PMATH 351 Real Analysis, Course Outline, Spring 2020

Lectures: This is a special online offering of the course and there are no in-class lectures. Course materials will be available on LEARN and at www.math.uwaterloo.ca/~snew

Instructor: The course instructor is Stephen New. He can be contacted by email at snew@uwaterloo.ca

Text: Lecture notes will be provided. There is no required textbook. Here is a list of some books that might be useful.

Introduction to Set Theory, by K. Hrbacek and T. Jech; Marcel Dekker
Topology, by J. Munkres; Prentice Hall
Principles of Mathematical Analysis, by W. Rudin; McGraw-Hill
An Introduction to Real Analysis, by W. Wade; Prentice Hall
Real Analysis with Real Applications, by K. Davidson and A. Donsig; Prentice Hall
Real Analysis, by J. Bruckner, A. Bruckner, B. Thomson; Prentice Hall
Elementary Real Analysis, by J. Bruckner, A. Bruckner, B. Thomson; Prentice Hall

Course Outline: We will cover all of the material in the lecture notes.

Chapter 1. Cardinality
Chapter 2. Metric Spaces
Chapter 3. Limits and Continuity
Chapter 4. Separability and Completeness
Chapter 5. Compactness
Chapter 6. Applications
Chapter 7. The Baire Category Theorem

Assignments: there will be 5 assignments. You must complete all 5 assignments and each will count for 20% of your final grade. The assignments must be submitted on LEARN using dropboxes. Each assignment must be submitted before 11:00 pm on the due date (it is recommended that you submit them well in advance in case technical difficulties arise). Here is the schedule.

Assignment 1 covers Chapters 1 and 2 and is due on Wed June 10,
Assignment 2 covers Chapter 3 and is due on Wed June 24,
Assignment 3 covers Chapter 4 and is due on Wed July 8,
Assignment 4 covers Chapter 5 and is due on Wed July 22, and
Assignment 5 covers Chapters 6 and 7 and is due on Wed Aug 5.

Tests: There will be no midterm test and no final examination.

Course Mark: The final course grade will be entirely based on your assignment marks, and all assignments will be given equal weight.
Persons with Disabilities: Access Ability Services located in Needles Hall, Room 1132, collaborates with all academic departments to arrange appropriate accommodations for students with disabilities without compromising the academic integrity of the curriculum. If you require academic accommodations to lessen the impact of your disability, please register with the Access Ability Services at the beginning of each academic term.

Academic Integrity: In order to maintain a culture of academic integrity, members of the University of Waterloo community are expected to promote honesty, trust, fairness, respect and responsibility. (Check www.uwaterloo.ca/academicintegrity/ for more information.)

Grievance: A student who believes that a decision affecting some aspect of his/her university life has been unfair or unreasonable may have grounds for initiating a grievance. Read Policy 70, Student Petitions and Grievances, Section 4, http://www.adm.uwaterloo.ca/infosec/Policies/policy70.htm. When in doubt please be certain to contact the department’s administrative assistant who will provide further assistance.

Discipline: A student is expected to know what constitutes academic integrity to avoid committing academic offenses and to take responsibility for his/her actions. A student who is unsure whether an action constitutes an offense, or who needs help in learning how to avoid offenses (e.g., plagiarism, cheating) or about ”rules” for group work/collaboration should seek guidance from the course professor, academic advisor, or the undergraduate associate dean. For information on categories of offenses and types of penalties, students should refer to Policy 71, Student Discipline, http://www.adm.uwaterloo.ca/infosec/Policies/policy71.htm. For typical penalties check Guidelines for the Assessment of Penalties, http://www.adm.uwaterloo.ca/infosec/guidelines/penaltyguidelines.htm.

Appeals: A decision made or penalty imposed under Policy 70, Student Petitions and Grievances (other than a petition) or Policy 71, Student Discipline may be appealed if there is a ground. A student who believes he/she has a ground for an appeal should refer to Policy 72, Student Appeals, http://www.adm.uwaterloo.ca/infosec/Policies/policy72.htm.