MAT 183 - Elements of Modern Mathematics
Syllabus for Fall 2010
Section 100, MW 2:15-3:35; Section 200, MW 3:45-5:05; Section 300, TTh 2:00-3:20

Course Instructors:	email	office	ext.
Chapters 2 and 7: **Tom Bleier**	tsbleier@syr.edu	105 B/3 Archbold	3312
Chapters 5 and 8: **Mark Yerrington**	mdyerrin@syr.edu	104 B/2 Archbold	3353
Chapters 6 and 10: **Jack Graver**	jegraver@syr.edu	229E Physics	1576

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 Theory, and 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 *weekly 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 Saturday of the following week. Extensions of one week for illness or family problems are automatic; further extensions only for DOCUMENTED EXTENDED ILLNESSES.

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.

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 15. Every student must take the exam at that time - no exceptions!**
DO NOT PLAN TO LEAVE TOWN BEFORE DECEMBER 15!

HELP! The main lecturers 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.

Other Problems: These should be resolved with your instructor. Problems that cannot be resolved with your instructor should be referred to the **course supervisor,** Prof. Jack Graver; 229E Physics; *Ext:* 1576; jegraver@syr.edu

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.

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%		

College and Department Policy Statements

Getting Help: Your instructor and recitation instructor will be holding regular office hours and will make appointments with students having class conflicts with their scheduled office hours. In addition, the Mathematics Department offers regular math clinics. These will be set up by the second week of the semester and a schedule of the clinics will be posted outside the math office.

Cell Phones: All electronic devices other than the calculator should be turned off and put away during class. Calculators on cell phones are not to be used on tests or quizzes.

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://academic integrity.syr.edu

Tentative Calendar

Sunday	Monday	Tuesday	Wednesday	Thursday
Aug. 29	Class 1	2.1, 2.2	Class 2	2.3, 2.4
Sept. 5		Class 3	2.4, 2.6	No Class
Sept. 12	Class 4	5.2, 5.3	Class 5	5.3, 5.4
Sept. 19	Class 6	5.4, 5.5	Class 7	5.5, 5.6
Sept. 26	Class 8	Review	Test	#1
Oct. 3	Class 9	6.1, 6.2	Class 10	6.3
Oct. 10	Class 11	6.4	Class 12	6.5
Oct. 17	Class 13	6.6	Class 14	7.1, 7.2, 7.3
Oct. 24	Class 15	7.3, 7.4, 7.5	Class 16	7.6, 7.7
Oct. 31	Class 17	Review	Test	#2
Nov. 7	Class 18	8.1	Class 19	8.2
Nov. 14	Class 20	8.3	Class 21	10.1, 10.2
Nov. 21	Class 22	10.3	No Class	No Class
Nov. 28	Class 23	10.3, 10.4	Class 24	10.4
Dec. 5	Class 25	Review	Test	#3
Dec. 12			Final Exam	

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