Mathematics 6350 3.0: Partial Differential Equations
Winter 2018
Days: Tuesdays and Thursdays
Time: 10:00 a.m. - 11:30 a.m.
Place: N201 Ross Building

Instructor: Professor M. W. Wong
Office: N530 Ross Building
Office Hours: By Appointment Only
Telephone: (416) 736-2100 Ext: 33946
Website: http://www.math.yorku.ca/∼mwwong

Course Objectives: The objectives are 4-fold.

- The students are expected to learn the basics of Fourier analysis and tempered distributions, which are some of the essential underpinnings of modern partial differential equations.

- The students are expected to understand the basic definition and the calculus of the simplest class of pseudo-differential operators.

- The students are expected to know how these pseudo-differential operators are used in the construction and the regularity of solutions of elliptic partial differential equations.

- Students are expected to learn how to reason logically and write out a mathematical proof for the material in the course.

Textbook: M. W. Wong, An Introduction to Pseudo-Differential Operators, Third Edition, World Scientific, 2014

Syllabus:
The Convolution, The Fourier Transform, Tempered Distributions, Symbols, Pseudo-Differential Operators, Asymptotic Formulas for Products and

Formal Adjoints, Parametrices and Ellipticity, L^p-Boundedness, The Sobolev Spaces $H^{s,p}$, $-\infty < s < \infty$, $1 \le p < \infty$, Minimal and Maximal Pseudo-Differential Operators, Global Regularity of Elliptic Partial Differential Equations, Weak Solutions of Pseudo-Differential Equations

Grading Scheme:
Assignments: 60%, A 3-Hour Final Exam: 40%
The final grade for the course is based on the following distribution:
92%–100% A+
85%—91% A
80%—84% A–
75%—79% B+
70%—74% B
60%—69% C
0% —59% F

Comprehensive Exam:
Students taking this course for the purpose of fulfilling the Ph.D. comprehensive exam requirement should note that the comprehensive exam will be identical with the final, but a score of at least 50% in the final is required for passing the comprehensive.

Date of Final/Comprehensive Exam:
The Final/Comprehensive Exam will take place in N638 Ross Building from 10:00 a.m. to 1:00 p.m. on Friday, April 13, 2018.