

MATH 3013 INFORMATION (CRN 63822)
MWF 11:30AM–12:20PM, Fall, 2018, in ES 111

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Online Classroom (D2L): online.okstate.edu (Main location of class resources)

Office hours: MWF 1:00–2:30PM and TTh 11:00AM-1:00PM at MS 527 and at other times by appointment. You can always email questions, call on the phone or knock on the door at any other time. If I am not occupied with something else, I will be happy to help you.

Text: *Linear Algebra: A Modern Introduction*, 4th ed., by Poole. Copies of the textbook are on two-hour reserve at the library room 105. The student solutions manual may also be useful. A good electronic version of the textbook is available within WebAssign.

Course objectives: To learn the basic theory and applications of vectors, vector spaces, linear equations and matrices, and some of their many applications to science, engineering and many other fields.

Methodology: We will learn how to manipulate vectors and matrices, and how to efficiently solve systems of linear equations. We will also learn how to quickly determine several aspects of the set of solutions without actually solving them. We will learn how to recognize linearity in many different situations and how to exploit the hidden linearity. You will need to learn many new terms (such as *vector space*, *subspace*, *determinant*, *orthogonalization*, *eigenvalues and eigenvectors*), and you will be responsible for remembering their definitions precisely and for devising simple proofs or justifications based on these definitions. Many problems will require several steps to solve, and you must organize and clearly present the steps in the solutions.

Prerequisites: Calculus I and II, comfort with basic algebra and notation such as x_n (for n -th term in a sequence) and $\sum_{n=1}^m x_n$ (for a sum of m terms).

Syllabus: See the course calendar.

EXAMINATIONS: Three exams will be given in class, on **Wednesday, Sep. 19**, **Wednesday, Oct. 17**, and **Friday, Nov. 30**. **THERE WILL BE NO MAKEUP EXAMS**; students with very serious documented conflicts must warn me well in advance (more than three days) of the exams, and we will work out some alternative arrangement. There is also a scheduled final exam on **Monday, Dec. 10, 10:00–11:50AM**. You are allowed to use a calculator no more powerful than a TI-89 graphing calculator, with no keyboard or communications ability or computer algebra system (CAS). Cellphones must be completely turned off during exams.

You will be given an exam with the problems and space below for you to write out the solutions and the work needed to justify them. Unless otherwise stated on the exam, all work necessary to arrive at and justify the solution of an exam problem must be written on the exam paper.

WebAssign: All students should complete the regularly assigned homework which will be administered and graded at the online homework site **WebAssign** at webassign.net using the class code **okstate 5412 8333**. Please enroll with your full name. The assignments will be due on certain **Mondays, Wednesdays, and Fridays at 11:59 PM**. See WebAssign for the exact schedule; to avoid missing a date, please sign up for the **notifications** reminder system in WebAssign,

You may find useful the Student's Guide to WebAssign

Scoring: There will be at least 340 total points of problems on WebAssign. Each WebAssign point will be worth 0.5 course points. A perfect score would be **150** course points (equivalent to 300 Webassign points) from WebAssign, but extra points beyond 300 will be added to your course total as well. Thus, you may earn up to **20** bonus course points by completing up to 40 WebAssign points beyond 300.

If you feel there was a small syntax error or ambiguity in the problem, you may email me and ask me to look at your problem. I can correct the grading or explain the problem.

Notebook: It is very important that you practice writing out the steps in arriving at solutions to the WebAssign problems. Some people prefer to print out the WebAssign problems and work them on paper. Each WebAssign problem has a code that refers to a printed problem in the textbook. Reading the material around the printed problems (especially nearby odd-numbered problems which have answers in the back of the textbook) can help you solve the problems. Keep a dedicated notebook to record your work on the problems. In addition, read all problems in the textbook at the end of each section covered. If you wish to see step-by-step solutions beyond those provided in WebAssign, please purchase the student solutions manual.

You will greatly improve your success at the homework, if you first read through the relevant sections of the textbook.

Written Homework: There will be sets of review problems for each exam posted on the course D2L site. Students should prepare written solutions to these problems in their notebooks. Then students should compare their work against the posted solutions. This work is important to succeeding on the exam, but it will not be graded.

Grading: The three in-class exams will be 100 points each, and the final will be worth 150 points. The WebAssign work will be graded out of 150 points (remember each WebAssign point equals 0.5 course points), and you can earn as much as 170 points.

The course total is graded out of $100 + 100 + 100 + 150 + 150 = 600$ points.

Students who achieve at least 90%, 80%, 70%, or 60%, respectively, of 600 will be guaranteed of receiving at least an A, B, C, or D, respectively. Depending on the

median scores, these cutoffs may be lowered and borderline cases may be decided by judgment of the instructor.

Computer support: We will give some instruction on calculating with matrices on TI calculators, which may be useful on exams and homework. However, it is unwise to believe the calculator can substitute for understanding of the concepts of linear algebra, and most people need to do a lot of hand calculation to gain that understanding.

We will also give examples using the computer mathematics system **MAPLE**. If your future plans involve technical programming, we recommend that you consider acquiring the student version of **MAPLE**. Instructions for purchasing **MAPLE** at the class discount price are provided on D2L. There may be some extra credit assignments to be completed with MAPLE.

Math Learning Success Center: Course assistants and software are available at the MLSC in the Low Library to aid students in understanding the material covered. Hours of availability will be announced during the term.

STANDARD OPERATING PROCEDURE: All students must complete a minimum of two to three hours of work per class outside attending lectures. This work is to consist of reading all sections of the book covered in class and performing all assigned homework problems and enough additional problems to make sure that you understand the material. You'll be more successful if you work on a few problems every day or two instead of waiting till the due date to start.

Academic Dishonesty: Academic dishonesty or misconduct is neither condoned nor tolerated at OSU. Academic dishonesty is behavior in which deliberately fraudulent misrepresentation is employed in an attempt to gain undeserved intellectual credit, either for oneself or another. Academic misconduct is behavior that results in intellectual advantage obtained by violating specific directions, rules, or accepted academic standards, but without deliberate intent or use of fraudulent means.

Attendance Policy: All students are responsible for all material covered in class and all announcements made in class. Notes and other course material will be available at **online.okstate.edu**. Attendance roll is not taken, but we very strongly advise that students who attend regularly generally perform much better in the course.

Disability: If you feel that you have a disability and need special accommodations to pursue the course, the instructor and the Office of Student Disability Services will work with you to ensure that you have a fair opportunity to complete this class. Please advise the instructor of such disability before the second class period of the second week of the term.