

DATE	ROOM	TIME	MODE	LECTURER	MODULE	TOPIC	FURTHER DETAILS	
					GENNAIO			
January, 23	CU010 - Aula informatizzata/Buiding CU010 - Computer Classroom	10:00-11:00	in presence	Teresa Colombo	Bash shell scripting, python programming, R programming (part I)	R programming	The two-day lecture aims to provide an introduction to R programming, a powerful language widely used for statistical analysis, data visualization, and data manipulation. It is designed for beginners, offering a solid foundation in R programming. Students will acquire the skills needed to perform basic data loading, manipulation, visualization, and analysis using R and RStudio, while also being prepared for more advanced programming courses. La lezione di due giorni ha l'obiettivo di fornire un'introduzione al linguaggio di programmazione R, uno strumento potente e ampiamente utilizzato per l'analisi statistica, la visualizzazione e la manipolazione dei dati. È pensata per principianti e offre una solida base nella programmazione in R. Gli studenti acquisiranno le competenze necessarie per caricare, manipolare, visualizzare e analizzare dati di base utilizzando R e RStudio, preparandosi anche per corsi di programmazione più avanzati.	
		11:00-12:00	in presence	Teresa Colombo	Bash shell scripting, python programming, R programming (part I)	R programming		
		12:00-13:00	in presence	Teresa Colombo	Bash shell scripting, python programming, R programming (part I)	R programming		
		14:00-15:00	in presence	Allegra Via	Bash shell scripting, python programming, R programming (part I)	Bash shell scripting		
		15:00-16:00	in presence	Allegra Via	Bash shell scripting, python programming, R programming (part I)	Bash shell scripting		
January, 24	CU010 - Aula informatizzata/Buiding CU010 - Computer Classroom	10:00-11:00	in presence	Teresa Colombo	Bash shell scripting, python programming, R programming (part I)	R programming		
		11:00-12:00	in presence	Teresa Colombo	Bash shell scripting, python programming, R programming (part I)	R programming		
		12:00-13:00	in presence	Teresa Colombo	Bash shell scripting, python programming, R programming (part I)	R programming		
		14:00-15:00	in presence	Allegra Via	Bash shell scripting, python programming, R programming (part I)	Bash shell scripting		
		15:00-16:00	in presence	Allegra Via	Bash shell scripting, python programming, R programming (part I)	Bash shell scripting		
January, 30	CU010 - Aula informatizzata/Buiding CU010 - Computer Classroom	10:00-11:00	in presence	Teresa Colombo	Bash shell scripting, python programming, R programming (part I)	R programming		
		11:00-12:00	in presence	Teresa Colombo	Bash shell scripting, python programming, R programming (part I)	R programming		
		12:00-13:00	in presence	Teresa Colombo	Bash shell scripting, python programming, R programming (part I)	R programming		
		14:00-15:00	in presence	Teresa Colombo	Bash shell scripting, python programming, R programming (part I)	R programming		
		15:00-16:00	in presence	Teresa Colombo	Bash shell scripting, python programming, R programming (part I)	R programming		
February, 7	CU010 - Aula informatizzata/Buiding CU010 - Computer Classroom	10:00-11:00	in presence	Federico Mari	Relational databases design: an introduction	We will understand the steps needed to design a relational database, namely: 1. Requirements elicitation 2. Conceptual design with Entity-Relationships diagrams (ERD) 3. Converting ERDs to relational tables 4. SQL: creating and manipulating a database in a DBMS In this intensive mini course, a running example will be used, and the needed technology will be presented, in order to give students the possibility of deepening arguments autonomously.		
		11:00-12:00	in presence	Federico Mari	Relational databases design: an introduction			
		12:00-13:00	in presence	Federico Mari	Relational databases design: an introduction			
		14:00-15:00	in presence	Federico Mari	Relational databases design: an introduction			
		15:00-16:00	in presence	Federico Mari	Relational databases design: an introduction			
		16:00-17:00	in presence	Federico Mari	Relational databases design: an introduction			
contact lecturer	Aula virtuale/Virtual Classroom			Marco Crescenzi	Introduction to Molecular Biology and Biochemistry	Foundations of molecular biology		
				Marco Crescenzi	Introduction to Molecular Biology and Biochemistry			
				Marco Crescenzi	Introduction to Molecular Biology and Biochemistry			
				Marco Crescenzi	Introduction to Molecular Biology and Biochemistry			
				Marco Crescenzi	Introduction to Molecular Biology and Biochemistry			
				Marco Crescenzi	Introduction to Molecular Biology and Biochemistry			
				Marco Crescenzi	Introduction to Molecular Biology and Biochemistry			
				Marco Crescenzi	Introduction to Molecular Biology and Biochemistry			
contact lecturer				Stefano Pascarella	Introduction to Molecular Biology and Biochemistry	Introduction to protein structure and function; enzymes and regulations; principles of metabolism		
				Stefano Pascarella	Introduction to Molecular Biology and Biochemistry			
				Stefano Pascarella	Introduction to Molecular Biology and Biochemistry			
				Stefano Pascarella	Introduction to Molecular Biology and Biochemistry			
				Stefano Pascarella	Introduction to Molecular Biology and Biochemistry			
				Stefano Pascarella	Introduction to Molecular Biology and Biochemistry			

				Stefano Pascarella	Introduction to Molecular Biology and Biochemistry		General description of metabolism; thermodynamic and regulatory aspects General description of metabolism; thermodynamic and regulatory aspects
				Stefano Pascarella	Introduction to Molecular Biology and Biochemistry		
February, 14	CU010 - Aula informatizzata/Buiding CU010 - Computer Classroom	14:00-15:00	in presence	Anna Marabotti	Structural bioinformatics 1	PDB: database and structural file format	Validatione dei files PDB: quality report e metriche indipendenti
		15:00-16:00	in presence	Anna Marabotti	Structural bioinformatics 1		
		16:00-17:00	in presence	Anna Marabotti	Structural bioinformatics 1		
		17:00-18:00	in presence	Anna Marabotti	Structural bioinformatics 1		
February, 19	CU010 - Aula informatizzata/Buiding CU010 - Computer Classroom	10:00-11:00					Introduction to molecular graphics programs Basic commands, input and output files Display functions - selections
		11:00-12:00					
		12:00-13:00					
		13:00-14:00					
		14:00-15:00	in presence	Alessandro Paiardini	Structural bioinformatics 1	PyMOL	
		15:00-16:00	in presence	Alessandro Paiardini	Structural bioinformatics 1	PyMOL	
		16:00-17:00	in presence	Alessandro Paiardini	Structural bioinformatics 1	PyMOL	
		17:00-18:00					
February, 20	CU010 - Aula informatizzata/Buiding CU010 - Computer Classroom	10:00-11:00	in presence	Alessandro Paiardini	Structural bioinformatics 1	PyMOL	editing functions advanced features plugins
		11:00-12:00	in presence	Alessandro Paiardini	Structural bioinformatics 1	PyMOL	
		12:00-13:00	in presence	Alessandro Paiardini	Structural bioinformatics 1	PyMOL	
	CU019 - Aula Multimediale/ Building CU019 - Multimedia classroom	14:00-15:00	in presence	Rino Ragno	Structural bioinformatics 1	UCSF Chimera	
		15:00-16:00	in presence	Rino Ragno	Structural bioinformatics 1		
		16:00-17:00	in presence	Rino Ragno	Structural bioinformatics 1		

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June, 17	CU010 - Aula informatizzata/Building CU010 - Computer Classroom	10:00-11:00	in presence	Antonello Maruotti	Statistics		The Genomics course offers training that addresses the human reference genome and explores analytical strategies for processing next-generation sequencing data: from quality analysis of genomic sequences to their alignment to the reference genome and the identification and annotation of point variants and small insertions/deletions. The training comprises theoretical and practical sessions, the latter implemented in a Docker environment designed specifically for the course. The course includes a session on transcriptomics, with a focus on the analysis of RNA-seq data. Topics include quality control of sequencing data, mapping to the reference genome or transcriptome, quantification of gene expression levels and identification of differentially expressed genes. Particular attention will be paid to functional enrichment analysis aimed at identifying relevant biological processes, metabolic pathways and cellular functions, thus offering an interpretive key to link RNA-seq results to biological and clinical implications.
		11:00-12:00	in presence	Antonello Maruotti	Statistics		
		12:00-13:00	in presence	Antonello Maruotti	Statistics		
		14:00-15:00	in presence	Antonello Maruotti	Statistics		
		15:00-16:00	in presence	Antonello Maruotti	Statistics		
		16:00-17:00	in presence	Antonello Maruotti	Statistics		
		17:00-18:00	in presence	Antonello Maruotti	Statistics		
June, 18	CU010 - Aula informatizzata/Building CU010 - Computer Classroom	10:00-11:00	in presence	Antonello Maruotti	Statistics		
		11:00-12:00	in presence	Antonello Maruotti	Statistics		
		12:00-13:00	in presence	Antonello Maruotti	Statistics		
June, 18	CU010 - Aula informatizzata/Building CU010 - Computer Classroom	14:00-15:00	in presence	Loredana Le Pera	Genomics & Transcriptomics	Il corso di Genomica offre un percorso di formazione che affronta la questione del genoma umano di riferimento e approfondisce le strategie analitiche di processamento dei dati di next-generation sequencing: dall'analisi di qualità delle sequenze genomiche, fino al loro allineamento al genoma di riferimento e all'identificazione e annotazione di varianti puntiformi e piccole inserzioni/delezioni. Il percorso formativo prevede sessioni teoriche e pratiche, quest'ultime realizzate in un ambiente Docker progettato appositamente per il corso.	
		15:00-16:00	in presence	Loredana Le Pera	Genomics & Transcriptomics	Il percorso formativo include una sessione dedicata alla Trascrittomica, con focus sull'analisi dei dati RNA-seq. Tra gli argomenti trattati figurano il controllo di qualità dei dati di sequenziamento, la mappatura al genoma o trascrittoma di riferimento, la quantificazione dei livelli di espressione genica e l'identificazione di geni a espressione differenziale. Un'attenzione particolare sarà riservata all'analisi di arricchimento funzionale, finalizzata a identificare processi biologici, vie metaboliche e funzioni cellulari rilevanti, offrendo così una chiave interpretativa per collegare i risultati dell'RNA-seq a implicazioni biologiche e cliniche.	
		16:00-17:00	in presence	Loredana Le Pera	Genomics & Transcriptomics		
		17:00-18:00	in presence	Loredana Le Pera	Genomics & Transcriptomics		
June, 19	CU010 - Aula informatizzata/Building CU010 - Computer Classroom	10:00-11:00	in presence	Loredana Le Pera	Genomics & Transcriptomics		
		11:00-12:00	in presence	Loredana Le Pera	Genomics & Transcriptomics		
		12:00-13:00	in presence	Loredana Le Pera	Genomics & Transcriptomics		
		14:00-15:00	in presence	Loredana Le Pera	Genomics & Transcriptomics		
		15:00-16:00	in presence	Loredana Le Pera	Genomics & Transcriptomics		
		16:00-17:00	in presence	Tommaso Mazza	Genomics & Transcriptomics		
		17:00-18:00	in presence	Tommaso Mazza	Genomics & Transcriptomics		
June, 20	CU010 - Aula informatizzata/Building CU010 - Computer Classroom	10:00-11:00	in presence	Tommaso Mazza	Genomics & Transcriptomics		
		11:00-12:00	in presence	Tommaso Mazza	Genomics & Transcriptomics		
		12:00-13:00	in presence	Tommaso Mazza	Genomics & Transcriptomics		
		14:00-15:00	in presence	Tommaso Mazza	Genomics & Transcriptomics		
		15:00-16:00	in presence	Tommaso Mazza	Genomics & Transcriptomics		
		16:00-17:00	in presence	Tommaso Mazza	Genomics & Transcriptomics		
		17:00-18:00	in presence	Tommaso Mazza	Genomics & Transcriptomics		
July, 2	CU010 - Aula informatizzata/Building CU010 - Computer Classroom	14:00-15:00	in presence	Allegra Via	Python programming, R programming (part II)	Python Programming	
		15:00-16:00	in presence	Allegra Via	Python programming, R programming (part II)	Python Programming	
		16:00-17:00	in presence	Allegra Via	Python programming, R programming (part II)	Python Programming	
		17:00-18:00	in presence	Allegra Via	Python programming, R programming (part II)	Python Programming	
July, 3	CU010 - Aula informatizzata/Building CU010 - Computer Classroom	09:00-10:00	in presence	Allegra Via	Python programming, R programming (part II)	Python Programming	
		10:00-11:00	in presence	Allegra Via	Python programming, R programming (part II)	Python Programming	
		11:00-12:00	in presence	Allegra Via	Python programming, R programming (part II)	Python Programming	
		12:00-13:00	in presence	Allegra Via	Python programming, R programming (part II)	Python Programming	
		14:00-15:00	in presence	Allegra Via	Python programming, R programming (part II)	Python Programming	
		15:00-16:00	in presence	Allegra Via	Python programming, R programming (part II)	Python Programming	
		16:00-17:00	in presence	Allegra Via	Python programming, R programming (part II)	Python Programming	
		17:00-18:00	in presence	Allegra Via	Python programming, R programming (part II)	Python Programming	
July, 4	CU010 - Aula informatizzata/Building CU010 - Computer Classroom	09:00-10:00	in presence	Allegra Via	Python programming, R programming (part II)	Python Programming	
		10:00-11:00	in presence	Allegra Via	Python programming, R programming (part II)	Python Programming	
		11:00-12:00	in presence	Allegra Via	Python programming, R programming (part II)	Python Programming	
		12:00-13:00	in presence	Allegra Via	Python programming, R programming (part II)	Python Programming	
		14:00-15:00	in presence	Allegra Via	Python programming, R programming (part II)	Python Programming	
		15:00-16:00	in presence	Allegra Via	Python programming, R programming (part II)	Python Programming	
		16:00-17:00	in presence	Allegra Via	Python programming, R programming (part II)	Python Programming	
		17:00-18:00	in presence	Allegra Via	Python programming, R programming (part II)	Python Programming	
July, 9	CU010 - Aula informatizzata/Building CU010 - Computer Classroom	10:00-11:00	in presence	Tommaso Mazza	Machine Learning	Introduction to Machine learning	
		11:00-12:00	in presence	Tommaso Mazza	Machine Learning	Introduction to Machine learning	
		12:00-13:00	in presence	Tommaso Mazza	Machine Learning	Introduction to Machine learning	
		14:00-15:00	on-line	Roberto Tagliaferri	Machine Learning	Introduction to Machine learning	
		15:00-16:00	on-line	Roberto Tagliaferri	Machine Learning	Introduction to Machine learning	
		16:00-17:00	on-line	Roberto Tagliaferri	Machine Learning	Introduction to Machine learning	

		17:00-18:00				
July, 10	CU010 - Aula informatizzata/Building CU010 - Computer Classroom	10:00-11:00	to be disclosed	Pier Luigi Martelli	Machine Learning	Introduction to Machine learning
		11:00-12:00	to be disclosed	Pier Luigi Martelli	Machine Learning	Introduction to Machine learning
		12:00-13:00	to be disclosed	Pier Luigi Martelli	Machine Learning	Introduction to Machine learning
		14:00-15:00	to be disclosed	Lecturer to be identified	Machine Learning	Applications to bioinformatics
		15:00-16:00	to be disclosed	Lecturer to be identified	Machine Learning	Applications to bioinformatics
		16:00-17:00	to be disclosed	Lecturer to be identified	Machine Learning	Applications to bioinformatics
		17:00-18:00				
July, 11	CU010 - Aula informatizzata/Building CU010 - Computer Classroom	10:00-11:00	in presence	Stefano Gianni	Structural bioinformatics 2 / Bioinformatics: Theory and practical applications	Protein folding
		11:00-12:00	in presence	Stefano Gianni	Structural bioinformatics 2 / Bioinformatics: Theory and practical applications	
		12:00-13:00	in presence	Veronica Morea	Structural bioinformatics 2 / Bioinformatics: Theory and practical applications	Protein evolution and knowledgebases
		14:00-15:00	in presence	Veronica Morea	Structural bioinformatics 2 / Bioinformatics: Theory and practical applications	Protein sequence-based inferences
		15:00-16:00	in presence	Veronica Morea	Structural bioinformatics 2 / Bioinformatics: Theory and practical applications	
		16:00-17:00	in presence	Veronica Morea	Structural bioinformatics 2 / Bioinformatics: Theory and practical applications	
		17:00-18:00	in presence	Veronica Morea	Structural bioinformatics 2 / Bioinformatics: Theory and practical applications	
July, 16	CU010 - Aula informatizzata/Building CU010 - Computer Classroom	10:00-11:00	in presence	Veronica Morea	Structural bioinformatics 2 / Bioinformatics: Theory and practical applications	Protein structure analysis and comparison
		11:00-12:00	in presence	Veronica Morea	Structural bioinformatics 2 / Bioinformatics: Theory and practical applications	
		12:00-13:00	in presence	Veronica Morea	Structural bioinformatics 2 / Bioinformatics: Theory and practical applications	
		14:00-15:00	in presence	Domenico Raimondo	Structural bioinformatics 2 / Bioinformatics: Theory and practical applications	AlphaFold
		15:00-16:00	in presence	Domenico Raimondo	Structural bioinformatics 2 / Bioinformatics: Theory and practical applications	
		16:00-17:00	in presence	Domenico Raimondo	Structural bioinformatics 2 / Bioinformatics: Theory and practical applications	
		17:00-18:00	in presence	Domenico Raimondo	Structural bioinformatics 2 / Bioinformatics: Theory and practical applications	
July, 17	CU010 - Aula informatizzata/Building CU010 - Computer Classroom	10:00-11:00	in presence	Domenico Raimondo	Structural bioinformatics 2 / Bioinformatics: Theory and practical applications	AlphaFold
		11:00-12:00	in presence	Domenico Raimondo	Structural bioinformatics 2 / Bioinformatics: Theory and practical applications	
		12:00-13:00	in presence	Domenico Raimondo	Structural bioinformatics 2 / Bioinformatics: Theory and practical applications	
		14:00-15:00	on-line	Anna Marabotti	Structural bioinformatics 2 / Bioinformatics: Theory and practical applications	SwissModel and MODELLER
		15:00-16:00	on-line	Anna Marabotti	Structural bioinformatics 2 / Bioinformatics: Theory and practical applications	
		16:00-17:00	on-line	Anna Marabotti	Structural bioinformatics 2 / Bioinformatics: Theory and practical applications	
		17:00-18:00				
July, 18	CU010 - Aula informatizzata/Building CU010 - Computer Classroom	10:00-11:00	in presence	Alessandro Paiardini	Structural bioinformatics 2 / Bioinformatics: Theory and practical applications	Protein docking and drug discovery
		11:00-12:00	in presence	Alessandro Paiardini	Structural bioinformatics 2 / Bioinformatics: Theory and practical applications	
		12:00-13:00				
		14:00-15:00	in presence	Alessandro Paiardini	Structural bioinformatics 2 / Bioinformatics: Theory and practical applications	Protein docking and drug discovery
		15:00-16:00	in presence	Alessandro Paiardini	Structural bioinformatics 2 / Bioinformatics: Theory and practical applications	
		16:00-17:00				