GEOF210 Data Analysis in Meteorology and Oceanography
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Credits: 10.0

Aim and Content:
The course provides a basic introduction to statistical methods commonly applied in analysis of observed simulated quantities in oceanography and meteorology. This includes descriptive statistic, hypothesis testing, and probability distribution. The course will further contain frequency analysis and filtering of time series, and methods for identifying spatial coherences such as linear regressions, correlation analysis, and empirical orthogonal functions. The theory will be applied on geophysical problems.

Learning Outcomes:
By the completion of the subject, the student should be able to:
- prepare and systemize observational and model data for statistical analysis, and present the results of the analysis
- compute and discuss basic statistical properties
- perform hypothesis testing
- compute correlations and regressions between time series
- determine the frequency spectrum of a time series
- deduce the spatial structure of data
- synthesize the result of analyzes in a scientific report

The Book:
DATA ANALYSIS METHODS IN PHYSICAL OCEANOGRAPHY, 3nd EDITION, Richard E. Thomson and William J. Emery, 2014, Elsevier Press, Third edition, paperback. ISBN 97801238778264.

Language of Instruction:
English

Pre-requirements:
Background in meteorology and/or oceanography; basic training in statistics.

Compulsory Requirements:
Project thesis

Assessment methods:
The project thesis must be passed in order to take the exam. The final exam, written four hours. If less than 10 students are registered, there might be a oral exam. No auxiliary material allowed for the exam.

Grading Scale
The grading scale used is A to F. Grade A is the highest passing grade in the grading scale, grade F is a fail.