

MAT 183 - Elements of Modern Mathematics

Syllabus for Fall 2014

1 November 2014

Course Instructor and Supervisor: Professor Muhammed Ali ALAN

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Office Hours: Tuesday, Thursday 10AM-10:50AM

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

ISBN:

9780558199128 package

9780558203849 textbook

9781928550204 web assign

Calculator: This course involves extensive use of the TI-84 or TI-83 graphing calculator. Each student is required to own a TI-84 or 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-84 or 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-84 or TI-83 is the only calculator that may be used on a test or the final exam**

In particular, calculators on cell phones and TI-Nspire with/or without TI-84 keypad are not to be used on tests or quizzes.

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

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

Test and Exam scores may be curved! No curve at the end of the semester. Letter grades will be assigned as follows:

A	92-100%	B+	88-89%	C+	78-79%	D	60-69%
A-	90-91%	B	82-87%	C	72-77%	F	0-60%
		B-	80-81%	C-	70-71%		

Tests:

There will be two in-class tests and an additional final exam.

The FINAL EXAM will be given on WEDNESDAY, DEC. 10, 8:00am-10am. 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 not attendance).

Exam I : 30 September, Tuesday (in class *)

Exam II : 4 November 2014, Tuesday (in class *)

Final Exam: WEDNESDAY, DEC. 10, 2014 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. 10, 2014 at 2:30pm!

(*) In class: It means usual class time, usual classroom.

MAKE UP POLICY: There will be NO makeup tests. For students with an EXCUSED absence, the final exam score will be substituted for the missing exam score.

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. **Trial period** (the grace period) will end Monday, September 8, 2014 at 12:00 AM EDT. After this date you cannot access HW's without access code. Each Friday a set of WebAssign problems will be assigned. They will be discussed during the following week's recitations and will be due at 11:59pm on the Sunday of that week. Namely, you will have at least 9 days to finish your hw. If there need to be adjustments due to changes in the lecture schedule these will be announced and reflected in the due dates on WebAssign. Lowest 2 hw scores will be dropped.

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

The Class Key for WebAssign: syr 4863 2647
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Extension Policy: A three-day automatic extension of Webassign hw is possible through Webassign. You have to request the extension after the original due time. Extension window closes after 14 days. . However, 3-day extension does not exceeds the 14 day extension period. E.g. If you request an extension in the 13th day, then you will not have 3-days extension but you will have time until the end of 14th day. No other way of requesting extensions.

If you request an extension, you will lose 50% of the point value of the questions answered correctly after the original due date. Questions answered before due date is not effected and they are counted 100%.

Extra Credit Policy: You will receive 50% extra credit for the answers submitted 168 hours (1 week) before the due date.

You will have 6 submissions allowed. SUBMIT YOUR QUESTIONS ONE BY ONE. DO NOT SUBMIT THE WHOLE HOMEWORK BEFORE YOU HAVE COMPLETELY DONE. IF YOU SUBMIT YOUR HOMEWORK, THERE IS NO WAY TO GO BACK to HOMEWORK AND TO SUBMIT QUESTIONS.

WEBASSIGN WARNINGS

- Submit question by question. Never submit all hw in once. After you submitted the hw, even I do not have the permission to give more trials.
- While doing your hw, if you see a green check sign next to the question you have submitted, then you do not need to do anything further about that question. In particular, you do not need to submit hw. As written in syllabus, do not submit hw. Submit only questions. Never touch the "Submit Assignment" button, on the bottom of the page.

- You can see your points per question and your total points at the top of the page under "Extension Requests" & "Print Assignment" Links. If you see your score, and it is correct, then you do not need to do anything. Contact me only if there is an error in your score.
- If there are 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. See the quiz schedule below for quiz schedule.

- **There will be no make-up quiz.** I will drop the lowest 2 quiz scores for unexpected cases.
- **If you take quiz at another recitation session, your quiz grade will be 0.**

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.**

HELP! The main lecturer and your recitation instructor will hold regular office hours. 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).

You should see your recitation instructor or your class instructor for questions requiring explanations about problems, concepts etc.; such question cannot be taken care of by email.

Tentative Lecture Calendar (Exam dates are firm, not tentative)

Tuesday	Sections	Thursday	Sections
26-Aug	2.3	28-Aug	2.3, 2.1
2-Sep	2.1	4-Sep	2.2, 2.4
9-Sep	2.6, 5.1	11-Sep	5.2, 5.3
16-Sep	5.4, 5.5	18-Sep	5.5, 5.6
23-Sep	6.1, 6.2	25-Sep	Catch up/ Review
30-Sep	Exam I	2-Oct	6.3
7-Oct	6.4, 6.5,	9-Oct	6.6
14-Oct	7.1, 7.2, 7.3	16-Oct	7.3, 7.4
21-Oct	7.5, 7.6	23-Oct	7.7, 8.1
28-Oct	8.2	30-Oct	Catch up/ Review
4-Nov	Exam II	6-Nov	8.2, 8.3
11-Nov	10.1	13-Nov	10.2
18-Nov	10.3	20-Nov	10.4
25-Nov	Thanksgiving NO CLASS	27-Nov	Thanksgiving NO CLASS
2-Dec	Catch up/ Review	4-Dec	Review Last Class
		10-Dec	Final Exam

Quiz Schedule

Week starting	Activities	Quiz
25-Aug	Matrices on the TI84	No Quiz
1-Sep	Review 2.3, 2.1	No Quiz
8-Sep	Review 2.2, 2.4	Quiz 1, Sections 2.3-2.1
15-Sep	Review 2.6, 5.2-5.3	Quiz 2, Sections 2.2 -2.4
22-Sep	Review 5.5, 5.6, Review for Exam I	Quiz 3, Sections 2.6, 5.2-5.3
29-Sep	Review of Exam I, Review 6.1, 6.2	Quiz 4, Sections 5.5, 5.6
6-Oct	Review 6.3-6.4	Quiz 5, Sections 6.1-6.2
13-Oct	Review 6.5-6.6	Quiz 6, Sections 6.3-6.4
20-Oct	Review 7.1-7.4	Quiz 7 Sections 6.5-6.6
27-Oct	Review 7.5-7.7, Review for Exam II	Quiz 8 Sections 7.1-7.4
3-Nov	Review of Exam I Review 7.7-8.1	Quiz 9, Sections 7.5-7.7
10-Nov	Review 8.2, 8.3	Quiz 10, Sections 8.1
17-Nov	Review 10.1, 10.2	Quiz 11, Sections 8.1-8.3
24-Nov	VACATION	VACATION
1-Dec	Review 10.3-10.4, Review for Final	Quiz 12, Sections 10.1, 10.2

Deadlines and important dates for Fall 2014

First Day of Classes	Monday, August 25, 2014
Last Day to Add Class	Tuesday, September 2, 2014
Choosing Pass/Fail or Audit	Monday, September 8, 2014
Financial Drop	Monday, September 15, 2014
Academic Drop	Monday, October 20, 2014
Withdrawal Deadline	Friday, November 21, 2014
Last Day of Classes	Friday, December 5

FINISHING AN INCOMPLETE – IF YOU ARE COMPLETING AN INCOMPLETE GRADE FROM THE PREVIOUS SEMESTER, YOU SHOULD NOT REGISTER FOR THE COURSE AGAIN. ASK INSTRUCTOR AND INFORM HIM THAT YOU ARE FINISHING AN INCOMPLETE. THE INSTRUCTOR FOR THIS SEMESTER WILL FORWARD YOUR GRADE TO THE INSTRUCTOR THAT GAVE YOU THE INCOMPLETE.

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://academicintegrity.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.

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

WebAssign Registration Instructions for MAT 183 Spring 2014

1. Go to www.webassign.net.
2. Click on **ENTER CLASS KEY**.
3. Enter the class key by entering **syr** in the first box, **4863** in the second box, and **2647** in the third box; then click **SUBMIT**.
4. Make sure you see my name there (Muhammed ALAN) and then click on **Yes, this is my class**.
5. 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.**)
6. Enter a user name and password of your choice. **NEVER CHANGE YOUR USERNAME! (System duplicates your account and you may lose 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 lose your hw scores.

Then click on **Create my Account**.

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

Trial period (the grace period) will end Monday, September 8, 2014 at 12:00 AM EDT. After this date you cannot access HW's without access code.