Course unit English denomination	BIBLIOMETRICS
SS	SSD MED/04
Teacher in charge (if defined)	
Teaching Hours	10
Number of ECTS credits allocated	2
Course period	01/11/2025 – 30/06/2026
Course delivery method	☐ In presence ☒ Remotely ☐ Blended
Language of instruction	English
Mandatory attendance	☒ Yes (70 % minimum of presence) ☐ No
Course unit contents	Research in Pubmed. Bibliometrics and citation databases. Publishing for research: tools and methods
Learning goals	The aim of the course is to acquire practical knowledge on research in Pubmed and on bibliometrics and citation databases. Tools and methods on publications in research will be explored in depth
Teaching methods	The course includes lectures, accompanied by the presentation of cartographic and illustrative material and readings of texts and documents.
Course on transversal, interdisciplinary, transdisciplinary skills	☐ Yes ☒ No
Available for PhD students from other courses	☐ Yes ☒ No
Prerequisites (not mandatory)	
Examination methods (in applicable)	
Suggested readings	Texts and bibliographic material recommended by the teacher

Additional information

Course unit English denomination	BIOSTATISTICS I
SS	SSD MED/04
Teacher in charge (if defined)	
Teaching Hours	20
Number of ECTS credits allocated	4
Course period	01/11/2024 – 30/06/2025
Course delivery method	☐ In presence ☒ Remotely ☐ Blended
Language of instruction	English
Mandatory attendance	☒ Yes (70 % minimum of presence) ☐ No
Course unit contents	Elements of descriptive statistics: frequency distribution; measures of location, variability and association; graphical representations. 2. elements of inferential statistics: introduction to the theory of estimation; introduction to hypothesis testing. Z and T tests for one and two population Wilcoxon-Mann-Wihtney tests. 3. introduction to the analysis of survival data: the survival and hazard function; Kaplan-Meyer estimate and log-rank test. 4. implementation of the techniques considered in Excel and R software
Learning goals	The aim of the course is to acquire in-depth knowledge in the biostatistical analysis of laboratory data. Topics will be discussed such as: data representations in the univariate and bivariate case, interval estimation, hypothesis testing, non-parametric tests.
Teaching methods	The course includes lectures, accompanied by the presentation of cartographic and illustrative material and readings of texts and documents.
Course on transversal, interdisciplinary, transdisciplinary skills	☐ Yes ☒ No
Available for PhD students from other courses	☐ Yes ☒ No
Prerequisites (not mandatory)	

Examination methods (in applicable)	
Suggested readings	Texts and bibliographic material recommended by the teacher
Additional information	

Course unit English denomination	BIOSTATISTICS II
SS	SSD MED/04
Teacher in charge (if defined)	
Teaching Hours	15
Number of ECTS credits allocated	3
Course period	01/11/2024 – 30/06/2025
Course delivery method	☐ In presence ☒ Remotely ☐ Blended
Language of instruction	English
Mandatory attendance	☒ Yes (70 % minimum of presence) ☐ No
Course unit contents	• Introduction to experimental design • Technologies for transcriptomic analysis (microarray, RNA-seq) • Methods for differential expression analysis and Gene Set Enrichment Analysis • Representation and interpretation of genetic expression analysis results • Computer laboratory on the use of bioinformatic tools available online (e.g. DAVID for functional annotation) • Computer laboratory for introduction to the R statistical software
Learning goals	The aim of the course is to acquire specific knowledge relating to the biostatistical analysis of genomic data and the available software. Topics will be discussed such as: technologies for transcriptomic analysis (microarray, RNA-seq), methods for differential expression analysis and Gene Set Enrichment Analysis, representation and interpretation of gene expression analysis results
Teaching methods	The course includes lectures, accompanied by the presentation of cartographic and illustrative material and readings of texts and documents.
Course on transversal, interdisciplinary, transdisciplinary skills	☐ Yes ☒ No
Available for PhD students from other courses	☐ Yes ☒ No
Prerequisites (not mandatory)	

Examination methods (in applicable)	
Suggested readings	Texts and bibliographic material recommended by the teacher
Additional information	

Course unit English denomination	GENETICS AND BIOINFORMATIC ANALYSIS
SS	SSD MED/04
Teacher in charge (if defined)	
Teaching Hours	25
Number of ECTS credits allocated	5
Course period	01/11/2024 – 30/06/2025
Course delivery method	☐ In presence ☒ Remotely ☐ Blended
Language of instruction	English
Mandatory attendance	☒ Yes (70 % minimum of presence) ☐ No
Course unit contents	Basic Genetics, and updates on the human genome project and its conclusion. Biological databases, classifications and their use. Genomic browsers and NGS technologies. Use of the main bioinformatic tools to evaluate the impact of DNA variants on the structure and function of proteins.
Learning goals	The aim of the course is to provide doctoral students with basic and advanced information on the use of some important bioinformatic tools, both for the calculation of statistical power and for the evaluation of the functional impact on proteins, of DNA variants
Teaching methods	The course includes lectures, accompanied by the presentation of cartographic and illustrative material and readings of texts and documents.
Course on transversal, interdisciplinary, transdisciplinary skills	☐ Yes ☒ No
Available for PhD students from other courses	☐ Yes ☒ No
Prerequisites (not mandatory)	
Examination methods (in applicable)	
Suggested readings	Texts and bibliographic material recommended by the teacher

Additional information	
Course unit English denomination	TUMOR IMMUNOLOGY
SS	SSD MED/04
Teacher in charge (if defined)	
Teaching Hours	10
Number of ECTS credits allocated	2
Course period	01/11/2024 – 30/06/2025
Course delivery method	☐ In presence ☒ Remotely ☐ Blended
Language of instruction	English
Mandatory attendance	☒ Yes (70 % minimum of presence) ☐ No
Course unit contents	Characterization of the inflammatory reaction and the microenvironment in tumor progression
Learning goals	The aim of the course is to analyze the existing interactions between immunity and cancer at the systemic level and of the neoplastic microenvironment, in particular with regard to the development and evolution of the anti-tumor response, the evasion mechanisms put in place by the neoplasm and the genetic/metabolic aspects /cell phones underlying these events
Teaching methods	The course includes lectures, accompanied by the presentation of cartographic and illustrative material and readings of texts and documents.
Course on transversal, interdisciplinary, transdisciplinary skills	☐ Yes ☒ No
Available for PhD students from other courses	☐ Yes ☒ No
Prerequisites (not mandatory)	
Examination methods (in applicable)	

Suggested readings	Texts and bibliographic material recommended by the teacher
Additional information	

Course unit English denomination	ONCOHEMATOLOGY
SS	SSD MED/04
Teacher in charge (if defined)	
Teaching Hours	10
Number of ECTS credits allocated	2
Course period	01/11/2025 – 30/06/2026
Course delivery method	☐ In presence ☒ Remotely ☐ Blended
Language of instruction	English
Mandatory attendance	☒ Yes (70 % minimum of presence) ☐ No
Course unit contents	Molecular, pathophysiological and clinical bases of the diagnosis and therapy of oncohemaologic tumors - the diagnostic procedure of neoplasms through clinical-laboratory methodological investigations - the management of the cancer patient, in the different preclinical and clinical phases of the disease and in the different types of tumor - the organization of treatment schemes
Learning goals	The aim of the course is to illustrate the most innovative research with the best treatment protocols already known and tested to offer each patient the best therapeutic path. The research focuses on: Outcome research: aiming to evaluate long-term outcomes based on prognosis factors Experimental clinical studies Clinical studies that aim to broaden or modify the spectrum of application of already known treatments to arrive at new therapy schemes
Teaching methods	The course includes lectures, accompanied by the presentation of cartographic and illustrative material and readings of texts and documents.
Course on transversal, interdisciplinary, transdisciplinary skills	☐ Yes ☒ No
Available for PhD students from other courses	☐ Yes ☒ No

Prerequisites (not mandatory)	
Examination methods (in applicable)	
Suggested readings	Texts and bibliographic material recommended by the teacher
Additional information	

Course unit English denomination	TOPICS OF MOLECULAR ONCOLOGY
SS	SSD MED/04
Teacher in charge (if defined)	
Teaching Hours	20
Number of ECTS credits allocated	4
Course period	01/11/2024 – 30/06/2025
Course delivery method	☐ In presence ☒ Remotely ☐ Blended
Language of instruction	English
Mandatory attendance	☒ Yes (70 % minimum of presence) ☐ No
Course unit contents	Classification, grading and staging of tumors. The molecular basis of cancer. Oncogenic RNA and DNA viruses. Proto-oncogenes and oncogenes. Tumor suppressor genes. Survival genes and death genes. DNA repair genes. Multiphasicity of carcinogenesis. The neoplastic phenotype. Angiogenesis. Neoplastic progression. Invasiveness and metastasis.
Learning goals	The course aims to provide broad knowledge of the cellular and molecular mechanisms that control growth, survival and cell death and how these are altered during cellular transformation. The main biochemical pathways and molecules involved in the suppression or onset of neoplastic pathologies will therefore be covered.
Teaching methods	The course includes lectures, accompanied by the presentation of cartographic and illustrative material and readings of texts and documents.
Course on transversal, interdisciplinary, transdisciplinary skills	☐ Yes ☒ No
Available for PhD students from other courses	☐ Yes ☒ No
Prerequisites (not mandatory)	
Examination methods	

(in applicable)	
Suggested readings	Texts and bibliographic material recommended by the teacher
Additional information	