APM 384: Topics by week (as of October 30)

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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 9	Derivation of wave equation. Method of characteristics	Handout 1 and Chapter 4
September 16	Derivation of heat equation. Separation of variables	Chapters 1,2
September 23	Heat equation continued. First glimpse at Fourier series. Laplace's equation.	Chapter 2
September 30	Harmonic and analytic functions. Orthogonality of trigonometric functions.	Chapter 3 and Handout 2
October 7	Fourier Series	Chapter 3
October 14	Fourier Series continued	Chapter 3
October 21	Midterm.	n/a
Ocotber 28	Sturm-Liouville eigenvalue problems and the Raleigh quotient	Chapter 5
November 4	Higher order equations, in particular the wave equation	Chapter 7
November 11	Green's functions	Chapter 9
November 18	The Fredholm Alternative	Chapter 9
November 25	The Fourier Transform	Chapter 10
December 2	Numerical methods	Chapter 6