M6932: Seminar in PDEs
MWF Period 6 (12:50PM - 1:45 AM) Room: MW, MAT115 and F MAT16

Instructor: Cheng Yu, Little Hall 416, chengyu@ufl.edu

Office Hours: MW 10:00am-11:00am.

Textbooks: Partial Differential Equations by Evans,
Mathematical topics in Fluid Mechanics vol1 by P.-L. Lions,
Mathematical topics in Fluid Mechanics vol2 by P.-L. Lions,
Study of a generalized fragmentation model for sprays by Leger and Vasseur,
Models of dispersal in biological systems by Othmer, Dunbar and Alt,
Nonlinear age-dependent population dynamics by Gurtin and MacCamy.

Prerequisites: any graduate, advanced undergraduate students.

Description: This course is designed for the graduate students from math and Engineering. In this course, we will discuss a variety of topics in the first order nonlinear partial differential equation(s) and several applications in biology and in mechanics. In particular, we will cover the following topics:
a. Nonlinear first-order PDE with nice coefficients
b. kinetic equations from biology, sprays and combustion
c. Introduction to conservation Laws
d. Introduction to compressible Navier-Stokes equations.

Exams: The grade will be determined by a final project and presentations in class.

Extra Help: Please stop by my office during office hours or by appointment to discuss any aspect of the course. Welcome students to discuss any research problems on nonlinear PDEs.