

MAT 183 - Elements of Modern Mathematics

Syllabus, Fall 2015
Section 100, MW 8:00-9:20 am

Course Instructor and Supervisor: Professor Philip Griffin

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Office Hours: 9:45-10:45 MW and by appointment

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

Text: Goldstein, Schneider, and Siegel (2010). *Finite Mathematics and its Applications* (2nd custom ed.). Prentice Hall, Custom Edition for Syracuse University.

ISBN:

9780558199128 bundled package

9780558203849 textbook

9781928550204 web assign

Calculator: This course involves extensive use of the TI-83 graphing calculator. Each student is required to own the TI-83 calculator. The calculator will prove to be an indispensable tool throughout the course, particularly in the Mathematics of Finance component. Since the TI-83 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-83 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 and TI-Nspire with TI-84 keypad are not to be used on tests or quizzes.**

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 – including laptop computers.**

Grading Scheme: The grade for this course will be based on the student's performance on two exams, the final, homework and quizzes. The scheme is as follows:

Exam 1	25%
Exam 2	25%
Final Exam	35%
Quizzes/Homework	15%

(The quiz policy will be announced in each section)

A	93-100%	C+	77-80%
A-	90-93%	C	73-77%
B+	87-90%	C-	70-73%
B	83-87%	D	65-70%
B-	80-83%	F	0-65%

Tests and Final: There will be two in-class tests and a final exam. There will be NO makeup tests. For students with an EXCUSED absence, the final exam score will be substituted for the missing exam score. The FINAL EXAM will be given on WEDNESDAY, DEC. 16, 2015 sometime between 8:00am and 2:30pm. Every student must take the exam at that time - no exceptions! If you do not take the final exam, you will receive an automatic F (failure to attend).

Exam I : 7 October, Wednesday (in class)

Exam II : 16 November 2015, Monday (in class)

Final Exam: WEDNESDAY, DEC. 16, 2015 sometime between 8:00am and 2:30pm (Place and time will be announced during the semester)

DO NOT PLAN TO LEAVE CAMPUS BEFORE WEDNESDAY, DEC. 16, 2014 at 2:30pm!

Homework: *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. The first 14 days of Webassign is free. The **trial period** (grace period) will end Sunday, September 13, 2015 at 11:59 PM EDT. After this date you cannot access HW's without an access code. Each Monday and/or Wednesday a new set of WebAssign problems will be assigned. They will be discussed during the following weeks recitations and will be due 9 days later at 11:59 pm. **DO NOT WAIT UNTIL THE LAST MINUTE TO COMPLETE THE HOMEWORK ASSIGNMENTS.** Extra credit of 50% will be awarded to all questions completed 72 hours prior to the deadline.

The instructions for how to initiate your WebAssign access are at the end of this document.

MAKE SURE YOU READ THE INSTRUCTIONS TO EACH HOMEWORK ASSIGNMENT TO SEE HOW MANY SUBMISSIONS ARE ALLOWED. SUBMIT YOUR ANSWERS ONE BY ONE. DO NOT SUBMIT THE WHOLE HOMEWORK ASSIGNMENT BEFORE YOU HAVE COMPLETED ALL PROBLEMS. IF YOU SUBMIT YOUR HOMEWORK ASSIGNMENT BEFORE COMPLETING ALL QUESTIONS, THERE IS NO WAY TO GO BACK AND SUBMIT UNFINISHED QUESTIONS.

WEBASSIGN WARNINGS

- Submit question by question. Never submit all hw at once. After you submitted the hw, even I do not have the permission to give more trials.
- If there is no explicit directions to enter the solution, then enter your answers as number: integer, decimal or fractions. Using fractions is the safest method in most cases. In particular, do not enter expressions like $5 * C(5,2)$ or $1 - 3 * 5/2$.
- If there are any explicit directions, then follow the directions to give the answer.
- Check whether your email address is your Syracuse email and your ID number is correct. At the end of the semester, I will import your grades and use them according to your ID number and Syracuse ID.
- Do not change your username. It results in duplication of account, rather than overwriting.

Quizzes: There will be *regular quizzes* in the recitation sections. These will be discussed by your recitation instructor.

Tentative Schedule:

Week starting	Sections	Tests
August 31	2.1, 2.2, 2.3	
September 7	2.4	
September 14	2.6, 5.1, 5.2,	
September 21	5.3, 5.4, 5.5	
September 28	5.6, 6.2, 6.3	
October 5	Catch up/Review	Test 1; Oct 7
October 12	6.4, 6.5, 6.6	
October 19	7.1, 7.2, 7.3, 7.4	
October 26	7.5, 7.6	
November 2	7.7, 8.1, 8.2	
November 9	8.3, Catch up/Review	
November 16	10.1	Test 2; Nov 16
November 23	THANKSGIVING, NO CLASSES	
November 30	10.2, 10.3	
December 7	10.4, Final Review	
December 14		Final; Dec. 16

EXERCISES

The following exercises from the text are selected to help the student understand the material.

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

University 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://academic_integrity.syr.edu

Religious Observances Policy: SU religious observances policy recognizes the diversity of faiths represented among the campus community and protects the rights of students, faculty, and staff to observe religious holidays according to their tradition. Under the policy, students are provided an opportunity to make up any examination, study, or work requirements that may be missed due to are religious observance provided they notify their instructors before the end of the second week of classes. For fall and spring semesters, an online notification process is available through MySlice (Student Services -> Enrollment -> My Religious Observances) from the first day of class until the end of the second week of class.

Related link: http://supolicies.syr.edu/studs/religious_observance.htm

If you will miss a test due to a religious obligation, you must notify me using an official notification form (from MySlice) by the end of the second week

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.

How to succeed Here are a few basic suggestions for how to succeed in this course.

1. It is absolutely essential that you understand how to solve the assigned homework problems and, more importantly, how and why the skills and techniques presented in the course are used in solving the assign problems. Quiz and exam questions will be similar to these problems.
2. Ask questions in lecture, recitation and/or at the clinic about anything that is not completely clear. Don't hesitate to bring questions to your instructors during office hours.
3. Every day, read and study the sections in the textbook covered in the lecture. Learning mathematics takes time! Read carefully and work through all the examples in complete detail. It can be helpful to try to work through an example on your own before reading the solution.
4. Stay caught up. Mathematical concepts build on each other cumulatively and you need to stay on top of the material at every stage. If you are having difficulty, don't expect that the problem will take care of itself and disappear later. Contact your course instructor or your recitation instructor immediately and discuss the problem!
5. Form a study group. Many students benefit from a study group to work through challenging problems and to review for exams. You should attempt the problems ahead of time by yourself and then work through any difficulties with your study partners. Explaining your reasoning to another student can help to clarify your own understanding
6. You should expect to work hard. Don't get discouraged if you find some of the material very difficult. Be persistent and patient! If you follow the above suggestions, your experience in this course will be a rewarding one.

HELP! Both your instructor and your recitation instructor will hold office hours. The times and place will be announced. Also the Mathematics

Department offers regular math clinics - a schedule of clinic hours will be available at the math office.

WebAssign Registration Instructions for MAT 183 Fall 2015

1. Go to www.webassign.net.
2. Click on **LOG IN** on the upper right side of the page.
3. Click on **ENTER CLASS KEY**.
4. Enter the class key by entering **syr** in the first box, **7434** in the second box, and **7227** in the third box; then click **SUBMIT**.
5. Make sure you see my name there (Philip GRIFFIN) and then click on **Yes, this is my class**.
6. Select **I need to create a WebAssign account** (if you don't have an account associated to your Syracuse email from an earlier class or another semester. If you have an account associated to your Syracuse account, then choose **I already have a WebAssign account.**)
7. Enter a user name and password of your choice. **NEVER CHANGE YOUR USERNAME! (System duplicates your account and you may loose some of your hw).**

Enter the required identifying information.

Use your Syracuse email account. NO gmail, yahoo, Hotmail, or any other account.

I receive your scores according to your email address. If you use any email not ending as @syr.edu, you may loose your hw scores.

Then click on **Create my Account**.

8. The next page confirms your information, so click on **Log In Now**.
9. You should be logged in now. Select one of the options
 - o **purchase an access code online** (if you do not have an access code)
 - o **enter an access code** (purchased with textbook or from a bookstore)
 - o **continue my trial period**

Trial period (the grace period) will end Sunday, September 13, 2015 at 11:59 PM EDT.

After this date you cannot access HW's without access code.