

# Module: Elective Advanced Lectures: Experimental Physics

Module No.: physics70a

Course:  universität **bonn**

## 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)