Acknowledgement

UBC's Point Grey Campus is located on the traditional, ancestral, and unceded territory of the xʷməθkʷəy̓əm (Musqueam) people.

Course Information

Course Title	Course Code Number	Credit Value
Real Analysis I	MATH 420	3
Measure Theory & Integration	MATH 507	3

Time and Room: MWF 11am-12pm, in MATH 202

Prerequisites

68% in MATH321

Corequisites

None

Contacts

Course Instructor(s)	Contact Details	Office Location	Office Hours
Sven Bachmann	sbach@math.ubc.ca or Canvas DM	MATH 228	Friday 1-2pm

Other Instructional Staff

TA: Alan Getz alanrgetz@gmail.com
Office hours: TBA

Course Structure & Learning Outcomes

The three weekly lectures aim at a detailed mathematical treatment of elementary measure theory and the general theory of integration. This includes the definition and construction of measures, integration with respect to a measure, convergence theorems, and an introduction to L^p spaces, followed by differentiation. The lectures will be complemented by the homework assignments which are an essential part of the learning process. Questions during the lectures are encouraged.

With slight variations, we will cover the first three chapters of Folland's textbook, with additions from chapters 6 and 7. Chapter 0 is considered known material. It is recommend that you follow the lecture material in the textbook.

Learning Materials

There will be weekly handwritten lecture notes posted on the course's Canvas page. The weekly homework assignments and their solutions will be posted there as well. All important announcements will be communicated through Canvas.

We will follow Folland's textbook rather closely:
Real Analysis: Modern Techniques and Their Applications by G. B. Folland
There are many other excellent texts, such as
Real and Abstract Analysis by E. Hewitt and K. Stromberg,
These lecture notes, and many, many others.

Discussions on Piazza is encouraged, and must be limited to the course material. The course's TA will monitor the discussions, comment and respond whenever needed.

Assessments of Learning

There will be

1. (almost) weekly homework assignments due Mondays at 11am,
2. two midterm exams, on Wednesday October 15 and Wednesday November 19,
3. one final exam to be scheduled in the exam period.

Cheating will not be tolerated.

The final grade is computed as such:

Homework: 5%; Midterms: 20% each; Final: 55%.

In order to obtain the maximum 5% available for the homework, 10 sheets must be handed in during the term. They will not be marked, but checked for evidence of sufficient work (at least three-quarters of the problems worked out).

Missing a midterm: There is no make-up midterm. Missing a midterm for a valid reason normally results in the weight of that midterm being transferred to the final exam, resulting in HW: 5%, M: 20%, F: 75%. Examples of valid reasons include illness and travel to play a scheduled game for a varsity team. Examples of reasons that are not valid include conflicts with personal travel schedules or conflicts with work schedules. If you miss a test, you must submit a self-declaration form for reporting a missed assessment within 24 hours of the midterm time.

After midterm grades are released: Solution of the problems will be available on the midterm assignment page. Please consult them before contacting us about your grade. If you think there is a marking error, contact the TA with a detailed request specifying which question should be reviewed and why. Alternatively, you can attend office hours. Requests will be considered within one week after the grade release.

Academic concessions for final exam are handled through your Faculty Advising Office.

All assertions require an argument unless the problem states otherwise. No matter the operative word ('prove', 'find', 'solve', 'establish', 'calculate', 'determine',...), you must justify your answer. Written work should be presented carefully, in complete English sentences, and with sufficient detail. A correct sequence of formulas will only receive partial credit, an unstructured cloud of formulas and incoherent text will receive none.

University Policies

UBC provides resources to support student learning and to maintain healthy lifestyles but recognizes that sometimes crises arise and so there are additional resources to access including those for survivors of sexual violence. UBC values respect for the person and ideas of all members of the academic community. Harassment and discrimination are not tolerated nor is suppression of academic freedom. UBC provides appropriate accommodation for students with disabilities and for religious observances. UBC values academic honesty and students are expected to acknowledge the ideas generated by others and to uphold the highest academic standards in all of their actions. Details of the policies and how to access support are available on the UBC Senate website.

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