

MATH 220:101
Mathematical Proof
14W, Term 1 September-December

Prerequisites: You must have either a score of 64% or higher in one of MATH 101, MATH 103, MATH 105, SCIE 001, or one of MATH 121, MATH 200, MATH 217, MATH 253, MATH 263. If you do not have these prerequisites then you must see your lecturer as soon as possible.

Time and Location:

- Mon Wed Fri 12:00pm - 1:00pm MATH ANNEX 1100

Instructor: Prof. Mahta Khosravi

Office: MATH 219

Phone: 604-822-2615

E-mail: khosravi [AT] math.ubc.ca

Course webpage: <http://www.math.ubc.ca/~khosravi/>

Office Hours: Mon Wed Fri 11:00am - 12:00pm (MATH 219) or make an appointment by email.

Drop-In Tutorials: <http://www.math.ubc.ca/Ugrad/ugradTutorials.shtml>

Text: Gary Chartrand, Albert D. Polimeni and Ping Zhang: Mathematical Proofs – A Transition to Advanced Mathematics (Third Edition). Pearson / Addison Wesley, 2013. ISBN 978-0321797094

Course Outline:

The main aim of the course is to learn how to write clear and correct mathematical proofs. It provides the gateway to more advanced mathematics. A little more precisely (though this is provisional) we cover subjects from:

- Sets – definitions, set operations
- Logic – logical connectives, quantifiers
- Proofs – direct and contrapositive
- Proofs – existence and contradiction
- Induction
- Equivalence relations
- Functions – injective, surjective, bijective, inverses and compositions
- Cardinality of sets – finite sets and different types of infinite sets
- Elementary real analysis – limits of sequences and series, concept of supremums.

Grading Policy: Better result of the following:

- a) 10% homework + 20% 1st midterm + 20% 2nd midterm + 50% final exam
- b) 10% homework + 15% 1st midterm + 15% 2nd midterm + 60% final exam

Exams: There will be two 50 minute Midterm Exams which are in class and closed book, tentatively on October 3rd, and one on November 14th. No make-up midterm exam will be given. The date of the final examination will be announced by the Registrar later in the term.

Homework Assignments: On the web-page, <http://www.math.ubc.ca/~khosravi/> you will find the sections from the text that you should be reading before to come to class. The instructor will try to observe this pre-determined schedule. It is important that you check regularly this course webpage. Homework assignments will be posted weekly on this course website and collected on each Friday

(except the Friday in the first week) in class. Homework is the essential educational part of this course. You cannot expect to work problems on the exams if you have not worked lots of homework problems. Therefore, it is important that you spend an adequate time on homework regularly, each week. Late homework will not be accepted. You can work together on the homework, but you should always write up your own homework solutions in your own words.

Policy on missed assignments and tests: Students who are unable to hand in a homework due to a medical or equivalent excuse may have that homework not count towards their final grade. Missing a midterm exam or a homework normally results in a mark of zero. Exceptions are granted only with prior consent of the instructor or due to a medical emergency. In the latter case, the instructor must be notified within two working days of the missed exam and presented with a doctor's note immediately upon the student's return to UBC. If an exception is granted for a missed test, the final exam will be used to make up that portion of the grade.