MAT237Y-ADVANCED CALCULUS
Summer 2013

1. LECTURES:

L5101: TR 6-9, MP202

Lecturer (May and June): Trefor Bazett

Office hours: Mon 5-7 in BA 6283 (tentative)

Lecturer (July and August): Xiao Liu

Office hours: TBA

2. TEXTBOOK AND READING MATERIAL:

- *" Advanced Calculus"*, by *Gerald B. Folland; publisher: Prentice Hall* Chapters 1-5, available in the bookstore
- extra resources will be gradually posted on the course's blackboard pages. These readings attempt at supplementing the textbook for a more clear understanding of the topics and as such are highly recommended.

  a) MAPS: visual presentation of some of the important theoretical details and how they related to the bigger picture.

  b) OPTIONAL READINGS: consist of background material and extra sets of exercises and examples from other sources.

  c) NOTES: are very brief readings created by us on various sections that are useful for learning about the larger picture that is being drawn in the course/textbook/subject. They provice a succinct summary of a specific idea.

3. MARKING SCHEME: (please note that in a Y course the weights have twice as much impact on your GPA as the figures show.)

'TERM MARK' consists of a midterm, two term tests, 8 problem sets and 8 quizzes.

Problem sets : 8x2.5%=20%	Weekly
Quizzes: 8x1.5%=12%	Weekly
Midterm test: 40%	June exam period
Term tests: 2x14%=28%	May 30, July 23
Pop quizzes: (1% each)	(these marks are extra)

FINAL GRADE = α('FINAL EXAM MARK') + $(1-\alpha)$('TERM MARK')
where $\alpha = 0.4$ if 'FINAL EXAM MARK' < 'TERM MARK'
and $\alpha = 0.6$ if 'FINAL EXAM MARK' $\geq$ 'TERM MARK'

Marking Scheme Notes:

- **Linear Algebra Review Quiz** The first quiz on May 21st in Tutorial is intended to be a quiz on Linear Algebra, which is assumed knowledge for this course and very important. It may be longer than a normal quiz. Material for this quiz will be posted on Blackboard.

- **Pop quizzes:** A lecture would be successful ONLY IF there is attendance and attention on the part of the audience. Pop quizzes, given during the lectures are used to encourage attendance as well as attention. As such pop quizzes will be covering the material immediately covered in the lectures, and/or from the reading materials, they are marked very leniently, and there will be part marks to reflect the attendance. These marks are bonus.

- **Adjusting grades** usually does not take place in this course. There are sources of gaining extra bonus marks (during the tests and exams and pop quizzes.) Pop quiz marks will be extra marks injected into the course and as a result the pop quizzes are integral part of the term mark. Please note that if several pop quizzes are given in the course then majority of the students will be earning enough extra marks, and as such there may be no need for adding bonus marks to the exam. So please be aware that your absence from the lectures may cause you to actually fall behind the majority by a little. Also missing pop quizzes may reflect a record of non-attendance for you. In this case there may be no sympathy for special considerations later in the term.

- **Missing midterm and tests:** Due to medical reasons only, (please inform the instructor within 24 hours, and have a UofT medical certificate, to be found in the course information page, prepared for submission.) , there will be a make up test held within a few days after the test day (the details of which will be announced in advance ONLY to the individuals who immediately contacted and have arranged for the make up, but please be prepared to write the make up on a Saturday or Sunday earlier in the day.) If this make up is also missed then a mark of zero will be assigned to the missing item. In other words there will be no deferred midterm test.

- **Medical certificate:** Please note that a doctor's note without a UofT medical certificate will not be accepted. Also please advise the Doctor to completely and legibly fill in the required information on the medical certificate for further investigation. Indeed

it is possible that, in case of incomplete medical certificate, or after reviewing the information provided by the Doctor, the medical certificate gets rejected. So please use the medical certificate option in the case of real emergency and not as an excuse to delay a test. You may fall behind the class if you defer your preparation.

- **Missing quizzes and problem sets** can not be recovered; that is, each quiz and each problem set is important and must be turned in. However, under extraordinary circumstances a student may be given permission to write their quiz in another tutorial (perhaps only once in the course's life time.) Also, it is likely, but not surely, that there will be extra bonus marks given in the tests or the Final exam, which are sources of recovering the loss in various area of the evaluations. You may hand in a problem set early, but you will not be allowed to hand it in late. You will be given ample time to complete the problem sets and are recommended to complete them early so that any unforseen circumstances the night before the due date won't result in you receiving a mark of zero.

4. PROBLEM SESSIONS

In problem solving sessions (time TBD) one of our teaching assistants will present the complete solution to a list of problems (to be distributed in advanced). The problem sessions are considered optional, and the material will be supplemental to the course, but are highly recommended. These sessions cover the main themes of the (past) week, and they contain precious details of the correct mathematical style, which we wish to reinforce in the minds of our students. They contain the examples that we wish we could cover in the lecture but we didn't have time. Please review these questions, write your own version of a solution, then attend a problem solving session and see how the solution should be written. Please note that the solutions to problem session questions will not be posted.

5. TUTORIALS Tutorials are an important and mandatory component of the course:

- Quizzes will be written at the end of most Tuesday tutorials.
- Problem Sets will be handed in at the end of most Thursday tutorials
- the problems sets, quizzes and tests will be picked up in the tutorials, and the TAs will take care of the remarking issues.
- Examples and useful hints are discussed in the tutorials. As much as the lectures focus on setting the language and elaborating on the theory, the tutorials will focus on computational aspects of the course material; as such, many examples will be presented in the tutorials which can clarify the theoretical aspects of the course. Please note that the examples presented in the tutorials will be very good candidates as exam questions.

6. QUIZZES: Quizzes will be about 15-20 min. long and will be given at the end of most Tuesday tutorials (see schedule for exact dates). Please see the 'QUIZZES' page on Blackboard for samples of past quizzes with the marking scheme. Scope of each quiz will be announced in advance. Each quiz is like a mini Exam (one page of an actual test paper,)

condensed in one page, it can give you the experience of writing the test several times and it is for you to see how you will be graded. Quizzes are good indications of your readiness for an exam. After the quiz the marking schemes will be posted and will demonstrate how an exam should have been written.

7. PROBLEM SETS:

Problem sets will be due at the end of most Thursday tutorials (see schedule for exact dates) and handed back in tutorials. Note that you must hand in your homeworks during tutorials, they will not be accepted in the subsequent class. If you anticipate being unable to hand it in during the Thursday tutorial, you may hand it in during the previous Tuesday tutorial.

Problem sets are designed to complement the lecture material. They are based on the material presented in the textbook and the extra readings. Also, in addition to signal the most important trends in the course, we take the opportunity to extend the theory a bit further in various directions. Problem set questions will be very relevant to the tests and the Exam, and as such they guarantee your understanding of the course material. Even though students may be working together on a problem set (and indeed they are encouraged to do so,) the final answers MUST be written completely independently of one another. Otherwise, both (all) of the suspicious problem sets will be given a mark of zero and the infractions will be dealt with according to the university.

8. TESTS AND EXAMS: There are a number of past tests with solutions and marking schemes, available on the TEST page. Please consult these sample tests in order to familiarize yourselves with the marker's expectations, and how you should prepare for the course (and not just for the test.) About a week before each test a list of the most important topics will be posted to help you with the nature and content of the test or exam.

9. LEARNING MATHEMATICS: There is no formula or explicit description of how to learn mathematics. However the following words and phrases seem to appear more often: attention, gradual yet consistent work, frequent reviewing of the material (from the beginning) looking at the material from various angles, re-learning the materials in the light of a new understanding, reflecting on the meaning of each terminology, reflecting on the need for various elements, reflecting on the relevance of various components, making maps, destroying the older maps and making newer maps, and reflecting more, and making more maps, and postering your walls with bigger and bigger maps, until a bigger picture of the relevance of the material appears, then destroying the maps and making smaller ones all over again, writing down numerous times, at the back of scrap paper collected from the photocopy waste baskets, until memorizing definitions and statements of the theorems in detail and questioning the relevance of each detail. Consistency in readings and doing exercises, never giving up, discussing the questions and the content with your friends and relatives, thinking about the course material until you go mad! Attending classes regularly and never falling behind ....

10. COURSE SCHEDULE AND IMPORTANT DATES: (this schedule may be updated in the future due to the speed of the lectures, so please check the updated course outline for updated schedule.)

May 14:	1.1, 1.2	
May 16:	1.3,	
May 21:	1.4,1.5	Linear Algebra Review Quiz
May 23:	1.5, 1.6, drop down to MAT235 ?	PS1
May 28	1.7, 1.8	
May 30:	2.1	Test 1
June 4:	2.2, 2.3	Quiz 2
June 6:	2.4, 2.5	PS2
June 11:	2.6, 2.7	Quiz 3
June 13:	2.7	PS 3
June 18:	2.8	Quiz 4
June 20:	2.9, 2.10	PS 4
June break:		Mid term exam TBA
July 2:	3.1	
July 4:	3.2, 3.3	
July 9:	3.4, 4.1	Quiz 5
July 11:	4.1, 4.2	PS 5
July 16:	4.2, 4.3	Quiz 6
July 18:	4.4, 4.5, drop date	PS 6
July 23:	5.1	Test 2
July 25:	5.2, 5.3	
July 30:	5.3, 5.4	Quiz 7
August 1:	5.4, 5.5	PS 7
August 6:	5.7, 5.8	Quiz 8
August 8:	Review and catching up	PS 8