****

**COURSE OUTLINE**

|  |  |
| --- | --- |
| **Course title** | Statistical Analysis of Biomedical Data: Basic Principles and Practicals |
| **Lecturer** | Marilena Anastasaki, MSc (Biostatistics), PhD candidate |
| **Course type** | Online lectures (theory and practice using the SPSS statistical package) |
| **Duration** | 30 hours (divided into 10 three-hour lectures) |
| **Course dates** | 4 – 15 October 2021 (lectures) and  18 – 29 October 2021 (AOB including supplementary courses, individual communications, or revision courses based on the audience needs) |
| **Course time** | 15.00 – 18.00 CET |
| **Course language** | English |
| **Learning objectives** | The course aims to provide participants with a basic understanding of terms and methods of statistical data analysis, with a specific focus on practical exercise and familiarization with statistical applications in biomedical research. |
| **General skills** | 1. Adjustment 2. Decision making 3. Individual work 4. Teamwork 5. Critical thinking 6. Promotion of free, creative, and inductive thinking 7. Data/evidence review, analysis, and synthesis using technology |
| **Course outline** | 1. Descriptive Statistics    1. Variables and data types    2. Central tendency and variance indicators    3. Distributions and graphs    4. Introduction to SPSS: variable entry and coding, data entry and management 2. Ιnferential Statistics    1. Population and sample    2. Confidence intervals and hypothesis testing    3. Univariate analysis (X2 test, Student’s t-test, Mann-Whitney test, one-way ANOVA, Kruskal-Wallis test, Pearson and Spearman correlation coefficients, Paired t-test, Wilcoxon sign rank test, ANOVA for repeated measurements)    4. Linear regression (simple and multiple linear regression, model interpretation)    5. Logistic regression (hypothesis testing and model fitting, interpretation of model coefficients)    6. Survival analysis    7. SPSS practicals |
| **References** | 1. James F Jekel, Joann G. Elmore, David L. Katz. Epidemiology, Biostatistics, and Preventive Medicine. Yale University, New Haven, CT, 1996 2. Nigel Bruce, Daniel Pope, Debbi Stanistreet. Quantitative Methods for Health Research. A Practical Interactive Guide to Epidemiology and Statistics. Wiley, 2018 |
| **Requirements** | Download the free 30-day SPSS trial version: <https://www.ibm.com/analytics/spss-trials> |