

General Information	STUDIES IN master's degree in Cellular and Molecular Biology		
Title of the subject	Structural Biochemistry and Proteomics		
Degree Course (class)	Cellular and Molecular Biology		
ECTS credits	8		
Compulsory attendance	yes		
Language	Italian		
Academic year	2020-21		

Subject Teacher		
Name and Surname	Paola Anna Maria Loguercio Polosa	
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Place and time of reception	Study (room 45 first floor); every day, agree with the teacher	
ECTS credits details	Discipline sector (SSD)	Area
	BIO/10	---

Study plan schedule	Year of study plan		Semester	
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Time management	Lessons	Laboratory	Exercises	Total
CFU	7	1		8
Total hours	175	25		200
In-class study hours	56	12		68
Out-of-class study hours	119	13		132

Syllabus	
Prerequisites / Requirements	
Knowledge of general, inorganic and organic chemistry, biochemistry and molecular biology	
Expected learning outcomes (according to Dublin descriptors)	
Knowledge and understanding	Acquisition of advanced theoretical and practical knowledge of proteomics, with particular reference to modern study methods, thanks to the attendance of lectures and exercises.
Applying knowledge	Application of broad-spectrum methodologies for research in biochemistry
Making informed judgments and choices	Acquisition of autonomy in areas related to the evaluation and interpretation of experimental data and in the application of techniques for the study of biochemistry.
Communicating knowledge	Acquisition of the lexicon and terminology of biochemistry in order to understand and communicate clearly the contents of the discipline.
Capacities to continue learning	Acquisition of skills that favor the development, deepening and constant updating of biochemical knowledge, with particular reference to the consultation of bibliographic material, databases and

	other information online.
Study Program	
Content	<p>The hierarchical structure of proteins</p> <p>The molecular dynamics of proteins: Folding, misfolding and amyloid pathologies (amyloidosis). Co- and post-biosynthetic modifications of proteins and some related human pathologies. The cellular interactome (the interaction complexes)</p> <p>The strategies and methodologies in the resolution of the proteome and interactome. Mass spectrometry. Affinity purifications. Proximity labeling. Biophysical methods for the study of the 3D structure of proteins</p> <p>Elements of protein engineering. Protein redesign (how to improve existing proteins)</p>
Bibliography and textbooks	<p>Introduction to the study of proteins, Marcello Duranti, Zanichelli.</p> <p>Introduction to biochemistry by Lehninger (sixth edition), Nelson and Cox, Zanichelli</p> <p>Biochemical methodology, edited by K. Wilson and J. Walker, Raffaello Cortina publisher</p>
Notes to textbooks	<p>Integrate with lecture notes and biochemistry texts.</p> <p>Images of the PowerPoint slides projected during the lessons are available</p>
Teaching methods	Lectures with the use of PowerPoint, networking and writing on the blackboard
Assessment methods (oral, written, ongoing assessment)	Oral interview. Since the course refers to biochemical reactions and metabolic patterns, the use of writing is also required where appropriate.
Evaluation criteria (describe criteria for each of the above expected outcomes)	The critical acquisition of the contents of the lessons, the ability to integrate this knowledge with those of other biological disciplines and the clarity of the presentation are evaluated. Particular importance is given to the student's ability not to stop at the notion but to grasp the meaning of the disciplinary contents so that the study becomes an opportunity to increase the knowledge and culture of biochemistry.
Further information	