

The University of Western Ontario
Department of Mathematics
Mathematics 4122B/9022B
INTRODUCTION TO MEASURE THEORY
Winter 2020

Lectures: Mon/Wed/Fri, 1:30–2:30pm, MC-108

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Office Hours: TBA

Course Website: <http://uwo.ca/math/faculty/adamus/teaching/4122B2020/>

Textbook: *Real analysis for graduate students*, R. F. Bass, ver. 3.1, 2016 (recommended).

Other suggested reading:

- *Real and complex analysis*, W. Rudin, 3rd edition, McGraw-Hill, 1987.
- *Real and Functional Analysis*, S. Lang, 3rd edition, Springer, GTM 142, 1993.

Prerequisites: Mathematics 3122A/B.

Senate Policy on Prerequisites: Unless you have either the requisites for this course or written special permission from your Dean to enroll in it, you will be removed from this course and it will be deleted from your record. This decision may not be appealed. You will receive no adjustment to your fees in the event that you are dropped from a course for failing to have the necessary prerequisites.

Course Outline: Lebesgue measure, measurable sets and functions, Littlewood principles; the Lebesgue integral, basic convergence theorems, approximation theorems; measure spaces, signed measures, Radon-Nikodym Theorem.

Evaluation: For undergraduate students, the course mark will be based on their term work, 2 term tests, and the final exam, with the following weights:

- Term work: 24%
- Term tests: 36%
- Final exam: 40%.

For graduate students, the final mark will be the weighted average of the above components and the in-class presentation of a selected topic, with weights of 95% and 5% respectively.

The term work will consist of bi-weekly assignments or weekly quizzes (depending on the TA support), and will be announced at the beginning of the term.

Examination Dates: The dates of the in-class term tests TBA. The final exam will be scheduled by the Registrar.

Accommodation and Accessibility: Students who are unable to meet a course requirement due to illness or other serious circumstances, must seek approval for their absence as soon as possible. Approval can be granted either through a self-reporting of absence or via the Dean's Office/Academic Counselling unit of your Home Faculty. For Science students, the Academic Counselling Office of the Faculty of Science is located in NCB 280, and can be contacted at scibmsac@uwo.ca.

For further information, please consult the university's policy on academic consideration for student absences: https://www.uwo.ca/univsec/pdf/academic_policies/appeals/Academic_Consideration_for_absences.pdf.

Approval of accommodation for any course component worth 10% or more can only be made by the student's home faculty Dean's Office/Academic Counselling unit. Accommodation for work worth less than 10% is at the discretion of the instructor (the decision on granting accommodation can be made by the instructor or the student may be referred by the instructor to the student's home faculty Dean's Office/Academic Counselling unit).

It is the student's responsibility to make alternative arrangements with their instructor once the accommodation has been approved and the instructor has been informed.

If you miss the Final Exam, please contact your faculty's Academic Counselling Office as soon as you are able to do so. They will assess your eligibility to write the Special Exam (the name given by the university to a makeup Final Exam).

You may also be eligible to write the Special Exam if you are in a "Multiple Exam Situation" (see http://www.registrar.uwo.ca/examinations/exam_schedule.html).

Academic Policies: The website for Registrarial Services is <http://www.registrar.uwo.ca>.

In accordance with policy, <http://www.uwo.ca/its/identity/activatenonstudent.html>, the centrally administered e-mail account provided to students will be considered the individual's official university e-mail address. It is the responsibility of the account holder to ensure that e-mail received from the University at their official university address is attended to in a timely manner.

Scholastic offences are taken seriously and students are directed to read the appropriate policy, specifically, the definition of what constitutes a Scholastic Offence, at this website:

http://www.uwo.ca/univsec/pdf/academic_policies/appeals/scholastic_discipline_undergrad.pdf.

Support services: Please contact the course instructor if you require lecture or printed material in an alternate format or if any other arrangements can make this course more accessible to you. You may also wish to contact Student Accessibility Services (SAS) at 661-2147 if you have any questions regarding accommodations.

The policy on Accommodation for Students with Disabilities can be found here:

https://www.uwo.ca/univsec/pdf/academic_policies/appeals/Academic%20Accommodation_disabilities.pdf.

The policy on Accommodation for Religious Holidays can be found here:

http://www.uwo.ca/univsec/pdf/academic_policies/appeals/accommodation_religious.pdf.

Learning-skills counsellors at the Student Development Centre (<http://www.sdc.uwo.ca>) are ready to help you improve your learning skills. They offer presentations on strategies for improving time management, multiple-choice exam preparation/writing, textbook reading, and more. Individual support is offered throughout the Fall/Winter terms in the drop-in Learning Help Centre, and year-round through individual counselling.

Students who are in emotional/mental distress should refer to Mental Health@Western (http://www.health.uwo.ca/mental_health) for a complete list of options about how to obtain help.

Additional student-run support services are offered by the USC, <http://westernusc.ca/services>.