

**Class:** MWF: 9:00 am – 9:50 am; MA 312; CRN: 74932

**Moodle page:** <https://moodle.umn.edu/course/view.php?id=14995>  
This site will contain all information on this sheet plus more. Homework assignments and other information pertinent to this course (such as office hours) will be posted at this webpage. The moodle page will be updated frequently, so you should visit it regularly.

**Course Description:** The topics covered will include:

- measure theory
- abstract integration theory
- theory of  $L^p$ -spaces
- applications to Probability Theory and Fourier Analysis

**HIGHLIGHTS:** Following are some of the most important results of the theory that we will cover in this course:

- Lebesgue measure and integral
- The Fundamental Theorems:
  - Monotone Convergence Theorem
  - Fatou's Lemma
  - Lebesgue's Dominated Convergence Theorem
  - Radon-Nikodym Theorem
- Product measures and the theorems of Fubini and Tonelli
- Hölder's and Minkowski's inequalities

**Professor:** Karel Stroethoff  
OFFICE: MA 307;  
Phone: 243-4082 (or math office 243-5311 to leave a message);  
E-mail: [karel.stroethoff@umn.edu](mailto:karel.stroethoff@umn.edu);  
OFFICE HOURS: To be announced (see moodle page)

**Prerequisites:** M 473 or 472 (MATH 451 or 452) or consent of instructor

**Textbook:** Richard F. Bass, *Real Analysis for Graduate Students*, second edition CreateSpace Independent Publishing, 2013, ISBN: 1481869140. A PDF of this book is freely available at the author's website: <http://bass.math.uconn.edu/real.html>. A paperback of this text can be purchased from Amazon.com for \$9.95. A link will be provided on the moodle page.

<b>Important Dates:</b>	August 29:	Instruction begins
	September 5:	Labor Day Holiday, no class
	November 8:	Election Day, no class
	November 11:	Veteran's Day Holiday, no class
	November 23–25:	Thanksgiving Vacation
	December 12:	Last Day of Regular Classes
	December 14–20:	Final Exam Week

**Homework:** There will be regular written homework assignments given throughout the semester. For each of the assignments you will have a variety of problems from which to choose, to allow for different backgrounds and interests. Late homework problems will only be accepted within a week of the due date, and will be worth at most 80% of the points.

**Midterm Exam:** October 28.

**Final Exam:** December 19, 8:00am–10:00am.

**Grading:** Your grade for the course will be based on the three assessment components using the following percentages: 50% homework, 20% midterm exam, and 30% final exam.