

# PMATH 833 (née 950): Harmonic Analysis

## Winter 2018

**Instructor.** Nico Spronk, [nspronk@uwaterloo.ca](mailto:nspronk@uwaterloo.ca), MC5322.

**Content.** I will cover all of the basic topics:

- locally compact groups, Haar measure
- abelian harmonic analysis, Pontryagin duality
- compact harmonic analysis, Peter-Weyl Theorem, aspects of duality
- amenable groups, Reiter and Følner conditions, Hulanicki's theorem.

**Prerequisites.** Every student must have a course in functional analysis (PM 753, or equivalent), and exposure to abstract measure theory (PM 651, or equivalent).

**Grading scheme.** Assignments: 85%, Talk 15%.

**Texts.** The course will be self-contained and no text is required. I will be using material from the following books, which I will put on reserve in the library.

- [1] G. B. Folland, *A Course in Abstract Harmonic Analysis*, CRC Press, 1995.
- [2] E. Hewitt and K. A. Ross, *Abstract Harmonic Analysis I*, Springer, 1963.
- [3] E. Hewitt and K. A. Ross, *Abstract Harmonic Analysis II*, Springer, 1970.
- [4] W. Rudin, *Fourier Analysis on Groups*, Wiley, 1962.