

Seminars (XXXIX cycle)

Title	Teacher	Year	Curriculum	Cfu/hours	Description
Biostatistics	Dr. Alessio Gili	all	all	2 cfu 12 hours	*
Biostatistics and Data Analysis	Dr. Guido Bellomo	all	all	2 cfu 12 hours	**
Scientific Writing Course	Prof. Myriam Alcalay	all	all	1 cfu 10 hours	***

***Biostatistics course:** biennial. It includes 6 lessons lasting 2 hours each (1 CFU), which cover the following topics: 1- The role of statistics in clinical studies, the difference between the concepts of risk and probability; 2- Clinical trials, types of studies, methodology and indicators; 3- Randomized controlled trial and statistical aspects; 4- Survival analysis, the semi-parametric COX model and flexible parametric models; 5- Statistical tools for the interpretation of genetic data; 6- Summary of the topics covered, conclusions and Q&A session.

****Biostatistics and Data Analysis:** The Data analysis and biostatistics course covers key statistical topics such as probability, tests, correlation, ANOVA, regression, power analysis, and sample size calculation. It also touches on practical machine learning applications for research with examples on R. The course balances theory with hands-on applications to refine analytical and computational skills crucial for doctoral candidates. The final group project lets participants apply their knowledge to create a data analysis pipeline for their own PhD projects.

***** Scientific Writing Course:** Scientific literature should be enjoyable and easy to read, but this is generally not the case. Recent reports revealed that badly written papers receive significantly fewer citations, and badly written CVs are likely to penalize candidates, regardless of their credentials. Effective writing is increasingly considered as an essential skill for a successful career in science or medicine. The objective of the course is, therefore, to become familiar with the basic principles of scientific writing in different contexts (manuscripts, theses, abstracts or CVs). The following topics will be addressed: - Principles of Effective Writing: elements of writing style; - Writing an original manuscript: from abstract to discussion; - Grammar in Scientific English; - Writing a good CV; - Plagiarism and Copyrights. The course includes practical work (exercises in class) and the discussion of pieces of writing produced by the students (abstracts and/or CVs). The course will be held in English.

OTHER EDUCATIONAL ACTIVITIES

N.	Activity	Description	Curriculum
1	Workshops	<p>Seminars are developed weekly in each curriculum with 'clinical case report' criteria predominantly for projects with a clinical and translational imprint. In projects more oriented towards of basic and translational research, biweekly seminars are planned, with reports of results and supplemented weekly by journal club type meetings. National or international experts in the disciplines involved are often invited. Generally, and depending on the availability of speakers, these seminars can also be merged into one- or two-day meetings and gatherings. Curricular educational activities are also disseminated through the website: https://dimec.unipg.it/didattica/dottorato/medicina-clinica-e-molecolare</p> <p>Seminars currently active (every two years): Biostatistics and Data Analysis; Scientific Writing Course; Bioinformatics</p>	All
2	Laboratory activities	<p>All the curricula, Biotechnology in Human Bone Marrow Transplantation, Neurosciences, Pathology and Clinic of Arteriosclerosis and Aging, Surgical Sciences and Radiation Oncology provide for projects that may have laboratory activities, using the infrastructure available to the PhD Course of 'Clinical and Molecular Medicine', which provides access to high-tech instrumentation, for everything related to genomics, transcriptomics, proteomics, metabolomics and immunology studies.</p> <p>Laboratory activities also include in vivo experimental models, with the use of qualified and certified personnel at the animal house available to the Department of Medicine and Surgery</p>	All
3	Language training	<p>Possibility of participating in foreign language courses held at the <i>Centro Linguistico d'Ateneo (CLA)</i>. The levels of the language courses offered at the CLA refer to the Common European Framework of Reference (CEFR). The language courses may last either six months (10 CFU) or one year (13 CFU). At the end of the course, the level achieved in individual language skills will be assessed. Although the CLA's availability covers several language orientations, the PhD course strongly recommends the improvement of spoken and written English to all students, even after their return from their stay abroad.</p> <p>There is also a one-week full immersion course in <i>scientific writing</i> in May, with the aim of developing skills in writing scientific papers and abstracts for presentation at conferences.</p>	All
4	Informatic training	<p>Possibility of participating in computer workshops already offered in other courses at the University. In addition, specific courses are organised in 1 CFU modules (use of software for data analysis, word-processing programmes, programmes for archiving and importing bibliographic data; in-depth study of databases and their consultation). An assessment of the level of knowledge acquired is planned for these courses.</p> <p><i>Courses in bioinformatics and Big Data management.</i> There is a Bioinformatics course in the PhD programme organized in lectures covering a full day each week in October and the first week of November, in which lectures are given by members</p>	All

		<p>of Companies working specifically in programme development and bioinformatics approaches applied to the medical sciences.</p> <p>As of the academic year 2022-2023, a <i>Statistics</i> course has also been established and is available to all curricula.</p>	
5	Valorisation and dissemination of the results, of intellectual property and open access to data and to products of research	<p>1 CFU university courses on research management, knowledge of research systems and funding systems. The courses will cover in particular: research design and development techniques drafting and management of financial plans for research projects; management of projects by stages of progress and their reporting; management of relations with funders. The courses include a final examination. A course in <i>Scientific Writing</i> is also available (see above). The PhD course offers the opportunity to participate in 6 courses of 1 CFU on the valorisation of research and intellectual property. The 6 courses will cover: the transition from basic to applied research; techniques for the valorisation of research; the financing of applied research; the protection of intellectual property; university intervention in favour of patents; business creation and research spin-offs. The courses include a final examination.</p>	All
6	Management of research and knowledge of European and international research systems	<p>The PhD offers a qualified research office at the University level for guidance and advice on the implementation of projects at European and international level.</p>	All