

Instructor: Mr. Thomas Luckner
CRN: 71464
Section: 101
Class Meeting Room & Time: Online

Email: luckner@email.sc.edu

Office Hours: W, TH, 1-3pm
Tutor Center Hours: TBD

COURSE DESCRIPTION AND OBJECTIVES

Prerequisites: Grade of C or better in Math 142 (Calc 2)

Learning Outcomes: Upon successful completion of the course, students should be able to utilize the fundamental concepts in linear algebra, such as vectors, subspaces, determinants, and eigenvalues and eigenvectors of matrices, to solve problems in context.

REQUIRED MATERIALS

- **Textbook:** Introduction to Linear Algebra, 5th Edition, Gilbert Strang.
- **Calculator:** Calculators are not permitted on tests or quizzes.

COURSE POLICIES AND EXPECTATIONS

General Structure of Class: All lectures for the week will be prerecorded and uploaded to Blackboard at the beginning of the week. They will be in smaller increments (15-20 minutes). You will be expected to take notes to help yourself learn the material. The lectures will be structured similarly to class in that I will pose questions and instruct you to pause in an effort to help with understanding the material. I feel this allows everyone to find a time that works best to view and absorb information from the lectures. Of course, questions are always a thing and I want to encourage you all to come to office hours **VIA ZOOM** to ask questions!

Attendance: Attendance is expected and will be recorded via Blackboard statistics for you watching the lectures posted. This will be recorded at the beginning of each week for the previous week. I am considering each week to be 4 classes. Absences are broken down into 2 categories:

Excused-Athletic, military, illness, family illness or death, legal, professional obligation (WITH VALID DOCUMENTATION)

Unexcused-no documentation, does not include issues above

Absence from more than 10 percent of the scheduled class sessions, whether excused or unexcused, is excessive and the instructor will drop the final grade of a student one letter grade (10 percentage points) if this is the case (ex: A to B, B to C, etc.). For this class 10 percent means you can miss class 2 times before a penalty is added.

Participation: All members are expected to participate. I will expect to see EVERY STUDENT AT LEAST ONCE EVERY TWO WEEKS. This is how I will be measuring participation. This will allow for me to see how students grasping the material.

All participants are expected to show respect to other students, the instructors, and any guests who may be visiting the class during the year (Golden Rule).

If a grade is borderline, participation will be a key factor in determining the final grade (ex: good attendance and borderline C+/B will lend to a B).

Cell Phones: Cell phones are to be **off and away** during any class related activity. If one is caught with their phone out or in use, that is considered cheating and will result in a 0 on whatever assignment was being worked on. The next time will result on a 0 in the class.

Laptops: My hope is that all of you have some form of computer in order to participate in class and be successful in this online format. This means that during class activities, you will be expected to not use alternative sources since this will be considered cheating as noted by cellphones. Many times, during assessments, you will be expected to use the laptop only for getting the assignment and nothing more.

Academic Integrity: I expect you to familiarize yourself with the Honor Code found in the current student handbook. Keep in mind that “Any student who violates this Honor Code or who knowingly assists another to violate this Honor Code shall be subject to discipline.” Honor Code & Carolina Creed: <https://www.sa.sc.edu/creed/>

Students with Disabilities: Students who would like to request accommodations for disabilities must talk to me as soon as possible (after class or during office hours). Students must register with the Office of Student Disability Services (LC 112A) before I can make any accommodations.

Studying: This class meets online, but in person it is usually a four times a week for 100 minutes class. It is **very** important that you study at least 2-3 hours out of class for every hour within class. Study techniques, but not all, include: reading the book or doing homework problems over again or other online sources. (Most topics we cover can be googled for example problems. Just google the topic and then the word exercises after.)

Late/Make-Up Policy: Exams can be made up **ONLY** in the case of an emergency, and **ONLY** if you request a make-up exam before the scheduled time. It is your responsibility to contact me within a reasonable time to request a make-up exam. If a student misses an in-class assignment with an excused-absence (quiz, in-class assessment, etc.), then the above also applies.

ASSIGNMENTS

ALL ASSESSMENTS: Every assessment will be turned via Blackboard. The time frames for each assessment will be announced at the beginning of the week. Usually homework will be open at the beginning of the week and due at the end, quizzes will be due within 6 hours of the time it is distributed, and exams (including the final) will have a multiple choice part due after 2 hours and an open-ended section due after 24 hours. **ALL FILES WILL BE TURNED IN AS EITHER PDF OR JPEG FILES.** Otherwise, the submission will not be looked at. There are several apps capable of making pdf and jpeg files as well as online sources. One app I highly recommend is clear scanner. Please keep in mind it takes time to turn in assignments in this way. Factor this into how you time your assessment.

Homework: HOMEWORK IS THE MOST IMPORTANT PART OF THIS CLASS!!!! Homework will be assigned on a regular basis, and due regularly. All assignments will be completed offline and then submitted on Blackboard. The homework sets will be announced at the beginning of the week. If you have questions, please email me. Homework is supposed to help you learn the material and, thus, **asking questions is highly encouraged.** This will help you not fall behind as the course will move quickly. It is your responsibility to work through the homework problems in their entirety in order to gain mastery of the material. Students are encouraged to work together on homework, but each student must personally submit his or her own solutions IN HIS OR HER OWN WORDS. Otherwise, this is a form of cheating. Late homework will **NOT** be accepted.

Quizzes: Quizzes will be given weekly (Announced at the beginning of the week) unless there is extra work is needed on the section being assessed (decided by instructor), or the instructor deems it necessary. There will be no more than 8 quizzes. The lowest quiz will be dropped.

Exams: There will be two exams, whose dates will be announced at the beginning of the week at least one week in advance (May change from calendar due to class cancelations). Calculators will **NOT** be allowed on exams unless otherwise stated by instructor.

Final Exam: The final exam is cumulative. The Final Exam will either be given the day after the last class or negotiated with the class on a better day. Will give the official date when known.

EVALUATION

Homework and Participation...	15%
Quizzes	20%
Exam 1.....	20%
Exam 2.....	20%
Cumulative Final	25%

Final Grades will use the following scale (Note this is slightly different than the university grade scale.)

A	B+	B	C+	C	D+	D	F
100-90%	89-86%	85-80%	79-76%	75-70%	69-66%	65-60%	<60%

USEFUL WEBSITES:

- Blackboard Website: <https://blackboard.sc.edu>
- Software Support for Calculations: <http://www.wolframalpha.com/> or <http://www.khanacademy.org/>
- Good app to use for notes and handouts, “Notability”

SUPPORT:

- My Office Hours (top of page 1)
- FREE TUTORING at University of South Carolina Math Tutoring Center - *Check room, but usually Monday-Thursday 10am-3pm.*
- Student Success Center – Offers FREE tutoring and FREE 1 on 1 ONLINE tutoring.
(<http://www.sa.sc.edu/ssc/>)

Hint for making learning easier: Read the book’s description of today’s lesson (Can determine this by looking at homework or can ask instructor). By seeing the material ahead of time, you can help make the learning curve with the new material manageable.

Hint for making studying for exams easier: When you complete a homework problem or a problem in class, don’t simply move on to the next problem, but ask yourself two questions: (1) How could this show up on an exam? (2) What common mistake might I make with this problem on an exam? Do this with EVERY homework problem.

Important Dates:

- 5/13/2020 Last day for students to DROP without a grade of “W”.
- 6/7/2020 Last day for students to DROP or withdraw without a grade of “WF”.
- 6/7/2020 Last day to choose pass/fail

Schedule is tentative and subject to change

Date	Sections Covered	Topics
Week 1	1.1-1.3, 2.1-2.5	Vectors, Lin. Comb., Length, Dot Products, Matrices, Vectors and Linear Eqn's, Elimination using Matrices, Rules for Matrix Ops, Inverses
Week 2	2.6-2.7, 3.1-3.4	LU Factorization, Transposes, Permutations, Spaces of Vectors, Nullspace, Rank, Row Reduction, Complete Sol'n
Week 3	3.5-3.6, 4.1-4.4	Independence, Basis, Dimension, Orthogonality, Projections, Least Squares, Orthogonal Bases
Week 4	Exam 1, 5.1-5.3	Exam 1 (June 3rd, 2020): 1.1-1.3, 2.1-2.7, 3.1-3.6, 4.1-4.4 Determinants, Permutations, Cofactors, Cramer's Rule, Inverses
Week 5	6.1-6.5, 7.1-7.2	Eigenvalues, Diagonalizing, Diff Eq's, Symmetric and Pos Def. Matrices, Similar Matrices, SVD
Week 6	Exam 2, 8.1-8.2	Exam 2 (June 16th, 2020): 5.1-5.3, 6.1-6.5, 7.1-7.2, Linear Transformations