

MAT 183 - Elements of Modern Mathematics
Section 100, MW 2:15-3:35; Section 200, MW 3:45-5:05
Syllabus for Fall 2011

Course Instructor: Professor Jack Graver

jegraver@syr.edu 229E Physics 443-1576

Tentative Office Hours:

Tuesday & Thursday 1:30-2:30* (starting September 13)

Wednesday 10:30 – 11:30

Course Description: This course is designed for students in the School of Management. The course will involve no calculus, and a thorough background in high school mathematics is the only prerequisite. The course has three main components: **Linear Algebra, Probability & Statistics**, and the **Mathematics of Finance**.

Text: Goldstein, Schneider, and Siegel (2004). *Finite Mathematics and its Applications* (2nd custom ed.). Prentice Hall, Custom Edition for Syracuse University.

Calculator: This course involves extensive use of the TI-84 graphing calculator. Each student is required to own a TI84 calculator. The calculator will prove to be an indispensable tool throughout the course, particularly in the Mathematics of Finance component. Since the TI84 will be useful, if not essential, for virtually every topic, it is important to familiarize yourself with the calculator as soon as possible. Though the main techniques will be demonstrated in class, it is up to you to become proficient with the calculator on your own. **The TI-84 is the only calculator that may be used on a test or the final exam** without prior approval from your instructor. **In particular, calculators on cell phones are not to be used on tests or quizzes.**

Quizzes and Homework: There will be *regular quizzes* in the recitation sections. *Homework will be done online* using WebAssign. You are required to purchase your entry code for this online system – it is bundled with the custom edition of the text. WebAssign problems for a section open the day that section is covered in class; they will be discussed during the following week's recitations and will be due at 11.59pm on the Sunday of that week. Extensions of one week for illness or family problems are automatic; further extensions only for DOCUMENTED EXTENDED ILLNESSES.

Week 1: Topic is covered in Lectures	
Week 2: Discussed in recitation	DUE!
Week 3: Grace Period for illness or family problems	

The Class Key for WebAssign: **syr 1353 6978**

Attendance and Class Preparation: Students are expected to attend every lecture and every recitation and are responsible for any announcements made during lecture. Students should read the appropriate sections of the text before the class in which the material is presented. **All electronic devices other than the calculator should be turned off and put away during class.**

Tests: There will be NO makeup tests. For students with an EXCUSED absence, the portion of the final exam corresponding to the missed test will be substituted for the missing score. The FINAL EXAM will be given on **Wednesday, December 14. Every student must take the exam at that time - no exceptions!**

DO NOT PLAN TO LEAVE TOWN BEFORE DECEMBER 14!

HELP! The main lecturer and your recitation instructor will hold regular office hours. The times and places will be listed on Blackboard. In addition, the Mathematics Department offers regular math clinics. These will start the second week of classes and will be held in the reading room of Carnegie. A schedule of clinic hours will be available in the math office, 215 Carnegie.

Grading Policy: The grade for this course will primarily be based on the student's performance on the three tests and the final.

Test 1: Linear Algebra & Counting	20%	Final Exam	25%
Test 2: Probability & Statistics	20%	Quizzes	06%
Test 3: Markov Processes & Finance	20%	Homework	09%

Test and Exam scores will NOT be curved! Letter grades will be assigned as follows:

A	93-100%	B+	87-89%	C+	77-79%	D	65-69%
A-	90-92%	B	83-86%	C	73-76%	F	0-64%
		B-	80-82%	C-	70-72%		

Learning Outcomes:

- The ability to select an appropriate mathematical model for a given real world problem;
- The ability to understand and enunciate the limitations of conclusions drawn from mathematical models;
- The ability to effectively use appropriate mathematical technology;
- A mastery of the basic properties of matrices and the ability to solve simple matrix equations;
- A mastery of the basic properties and formulas of probability and statistics and the ability to compute simple probabilities in a statistical setting and to interpret the results;
- A mastery of the basic formulas from the mathematics of finance and the ability to apply these formulas in a variety of settings that arise in personal finance.

Tentative Lecture Calendar

Monday	Sections	Wednesday	Sections
Aug. 29	2.1, 2.2	Aug. 31	2.3, 2.4
Sept. 5	No Class	Sept. 7	2.4, 2.6
Sept. 12	5.2, 5.3	Sept. 14	5.3, 5.4
Sept. 19	5.4, 5.5	Sept. 21	5.5, 5.6
Sept. 26	Test #1	Sept. 28	6.1, 6.2
Oct. 3	6.3	Oct. 5	6.4
Oct. 10	6.5	Oct. 12	6.6
Oct. 17	7.1, 7.2, 7.3	Oct. 19	7.3, 7.4
Oct. 24	7.5, 7.6	Oct. 26	7.7
Oct. 31	Test #2	Nov. 2	8.1
Nov. 7	8.2	Nov. 9	8.3
Nov. 14	10.1, 10.2	Nov. 16	10.3
Nov. 21	Vacation	Nov. 23	Vacation
Nov. 28	10.4	Nov. 30	10.4
Dec. 5	10.4	Dec. 7	Test #3
		Dec. 14	Final Exam

IMPORTANT: You must notify your instructor using an official notification form (on MySlice) by Sept. 11 if you will miss a test or quiz due to a religious obligation!

Tentative Recitation Schedule

Tuesday	Thursday	Activities
Aug. 30	Sept. 1	Matrices on the TI84 Workshop
Sept. 6	Sept. 8	Quiz 1 (Matrices on TI) Review 2.1-2.4
Sept. 13	Sept. 15	Quiz 2 (Matrices 2.1-2.4) Review 2.6 & 5.2, 5.3
Sept. 20	Sept. 22	Quiz 3 (Basic Counting 5.2-5.3) Review 5.4-5.5
Sept. 27	Sept. 29	Return Test #1
Oct. 4	Oct. 6	Review 6.1-6.3
Oct. 11	Oct. 13	Quiz 4 (Probability 6.1-6.3) Review 6.4-6.5
Oct. 18	Oct. 20	Quiz 5 (Probability 6.4-6.5) Review 6.6 & 7.1-7.3
Oct. 25	Oct. 27	Quiz 6 (Statistics 7.1-7.3) Review 7.4-7.6
Nov. 1	Nov. 3	Return Test #2
Nov. 8	Nov. 10	Review 8.1-8.2
Nov. 15	Nov. 17	Quiz 7 (Markov Process 8.1-8.2) Review 8.3, 10.1-10.2
Nov. 22	Nov. 24	Vacation
Nov. 29	Dec. 1	Quiz 8 (10.1-10.2) Review 10.3-10.4
Dec. 6		(All Sections) Review for test #3
	Dec. 8	(All Sections) Return Test #3

College and Department Policy Statements

Students with Disabilities: If you believe that you need accommodations for a disability, please contact the Office of Disability Services (ODS),

<http://disabilityservices.syr.edu>,

located in Room 309 of 804 University Avenue, or call (315) 443-4498 for an appointment to discuss your needs and the process for requesting accommodations. ODS is responsible for coordinating disability-related accommodations and will issue students with documented disabilities Accommodation Authorization Letters, as appropriate. Since accommodations may require early planning and generally are not provided retroactively, please contact ODS as soon as possible. You are also welcome to contact me privately to discuss your academic needs although I cannot arrange for disability-related accommodations.

Making arrangements with ODS takes time.

DO NOT wait until just before the first test.

Academic Integrity: The Syracuse University Academic Integrity Policy holds students accountable for the integrity of the work they submit. Students should be familiar with the Policy and know that it is their responsibility to learn about instructor and general academic expectations with regard to proper citation of sources in written work. The policy also governs the integrity of work submitted in exams and assignments as well as the veracity of signatures on attendance sheets and other verifications of participation in class activities. Serious sanctions can result from academic dishonesty of any sort. For more information and the complete policy, see

<http://academicintegrity.syr.edu>

EXERCISES

The following exercises from the text are selected to help the student understand the material. Problems in WebAssign will be similar to problems in this list.

Linear Algebra

- 2.1 17, 19, 25, 27, 31, 37, 38
- 2.2 9, 15, 23, 26, 27, 30, 35, 36
- 2.3 7, 15, 17, 21, 26, 33, 37, 43, 46, 47, 49, 51
- 2.4 11, 15, 16, 17, 19, 27, 31
- 2.6 5, 7, 8, 12, 13, 16, 19

Counting

- 5.2 2, 3, 5, 9, 11, 13, 15, 17
- 5.3 5, 7, 13, 15, 17, 19, 23, 25, 41, 43, 45
- 5.4 11, 17, 19, 23, 24, 25, 31, 33, 37, 52*
- 5.5 5, 7, 11, 21, 25, 27, 32, 34, 38, 41, 52, 59, 76
- 5.6 1, 3, 5, 7, 9, 10, 11, 17, 19, 23, 30, 31, 36, 46

Probability

- 6.2 1, 3, 7, 9, 11, 15, 19, 24
- 6.3 2, 3, 4, 7, 10, 17, 19, 23
- 6.4 1, 3, 9, 13, 15, 17, 19, 21, 22, 35, 36
- 6.5 1, 2, 3, 4, 6, 7, 10, 12, 13, 15, 17, 22, 23, 30, 39
- 6.6 4, 6, 7, 8, 13, 15, 20, 24

Statistics

- 7.2 1, 7, 9, 10, 22
- 7.3 1, 3, 5, 7, 10, 12, 19
- 7.4 2, 9, 10, 11, 12, 16, 24, 26
- 7.5 1, 3, 7, 8, 11, 12, 13
- 7.6 1, 3, 5, 7, 25, 26, 31, 33

Markov Processes

- 8.1 1, 7, 9, 10, 11, 13, 14, 15
- 8.2 1, 5, 7, 14, 15, 16, 18
- 8.3 3, 5, 7, 12, 13, 14, 15, 16, 17

Mathematics of Finance

- 10.1 1, 4, 6, 8, 11, 15, 19, 23, 37, 40, 49
- 10.2 1, 4, 7, 9, 11, 14, 17, 19, 21, 25, 27*, 36, 41
- 10.3 1, 2, 3, 5, 7, 11, 17, 20, 21, 27
- 10.4 3, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 34, 36, 38, 42, 44, 46, 48