

ICTP DIPLOMA PROGRAMME IN EARTH SYSTEM PHYSICS 2013-14

SYLLABUS

MATHEMATICAL METHODS - {12 Lectures = 18 hours} J. Niemela

FIRST HALF

Probability basics (discrete and continuous problems)

- a. Probability spaces, events, outcomes
- b. Conditional probabilities
- c. Independent events
- d. Counting: permutations and combinations
- e. Binomial, Poisson, uniform, Gaussian and other distributions of probability
- f. Probability density functions
- g. Mean and variance
- h. Expectation operator
- i. Higher order moments

SECOND HALF

Wavelet analysis applied to random data

RESOURCES

Recommended Book:

Bendat & Piersol, Random Data: Analysis and Measurement Procedures. (Wiley, 1971)