and other verification of participation in class activities. The policy also prohibits students from submitting the same work in more than one class without receiving written authorization in advance from both instructors. Under the policy, students found in violation are subject to grade sanctions determined by the course instructor and non-grade sanctions determined by the School or College where the course is offered as described in the Violation and Sanction Classification Rubric. SU students are required to read an online summary of the University’s academic integrity expectations and provide an electronic signature agreeing to abide by them twice a year during pre-term check-in on MySlice. The Violation and Sanction Classification Rubric establishes recommended guidelines for the determination of grade penalties by faculty and instructors, while also giving them discretion to select the grade penalty they believe most suitable, including course failure, regardless of violation level. Any established violation in this course may result in failure regardless of violation level. For more information and the complete policy, see <http://class.syr.edu/academic-integrity/>.

Religion

The Religious Observance Policy protects the rights of students, faculty, and staff to observe religious holy days according to their tradition. Under the policy, students are provided an opportunity to make-up any coursework missed due to religious observance, provided that they notify instructors of such before the end of the second week of class. This notification may also be accomplished online, via mySlice. More information is available at http://supolicies.syr.edu/studs/religious_observance.htm.

Disabilities

The Office of Disabilities Services (ODS) should be contacted by any student who may need academic accommodations. Upon registration at ODS, documents will be issued which should be provided to instructors. It is also encouraged to discuss such needs with the instructor at the beginning of the semester. Such accommodations and services are not provided retroactively, so it is important to contact ODS as soon as possible. More information is available at <http://disabilityservices.syr.edu>.