

Lebesgue Integration and Fourier Analysis

PMATH 450/650

Spring 2020

Instructor information

Prof. Kathryn E. Hare

Email: kehare@uwaterloo.ca

"Office" hours - TBD

Course information

Outline: Lebesgue measure on the line, Lebesgue integral, Monotone and Dominated convergence theorems, L^p spaces. Hilbert spaces - orthonormal bases, separability. Fourier analysis on the circle, Parseval's theorem, Dirichlet and Fejer kernels, Riemann-Lebesgue lemma, Fejer's theorem, questions of convergence of Fourier series.

Textbook: No required text. The textbook, Real Analysis by Bruckner, Bruckner and Thompson, is freely available on line.

Marking scheme: I anticipate the marks will be based upon 10 weekly assignments. The assignments will be managed through Crowdmark. There will be an additional project for graduate students.