

# MATH 3200 Course Outline

## General Information

**Course Title:** Real Analysis

**Course Description:** This course provides a basic foundation for real analysis. The rigorous treatment of the subject in terms of theory and examples gives students the flavour of mathematical reasoning and intuition for other advanced topics in mathematics. Topics covered include the real number line and the supremum property; metric spaces; continuity and uniform continuity; completeness and compactness; the Banach fixed-point theorem and its applications to ODEs; uniform convergence and the rigorous treatment of the Riemann integral.

**Credit Weight:** 0.5

**Academic Department (or campus):** Mathematics & Statistics

**Campus:** University of Guelph

**Semester Offering:** Fall 2017

**Class Schedule and Location:** Tues/Thurs 2:30-4 in MacKinnon 312

## Instructor Information

**Instructor Name:** Rajesh Pereira

**Instructor Email:** pereirar@uoguelph.ca

**Office location and office hours:** MacNaughton 519, Office Hrs TBA

## Course Content

**Specific Learning Outcomes:** Students in this course will learn the basic ideas and tools of analysis. Students will get practice in constructing mathematical proofs and writing mathematical arguments.

**Lecture Content:** The development of analysis was a major turning point in the history of mathematics and a key building block of modern mathematics. We will explore these concepts and develop the mathematical tools needed to study them. This course will cover all of the topics in the course description in detail.

## **Course Assignments and Tests:**

**Marking Scheme:** Assignments 20%  
2 Midterms 15% each  
Final Exam 50%

There will be six assignments.

**Midterms:** October 4<sup>th</sup> & October 25<sup>th</sup> 17:30-18:50 in MCKN 232

**Final examination date and time:** Monday Dec 4<sup>th</sup>: 11:30-1:30

**Final Examination regulations are detailed at:**

<http://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-exam.shtml>

## **Course Resources**

**Required Text:** Richard Johnsonbaugh and W. E. Pfaffenberger, Foundations of Mathematical Analysis, Dover Publications (2010)

We will cover Chapters 2, 3, 4, 6, 7, 9, 10 and most of 12 from this text. Students are also encouraged to review Chapter 1 on their own.

## **Course Policies**

**Course Policy on Group Work:** While you may consult with one another or any reference about the general ideas on assignments, any written work must be your own. It is not permitted to ask someone for step by step guidance on assignment problem nor to copy from the work of another student or any other source.

## **University Policies and Information**

The following are standard statements for inclusion on all course outlines (adapted with permission from the College of Arts).

### **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; in the Fall 2017 semester this day is November 3<sup>rd</sup>. 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](http://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.](#)

#### 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.

#### 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.