



UNIVERSITÀ DEGLI STUDI DI MILANO



**Doctorate program
Milan
EXPERIMENTAL
MEDICINE**

Title	Advanced biomedical statistics
Proponent (contact email)	Cristina Battaglia (cristina.battaglia@unimi.it)
Teacher of the course	Gianfranco Alicandro (Teacher) (gianfranco.alicandro@unimi.it)
CFU	2
Maximum number of students admitted	10
Date	12-02-2024 Morning (9:30-13:00) 16-02-2024 Morning (9:30-13:00) 19-02-2024 Morning (9:30-12:30)
Place	Room F, Palazzo LITA, via Fratelli cervi 93, Segrate
Course description (summary Catalogo)	The course aims to strengthen the use of statistical and technical tools for the analysis of biomedical data. The course will provide students with advanced knowledge in experimental design and statistical methodology, not addressed in the introductory statistical course. Advanced statistical techniques will be examined and applied to a wide range of biomedical data, including binary and count data. During the practical sessions, students will work with R, thus basic knowledge of the R language is required. In order to get credits for this course, students have to attend all the 3 classes and pass an assessment test. Remote participation is not allowed.

Course program in details

- ✓ **Day 1:** Hypothesis testing: non-parametric tests. Correlation. ANOVA within the regression model framework.
- ✓ **Day 2:** Multiple testing. Replicates: technical and biological replicates. Design of Experiments: types of designs. Guided practice with R.
- ✓ **Day 3:** Regression models when the response variable is not continuous. Guided practice with R.

At the end of the course, students have to take an assessment test.

Instructions to follow before attending the course:

The course entails practical sessions with the R statistical software. Therefore, **students have to bring their own laptop with the needed software pre-installed (R and RStudio).**