

Math 220
Linear Algebra
Spring 2006

Instructor: Fred Schultheis

Office: PPHAC 218

Office Hours: MTW 1:00-2:00 and I am always available by appointment.

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Text: Linear Algebra and Its Applications, Third Edition Update, David C. Lay

Course Content

We will cover most of chapters 1-5 of the text and some sections of chapters 6 and 7, as time permits. Topics to be covered include: Systems of Linear Equations, Matrix Algebra, Determinants, Vector Spaces, and Eigenvalues and Eigenvectors.

Course Description

The course meets on **Monday, Wednesday, and Friday from 10:15-11:15** in room **PPHAC 113**. Homework assignments will be given at each class meeting. Students are expected to complete these assignments by the next class meeting, where they will be discussed. No one can learn mathematics without doing it themselves and so, to the student, homework is the most important part of the course. In addition to the daily homework assignments (ungraded) there will be regular problem sets (graded). Since class participation is important, students are expected to attend every class.

Course Goals

Upon completing the course, successful students will

- be able to identify and manipulate the various forms in which linear systems appear,
- be able to manipulate matrices and be able to solve matrix equations,
- be able to infer information about linear systems from knowledge of the rank, characteristic polynomial, or determinant of the associated matrix.

Grading

Your final grade will be based on; cultural awareness (40 points), Maple projects (approximately 100 points), graded problem sets (approximately 100 points each), 3 equally weighted hourly exams (100 points each), and a comprehensive final exam (at most one third of your total grade).

Cultural Awareness

One goal for this course is to develop an appreciation of the beauty and utility of mathematics. To help foster this appreciation you are encouraged to spend some time outside of class thinking and discussing mathematics.

There are no specific assignments for this portion of the course but many opportunities for you to satisfy the requirements. Some examples of activities that foster cultural awareness include: attending talks, giving a talk, reading a paper, or solving a problem.

Some typical cultural events include, but are not limited to

- attending an epsilon talk (5 points)

- attending a Mathematics Colloquium at Moravian (7 points)
- attending a math talk at another LVAIC school (9 points)
- attending the EPADEL conference in April (5 points per talk)
- review an article on algebra and present it to the class (7 points)
- solving a problem outside the scope of the class (5-infinite points) with 5 additional points available for presenting the solution to the class

If you attend an event relevant to your mathematical growth you need to write a short paper that explains what the event was and how it deepened your appreciation of algebra or mathematics.

At most 3 epsilon talks and 3 Mathematics Colloquiums may count towards your cultural awareness grade. However, once you have reached the 40 points for your cultural awareness grade, you may do additional cultural events for extra credit.

For any talks you attend a write up is due within one week of when the talk was given.

ACADEMIC HONESTY POLICY GUIDELINES MATHEMATICS COURSES

The Mathematics and Computer Science Department supports and is governed by the *Academic Honesty Policy of Moravian College* as stated in the Moravian College Student Handbook (pp. 54-59). The following statements will help clarify the policies of members of the Mathematics faculty.

In all homework assignments which are to be graded, you may use your class notes and any books or library sources. When you use the ideas or thoughts of others, however, you must acknowledge the source. **For graded homework assignments**, you may not use a solution manual or the help, orally or in written form, of an individual other than your instructor. If you receive help from anyone other than your instructor or if you fail to reference your sources you will be violating the *Academic Honesty Policy of Moravian College*. For homework which is not to be graded, if you choose, you may work with your fellow students. You are responsible for understanding and being able to explain the solution of all assigned problems, both graded and ungraded.

All in-class or take-home tests and quizzes are to be completed by you alone without the aid of books, study sheets, or formula sheets unless specifically allowed by your instructor for a particular test.