

The University of Western Ontario
Department of Mathematics
Mathematics 4122A/9022A
INTRODUCTION TO MEASURE THEORY
Winter 2019

Lectures:

Mon/Wed/Fri, 1:30–2:30pm; MC-107

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Office Hours: TBA

Course Website: <http://uwo.ca/math/faculty/adamus/teaching/4122B2019/>

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 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.

Statement on Academic Offenses: Scholastic offenses are taken seriously and students are directed to read the appropriate policy, specifically, the definition of what constitutes a Scholastic Offense, at the following website:

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

Medical Excuse Regulations: Students who are unable to meet a course requirement worth 10% or more of the course grade, due to illness or other serious circumstances, must provide valid medical or other supporting documentation to their home faculty Dean's Office as soon as possible and contact their instructor immediately. 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. In the event of a missed final exam, a "Recommendation of Special Examination" form must be obtained from the Dean's Office as soon as possible.

The Policy on Accommodation for Medical Illness is available at

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

A student requiring academic accommodation due to illness should use the Student Medical Certificate when visiting an off-campus medical facility or request a Record's Release Form (located in the Dean's Office) for visits to Student Health Services. The form can be found here:

http://studentservices.uwo.ca/secure/medical_document.pdf

Mental Health Statement: 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.

Accessibility Statement: Please contact the course instructor if you require material in an alternate format or if you require any other arrangements to make this course more accessible to you. You may also wish to contact Services for Students with Disabilities (SSD) at 661-2111 ext. 82147 for any specific questions regarding an accommodation.

Student Accessibility Services: Western is committed to achieving barrier-free accessibility for all its members, including graduate students. As part of this commitment, Western provides a variety of services devoted to promoting, advocating, and accommodating persons with disabilities in their respective graduate program.

Graduate students with disabilities (for example, chronic illnesses, mental health conditions, mobility impairments) are encouraged to register with Student Accessibility Services, a confidential service designed to support graduate and undergraduate students through their academic program. With the appropriate documentation, the student will work with both SAS and their graduate programs (normally their Graduate Chair and/or Course instructor) to ensure that appropriate academic accommodations to program requirements are arranged. These accommodations include individual counselling, alternative formatted literature, accessible campus transportation, learning strategy instruction, writing exams and assistive technology instruction. See <http://www.sdc.uwo.ca/ssd/>.