UMBC bookstore textbook return rules

Wednesday, September 2nd is the last day to refund or exchange textbooks for the fall semester.

MATH 221-02 [2570], Fall 2015
Introduction to Linear Algebra

Course information

Course:	MATH 221-02 [2570]: *Introduction to Linear Algebra*		
Time/Place:	TuTh 1:00pm-2:15pm, MP 103		
Instructor:	Dr. Jacob Kogan	**Grader:**	Emily Silver
Office:	MP 426		
Phone:	410-455-3297		
Email:	kogan at math.umbc.edu		esilver1@umbc.edu
Office hours:	Tu, Th 2:15 PM-3:00 PM and by appointment		

Textbook

Linear Algebra and Its Applications (fourth edition) by Lay, Addison-Wesley, 2012.
(the text is available, for example, at alibris, amazon, barnes and noble, cheapesttextbooks, chegg, fetchbook, priority, valorebooks).
Some useful material (including practice exams) can be found here and here.

Course Description

Linear Algebra deals with systems of linear equations, their fundamental properties, and transformations of vector spaces. The basic objects of the course are vectors and matrices.

Linear algebra techniques are widely used in many areas, such as mathematics, engineering, economics, finance. They are also cornerstones for a variety of advance classes in science and engineering. The course will describe basic basic concepts and tools of linear algebra.

We will try to cover the following material: Sections 1.1-1.9, 2.1-2.3, 3.1-3.2, 4.1-4.6, 5.2-5.3, 6.1-6.4.
We may cover these topics in a different order. Depending on time we may cover more (or delete) topics.

Course Objectives

The following three topics will be emphasized:

1. the algebra of linear equations and matrices,
2. the geometry of vector spaces,
3. algorithms for solving linear equations.

By the end of the class one should know:

- to characterize existence, uniqueness and solution sets of systems of linear equations via the row reduction algorithm,

- to perform matrix operations, including inverse and determinant computations,
- to characterize vector spaces or subspaces, and determine their dimension and matrix ranks,
- to compute eigenvectors and eigenvalues, and perform matrix diagonalization,
- concepts of orthogonality and orthogonal bases, carry out orthogonal transformations and projections.

Homework, Quizzes, Tests, and Grading

Homework

- Weekly homework will be assigned on Thursday and collected the following Thursday.
- The **two** lowest homework grades will be disregarded.
- Please staple your homework, and present the problems in the order assigned, if you want credit.
- No late homework will be accepted.

Quizzes, Tests, and Grading

The final grade will be based on homework grades (20 pt), four quizzes (20 pt each), and the comprehensive final (50 pt).

Date	Points	Topic	Quiz	Solutions	Old Quiz
Thursday, September 17	20 pt	Sec. 1.1-1.5	quiz 1	quiz 1	
Tuesday, October 13	20 pt	Sec. 1.7-1.9, 2.1-2.3	quiz 2	quiz 2	
Tuesday, November 10	20 pt	Sec. 4.1-4.6	quiz 3	quiz 3	
Tuesday, December 1	20 pt	Sec. 3.2, 5.2, 5.3	quiz 4	quiz 4	
Tuesday, December 15	50 pt	material covered by 4 quizzes and Sec. 6.4			

The final exam is from 1:00 pm through 3:00 pm on Tuesday, December 15, 2015.
There will be no make up quizzes or tests.
Letter grade cutoffs are expected to be the following:

Percentage	**≥ 90%**	**89% ≥ and ≥ 80%**	**79% ≥ and ≥ 70%**	**69% ≥ and ≥ 60%**	**59% ≥**
Letter Grade	**A**	**B**	**C**	**D**	**F**

Remember: **Mathematics is NOT a spectator sport.**
Read through the relevant section of the text (and look over **all** the assigned problems) **before** each lecture.

Homework assignments

HW1 due Thursday 09/10/15 starts here
- Sec. 1.1, p.10: 1, 3, 12, 17, 21, 23(a)
- Sec. 1.2, p.21: 10, 12, 14, 20, 31
- Sec. 1.3, p.32: 9, 10, 12, 14, 23(c,d, e)

HW1 due Thursday 09/10/15 ends here
HW2 due Thursday 09/17/15 starts here
- Sec. 1.3, p.32: 24(a,c), 26
- Sec. 1.4, p.40: 2, 4, 6, 8, 9, 12, 13, 35;
- Sec. 1.5, p.47: 2, 8, 10, 12, 15, 18, 35, 38

HW2 due Thursday 09/17/15 ends here
HW3 due Thursday 09/24/15 starts here
- Sec. 1.7, p.60: 6, 8, 14, 18, 20, 21, 33

HW3 due Thursday 09/24/15 ends here
HW4 due Thursday 10/01/15 starts here

- Sec. 1.8, p.68: 26, 27, 30, 32
- Sec. 1.9, p.78: 11, 15, 22, 26, 34

HW4 due Thursday 10/01/15 ends here

HW5 due Thursday 10/08/15 starts here

- Sec. 2.1, p.100: 3, 5, 6, 12, 24, 26, 33
- Sec. 2.2, p.109: 4, 9(a,b,c,d), 14, 16, 18, 31

HW5 due Thursday 10/08/15 ends here

HW6 due Thursday 10/15/15 starts here

- Sec. 2.3, p. 115: 2, 4, 8, 11(a,d,e), 12(a,b,c), 21, 27, 33, 39.

HW6 due Thursday 10/15/15 ends here

NO HOMEWORK DUE Thursday 10/22/15

HW7 due Thursday 10/29/15 starts here

- Sec. 4.1, p. 195: 16, 21, 22, 32, 33
- Sec. 4.2, p. 205: 6, 9, 14, 27, 28
- Sec. 4.3, p.213: 3, 8, 13, 14, 21(b,c,d), 22(a,b,e), 25, 33

HW7 due Thursday 10/29/15 ends here

HW8 due Thursday 11/05/15 starts here

- Sec. 4.4, p.222: 3, 7, 10, 14, 22;
- Sec. 4.5, p.229: 3, 8, 10, 14, 15, 17

HW8 due Thursday 11/05/15 ends here

HW9 due Thursday 11/12/15 starts here

- Sec. 4.5, p.229: 19(a,d), 20(d)
- Sec. 4.6, p.236: 2, 3, 7, 8, 9, 11, 18(a,c), 31, 32;

HW9 due Thursday 11/12/15 ends here

NO HOMEWORK DUE Thursday 11/19/15

HW10 due Tuesday 11/24/15 starts here

- Sec. 3.2, p.175: 6, 15, 22, 35, 40
- Sec. 5.2, p.279: 2, 4, 7, 8, 25
- Sec. 5.3, p.286: 6, 7, 12, 20

HW10 due Tuesday 11/24/15 ends here

The Official UMBC Honors Code

> By enrolling in this course, each student assumes the responsibilities of an active participant in UMBC's scholarly community in which everyone's academic work and behavior are held to the highest standards of honesty. Cheating, fabrication, plagiarism, and helping others to commit these acts are all forms of academic dishonesty, and they are wrong. Academic misconduct could result in disciplinary action that may include, but is not limited to, suspension or dismissal.

To read the full Student Academic Conduct Policy, consult the UMBC Student Handbook, the Faculty Handbook, the UMBC Integrity webpage www.umbc.edu/integrity, or the Graduate School website http://www.umbc.edu/gradschool/procedures/integrity.html.
