MATH 2318
Linear Algebra
Chair: Allison Sutton 223-3294 aasutton@austincc.edu
A full list of committee members can be found at http://www.austincc.edu/mthdept5/mman06/cdocs/coursecommittees
Notes for Instructors
2006-2007

Text: Linear Algebra, 3rd edition, by Fraleigh & Beauregard, Addison-Wesley, 1995
Students Solution Guide
Instructor's Solutions Manual (for instructor use only)

MATH 2318 is intended to serve several purposes: (a) introduce students to the fundamental concepts of linear algebra, (b) demonstrate applications of these concepts, and (c) allow students to become more familiar with the nature of definition and proof in mathematics. Linear Algebra is also feeling the effects of graphing calculators and computer packages. We encourage the use of calculators or computers in order to perform routine computations in order to give students more time on abstract concepts. Those who enroll in this course are majoring primarily in mathematics, engineering, physics, or computer science, planning to transfer these credits to UT (as M311) or to another four-year institution.

Prerequisites: The usual prerequisite for linear algebra is completion of the calculus sequence, MATH 2415 (Calculus III). Occasionally students who have demonstrated "mathematical maturity" may enroll with a less formal mathematics background after obtaining the consent of a mathematics department advisor. Such students should be familiar with vector notation and dot product. Also, it is not uncommon for students to be simultaneously enrolled in Linear Algebra and Calculus III.

Syllabus: The course covers chapters 1-7 of the text and appendix A-1 (induction). A suggested course outline is in the first day handout pages. Sections 1.8, 2.4, 5.3 marked with a "**" are optional. Consider including them if you have time. You may find other interesting sections in the text that you want to cover instead. There is some flexibility based upon the time you have available. Sections 6.3, 6.4 and 6.5 marked with "***" are also optional. You might consider moving on to sections 7.1 and 7.2 after 6.2 and then covering the first two or three sections in Chapter 8 on quadratic forms or possibly skipping on to Chapter 10.

Exams and Grading: Exams should check student understanding on a broad front. Plan to include questions regarding: definitions, computational problems, and proofs similar to those discussed in class and assigned on homework. Proofs are initially difficult for beginning linear algebra students, but they make remarkable improvement later in the course. Homework should be graded. One plan is to collect homework at each exam and grade a few selected problems that count as 20% of the exam grade.

Attendance: You should keep track of attendance and you may drop students who miss more than four classes. Be sure students have in writing on the first class day that you might drop them for more than four absences. Some students who stop attending expect their instructor to fill out a withdrawal form for them. Your first day handouts should indicate that you will not be responsible for withdrawing students. In general, require students to take care of their own paperwork. You should announce your policy in writing on your first-day handout.
Linear Algebra
First Day Handout for Students

MATH 2318 - [section number]
Synonym: [insert]
[Time], [Campus] [Room]

[Instructor Name]
[Instructor ACC Phone]
[Instructor email]
[Instructor web page, if applicable]
[Instructor Office]
Office Hours: [day, time]
Other hours by appointment

COURSE DESCRIPTION
MATH 2318 LINEAR ALGEBRA AND MATRIX THEORY (3-3-0). A study of linear equations, linear transformations, matrices, determinants, finite-dimensional vector spaces, and quadratic forms. Prerequisites: MATH 2415 or its equivalent. (MTH 2053)

REQUIRED TEXTS/MATERIALS
The required textbook for this course is:
Text: *Linear Algebra*, 3rd edition, by Fraleigh & Beauregard, Addison-Wesley, 1995
Students Solution Guide, optional.

Calculators
The use of calculators or computers in order to perform routine computations is encouraged in order to give students more time on abstract concepts. Most ACC faculty are familiar with the TI family of graphing calculators. Hence, TI calculators are highly recommended for student use. Other calculator brands can also be used. Your instructor will determine the extent of calculator use in your class section.

INSTRUCTIONAL METHODOLOGY
This course is taught in the classroom as a lecture/discussion course.

COURSE RATIONALE
MATH 2318 is intended to serve several purposes: (a) introduce students to the fundamental concepts of linear algebra, (b) demonstrate applications of these concepts, and (c) allow students to become more familiar with the nature of definition and proof in mathematics. Linear Algebra is also feeling the effects of graphing calculators and computer packages. We encourage the use of calculators or computers in order to perform routine computations in order to give students more time on abstract concepts. Those who enroll in this course are majoring primarily in mathematics, engineering, physics, or computer science, planning to transfer theses credits to UT (as M311) or to another four-year institution.

COMMON COURSE OBJECTIVES
Common course objectives are attached. They can also be found at:
http://www2.austin.cc.tx.us/mthdept2/tfcourses/obj2318.htm

COURSE EVALUATION/GRADING SCHEME
Grading criteria must be clearly explained in the syllabus. The criteria should specify the number of exams and other graded material (homework, assignments, projects, etc.). Instructors should
discuss the format and administration of exams. Guidelines for other graded materials, such as homework or projects, should also be included in the syllabus.

The following policies are listed in First Day Handout section in front part of the Math Manual or on website at [http://www2.austincc.edu/mthdept5/mman06/statements.html](http://www2.austincc.edu/mthdept5/mman06/statements.html). Insert the full statement for each of the following in your syllabus:

_Statement on Scholastic Dishonesty_

_Recommended Statement on Scholastic Dishonesty Penalty_

_Recommended Statement on Student Discipline_

_Statement on Students with Disabilities_

_Statement on Academic Freedom_

**COURSE POLICIES**
The syllabus should contain the following policies of the instructor:

- missed exam policy
- policy about late work (if applicable)
- class participation expectations
- reinstatement policy (if applicable)
- student discipline

_Auspense Policy_ (if no attendance policy, students must be told that)
The recommended attendance policy follows. Instructors who have a different policy are required to state it.

Attendance is required in this course. Students who miss more than 4 classes may be withdrawn.

_Withdrawal Policy_ (including the withdrawal deadline for the semester)
It is the student's responsibility to initiate all withdrawals in this course. The instructor may withdraw students for excessive absences (4) but makes no commitment to do this for the student. After the withdrawal date, neither the student nor the instructor may initiate a withdrawal.

_Incomplete Grade Policy_
Incomplete grades (I) will be given only in very rare circumstances. Generally, to receive a grade of "I", a student must have taken all examinations, be passing, and after the last date to withdraw, have a personal tragedy occur which prevents course completion.

_Course-Specific Support Services_
ACC main campuses have Learning Labs which offer free first-come first-serve tutoring in mathematics courses. The locations, contact information and hours of availability of the Learning Labs are posted at: [http://www.austincc.edu/tutor](http://www.austincc.edu/tutor)
## COURSE CALENDAR/OUTLINE

<table>
<thead>
<tr>
<th>Week</th>
<th>16-Week Semester</th>
<th>5.5-Week Semester</th>
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</thead>
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<tr>
<td>1</td>
<td>1.1, 1.2, 1.3</td>
<td>1.1-1.6</td>
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<tr>
<td>2</td>
<td>1.4, 1.5</td>
<td>1.7, 2.1, 2.2, 2.3, 2.4*</td>
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<tr>
<td>3</td>
<td>1.6, 1.7, 1.8*</td>
<td>3.1-3.5</td>
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<tr>
<td>4</td>
<td>Test #1 (Chap. 1), 2.1</td>
<td>Induction, 4.2, 4.3, 5.1</td>
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<td>5</td>
<td>2.2, 2.3, 2.4*</td>
<td>5.2, 5.3*, 6.1, 6.2 (6.3, 6.4, 6.5**)</td>
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<tr>
<td>6</td>
<td>3.1, 3.2</td>
<td>7.1, 7.2, Summary, Exam</td>
</tr>
<tr>
<td>7</td>
<td>3.3, 3.4</td>
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<tr>
<td>8</td>
<td>3.5, Test #2 (Chap. 2 &amp;3)</td>
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<tr>
<td>9</td>
<td>Induction, 4.2</td>
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<td>10</td>
<td>4.3, 5.1</td>
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<td>11</td>
<td>5.2, 5.3*</td>
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<td>12</td>
<td>Test #3 (Chap. 4 &amp; 5), 6.1</td>
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<tr>
<td>13</td>
<td>6.2, 6.3**</td>
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<tr>
<td>14</td>
<td>6.4**, 6.5**</td>
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<tr>
<td>15</td>
<td>7.1, 7.2</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>Review, Test #4 (Chap. 6 &amp; 7)</td>
<td></td>
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</tbody>
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Instructors are encouraged to add a statement of variance, such as “Please note: schedule changes may occur during the semester. Any changes will be announced in class.”

## TESTING CENTER POLICY
ACC Testing Center policies can be found at: [http://www.austincc.edu/testctr/](http://www.austincc.edu/testctr/)
Instructor will add any personal policy on the use of the testing center.

## STUDENT SERVICES
The web address for student services is: [http://www.austincc.edu/rss/index.htm](http://www.austincc.edu/rss/index.htm)
The ACC student handbook can be found at: [http://www.austincc.edu/handbook](http://www.austincc.edu/handbook)

## INSTRUCTIONAL SERVICES
The web address is: [http://www.austincc.edu/faculty/newsemester/](http://www.austincc.edu/faculty/newsemester/)
then click on “Campus Based Student Support Overview”.