PMATH 833: Harmonic Analysis
Winter 2020

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Content. I will cover all of the basic topics:
- locally compact groups, Haar measure
- convolution of measures, L^1-group algebra
- introduction to (unitary) representations
- 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%. (No exams.)

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

[**1**] G. B. Folland, *A Course in Abstract Harmonic Analysis*, CRC Press, 1995.

[**2**] F. P. Greenleaf, *Invariant means on topological groups and their applications*, van Nostrad 1969.

[**3**] E. Hewitt and K. A. Ross, *Abstract Harmonic Analysis I*, Springer, 1963.

[**4**] E. Hewitt and K. A. Ross, *Abstract Harmonic Analysis II*, Springer, 1970.

[**5**] L. H. Loomis, *Introduction to Abstract Harmonic Analysis*, van Nostrad, 1953; republished by Dover.

[**6**] W. Rudin, *Fourier Analysis on Groups*, Wiley, 1962.