

Introduction to Matrices and Linear Algebra

Math 3330-001 – Spring 2013

Time: MWF 10 – 10:50 AM

Classroom: COBA 256

Instructor: Prof. Barbara Shipman

Office: Pickard Hall 437

Office Hours: Monday, Friday: 8—8:50 AM, Wednesday: 11—12, and by appointment

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Website: www.uta.edu/faculty/shipman From this website, go to Math 3330 at the Student Center. Check the course schedule for the weekly class notes and homework.

Prerequisite: Math 1426 (Calculus I)

Textbook (required): Linear Algebra with Applications, 4th edition, by Otto Bretscher.
ISBN: 0-13-600926-3

Learning Outcomes: On completion of this course, students should be able to

- solve systems of linear equations and interpret the results,
- explain the geometry of linear transformations and express linear transformations in different coordinate systems,
- solve problems involving orthogonal projection and orthonormal bases.
- calculate and describe geometrically the kernel, range, determinant, eigenvectors, and eigenvalues of a linear map, and
- apply these concepts in solving practical problems.

Course Content (with sections from the textbook):

Linear Equations: 1.1 – 1.3

Linear Transformations: 2.1 – 2.4

Subspaces, Bases, and Coordinate Systems: 3.1 – 3.4

Orthogonality: 5.1 – 5.2

The Determinant: 6.1 – 6.3

Eigenvalues, Eigenvectors, Diagonalization: 7.1 – 7.4

Abstract Linear Spaces: 4.1

Attendance: You are expected to attend every class meeting, to arrive on time, and to be prepared for the quizzes and discussions on homework. Only one quiz will be dropped. There are no make-up quizzes. Each quiz must be taken during class time on the date it is scheduled. You are responsible for adhering to attendance expectations. If other issues interfere with your attendance, then it is your responsibility to take the consequences of missed classes or quizzes.

Homework: Homework will be assigned for each section covered. You should work diligently on these problems and keep your well-written and complete solutions organized in a notebook. After each class lesson, remaining class time may be used to discuss new homework and answer questions on previous problems. Office hours are available for additional questions.

Textbook Reading: The assigned readings from the textbook provide additional explanations of the material and different examples from those discussed in class. Study the readings carefully to help you learn the material well.

Quizzes: There will be six quizzes in class, on the dates listed below. You should be rested, alert, and well prepared for every class. Only your best five quiz scores will count towards your grade. A missed quiz counts zero points, and a missed quiz cannot be made up. You are responsible for adhering to these policies.

Final Exam: There will be a comprehensive final exam at the date and time listed below, in the same room as the class.

Expectations for Out-of-Class Study: Beyond the time required to attend the class meetings, you should spend at least an additional 9 hours per week on activities for this course, including studying class notes and the assigned sections of the textbook, completing homework assignments, and preparing for the quizzes and final exam.

Grading: Your work will be graded on correctness, completeness, and clarity. Points are deducted for incorrect answers, whether it be due to careless errors, conceptual errors, or reporting or copying answers incorrectly. In the workforce and in everyday events, careless errors can cause major damage and loss of life. In this class also, you are responsible for checking carefully to eliminate any errors in your reported answers.

Five best (of six) quizzes	60%
Final exam	40%

Course average	100%

Your final grade is based on your course average. A course average of 90% or above guarantees an A; 80% or above guarantees at least a B, 70% or above guarantees at least a C, and 60% or above guarantees at least a D. Students are expected to keep track of their performance throughout the semester and seek guidance from available sources (including the instructor) if their performance drops below satisfactory levels.

Schedule of Important Dates:

As the instructor for this course, I may need to adjust this schedule as the course progresses, to better fit students' needs. In case there is any change to the schedule, you will be notified as soon as possible.

Jan 14	First class
Jan 21	No class
Jan 30 (Wed)	Quiz 1 on 1.1 – 1.3
Feb 15 (Fri)	Quiz 2 on 2.1 – 2.4
Mar 6 (Wed)	Quiz 3 on 3.1 – 3.4
Mar 11—15	Spring Break
Mar 25 (Mon)	Quiz 4 on 5.1 – 5.2
Mar 29	Last day to drop a class
Apr 8 (Mon)	Quiz 5 on 6.1 – 6.3
Apr 26 (Fri)	Quiz 6 on 7.1 – 7.4
May 3	Last class
May 6 (Mon)	Final Exam 8—10:30 AM

Policies of the University of Texas at Arlington:

Drop Policy: Students may drop or swap (adding and dropping a class concurrently) classes through self-service in MyMav from the beginning of the registration period through the late registration period. After the late registration period, students must see their academic advisor to drop a class or withdraw. Undeclared students must see an advisor in the University Advising Center. Drops can continue through a point two-thirds of the way through the term or session. It is the student's responsibility to officially withdraw if they do not plan to attend after registering. Students will not be automatically dropped for non-attendance. Repayment of certain types of financial aid administered through the University may be required as the result of dropping classes or withdrawing. For more information, contact the Office of Financial Aid and Scholarships (<http://wweb.uta.edu/ses/fao>).

Americans with Disabilities Act: The University of Texas at Arlington is on record as being committed to both the spirit and letter of all federal equal opportunity legislation, including the *Americans with Disabilities Act (ADA)*. All instructors at UT Arlington are required by law to provide "reasonable accommodations" to students with disabilities, so as not to discriminate on the basis of that disability. Any student requiring an accommodation for this course must provide the instructor with official documentation in the form of a letter certified by the staff in the Office for Students with Disabilities, University Hall 102. Only those students who have officially documented a need for an accommodation will have their request honored. Information regarding diagnostic criteria and policies for obtaining disability-based academic accommodations can be found at www.uta.edu/disability or by calling the Office for Students with Disabilities at (817) 272-3364.

Academic Integrity: All students enrolled in this course are expected to adhere to the UT Arlington Honor Code:

I pledge, on my honor, to uphold UT Arlington's tradition of academic integrity, a tradition that values hard work and honest effort in the pursuit of academic excellence.

I promise that I will submit only work that I personally create or contribute to group collaborations, and I will appropriately reference any work from other sources. I will follow the highest standards of integrity and uphold the spirit of the Honor Code.

Instructors may employ the Honor Code as they see fit in their courses, including (but not limited to) having students acknowledge the honor code as part of an examination or requiring students to incorporate the honor code into any work submitted. Per UT System *Regents' Rule* 50101, §2.2, suspected violations of university's standards for academic integrity (including the Honor Code) will be referred to the Office of Student Conduct. Violators will be disciplined in accordance with University policy, which may result in the student's suspension or expulsion from the University.

Student Support Services: UT Arlington provides a variety of resources and programs designed to help students develop academic skills, deal with personal situations, and better understand concepts and information related to their courses. Resources include tutoring, major-based learning centers, developmental education, advising and mentoring, personal counseling, and federally funded programs. For individualized referrals, students may visit the reception desk at University College (Ransom Hall), call the Maverick Resource Hotline at 817-272-6107, send a message to resources@uta.edu, or view the information at www.uta.edu/resources.

Electronic Communication: UT Arlington has adopted MavMail as its official means to communicate with students about important deadlines and events, as well as to transact university-related business regarding financial aid, tuition, grades, graduation, etc. All students are assigned a MavMail account and are responsible for checking the inbox regularly. There is no additional charge to students for using this account, which remains active even after graduation. Information about activating and using MavMail is available at <http://www.uta.edu/oit/cs/email/mavmail.php>.

Student Feedback Survey: At the end of each term, students enrolled in classes categorized as lecture, seminar, or laboratory shall be directed to complete a Student Feedback Survey (SFS). Instructions on how to access the SFS for this course will be sent directly to each student through MavMail approximately 10 days before the end of the term. Each student's feedback enters the SFS database anonymously and is aggregated with that of other students enrolled in the course. UT Arlington's effort to solicit, gather, tabulate, and publish student feedback is required by state law; students are strongly urged to participate. For more information, visit <http://www.uta.edu/sfs>.

Final Review Week: A period of five class days prior to the first day of final examinations in the long sessions shall be designated as Final Review Week. During this week, classes are held as scheduled, and instructors may introduce new concepts as appropriate. The purpose of this week is to allow students sufficient time to prepare for final examinations. During this week, there shall be no scheduled activities such as required field trips or performances; instructors may give assignments that have a completion date during or following this week *only if specified in the class syllabus*. During Final Review Week, an instructor shall not give any examinations constituting 10% or more of the final grade, except make-up tests and laboratory examinations. In addition, no instructor shall give any portion of the final examination during Final Review Week.

Student Disruption: The University reserves the right to impose disciplinary action for an infraction of University policies. This includes engagement in conduct, alone or with others, that obstructs, disrupts, or interferes with any function of class activities.