MAT 342 LINEAR ALGEBRA

INSTRUCTOR: Dr. Katie Kolossa
Office: PSA 825
Phone #: 965-6437
email: kolossa@asu.edu
Office Hours: 10:40-11:30 and 1:30-2:30 MW and by appointment
homepage: http://math.asu.edu/~kolossa

CO-REQUISITE: MAT 272 (Calculus III) or equivalent.

TEXTBOOK: Linear Algebra with Applications (6th Edition), by S. J. Leon

GRADING:

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
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</thead>
<tbody>
<tr>
<td>Homework, Journals and Section Summary Sheets</td>
<td>14%</td>
</tr>
<tr>
<td>Quizzes and Class Participation</td>
<td>10%</td>
</tr>
<tr>
<td>3 In-class tests</td>
<td>51%</td>
</tr>
<tr>
<td>Final Exam</td>
<td>25%</td>
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</tbody>
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GRADING SCALE:

- A = 90 to 100%
- B = 80 to 89%
- C = 70 to 79%
- D = 60 to 69%
- F = 0 to 59%

CALCULATORS: A graphing calculator is recommended for only checking purposes. You may not use them on the tests.

FINAL EXAM will be comprehensive and will be given for the 9:15 class on Thursday, May 6th at 7:40 AM and for the 10:40 class on Friday, May 7th at 10:00.

COURSE POLICIES: Students are responsible for assigned material whether or not it is covered in class. Students are responsible for material covered in class whether or not it is in the text. Working regularly on assigned problems and attending class are essential to survival. You are expected to read the text, preferably before the material is covered in class. Homework will be collected on Tuesdays at the beginning of the class. No late HW will be accepted and no make-up quizzes will be given. Homework problems will be announced in class and listed on my web page. Make-up exams are at the discretion of the instructor. In any case, no make-up exam will be given unless the student has notified the instructor before the test is given. Message may be left in my office, at the main office (965-3951) or through email. You must make every reasonable effort to notify me before the exam is given and document your reason for missing the exam.

IMPORTANT DATES: Unrestricted Withdrawal Deadline: Friday, 2/13/03
Restricted Course Withdrawal Deadline: Friday 4/2/03
Restricted Complete Withdrawal Deadline: Wednesday 4/28/03

HOMEWORK: Will be posted on my web page as the semester goes on:
http://math.la.asu.edu/~kolossa/mat342/hw.html. Homework will be a very important part of your
learning. You cannot expect to solve all assigned problems easily. Some problem will require more

time and effort. Even if you are unable to solve the entire problem, the time spent on trying is not
wasted. Try to emphasize understanding rather than memorization when you are working on the
problems. I recommend that you form study groups to work together on the problems. You need to
explain everything on your homework solutions for full credit.

In addition to your written homework we will use WeBWork as an evaluation tool to practice the
basics. These homework problems will be put on the web and you will solve the problems on the
web. You may try to answer homework problems more than once. After each try, a message
appears telling you whether the answer is correct or not. This allows you to find out what you did
wrong and hopefully better understand the question. In order to use WeBWork you will need a
computer with access to a web browser (Netscape is recommended) It can be either your own or
one in any of the ASU computer labs. To acquaint yourself with WeBWork, you may practice on
the problem set called Introduction to WeBWork. The URL is http://webwork.asu.edu/. Once you
get to this URL, choose MAT 342 Kolossa from the first pull down menu. Click on login and
enter your username and password (username is your asurite id and password is your posting id
which is comprised of the last 4 digits of your affiliate id and the last 3 digits of your asu id (use a
dash to separate the first 4 and the last 3 numbers, e.g. 2234-665)). Then click on Begin Problem
Sets. Select the assigned hw from the menu. Then click on Do problem set. Select the problem
number from the menu and click on Get Problem. (For more info on how to access the problem set,
try the Tutorial at http://webwork.asu.edu ). Homework will be a very important part of your
learning. We still encourage you to solve these problems first on paper. Click on Get hard copy to
get a printout of the problems.

TOPICS:  

exam #1: Systems of Linear Equations
Row Echelon Form
Matrix Algebra
Elementary Matrices
The Determinant of a Matrix
Properties of Determinants

exam #2: Vector Spaces: Definition and Examples
Subspaces, Linear Span
Linear Independence
Basis and Dimension
Change of Basis
Row Space and Column Space

exam #3: Linear Transformations: Definition and Examples
Matrix Representations of Linear Transformations
Similarity
The Scalar Product in R^n
Orthogonal Subspaces
Least Squares Problems

Final exam: Inner Product Spaces
Orthonormal Sets
Gram-Schmidt Orthogonalization
Eigenvalues and Eigenvectors
Diagonalization