

# MATH 5392 An Introduction to Semilinear Evolution Equations

Section Number 002, Spring 2015

Course Number: 22644

**Lecture:** MW 7:00-8:20pm, 109 Pickard Hall(PKH)

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**Office Hours:** MW 2:30pm -4:00pm or by appointment.

**Prerequisite:** Analysis, Partial Differential Equations.

**Text:** *An Introduction to Semilinear Evolution Equations*, Revised Edition by T. Cazenave and A. Haraux

**Course Description:** We will provide in this course a self-contained presentation of recent results concerning the fundamental properties of solutions of semilinear evolution partial differential equations, with special emphasis on the asymptotic behaviour of the solutions.

**Topics:** Chapter 6, The Klein-Gordon Equations: local existence, global existence, blow-up in finite time, application to a model case. Chapter 7, The Schrodinger Equation: linear Schrodinger equation, the nonlinear Schrodinger equation, local existence, some estimates, global existence, blow-up in finite time, application to a model case. Chapter 8, Bounds of Global Solutions: uniform estimates, the Klein-Gordon equation.

**Requirements:** Several Homework assignments.