

# Math. 312: Partial Differential Equations

Fall 2003

## Tentative Syllabus:

1. The method of separation of variables: Heat flow in one and several dimensions.
2. Fourier Series and vibrations: strings, membranes, electromagnetic waves.
3. Problems with symmetry: Sturm-Liouville theory and the Special Functions of Mathematical Physics.
4. Introduction to the numerical solution of PDEs by Finite Difference methods.
5. Green's functions: sources for the Heat, Laplace and Wave equations.
6. Introduction to Fourier and Laplace transform methods for PDEs.