

INTRODUCTION TO LINEAR ALGEBRA (SPRING 2012)

Course. MATH 215, Section 3 (TR 8:00-9:15 am, MLNG 202)

Instructor. Dr. P. H. Tiep

Contact information.

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Office hours. Wednesday 11:00 – 11:50 am (in MathEast 145), Tuesday 12:00 – 12:50 pm, and Thursday 1:00 – 1:50pm. If this time is inconvenient, make a special arrangement with me whenever you need help. You are also welcome to come to my office at any time (without prearrangement) if I am in and available.

Textbook. ‘**Linear Algebra and Its Applications**’ by David C. Lay, Pearson Addison-Wesley, 4th ed. update (2012). After class, read your notes and the textbook material thoroughly before attempting the assigned problems.

Description. Linear equations, matrices and determinants. Vector spaces and linear transformations. Inner products and eigenvalues.

Content. MATH 215 is a concrete introduction to linear algebra and serves as an introduction to mathematics as a deductive discipline. The primary purpose of the course is to introduce students to the linear algebraic algorithms which are vital for the solution of many mathematical and scientific problems – row reduction of linear systems, least squares approximations, and eigenvalue/eigenvector analysis). A gentle introduction to mathematical reasoning and proofs is a secondary goal. Computer projects are also assigned to introduce students to the programming environment of MATLAB and certain applications of linear algebra.

Quizzes. There will be (tentatively) 8 pop-quizzes, 10pts each. Drop three worst for a total of 50pts.

Homework. Homework assignments (see my website) will be updated weekly. Even though homework will not be collected, all students are expected to work on the homework assignments.

MATLAB Project. A Matlab (group) project will be assigned, for a total of 25pts. The members of each group will work together and write up common solutions, but members of different groups are not to work together. You will need to download MATLAB using the University’s Site license

<https://sitelicense.arizona.edu/matlab/index.php>

Links to various MATLAB tutorials can be found on my website. You are also encouraged to check out the course website

<http://math.arizona.edu/~math215> .

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Exams (subject to change). There will be **three 50-point 60-min (midterm) exams** given on **Febr. 16** (Thursday), **March 29** (Thursday), and **Apr. 26** (Thursday). The final exam is comprehensive, and given on **May 10** (Thursday), 8:00-10:00 am. All the exams are given in the usual classroom.

The ONLY permissible reason for make-up exams is based on clear-cut medical grounds or religious holidays. In the former case, written statements (accompanied by phone numbers) of attending physicians are required to prove genuine medical emergencies. In the latter case, the instructor must be informed at least two weeks ahead of the exam date.

Grade.

Total: 3×50 (for the midterms) +100 (for the final) +75 (for the quizzes and Matlab project) = **325**. The final grade will be based on this score.

Important. Your written work should be neat. Show all your work. Answers with no work and/or no explanations will receive no credit. Please remember that the instructor is here to help you, so never afraid to ask for help.

If you determine that formal, disability-related accommodations are necessary, it is very important that you be registered with Disability Resources (621-3268; <http://drc.arizona.edu/>). You should notify your instructor of your eligibility for reasonable accommodations by **Thursday, Jan. 26**.

Students are expected to attend every scheduled class and to be familiar with the University Class Attendance policy as it appears in the General Catalog. It is the student's responsibility to keep informed of any announcements, syllabus adjustments or policy changes made during scheduled classes. Students are expected to behave in accordance with the Student Code of Conduct, see <http://deanofstudents.arizona.edu/codeofacademicintegrity> and the Code of Academic Integrity, see <http://deanofstudents.arizona.edu/policiesandcodes/studentcodeofconduct>

Withdrawals and Incompletes. If you withdraw from the course by **Febr. 7**, the course will be deleted from your enrollment record. If you withdraw from the course by **March 6**, you will receive a grade of W.

The grade of incomplete (I) will be granted only if all the following are met: (1) there is a documented excuse, (2) only work due after **April 18** is to made up, (3) the grade on the completed work is at least 60%, (4) a written request for the incomplete is made before Monday **May 7** noon.

Homework assignments (to be updated).

- §1.1: 1,3,5,9,11,13,15,29,31
- §1.2: 1,3,5,9,11,15,17,21,23,25
- §1.3: 1,5,7,9,11,13,15,21,29
- §1.4: 1,3,5,7,9,11,13,15,17,26,39
- §1.5: 1,3,7,11,13,15,17,19,21,23,27,33
- §1.7: 1,3,5,7,9,11,13,15,19,21,23,27,29,33,37
- §1.8: 1,3,7,11,15,21,27,31,33
- §1.9: 1,3,5,7,13,15,19,21,25,27,33,35
- §2.1: 1,3,5,7,11,13,15,25,29
- §2.2: 1,3,7,13,15,19,29,31,35

§2.3: 3,5,7,11,13,19,21,23,33
§3.1: 1,3,9,13,15,19,21,23,33,34,35,37
§3.2: 5,7,9,15,17,19,21,25,27,33,39
§4.1: 1,3,5,7,11,13,15,17,21
§4.2: 1,3,5,7,9,11,15,17,23,25,31,33
§4.3: 1,3,5,7,9,13,15,19,21,23,24
§4.4: 1,3,5,7,9,11,13,17,27
§4.5: 1,5,11,13,15,19,21,29
§4.6: 1,3,5,7,9,11,13,15,17
§5.1: 1,3,5,7,9,11,15,17,19,21,23,25,27
§5.2: 1,3,9,11,15,17,19,21
§5.3: 1,3,5,11,13,17,21,23,25,27
§6.1: 1,3,5,7,9,13,15,17,19,25,27,29,31
§6.2: 1,3,5,9,13,15,21,27,29
§6.3: 1,3,5,7,11,13,15,17,21
§6.4: 1,3,5,7,9,11,17
§6.5: 1,3,5,7,9,11,17
(if time permits)
§5.5: 1,3,5,7,13,15
§5.6: 1,3,5,7,9,11,13