

MATH 225 SYLLABUS, FALL 2016

LINEAR ALGEBRA AND LINEAR DIFFERENTIAL EQUATIONS

Disclaimer: This syllabus is not a contract. The Instructor reserves the right to make changes at his discretion throughout the semester.

General information:

- **Course instructor:** Dr. Guillaume Dreyer
Office: KAP 406K
Email: dreyfactor@gmail.com
Office hours: MWF, 11:00–11:50 am in KAP 406K
- **Prerequisites:** Math 126 or Math 127. It is highly recommended to take 226 before this course.
- **Textbook:** Stephen W. Goode, Scott A. Annin, *Differential Equations and Linear Algebra*, 4th Edition
- **Lectures:** 10:00–10:50 am, MWF in GFS 118
- **Discussions:** 10:00–10:50 pm, and 11:00–11:50 pm, TTh in KAP 167
- **Teaching Assistant:** TBA

Course content: Matrices, systems of linear equations, vector spaces, inner product spaces, linear transformations, determinants, eigenvalues, Jordan normal form, applications to systems of linear differential equations.

Learning objectives: By the end of the semester, you will be familiar with most of the usual concepts and techniques of linear algebra. I will try as much as possible to emphasize the applications of the theory of matrices and linear algebra to math, physics, engineering, machine learning.

This course will likely be the most challenging mathematics course you will take at USC. It is also, however, by far the most important and relevant mathematics course you will take in higher education.

Linear algebra is the most central and far-reaching mathematical theory. To all of you, it is a very new topic that will introduce new ways of thinking. There is a lot of terminology to memorize and concepts to get used to. It is much more abstract than a calculus class. It is also technical. But don't worry, as usual, there are no miracles. You will all get good at it by working on a regular basis doing many exercises. Simply keep in mind that will need time to understand and digest certain concepts. Be patient, perseverant, work every day, ask questions. This is how you will develop a true understanding of this topic by the end of the semester.

Blackboard: Weekly homework assignments as well as grades will be posted on **Blackboard** <http://blackboard.usc.edu>. It is everyone's responsibility to visit the website on a regular basis.

Grading breakdown: Homework 15%, Quiz 10%, 2 Midterms 20% each, Final 35%.

Quizzes: There will be a 15–20 min quiz every Thursday during your discussion section. No make-ups will be allowed. The lowest quiz score will be dropped. There will be no quiz during midterm exam weeks.

Homework: Weekly homework assignments will be posted every Monday. You will submit your assignment a week later on Tuesday at the beginning of your discussion section. Only a few chosen questions will be graded. However, every exercise must be treated. (It will be part of the grading rubric.) Late and electronically submitted homework will not be accepted, no exceptions. The lowest homework score will be dropped.

You are strongly encouraged to discuss homework problems with your peers and work in groups. This is the most efficient and rewarding way to learn and develop your understanding of the material. However, everyone must write his/her own solutions. **Homework that is simply copied from another source (friend, another textbook, internet, etc.) will be considered as plagiarism which is a serious offense to USC academic code of conduct.**

Exams: There will be two Midterms (50 min each) and one Final (2 hours).

- **First Midterm:** Wednesday, September 28th, in class.
- **Second Midterm:** Wednesday, November 2nd, in class.
- **Final Exam:** Monday, December 12th, 8–10 am. You must take the final exam at the scheduled time.

If there is a scheduling conflict for a quiz or an exam, **you must contact the Instructor (me, not your TA!) at least two weeks before the examination.** There will be **no make-ups.**

Please note that calculators of any kind are strictly prohibited and smart phones must be stowed away completely for the duration of every examination.

Extra credit: Students who participate in the JEP program as a Math Mentor can earn up to 3% extra credit. This is a semester-long commitment to work with K–12 students, mentoring them on math-related subjects. You must register with JEP to earn extra credit; there is an online application: uscdornsife.usc.edu/secure/JEP/. More details will be announced in class.

Resources: The Math Center is located in KAP 263 and is open weekdays from 8 am to 7 pm (it closes earlier at 5 pm on Fridays). For up-to-date information on the consulting hours, visit the Math Center homepage <http://dornsife.usc.edu/mathcenter>. The purpose of the Math Center is to provide an environment where students can stop by to get help on their math classes. Math TAs at USC hold their office hours there. It is probably better to attend office hours of TAs who are teaching Math 126 this term. However, you are welcome to stop by the Math Center at any time and seek for help from any of the Instructors or TAs who are present at that time.

Students with disabilities: Any student requesting academic accommodations based on a disability is required to register with Disability Services and Programs (DSP) each semester and a letter of verification detailing approved accommodations must be delivered to your Instructor as early in the semester as possible. DSP is located in STU 301 and is open 8:30 am–5:00 pm, Monday through Friday. The phone number for the DSP office is (213) 740–0776.