

Mathematics 300
Linear Algebra
Tuesday and Thursday, 8 am–9:15 pm, Roop G010, Spring 2015
Instructor: Dr. Steven Garren

I. Prerequisite or corequisite: MATH 237 or permission of the instructor.

II. Instructor's office information

email: garrenst@jmu.edu
location: Roop 313
web-site: <http://educ.jmu.edu/~garrenst>
office hours: Monday 1:00 p.m.–2:00 p.m.
Tuesday 9:30 a.m.–10:30 a.m.
Wednesday 1:00 p.m.–2:00 p.m.
Thursday 9:30 a.m.–10:30 a.m.

III. Text required

Ron Larson (2013), *Elementary Linear Algebra, 7th edition*

IV. Course objectives

- Math 300 is an introduction to the theory of linear systems, suitable for students with at least one year of university calculus and a university proofs course. The class will cover vector and matrix operations, matrix algebra, vector spaces, theory of projections and transformations, determinants from an algebraic and geometric point of view, and eigenvalues and eigenvectors. *Some basic goals include enhancing mathematical skills and being able to justify solutions to mathematical and scientific problems.*
- *R* (<http://www.r-project.org>) is the software package used in this course.

V. Grading

29% Homework
17% Exam I: Thursday, February 12
17% Exam II: Thursday, March 19
17% Exam III: Thursday, April 16
20% Final Exam: Thursday, May 7, 8:00 a.m.–10:00 a.m.

A. Homework

- Homework exercises are listed on my web-site.
- Students are permitted to work together on homework, without directly copying other students' work. It is unacceptable for two or more students to turn in the same homework based on electronic copies, in part or in full. Each student must fully type his/her own homework. Hence, students may NOT turn in homework typed partially or fully by another individual. Furthermore, do NOT allow any other student to have electronic access to your homework, in part or in full.
- All homework scores count toward one's final grade; i.e., no scores are dropped.
- No late homeworks will be accepted.
- Homework may be submitted electronically as a .pdf file via Canvas or may be submitted as a hard-copy under my office door.

B. Exams

- Exams are closed book and closed notes.
- The final exam is cumulative.
- At least 80% of the weighting of the exams will come from modifications to the homework problems and in-class examples.
- For exams, each student may either use a calculator from the instructor or may request approval of her/his calculator at least 24 hours prior to the exam.

VI. Miscellaneous

- Calculators with more than one line of output and all graphing calculators are **BANNED** for exams and for required homework problems.
- Students may enroll in “auto-grade,” which immediately emails the student his/her grade whenever a (homework, exam or final) grade is recorded electronically.
- Class attendance will be taken each class.
- Cell phones (and other electronic devices, such as Ipods and MP3 players) must be completely **INVISIBLE** to yourselves and the instructor during class. The penalty for each violation is one point off the final grade. Records will be maintained via “Auto-invisibility of cell phone.”
- The final date to withdraw from this course with a “W” is March 20.
- “WP” and “WF” will NOT be assigned in this course.
- Using the computer/internet/cell phone for reasons unrelated to Math 300 during class may result in the reduction of the student’s final grade. Moreover, please contact the instructor if you notice another student engaging in such activities.
- The honor code of the university will be strictly enforced.

Addendum

Goals of the Course

- (1) To further students understanding of mathematical method, the logical structure of the subject, and stylistic conventions of mathematical argument. Logical structure pertains to the precise relationships between axiom, definition, theorem, and proof. Stylistic conventions include exactness, elegance, and efficiency of expression. Students will realize these goals by:
 - (a) Giving orderly, reasoned arguments about the content of the course.
 - (b) Writing logically robust proofs and solutions to problems.
 - (c) Using theorems, ideas, and intuition from the course content to make and critically evaluate relevant conjectures in the context of class discussion.
- (2) For students to achieve conceptual understanding of, and computational proficiency in applying, the following topics:
 - (a) Vectors and matrices
 - (b) Matrix algebra
 - (c) Vector spaces
 - (d) Projections and linear transformations
 - (e) Determinants
 - (f) Eigenvalues and eigenvectors

Nature of the Course Content

3 credits. Offered on demand.

Vector spaces, linear transformations, matrices, determinants, systems of linear equations, and eigenvalues and eigenvectors.

Prerequisite or corequisite: MATH 237 or permission of the instructor.

Syllabus information from the university is available at

<http://www.jmu.edu/syllabus>