Course #: Math. 612 - Hilbert Space Methods in Applied Mathematics II.

Instructor: Dr A. Boucherif.


References:
3. B. Friedman, Principles and Techniques of Applied Mathematics,

Objectives: This course is a continuation of Math.611. It covers the areas of Applied Functional Analysis, the theory of Integral Equations, and an introduction to Nonlinear Problems. The emphasis will be on the applications of nonlinear analysis.

Topics to be covered:

- Chapter 6: Volterra and Fredholm Integral Equations
  - Spectrum of a compact self-adjoint operator
  - Variational Principles and related methods

- Chapter 7: Spectral theory of second order differential operators

- Chapter 9: Introduction to Nonlinear Problems-Perturbation Theory

Grading Policy

- Term paper: 60%
- Take-Home Final: 30%
- Regular Assignments: 10%