

**Prerequisites:** MAT 316.

**Description:** Vector spaces, linear mappings, dual spaces, matrix theory, invariants, spectral theory, canonical forms, factorizations, lambda matrices, bilinear forms.

**Textbook:** Linear Algebra (4-th edition) by Friedberg, Insel and Spence

**Learning outcomes:** Upon completion of the course, students should have a solid understanding of the theory of linear algebra. They should know the important definitions theorems and their proofs. The ability to apply the theory in calculations and in examples is also expected.

**Grading:**

- Weights: 40% homework, quizzes; 60% tests.
- Tests: There will be two in-class midterms and a comprehensive final. The exact dates will be announced at least a week before the tests in class and on the course web page. You are responsible for the definitions, theorems, proofs and examples presented in class or assigned from the book. It is important to take notes, and review them after class. No calculators, notes or electronic devices are allowed on tests.
- Quiz: A quiz may be given at any time without announcement. I frequently give short quizzes for stating definitions and theorems.
- Homework: Homework will be assigned and collected regularly. Check the course web page for assignments and due dates. Assignments are due at the beginning of the class. No late homework is accepted but you can turn in homework early. Class attendance is very important. Write out your solutions neatly. Include detailed explanations but be concise. Write full sentences as if it were a scientific paper. Do not turn in scratch work. The presentation is an important part of your solution. Every statement in your solutions needs a proof even if the question asks you to *find* or *calculate* something. You may quote a theorem from class or from the book or an earlier homework assignment to justify a statement. Judging the validity of an argument is an important skill. Just as important as coming up with the argument. If there is a gap in your proof, do not try to hide it. If you tell me where the gap is then I know that you are at least aware of the problem. You are allowed to talk about the homework problems but you have to write your solutions on your own completely from scratch. Check your scores regularly on the grade-sheet posted on the web.

**Make up** tests will be given only in case of verified medical or other emergency which must be documented. You must make a reasonable effort to notify me as soon as you can, preferably before the missed test is given. The best way to contact me is by email.

All the information on this syllabus are subject to change and any class announcements regarding the syllabus are considered official amendments to it. This syllabus and other information is available on the course web page.