Math 314 – Section 004
WMF 11:30–12:20pm
Avery Hall 19
Fall Semester 2006

Instructor Information:

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Office Hours Monday and Thursday: 10:30-11:20
Friday: 12:30-13:20
and (or) by appointment.


Introduction: At its simplest level, linear algebra is just the study of systems of linear equations—that is, systems like

\[
\begin{align*}
3x - 7y &= 2 \\
4x + 2y &= 1
\end{align*}
\]

which ought to be familiar to you from high school. Although this particular system is easy to understand and to solve, in order to contend with very large systems of equations involving many variables and in order to better understand the nature of such systems, a framework is needed. Such a framework is precisely what matrix theory and linear algebra are all about.

At the same time this class is a transition between a computational type of class and a more theoretical one. We need to understand definitions, theorems and proofs.

You are expected to read the textbook before class, to work the exercises and to ask questions.

Course Grade: Your grade will be based on 4 components: class participation, homework, quizzes, mid-term exams, the project, and the final exam. The total points you receive in this course is based on the following table.

<table>
<thead>
<tr>
<th>Component</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class Participation</td>
<td>50</td>
</tr>
<tr>
<td>Homework</td>
<td>150</td>
</tr>
<tr>
<td>Quizzes</td>
<td>150</td>
</tr>
<tr>
<td>Exam I</td>
<td>150</td>
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<tr>
<td>Exam II</td>
<td>150</td>
</tr>
<tr>
<td>Final Exam</td>
<td>200</td>
</tr>
<tr>
<td>Project</td>
<td>150</td>
</tr>
<tr>
<td>Total</td>
<td>1000</td>
</tr>
</tbody>
</table>

Homework: Homework will be assigned each day and will usually be exactly what is on the syllabus, but sometimes there may be a few changes to that. You are expected to do the homework problems regularly.
Before the start of class each day, we will spend some minutes on some of the assigned homework problems. Your participation in this part of the class counts 5% of the total grade.

Along the semester I will collect five written homework assignments. You are supposed to work the homework assignment in groups of three/four people, each group will turn in one assignment and the grade will be equally divided among the components of the group. At the beginning of the semester we will form the groups. You are not allowed to change group.

**Quizzes:** Ten short, in-class quizzes will be given most on Fridays. The quiz problems will be taken from the list of homework problems. There may also be some definitions or statements of theorems on the quizzes. My intention is to write quizzes so that the student who diligently does all of the homework and keeps up with the class will do well on them. You will be allowed to use calculators on the quizzes. Additionally, I will drop your lowest quiz score so as to accommodate unavoidable absences, but *absolutely no make-up quizzes will be given.*

**Mid-terms:** There will be two mid-term exams, given on the dates indicated on the syllabus. We might try to schedule these mid-term exams at night so that you will have less time pressure. You will be allowed to use calculators on the exams.

**Project:** There will be a project for this class. The project will involve a lengthy, open-ended problem requiring a considerable amount of work to solve and to prepare the project report. Most likely, you will need to use Maple or another computer algebra system for some portion of the project. It is a group project. Your group will work on the project with the goal of producing a thorough, well-written solution to the problem. Further details will be given out later.

**Final:** The final for this class will be comprehensive and will be given 10:00 to 12:00 noon Tuesday, Dec. 12 (in the same room as our regular class). Calculators are allowed on the final. Our final will involve only our section of Math 314.

**Technology:** Dealing with matrices can involve a lot of arithmetic and thus some form of technology will be useful for this course. Good calculators (such as TI-85’s and better) can also do matrix computations, and I think you will find such a calculator very useful for this course.

An even more powerful tool for matrix computations is Maple, a computer algebra system. You will probably find Maple especially useful for the class project. (Other computer algebra systems, such as MATLAB, Mathematica, Derive, etc. can also be used.) Maple can be used in the Math Lab, located in Avery Hall 18. You will each be given an account on the math department server. If you haven’t used the lab before, or if you haven’t used Maple to do matrix arithmetic before, you might consider signing up for an orientation session; a sign-up sheet will be posted outside the lab door at the beginning of the semester.

**Note:** The instructor reserves the right to modify the schedules (e.g. office hours, Homework Due dates, etc) and procedures in this syllabus. Any such changes will be announced in class. It is the student’s responsibility to keep informed of such changes.

**Department Grading Appeals Policy:** The Department of Mathematics does not tolerate discrimination or harassment on basis of race, gender, religion or sexual orientation. If you believe you have been subject to such discrimination or harassment, in this or any math course, please contact the department. If, for this or any other reason, you believe that your grade was assigned incorrectly or capriciously, appeals may be made to (in order) the instructor, the department chair, the department grading appeals committee, the college grading appeals committee and the university grading appeals committee.