

**Department of Mathematics and Statistics  
MAT 870 Fall 2004  
Seminar in Secondary Mathematics: Linear Algebra  
(3 Credit Hours)**

### Instructors:

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**Prerequisite:** Approval of Instructor

**Primary Text:** *Introduction to Linear Algebra* by Gilbert Strang (Third Edition)

**Secondary Texts:** *Linear Algebra* by Serge Lang

*Linear Algebra* by Kenneth Hoffman & Ray Kunze

*ATLAST Computer Exercises for Linear Algebra* by Leon, et al

## Topic:

Introduction to Vectors  
Solving Linear Equations  
Vector Spaces and Subspaces  
Orthogonality  
Determinants  
Eigenvalues and Eigenvectors  
Linear Transformations  
Applications

## Objectives:

1. To introduce students to various methods for solving linear systems of equations.
2. To acquaint students with the "algebra" of matrices.
3. To expose students to "abstract" mathematics through the study of linear spaces (including, but not limited to,  $\mathbf{R}^2$ ,  $\mathbf{R}^3$ , and  $\mathbf{R}^n$ ).
4. To introduce students to linear transformations and their properties.
5. To enable students to use linear algebra to formulate and solve problems and to communicate solutions.
6. To encourage students to work and learn cooperatively.
7. To expose students to technologies that pertain to linear algebra.
8. To encourage students to express their understanding in writing with proper usage of English and mathematical terminology.

## Grading:

Homework, technology projects, quizzes and such:	25%
Midterm Exam:	35%
Final Exam:	40%

A: 90-100%   B: 80-89%   C: 70-79%   D: 60-69%

*(Grades may be curved but not to achieve any predetermined distribution.)*

**Course Format:** We meet synchronously one evening per week using the Centra meeting software. During a typical meeting Drs. Metcalf and/or Jones will lecture/discuss new material as well as respond to student queries on old material, homework, technology projects and such.

**Attendance Policy:**

Students are expected to attend meeting and participate in every meeting although neither attendance nor class participation will explicitly be part of the computed course grade.

**Preparation Time:**

*Students should expect to spend at least four hours on homework for every hour in lecture.*

**Policy on Academic Honesty and Responsibility:**

Anyone violating the usual standards for academic honesty, for example, anyone attempting to obtain or exchange information regarding any quiz or test, or anyone using a fraudulent excuse to qualify for a "make-up", may receive a course grade of 'F'.

**Services for Students with Disabilities**

If you are registered with the Office of Services for Individuals with Disabilities, please make an appointment with the course instructor to discuss any academic accommodations you need. If you need academic accommodations and are not registered with the Office of Services for Individuals with Disabilities, please contact the office on the third floor of the Student Services Building, by email at [disabilities@eku.edu](mailto:disabilities@eku.edu) or by telephone at (859) 622-2933 V/TDD. Upon individual request, this syllabus can be made available in alternative forms.