FW 2009-10 Math 1200 : Problems, conjectures and proof

Instructor: Mike Zabrocki
MZ's Office hours: Tuesdays 1-3pm in TEL 2028 (phone x 33980)
TA: Dorota Mazur
DM's Office hours: by appointment
Lecture: Tuesdays 10-11:30pm in room TEL 007
Tutorials: Wednesdays 10:30-11:30am in room Ross S125
* Tutorials will meet in alternate weeks, both will meet in Ross S125.

Course Description: Students entering a university level mathematics program often lack the experience to deal with questions and problems when there is no obvious method to apply. One purpose of this course is to enable students to develop the confidence and ability to attack richer and more demanding problems. The attempt to check work and to explain one's discoveries to others leads naturally to the need for explanation and proof. Learning how to present convincing reasoning - or proof - is another course outcome. This course is about thinking and about communicating.

To do well in upper division courses at York, students will need to be proficient in these types of skills and Math 1200 is a required first year course to help students succeed in their later courses. Class and tutorial attendance is mandatory and active participation is expected of all students.

The course textbook will be Mathematical Proofs: A Transition to Advanced Mathematics. The text is useful because it has lots of examples and problems. We will be covering Chapters 2-7 and occassionally digress in to subjects that appear in the other chapters. We will also be working with the most recent edition of J. Mason, L. Burton, and K. Stacey, Thinking Mathematically (Prentice Hall). The problems in this book are easily accessible while at the same time allowing for rich and varied investigations.

With an emphasis on communication/convincing argument, there is a critical contribution to be made by: group work, reading a proposed 'proof' including other student's work, presenting and discussing as a whole class. There is also value in working through several different approaches to solve a problem, and taking the time to understand an alternative approach offered by a peer in the class. Doing mathematics well includes talking and listening to mathematics and there will be assignments that require collaborative work with another student in the class, as well as support for forming study groups.

Prerequisite: 12U Advanced Functions and Introductory Calculus or equivalent.

Evaluation:

The evaluation will be based on the following criteria

Participation	based on attendence and in class assignments	10%
Assignments	roughly one every 2 weeks	25%
Investigation projects	see below	20%
Quizzes	6 total, 3 per term, best 2 from each term	15%
Final Examination	Winter exam period	30%

Do your own work. Don't look for a solution on the web or take one from another student's work unless you already have found your own solution and intend to review another to make a comparison. Work that is not original will be graded accordingly. Presenting someone else's work as your own without proper citation is academic dishonesty. You must cite any internet sources which you have consulted. You will be required to take the York University Academic

Integrity Tutorial.

Participation: You are expected to show your commitment to this course and your fellow students by sharing your mathematical knowledge and your feelings about the material. Attendence at the weekly classes and the tutorials is obligatory and you will lose 2 points from your course grade for each class or tutorial that you miss in excess of two each term.

Assignments: There will be roughly one assignment every other week. Most assignments will require explanation beyond a simple one or two word/numerical answer. It is good practice to RECOPY THE QUESTION EVERY SINGLE TIME when you do the assignment. This makes it possible to understand what the assignment when it is handed back to you and it attempts to reduce the error of answering a different question than is on the assignment. Full credit is given to papers which demonstrate deep understanding of the problem by providing multiple solutions and considers variations based on the original question when this is appropriate. Your assignment should include complete sentences and explanations and not just a few equations or numbers. A solution will not receive full credit unless you explain what your answer represents and where it came from. You may discuss the homework with other students in the class, but please write your own solutions.

Investigation Projects: After each tutorial, you are expected to continue working on the problems discussed. Each project will consist of the results of deep and sustained investigations of your choice of three (of the six or more) tutorial problems considered each term. As with the homework, you should consider multiple solution methods, extensions of the problems, relationships with other related problems. You should include a report on your experience (how you felt) during the process of investigation. Each term you will be required to hand in early (as an indication of your progress) your report for one of the three problems.

Quizzes and Final Examination: There will be 3 quizzes per term (dates listed below: Oct 6, Nov 3, Nov 24, Jan 13, Feb 10, Mar 10). A final examination will be scheduled for the April exam period and the date announced in late-February/early March.

The following is a list of students enrolled in the two tutorials (as of Sept 15, 2009 11:45am):

Tutorial 1	Tutorial 2
Stephanie Athayde	Lynn Cao
Roman Ayala	Cheng Chen
Deepali Bhikajee	John Galinaitis
Sukhjit Brar	Fei Guo
Philip Christian	Sunmeet Hanspal
Diane Da Costa	Robert Jordan
Natalie Drumonde	Ilana Khmurov
Meilin Duong	Colman Ladouceur
Bao Huynh	My Le
Dmitry Kryukovskiy	Robert Levy
Haein Lee	Kristeen Marshall
Sanghyun Lee	Bebe Mustafa
Laavanya Maheswaran	Trung Ngo
Chia-Wei Mo	David Pocsai
Abdoul Niang	Saayma Rangrez
Thomas Norman	Ibrahim Shakul
Reubinder Sidhu	Patrick Sin
Ashleigh Uriasz	Mitchell Williams
Rajdeep Virk	Daniel Zinn
Elijah Wong	
Siu Wong	