Physics 301

Mathematical Methods

This is a one-semester course covering mainly topics in mathematics
that are useful in solving the partial differential equations arising
in physics. Some of the topics included are:

1. Review of ordinary differential equations
2. Fourier series and integrals
3. The heat equation in one dimension
4. the wave equation in one dimension
5. Poisson's equation in two dimensions
4. Heat and wave equations in several dimensions
5. Special functions: Bessel functions and Legendre polynomials
6. Laplace transforms