Complex exam major subject	Data Analysis

Syllabus Reading data; Selecting and filtering the data; Plotting data; Data normalization; Data structures; Data manipulation, sorting, grouping, rearranging; Interpolation; Descriptive statistics; Inferential statistics; Feature selection; Statistical distributions; Basic mathematical concepts (linear algebra, differential equations, optimization, PCA, Bayes theorem); Basic machine learning algorithms (classification, regression, clustering); Structured and unstructured data; Software packages for data analysis.

Bibliography

1. Charles M. Judd, Gary H. McClelland, Carey S. Ryan: Data Analysis: A Model Comparison Approach To Regression, ANOVA, and Beyond, 3rd Edition, Routledge, 2017.
2. William McKinney: Python for Data Analysis, O'Reilly Media, 2012.
3. Field Cady: The Data Science Handbook, Wiley, 2017.
4. Anil Maheshwari: Data Analytics Made Accessible: 2019 edition, Kindle edition.
5. Mohammed J. Zaki, Wagner Meira: Data Mining and Analysis: Fundamental Concepts and Algorithms, Cambridge University Press, 2014.

Compulsory subjects for this major subject Mathematics of Data Science
Machine Learning

Recommended subjects for this major subject Big Data Processing
Information and Scientific Visualization
Deep Learning