2013 – 2014 Spring Semester MATH 3210/5210 Section 100 (Barsamian)

Instructor:	Mark Barsamian
e-mail:	Mark.Barsamian.1@ohio.edu
Office:	Morton Hall Room 538
Office phone:	(740) 593-1273
Office Hours:	Monday - Friday 9:30am – 10:30am
Textbook:	Linear Algebra, 4th Edition, by Friedberg, Insel, Spence Pearson/Prentice Hall, 2003, ISBN 0-13-008451-4
Calculators:	Calculators will not be allowed on exams.
Course Web Page:	http://www.ohio.edu/people/barsamia/2013-14.2.3210
Special Needs:	If you have a physical, psychiatric, or learning disability that requires accommodation, please let me know as soon as possible so that your needs may be appropriately met.

Grading: During the semester, you will accumulate points:

Homework Sets (10 Sets, 10 points each):	100 points possible
In-Class Exams (best 3 of 4 exams, 200 points each):	600 points possible
Comprehensive Final Exam:	300 points possible
Total:	1000 points possible

At the end of the semester, your Total will be converted to your Course Grade:

Your Total	Your Percentage	Your Course Grade	Interpretation
900 - 1000	90% - 100%	A	You mastered all concepts, with no significant gaps
850 - 899	85% - 89.9%	A-	
800 - 849	80% - 84.9%	B+	You mastered all essential concepts and many advanced concepts, but have some significant gaps.
750 - 799	75% - 79.9%	B	
700 - 749	70% - 74.9%	B-	
650 - 699	65% - 69.9%	C+	You mastered most essential concepts and some advanced concepts, but have many significant gaps.
600 - 649	60% - 64.9%	C	
550 - 599	55% - 59.9%	C-	
400 - 549	40% - 54.9%	D	You mastered some essential concepts.
0 - 399	0% - 39.9%	F	You did not master essential concepts.

Note that although this grading scale may look easy compared to the usual 90,80,70,60 scale, it is actually not easier. The reasons are:

- The letter grades in this course mean the same thing as the letter grades in other courses.

- When I grade homework and exams, I give out fewer points. (If you do grade C work on a 20 point exam problem, you will get between 11, 12, or 13 points for the problem. That is, 55% - 69.9%.)
- There is no curve.

Course Structure: One learns math primarily by trying to solve problems. This course is designed to provide structure for you as you learn to solve problems, and to test how well you have learned to solve them. This structure is provided in the following ways.

- **Textbook Readings:** To succeed in the course, you will need to read the book.
- **Suggested Exercises:** To succeed in the course, you will need to read the book.
- **Homework Sets:** Ten homework sets will be collected, graded, and returned to you.
- **Lectures:** In lecture, I will sometimes highlight textbook material that is particularly important, sometimes present material in a manner different from the presentation in the book, and sometimes solve sample problems. We have 47 lectures, totaling 2585 minutes. It is not possible to cover the entire content of the course in 2585 minutes, and the lectures are not meant to do that. Lectures are meant to be a supplement to your reading the textbook and solving problems.
- **Exams:** There will be four in-class exams and a final. All exams will be consist of problems based on the assigned and suggested homework exercises.

Attendance Policy: Attendance is required for all lectures and exams.

Missing Class: If you miss a class for any reason, it is your responsibility to copy someone's notes and study them. I will not use office hours to teach topics discussed in class to students who were absent.

Missing a Quiz or Exam Because of Illness: If you are too sick to take a quiz or exam, then you must

(1) send me an e-mail before the quiz/exam, telling me that you are going to miss it because of illness,
(2) then go to the Hudson Student Health Center.
(3) Later, you will need to bring me documentation from Hudson showing that you were treated there.

Without those three things, you will not be given a make-up.

Missing Quizzes or Exams Because of University Activity: If you have a University Activity that conflicts with one of our quizzes or exams, you must contact me before the quiz or exam to discuss arrangements for a make-up. I will need to see documentation of your activity. If you miss a quiz or an exam because of a University Activity without notifying me in advance, you will not be given a make-up.

Late Homework Policy: Homework is due at the start of class on the due date. Late homework is not accepted.

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Revised Schedule for 2013 – 2014 Spring Semester MATH 3210/5210 (Barsamian)

Week	Date	Class topics
1	Mon Jan 13	1.1 Introduction
	Wed Jan 15	1.2 Vector Spaces
	Fri Jan 17	1.3 Subspaces
2	Mon Jan 20	Holiday: No Class
	Wed Jan 22	1.3 Subspaces **(H1 Due)**
	Fri Jan 24	1.4 Linear Combinations and Systems of Linear Equations
3	Mon Jan 27	1.5 Linear Dependence and Linear Independence
	Wed Jan 29	1.6 Bases and Dimension **(H2 Due)**
	Fri Jan 31	1.6 Bases and Dimension
4	Mon Feb 3	Classes canceled due to severe weather
	Wed Feb 5	**In-Class Exam 1 Covering Chapter 1**
	Fri Feb 7	2.1 Linear Transformations, Null Spaces, and Ranges
5	Mon Feb 10	2.1 Linear Transformations, Null Spaces, and Ranges
	Wed Feb 12	2.2 The Matrix Representation of a Linear Transformation
	Fri Feb 14	2.3 Composition of Linear Transformations; Matrix Multiplication **(H3 Due)**
6	Mon Feb 17	2.3 Composition of Linear Transformations; Matrix Multiplication
	Wed Feb 19	2.4 Invertibility and Isomorphisms
	Fri Feb 21	2.4 Invertibility and Isomorphisms **(H4 Due)**
7	Mon Feb 24	2.5 The Change of Coordinate Matrix
	Wed Feb 26	**In-Class Exam 2 Covering Chapter 2**
	Fri Feb 28	3.1 Elementary Matrix Operations and Elementary Matrices
8	Mon Mar 3	Spring Break: No Class
	Wed Mar 5	Spring Break: No Class
	Fri Mar 7	Spring Break: No Class
9	Mon Mar 10	3.2 The Rank of a Matrix and Matrix Inverses **(H5 Due)**
	Wed Mar 12	3.2 The Rank of a Matrix and Matrix Inverses
	Fri Mar 14	3.3 Systems of Linear Equations—Theoretical Aspects
10	Mon Mar 17	3.4 Systems of Linear Equations—Computational Aspects **(H6 Due)**
	Wed Mar 19	3.4 Systems of Linear Equations—Computational Aspects
	Fri Mar 21	**In-Class Exam 3 Covering Chapter 3**
11	Mon Mar 24	4.4 Important Facts about Determinants
	Wed Mar 26	5.1 Eigenvalues and Eigenvectors
	Fri Mar 28	5.1 Eigenvalues and Eigenvectors **(H7 Due)**
12	Mon Mar 31	5.2 Diagonalizability
	Wed Apr 2	5.2 Diagonalizability
	Fri Apr 4	**In-Class Exam 4 covering Chapters 4 and 5**
13	Mon Apr 7	6.1 Inner Products and Norms
	Wed Apr 9	6.1 Inner Products and Norms
	Fri Apr 11	6.2 Gram-Schmidt Orthogonalization; Orthogonal Complements **(H8 Due)**
14	Mon Apr 14	6.2 Gram-Schmidt Orthogonalization; Orthogonal Complements
	Wed Apr 16	6.3 The Adjoint of a Linear Operator **(H9 Due)**
	Fri Apr 18	6.4 Normal and Self-Adjoint Operators
15	Mon Apr 21	6.4 Normal and Self-Adjoint Operators
	Wed Apr 23	6.5 Unitary and Orthogonal Operators and Their Matrices **(H10 Due)**
	Fri Apr 25	6.5 Unitary and Orthogonal Operators and Their Matrices
16	Mon Apr 28	**Comprehensive Final Exam 10:10am – 12:10pm in Morton 326**

Suggested Exercises for 2013 – 2014 Spring Semester MATH 3210/5210 (Barsamian)

The goal of the course is for you to be able to do the 289 problems on this list.

Section	Suggested Exercises
1.1	1,2,3,4
1.2	1,3,4,9,12,45,15,20,21,22
1.3	1,2,3,6,10,11,12,13,15,18,22,24,25,28
1.4	1,2abc,3abc,5defg,6,7,8,9,10,11,13,16
1.5	1,2abcdef,4,5,6,9,10,12,14,17,18
1.6	1,2,3,13,15,16,17,18,19,20,21,23,25,26,29,30
2.1	1,3,9,10,11,15,16,17,18,21,22,23,24,26,35,36,38
2.2	1,2,4,8,9,10
2.3	1,2,3,5,7,9,11,12,13,15,,16,18
2.4	1,2,3,4,5,6,9,10,15,16,17,18,20,22,23
2.5	1,2,4,5,10,11,13
3.1	1,2,3,4,5,8,9
3.2	1,2,4,5,6,7,8,9,11,15,16,19,20
3.3	1,2,3,4,5,6,7,8,11
3.4	1,2abcdef,3,4,5,6,7,9,12
4.4	1,2,3,4,5,6
5.1	1,2abcd,3abc,4abcdefh,5,9,11,12,14,15,16,20,22
5.2	1,2,3,4,7,8,11,12,14,17,18,19
6.1	1,2,3,4,6,7,8,9,10,11,12,17,24,26
6.2	1,2abcd,3,4,5,7,9,17,19,20,21
6.3	1,2,3,4,5,6,8,18
6.4	1,2,3,4,5,6,11,12,14,15
6.5	1,2,3,4,5,10,11,17,22,24,25,26

Homework Sets to Turn In (The Due Dates have been revised.)

Homework is due at the start of class on the due date. Late homework is not accepted.

Set	Due	Exercises		
H1	Wed Jan 22	1.1 # 2b, 3b	1.2 # 4bdh,9, 12, 15,20	1.3 # 2d
H2	Wed Jan 29	1.3 # 6, 10, 12, 13, 25, 28	1.4 # 2b, 3b, 8, 10	1.5 # 10
H3	Fri Feb 14	2.1 # 3, 11, 15, 17, 21, 22, 24	2.2 # 2be, 4, 9	
H4	Fri Feb 21	2.3 # 5, 9, 11, 12, 13	2.4 # 4, 9, 10, 16	
H5	Mon Mar 10	3.1 # 8, 9	3.2 # 2bdf	
H6	Mon Mar 17	3.2 # 5bdf, 8, 15, 16	3.3 # 2bf, 3bdf, 4a, 5, 6, 8	
H7	Fri Mar 28	4.4 # 2bd, 3bdfh, 5, 6	5.1 # 2bd, 3b, 4ce, 9	
H8	Fri Apr 11	6.1 # 4, 8, 9, 10, 11, 12, 17, 26		
H9	Wed Apr 16	6.2 # 2ad, 3, 7, 9, 17, 19c, 20ac, 21		
H10	Wed Apr 23	6.3 # 2b, 3b, 4, 8, 18	6.4 # 2b, 4, 6, 14, 15	

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