

# Syllabus: MA 237 Linear Algebra

## Course description:

An introduction to linear algebra, topics include vector spaces, linear transformations, determinants, the eigenvalue problem, orthogonality. **Core course**

**Prerequisites:** MA 126.

**Textbook:** Lipschutz, Seymour and Lipson, Marc Linear Algebra, 4th edition, in the Schaum's outline series McGraw-Hill (2009) ISBN 978-0-07-154352-1.

## Coverage:

Chapter 1	1 week
Chapter 2	1 week
Chapter 3	2 week
Chapter 4	2 week
Chapter 5	2 week
Chapter 6	2 week
Chapter 8	1 week
Chapter 9	2 week

## Learning Objectives:

1. You will have developed good conceptual and computational understandings of linear algebra.
2. You will be expected to be able to state definitions precisely, prove some small theorems, follow the proofs of bigger theorems, and apply these results in a variety of real world situations.
3. You will be able to row reduce a matrix by hand, and describe the steps used in row reduction as elementary row operations.
4. You will be able to identify row space, column space, null space, domains and ranges associated with matrices and with linear maps.
5. You will be able to perform matrix arithmetic (addition, multiplication, multiplication by scalars) and be able to interpret these operations in terms of linear transformations, changing bases, or as row or column operations.
6. You will be able to identify eigenvalues and eigenvectors of self-adjoint matrices.

## Remarks:

Time allotments for coverage are approximate and allow for exams and optional topics. This outline of time allotments is based upon the advice of those who are teaching the course this semester. They are subject to change and refinement in subsequent semesters.