MATH 3110-005: LINEAR ALGEBRA
FALL 2018

INSTRUCTOR: Felice Manganiello [manganm@clemson.edu]

OFFICE: Martin O-22   TIME: TTH 9:30am-10:45am
OFFICE HOURS: TBD   ROOM: Martin M102
                                               EXAM: Wednesday (Dec 12) 8:00am-10:30am

WEBSITE: http://www.math.clemson.edu/~manganm/teaching/math3110-f18/math3110-f18.html

TEXT BOOK:
- Gilbert Strang, *Introduction to Linear Algebra*, 4th edition, Wellesley-Cambridge Press (required)
- Sheldon Axler, *Linear Algebra Done Right*, 3rd edition, Springer (suggested)

PREREQUISITES: Calculus of One Variable II (MATH 1080)

SCOPE OF THE COURSE: This course is an introduction to the theory and applications of Linear Algebra. This subject has infinitely many applications in all areas of Engineering, Computer Science, Economics, only to name a few. The *PageRank* algorithm used in Google's search engine is nothing but an eigenvalue problem (we will see what this means in the course). Vectors and matrices are the fundamental building blocks in Linear Algebra. For this reason, we need to learn to use the main operations on these building blocks. This is the purpose of the course.

LEARNING OUTCOMES: After this course, the student is expected to carry out various operations in any vector space; solve simple linear systems manually through elimination; compute the determinant of small matrices; prove whether specific systems cannot be solved or admit more than one solution; define the column space, row space, and null space of a matrix, as well as the null space of its transposed; compute eigenvalues and eigenvectors of a square matrix; apply properties of linear transformations; carry out simple operations on polynomials; computing various decompositions of small matrices.

COURSE TOPICS: This course will cover the following topics:
(1) Vectors and operations on vectors;
(2) Matrices and operations on matrices;
(3) Systems of linear equations;
(4) Vector spaces;
(5) Row/Column space of a matrix; null space of a matrix
(6) Eigenvalues and eigenvectors of a square matrix;
(7) Polynomials;
(8) Linear transformations.

HOMEWORK: There will be one homework per week, and all must be completed to receive a grade for the course. Homework will be given every Thursday and will have to be turned in on the following Thursday (or on the earliest following day of class). The modalities of turning in homework will be discussed in class. Note: homework will be penalized 50% for each day they are late. After two days, they will not be accepted. No exception.

GRADING: The final grade will be calculated as follows:

Homeworks: 30% | Midterm 1: 20% | Midterm 2: 20% | Final exam: 30%

The two midterms (to be taken in class) and the final will likely be closed notes, closed books. They will consist of a set of problems on all the material taught up to the lecture preceding the exam.

In the computation of the grade, numbers will be rounded to an integer using the floor operator, e.g. floor(79.77)=79. The grade will follow the scheme

A | 90-100   B | 89-80   C | 79-70   D | 69-60   F | 59-0

POLICIES:

- You are expected to come to class regularly. You are also expected to participate in class discussions and ask questions when you are confused. Finally, you are responsible for any material covered in classes you miss.
- Students are responsible to check periodically both the webpage and the Blackboard page of the course.
- Absent Professor Policy: If the instructor has not arrived within 15 minutes of the scheduled class time, you may assume that class has been canceled.

PLAGIARISM: I encourage you to consult with your colleagues when you are working on homework. However, you will not understand the material or do well on the exams unless the work that you turn in is ultimately your own. Therefore, you must write up your answers alone, and without looking at anything you wrote down while working with your group. The work you turn in must be your own.

You must cite everyone with whom you worked or consulted as well as any material (books and online resources other than the course books and lecture notes) that you used to solve the problem. You can help another student, but you must not show him your homework.

Any breach of this policy will be considered an act of plagiarism, and will be reported.

ACCESSIBILITY STATEMENT: Clemson University values the diversity of our student body as a strength and a critical component of our dynamic community. Students with disabilities or temporary injuries/conditions may require accommodations due to barriers in the structure of facilities, course design, technology used for curricular purposes, or other campus resources. Students who experience a barrier to full access to this class should 2 let the professor know, and make an appointment to meet with a staff member in Student Accessibility Services as soon as possible. You can make an appointment by calling 864-656-6848, by emailing studentaccess@lists.clemson.edu, or by visiting Suite 239 in the Academic Success Center building. Appointments are strongly encouraged - drop-ins will be seen if at all possible, but there could be a significant wait due to scheduled appointments. Students who receive Academic Access Letters are strongly encoud to request, obtain and present these to their professors as early in the semester as possible so that accommodations can be made in a timely manner. It is the student's responsibility to follow this process each semester. You can access further information here: http://www.clemson.edu/campus-life/campus-services/sds/.

ACADEMIC INTEGRITY STATEMENT: As members of the Clemson University community, we have inherited Thomas Green Clemson's vision of this institution as a "high seminary of learning." Fundamental to this vision is a mutual commitment to truthfulness, honor, and responsibility, without which we cannot earn the trust and respect of others. Furthermore, we recognize that academic dishonesty detracts from the value of a Clemson degree. Therefore, we shall not tolerate lying, cheating, or stealing in any form.
See also http://www.clemson.edu/academics/academic-integrity.

INSTRUCTORS' ATTENDANCE POLICY: Any exam that was scheduled at the time of a class cancellation due to inclement weather will be given at the next class meeting unless contacted by the instructor. Any assignments due at the time of a class cancellation due to inclement weather will be due at the next class meeting unless contacted by the instructor. Any extension or postponement of assignments or exams must be granted by the instructor via email or Blackboard within 24 hours of the weather related cancellation.

TITLE IX: Clemson University is committed to a policy of equal opportunity for all persons and does not discriminate on the basis of race, color, religion, sex, sexual orientation, gender, pregnancy, national origin, age, disability, veteran's status, genetic information or protected activity in employment, educational programs and activities, admissions and financial aid. This includes a prohibition against sexual harassment and sexual violence as mandated by Title IX of the Education Amendments of 1972. This policy is located at http://www.clemson.edu/campus-life/campus-services/access/title-ix/. Mr. Jerry Knighton is the Clemson University Title IX Coordinator. He also is the Director of Access and Equity. His office is located at 110 Holtzendorff Hall, 864.656.3184 (voice) or 864.656.0899 (TDD).