

## **MATH 641 – Analysis for Applications I**

TEXT: “Analysis for Applied Mathematics” by Ward Cheney, published by Springer

CATALOG DESCRIPTION: Review of preliminary concepts; sequence and function spaces; spectral theory of compact operators and Fredholm theory; calculus in Banach spaces with applications to calculus of variations; some basic approximate methods of analysis. Prerequisite: MATH 447, MATH 640 or approval of instructor.

## **MATH 642 – Analysis for Applications II**

TEXT: “Analysis for Applied Mathematics” by Ward Cheney, published by Springer

CATALOG DESCRIPTION: Distributions and differential operators, Fourier transforms, applications to partial differential equations, introduction to Sobolev spaces, spectral theory for unbounded self-adjoint operators. Prerequisite: MATH 641.