Course Outline Form: MATH 2000 -Fall 2018

General Information

Course Title: **MATH 2000 – Proofs, Sets and Numbers F (3-1) [0.50]**

Course Description:
This course exposes the student to formal mathematical proof, and introduces the theory of sets and number systems. Topics include relations and functions, number systems including formal properties of the natural numbers, integers, and the real and complex numbers. Equivalence relations and partial and total orders are introduced. The geometry and topology of the real number line and Cartesian plane are introduced. Techniques of formal proof are introduced including well-ordering, mathematical induction, proof by contradiction, and proof by construction.

Prerequisite(s): 1 of IPS*1500, MATH*1080, MATH*1160, MATH*1200

Credit Weight: 0.5

Academic Department (or campus): Mathematics & Statistics

Campus: Guelph

Semester Offering: Fall 2018

Class Schedule and Location:	LAB Fri	EXAM Sat
LEC Mon, Wed, Fri	10:30AM - 11:20AM	07:00PM - 09:00PM (2018/12/08)
11:30AM - 12:20PM	MCKN, Room 117	Room TBA Room TBA
JTP, Room 214		

Instructor Information

Instructor Name: Monica Gabriela Cojocaru
Instructor Email: mcojocar@uoguelph.ca
Office location: MACN 549
Office hours: tentative: Every Thu from 2pm-5pm

GTA Information:
Matt Kazakow
Conner Gregor
Ningping Cao

Course Content

Specific Learning Outcomes:
This course will teach techniques of proofs, mathematical rigorous proof methods and some new knowledge in sets, number sets and relations:

- Students will be introduced to the theory of sets and sets of numbers, functions and set relations. They will learn the mathematical logic needed to handle mathematical statements
- Students will be introduced to and demonstrate proficiency in mathematical proofs, such as:

Proofs with sets; Direct proofs; Proofs by Contrapositive; Proofs by Contradiction; Nonconditional statement proofs; Proofs by Induction; Disproof

- This course is unique in that it focuses on teaching the skills of mathematical logic and proofs, rather than focusing on heavy new mathematical content.

Labs & Seminars: This course has 1 hour Lab every week on Friday. The lab will be used to train students on course material so that they can absorb more examples and problems, and so that they can be able to complete their homework assignments and term tests. Note that Labs on Weeks 5 and 10 will be conducted as a Q&A session for students, as last minute prep for the prescheduled term tests.

Course Assignments and Tests:
For clarity, the below table refers to:
First Lab & Lecture: Friday, September 7, 2018
Week 1 of classes = Week of Sept. 10, 2018
Week 12 of classes = Week of Nov. 26, 2018
Reminder: Oct 9 and Oct 10 – NO CLASSES. Classes in these days are scheduled on Nov. 29 and 30, 2018 in Week 12.

Assigned work	Date	Location	Contribution to final mark
Homework** 1	Posted online on: Friday Sept. 14	Hand in – via Dropbox in 1 week (Sept. 21)	7%
Homework 2	Posted online on: Friday Sept. 21	Hand in – via Dropbox in 1 week (Sept. 28)	7%
Homework 3	Posted online on: Friday Sept. 28	Hand in – via Dropbox in 1 week (Oct. 5)	7%
Test* 1	Fri Oct. 12	In class, duration 50 min	10%
Homework 4	Posted online on: Friday Oct 19	Hand in – via Dropbox in 1 week (Oct. 26)	7%
Homework 5	Posted online on: Friday Oct. 26	Hand in – via Dropbox in 1 week (Nov. 2)	7%

Homework 6	Posted online on: Friday Nov. 2	Hand in – via Dropbox in 1 week (Nov. 9)	7%
Test 2	Fri Nov. 16	In class, duration 50 min	10%

*Students who miss <u>one</u> term test should try to provide motivating circumstances and contact the instructor as soon as they can.

**If a student fails to submit <u>one</u> (or more) homework assignment(s) on time for any reason, they can submit ANY ONE of them any time before Nov. 16; the assignment will count for only 3.5% of the final grade. If a student has special motivating circumstances for missing assignments falling under University policy, please contact instructor.

FINAL EXAM:

Please check Webadvisor on the most up-to-date information on final exam.

Homework and term tests total = 62% Final exam weighting: 38%

Course Resources

Recommended Text: *FREE TEXT:*
http://www.people.vcu.edu/~rhammack/BookOfProof/BookOfProof.pdf

Instructor's Notes will be provided via the Courselink site of the course. They are not mandatory and they can be used in conjunction with any other 2nd year textbook treating the same topics.

Course Policies

Email communication with Instructor:
- Student emails will be replied to on a first-come basis, usually within regular working hours. If multiple emails concern an issue for the entire class, the Instructor will email the class list and/or post relevant info on the Courselink site under "NEWS".
- The Instructor will not answer homework questions by email. Homework help is available during Office Hours posted above, on a first-come basis. More details regarding additional office hours will be communicated to the class list directly. TA's and instructor will cooperate in providing support in office hours.
- Should a student need to communicate with the Instructor on specific/personal concerns, please email the instructor 1-2 days in advance, so a specific time can be set.

Homework assignments:
- Will be posted online on the Courselink page, according to the dates specified in the above Table.
- Each homework in Table above has a corresponding Dropbox folder, which becomes accessible the day the assignment is posted until 8 PM the day the assignment is due.
- All homework assignments should be scanned and loaded electronically by the hand-in date in Table above. PDF format is required. Only one file is permitted to be submitted per each Homework, per student. Multiple files for one assignment are not permitted – if you have one file for each page, make sure you bundle them in one file before submission. You can merge multiple PDF files online at: http://www.pdfmerge.com/
- Submissions should be high enough resolution so that marking can be performed. Partially visible pages and low resolution/illegible files will not be marked.

Grading Policies

All marked Tests will be returned to students within 7 calendar days in class first. After that, any marked tests can be picked up anytime in office hours.

Solution and marking scheme for all assignments and tests will be uploaded on Courselink after the hand-in dates.

Any grading concerns should be submitted in writing (on a separate page, stapled on the front page of the assignment or test) to the Instructor either at end of a class or at Instructor's office after solutions and marking scheme have been posted*.*

For further grading procedures please refer to:

http://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-grds.shtml

Please note that these policies are binding unless academic consideration is given to an individual student.

University Policies

Recording of Materials
Presentations which are made in relation to course work—including lectures—cannot be recorded or copied without the permission of the presenter, whether the instructor, a classmate or guest lecturer. Material recorded with permission is restricted to use for that course unless further permission is granted.

E-mail Communication
As per university regulations, all students are required to check their <mail.uoguelph.ca> e-mail account regularly: e-mail is the official route of communication between the University and its students.

When You Cannot Meet a Course Requirement
When you find yourself unable to meet an in-course requirement because of illness or compassionate reasons, please advise the course instructor (or designated person, such as a teaching assistant) in writing,

with your name, id#, and e-mail contact. See the undergraduate calendar for information on regulations and procedures for Academic Consideration.

Drop Date
Courses that are one semester long must be dropped by the end of the fortieth class day; two-semester courses must be dropped by the last day of the add period in the second semester. The regulations and procedures for Dropping Courses are available in the Undergraduate Calendar.

Copies of out-of-class assignments
Keep paper and/or other reliable back-up copies of all out-of-class assignments: you may be asked to resubmit work at any time.

Accessibility
The University promotes the full participation of students who experience disabilities in their academic programs. To that end, the provision of academic accommodation is a shared responsibility between the University and the student.

When accommodations are needed, the student is required to first register with Student Accessibility Services (SAS). Documentation to substantiate the existence of a disability is required, however, interim accommodations may be possible while that process is underway.

Accommodations are available for both permanent and temporary disabilities. It should be noted that common illnesses such as a cold or the flu do not constitute a disability.

Use of the SAS Exam Centre requires students to book their exams at least 7 days in advance, and not later than the 40th Class Day.

More information: www.uoguelph.ca/sas

Academic Misconduct
The University of Guelph is committed to upholding the highest standards of academic integrity and it is the responsibility of all members of the University community – faculty, staff, and students – to be aware of what constitutes academic misconduct and to do as much as possible to prevent academic offences from occurring. University of Guelph students have the responsibility of abiding by the University's policy on academic misconduct regardless of their location of study; faculty, staff and students have the responsibility of supporting an environment that discourages misconduct. Students need to remain aware that instructors have access to and the right to use electronic and other means of detection.

Please note: Whether or not a student intended to commit academic misconduct is not relevant for a finding of guilt. Hurried or careless submission of assignments does not excuse students from responsibility for verifying the academic integrity of their work before submitting it. Students who are in any doubt as to whether an action on their part could be construed as an academic offence should consult with a faculty member or faculty advisor.

The Academic Misconduct Policy is detailed in the Undergraduate Calendar.

Resources
The Academic Calendars are the source of information about the University of Guelph's procedures, policies and regulations which apply to undergraduate, graduate and diploma programs.