APM 384: Topics by week

(as of November 12)

Here is a revised list of the topics we will cover in the course on a week-by-week basis. Please note that this is a prediction and will depend on how well we progress. This document will be kept up to date, so it may be replaced by a more accurate description later in the term. Not all of the material of the chapters in Haberman referenced below may be covered.

Week of	Topics covered	Haberman
September 8	Derivation of wave equation. Method of characteristics	Handout 1 and Chapter 4
September 15	Derivation of heat equation. Separation of variables	Chapters 1,2
September 22	Heat equation continued. First glimpse at Fourier series. Laplace's equation.	Chapter 2
September 29	Harmonic and analytic functions. Orthogonality of trigonometric functions.	Chapter 3 and Handout 2
October 6	Fourier Series	Chapter 3
October 13	Fourier Series continued	Chapter 3
October 20	Midterm.	n/a
Ocotber 27	Sturm-Liouville eigenvalue problems and the Raleigh quotient	Chapter 5
November 3	Sturm-Liouville problems continued. Brief glimpse to higher dimensions	Chapter 5
November 10	Green's functions and the Fredholm alternative	Chapter 9
November 17	The Fourier Transform	Chapter 10
November 24	Numerical methods	Chapter 10
December 1	Review	(Monday lecture only)