



## BIOMETRY AND LAB

<b>Enrollment year</b>	2020/2021
<b>Academic year</b>	2021/2022
<b>Regulations</b>	DM270
<b>Academic discipline</b>	MED/01 (MEDICAL STATISTICS)
<b>Department</b>	DEPARTMENT OF BIOLOGY AND BIOTECHNOLOGY "LAZZARO SPALLANZANI"
<b>Course</b>	BIOLOGICAL SCIENCES
<b>Curriculum</b>	PERCORSO COMUNE
<b>Year of study</b>	2°
<b>Period</b>	2nd semester (01/03/2022 - 14/06/2022)
<b>ECTS</b>	6
<b>Lesson hours</b>	48 lesson hours
<b>Language</b>	Italian
<b>Activity type</b>	WRITTEN TEST
<b>Teacher</b>	VERDERIO PAOLO (titolare) - 6 ECTS
<b>Prerequisites</b>	Basic knowledge of mathematics provided in upper secondary school.
<b>Learning outcomes</b>	the course aims at providing the basic concepts of the descriptive and inferential statistics for a proper understanding and interpretation of biological data and results arising from their analysis.
<b>Course contents</b>	<p><b>DESCRIPTIVE STATISTICS</b> Introduction to statistics, descriptive and inferential statistics, population and sample, variables and types of data; frequency distributions (absolute, relative and cumulative) and data representation (tables and graphs); location and dispersion indexes.</p> <p><b>PROBABILITY</b> Probability theory and type of events;</p>

random variables, discrete and continuous probability distributions, statistical tables.

#### INFERENCEAL STATISTICS

Sampling distribution of the mean, the central limit theorem, point and interval estimation;  
hypothesis testing, null and alternative hypothesis, type I and II errors;  
comparing two means: parametric and non-parametric tests (for paired and independent data);  
comparing more than two means: analysis of variance (ANOVA) and adjustment for multiple comparisons;  
contingency tables and association analysis;  
correlation and simple linear regression;  
introduction to experimental design.

#### Teaching methods

Lectures with examples from real practice

#### Reccomended or required readings

MC Whitlock, D Schluter. ANALISI STATISTICA DEI DATI BIOLOGICI. Zanichelli Editore

#### Assessment methods

Written examination consisting of multiple choice question, open questions and practical exercises

#### Further information

Written examination consisting of multiple choice question, open questions and practical exercises

#### Sustainable development goals - Agenda 2030

[The goals](#)