MATH 221: Vectors and Matrices  
Spring 2016

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Lectures: 1:10-2:30pm in SCIE109  
Office Hours: 4pm-5pm MW, 11am-12pm M (subject to change)  
Final Exam: 2pm-5pm, Friday, May 13, SCIE109  
Web Resources: Moodle (https://moodle.wesleyan.edu)

Course Overview.

In this class, we will learn the basics of linear algebra, which is the study of vectors and matrices (hence the title). We will not follow the text page by page, but I do aim to cover most of the material from the first five chapters. To quote the course description:

*This is a course in the algebra of matrices and Euclidean spaces that emphasizes the concrete and geometric. Topics to be developed include solving systems of linear equations; matrix addition, scalar multiplication, and matrix multiplication; properties of invertible matrices; determinants; elements of the theory of abstract finite dimensional real vector spaces; dimension of vector spaces; and the rank of a matrix. These ideas are used to develop basic ideas of Euclidean geometry and to illustrate the behavior of linear systems. We conclude with a discussion of eigenvalues and the diagonalization of matrices.*

Text and Materials. The textbook that you will need for this course is Elementary Linear Algebra, by Spence, Insel, and Friedberg (Second Edition).

Prerequisites. Only a basic mastery of high school algebra will be required. No calculus will appear in this course.

Course Format. The course meets MW, for 80 minutes each day. Class will begin with a Q & A forum where I will attempt to clear up any confusion you may have. Please take advantage of this and come with questions prepared. We’re all in this together and don’t want to leave anyone behind. After the Q & A we’ll have a time of instruction that may include lecture, a handout, and/or time for small group work. Working on problems in class will give you a chance to identify things which may cause confusion on the homework and ask for clarification while we are all in the same room. There will be office hours available, and this can also serve as a place to work on problems in groups.

Communication. It cannot be stressed enough how essential communication is to succeeding in this course. After identifying topics that may be giving you trouble, please communicate this information to me. There’s no such thing as a bad or unwelcome question. Additionally, please communicate with each other. Collaboration can be essential to keep up with the material. Explaining concepts and examples to each other is a great way to learn. It is my goal to create a comfortable environment which is conducive for learning.

The Math Workshop. The Math Workshop is located in the Science Library in the main floor conference room. It is open most afternoons and evenings. There are always two staff members on duty, who may be either experienced undergraduates or math graduate students. This is a drop-in tutoring service, available to all members of the Wesleyan community. Staff members provide a friendly, relaxed atmosphere while answering questions about mathematics. The workshop is a good place to go when you get stuck on your homework.
Your Final Grade. Your final grade in this course will be calculated according to the following:

- Homework: 30%
- Midterms (2): 40%
- Final Exam: 30% (Scheduled for 2-5pm on Friday, May 13th)

Homework. Each week a problem set will be assigned on Wednesday to be completed and handed in the following Wednesday at the beginning of class. In math courses in general, each course meeting will build on all the previous meetings. As we cover material from the book, you will be responsible for reading corresponding sections as well. The best method for reading a math textbook is to skim the section before class and try to understand which concepts might be difficult for you and why. This will help you have questions in mind when you arrive in class and will help you get the most out of class. After class, do an in-depth reading of the section and complete the related homework problems, then skim for the next day. You should expect to spend about 3-6 hours on each homework. Exercise numbers will be posted on the course moodle. Homework is worth 30% of your grade.

Collaboration on homework is strongly encouraged, but you should write up your own homework yourself, and it should be well written and readable. A list of “Answers” without supporting documentation is normally unacceptable. In other words, show your work. This will be good practice for writing solutions on the midterms and on the final exam. I am happy to answer questions in my office hours, and I encourage you to come if you are confused about anything. You will get the most out of this time if you attempt the homework first and come with questions already prepared. Late assignments will not be accepted without permission from the instructor obtained before the due date (with exceptions for reasons documented by a dean).

Midterms. There will be two in class midterm exams, tentatively scheduled for Wednesday, February 24 and Wednesday, April 13. Each midterm is worth 20% of your final grade. Understanding the homework problems and class lectures is the best form of preparation.

Final. There will be a comprehensive 3 hour final exam on Friday, May 13th from 2pm till 5pm. Understanding the homework problems and all the midterms is the best form of preparation.

Honor Code. Wesleyan has an honor code that all members of the community, both faculty and staff, are expected to uphold:

www.wesleyan.edu/studentaffairs/studenthandbook/standardsregulations/studentconduct.html

I expect that we will all abide by the honor code in this course. Collaboration on homework is permitted, but please do not use resources outside of me, your fellow students, and the textbook. Answers to selected problems are in the back of the book, but do not provide enough shown work to receive full credit. Collaboration on midterms and the final exam is not permitted.

Course Accommodations. It is the policy of Wesleyan University to provide reasonable accommodations to students with documented disabilities. If this applies to you please make an appointment with me as soon as possible so that appropriate accommodations can be made. You will also need to register with Disabilities Services.