Module: Elective Advanced Lectures: Experimental Physics

Module No.: physics70a

Course: Statistical Methods of Data Analysis (E)

Course No.: physics716

Category	Type	Language	Teaching hours	CP	Semester
Elective	Lecture with exercises	English	2+1	4	ST

Requirements for Participation:

Preparation:

Form of Testing and Examination:
Requirements for the examination (written): successful work with the exercises

Length of Course:
1 semester

Aims of the Course:
Provide a foundation in statistical methods and give some concrete examples of how the methods are applied to data analysis in particle physics experiments

Contents of the Course:
Fundamental concepts of statistics, probability distributions, Monte Carlo methods, fitting of data, statistical and systematic errors, error propagation, upper limits, hypothesis testing, unfolding

Recommended Literature:
R. Barlow: A Guide to the Use of Statistical Methods in the Physical Sciences; J. Wiley Ltd. Wichester 1993
S. Brandt: Datenanalyse (Spektrum Akademischer Verlag, Heidelberg 4. Aufl. 1999)