

# MAS 3106, Linear Algebra, Spring 2006

**Course Title:** Linear Algebra

**Catalog Number:** MAS 3106, Section 0001

**Class Number:** 97340

**Credit Hours:** 4

**Meeting times:** Monday, Wednesday, Thursday and Friday, 1:30 – 2:20 PM

**Course Location:** MAP 204

**Professor:** Michael Reid

**Office:** MAP 231C

**Office Hours:** Monday 10:30–11:30 and 2:30–3:30, Wednesday 12:30–1:30, Thursday 10:30–11:30 and 2:30–3:30, and also by appointment. No appointment is necessary during normal office hours.

**Phone:** x3-6462

**E-mail:** reid@math.ucf.edu (Please use **text format** only.)

**Required Textbook:** *Linear Algebra*, 4th edition, by S. Friedberg, A. Insel and L. Spence

**Recommended Textbook:** *How to Read and Do Proofs*, 4th edition, by D. Solow

**Course Web page:**

<http://www.math.ucf.edu/~reid/Teaching/Spring2006/mas3106.html>

**Prerequisite:** MHF 3302 and MAS 3105. This is a proof-based class, so it is imperative that you are comfortable with reading, understanding and writing proofs. In practice, this means that not only should you have passed MHF 3302, but you should have mastered all of that material, especially informal proofs. The recommended text should be useful for those who feel they need extra assistance with proofs.

**Course goals:** This course is the continuation of MAS 3105. We develop the abstract concepts of vector spaces and linear transformations, which correspond to the concrete notions of column vectors and matrices.

**Topics to cover:** Vector space and subspaces, linear combinations, linear dependence and independence, bases and dimension, linear transformations, null space and range, composition of linear transformations, matrices, elementary matrix operations, row rank and column rank, linear equations, determinants, eigenvalues and eigenvectors, diagonalizability, inner products, Gram-Schmidt orthogonalization, orthogonal complements, adjoints, Jordan canonical form.

**Grading formula:**

Homework: 15%

First midterm: 15%

Second midterm: 15%

Third midterm: 15%

Final exam: 35%

Best exam: 5%

Plus and minus grades will be used.

**Exams:** Each in-class midterm will be announced a week or so before it is given. The final exam is tentatively scheduled for Monday, May 1st at 1PM.

Exams may not be missed for any reason other than documented emergencies.

**Homework policy:** Homework is a significant component of this class. Homework problems will be assigned approximately once per week, and a subset of the problems will be selected for you to write up neatly and turn in. Of course you are responsible for all the problems assigned, whether or not they are selected as problems to turn in.

Homework must be written neatly and stapled together. This means that you should first work out the problems on scratch paper, and then transcribe your solutions neatly on separate paper to turn in. Late homework will not be accepted.

**Attendance policy:** You are expected to attend every lecture. You are responsible for knowing the contents of every lecture as well as any announcements. Cell phones must be turned off. In general, students should be respectful of their classmates and the instructor.

**Special accommodations:** Anyone who needs special accommodations for this class must let me know during the first week of the semester (by January 18th at the very latest).