Course Description: (Credit 3) Introductory course in linear algebra, covering abstract ideas of vector space and linear transformation, as well as models and applications of these concepts, such as systems of linear equations, matrices and determinants. MATH 323 is designed to be a more demanding version of this course. Prerequisites: MATH 152; junior or senior classification. Credit will not be given for more than one of MATH 304, MATH 309, MATH 311 or MATH 323.

Course Objectives: This course will provide the students with qualitative understanding and computational skills in linear algebra, and the ability to apply them. At the conclusion of the course, students should:

- Know how to solve systems of linear equations and understand qualitative properties of such solutions. Perform matrix arithmetic. (Chapter 1).
- Be able to compute determinants. (Chapter 2).
- Understand the abstract notions and basic theory of vector spaces and linear transformations; be able to compute in the abstract framework, and apply the results to more specific settings. Be able to use the fundamental notions of linear independence, bases, and coordinates. Understand the relationship between linear transformations and matrices. (Chapters 3 and 4).
- Understand the notion of an inner product. Be able to construct an orthogonal basis, in abstract and concrete settings, and use the least squares procedure. (Chapter 5).
- Understand and be able to compute eigenvalues and eigenvectors of linear transformations and matrices. Be able to apply these techniques to solving differential equations and diagonalizing matrices. (Chapter 6).


Grading: A total score of 90% or more guarantees an A, a score of 80% or more a B, 70% or more a C, 60% or more a D.

Homework and quizzes ................................................................. 30%
Midterm Exam I, Tuesday, February 12, in class ........................................... 20%
Midterm Exam II, Tuesday, March 26, in class ........................................... 20%
Final exam, Wednesday, May 8, 1–3 p.m. ................................................. 30%

Exam make-up policy: If, under completely exceptional circumstances, you need to miss one of the tests, a make-up exam will be given. Only University-approved excuses, with appropriate documentation, will be accepted, and you have to let me know preferably in advance, and no later than 2 days after the exam. The exams are closed book, closed notes, and calculators are not permitted. You should bring your ID to all tests.
Quizzes: There will be short quizzes in class, approximately one for every two homework assignments, announced in advance. The lowest score will be dropped.

Homework: weekly, due on Tuesdays in class. Homework problems may appear on the exams and quizzes. You are encouraged to work together, but straight copying of homework is not allowed. Late homework will not be accepted, but the lowest homework score will be dropped.

Scholastic Dishonesty: Cheating of any form is not acceptable and it will be dealt with harshly. In particular, copying work done by others, either in-class or out of class, is an act of scholastic dishonesty and it will be prosecuted to the full extent allowed by university policy. Students are encouraged to discuss the course material outside of class, and work on the homework assignments together, however all the homework turned in must represent the result of individual effort. In particular, copying the homework from any sources is not allowed. For more information on university policies regarding scholastic dishonesty, see the University Student Rules.

Aggie Honor Code: “An Aggie does not lie, cheat, or steal or tolerate those who do.”

Students with disabilities: Come talk to me no later than the first week of classes. “The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe that you have a disability requiring an accommodation, please contact the Department of Student Life, Services for Students with Disabilities, in Room 126 of the Koldus Building or call 845–1637.”

Attendance: According to the University Student Rules, absence for three or more class days requires a University-approved excuse and documentation.

Other important dates: January 18 (last day to add or drop a course), March 11–15 (Spring break), April 2 (Q-drop), April 25 (last class).

Keys to success: Attend class (of course :) Solve all the homework problems, well before the exams. Spend more than seven hours per week working on the problems. Form study groups to discuss the course material and homework problems. Read ahead in the text.

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