Description: Covers statistical methods commonly used in the analysis of oceanographic datasets. Familiarity with Matlab or a similar programming language is required.

Office Hours: MF 9-10 AM or by appointment, MSB 317c, 956-6161, markm@soest.hawaii.edu

References: Recommended, not required.

  Data Analysis Methods in Physical Oceanography - Emery and Thomson
  Numerical Recipes - Press, Flannery, Teukolsky, and Vetterling
  Probability, Random Variables, and Stochastic Processes – Papoulis
  Random Data: Analysis and Measurement Procedures - Bendat and Piersol
  Spectral Analysis and Its Applications - Jenkins and Watt
  Spectral Analysis for Physical Applications - Percival and Walden
  Spectral Analysis and Time Series - Priestley
  The Fourier Transform and Its Applications - Bracewell
  Extreme Value Theory in Engineering - Castillo

Grading: 50% Homework, 30% Final, 20% Midterm Exam

Topics:

Random variables  Monte Carlo methods
Probability density functions  Stochastic processes
Moments and expected values  Fourier analysis
Statistics of extreme events  Auto-spectra
Estimation and sample distributions  Rotary spectra
Confidence intervals  Cross-spectra
Hypothesis testing  Digital filters
Regression and correlation  Complex demodulation
Serial correlations and degrees of freedom  Empirical orthogonal functions