644. Partial Differential Equations (Fall 2014)

Instructor: Ryan Hynd

Office: DRL 4N42

Office Hours: Tuesdays 4 – 5:30pm

Lecture: M W 12 – 1:30pm

Class location: DRL 4C8

Description: This is a course on theory for partial differential equations (PDE). We will first learn theory related to linear elliptic, parabolic and hyperbolic equations, and then move on to nonlinear PDE arising in the calculus of variations, gradient flows, and optimal control. Along the way, we will discuss connections to physics, optimization, engineering, and other areas of mathematics.

Prerequisites: Familiarity with real and functional analysis. Some exposure to differential equations and PDE.

Textbook: “Partial Differential Equations” second edition, by L. Craig Evans. We will cover various topics in Chapters 6-10 of this book.

Note: The material we will cover complements the material offered in last year’s 644 and 645 sequence.