Introduction to Data Analysis (7 lectures, 21 hours)
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1. **random variable** (discrete and continuous random variables, its specific numerical values: mean, dispersion, median, mode, quintile, asymmetry, excess).

2-3. **Measurement uncertainties** (estimating errors and uncertainties during data measurement, statistical and systematic uncertainties, combining of statistical and systematic uncertainties. Estimating uncertainties in indirect measurements. Combining results of independent measurements.

4-5. **Some important distributions and their properties** (Geometric and binomial distributions, Poisson distribution, uniformly distributed random variable, normal distribution, χ^2 distribution. Student, Cauchy and Breit-Wigner distributions).

6. **Mathematical statistics** (Statistic vs probability, parameter point and interval estimation. Mean value estimation in case normal distribution).

7. **Methods of analysing experimental data distributions** (Maximum likelihood method. Method of least squares)

Literature:

1. Frodesen, Skjeggestad and Tofte, ” Probability ad Statistics in Particle Physics”, Columbia University Press, 1979.
2. G.Bohm, G.Zech. Introduction to Statistics and Data Analysis for Physicists, Verlag Deutsches Elektronen-Synchrotron, 2010