STUDY PLAN
PhD Course in Life Sciences and Biotechnology
2025-2026

1st year – XLI cycle						
ACTIVITY TYPE	**CFU**	**COURSE / CONTENT**		**COURSE MODULES**	**SSD**	**DESCRIPTION**
Characterizing activities - 5 CFU	**3 CFU**	Biostatistics		/	BIOS/14A	Introductory course on statistical methods applied to biological research
	2 CFU	Trends in Biomolecular Sciences	0.5 CFU	Molecular mechanisms in health and disease	BIOS/07A; BIOS/08A; BIOS/14A; BIOS/04A	The course will focus on most recent trends in molecular and cell biology. Each year the related activities will be organized in 3 modules (0.5 CFU each) chosen among the 5 proposed. For the XLI cycle, the following modules will be activated: - Molecular mechanisms in health and disease - Microbial Biotechnology: trends and applications - Next generation OMICS and system biology
			0.5 CFU	Microbial Biotechnology: trends and applications	BIOS/15A; CHEM/07C	
			0.5 CFU	Advanced plant systems: biology, biotechnology and environmental applications	BIOS/01C; BIOS/02A	
			0.5 CFU	Next generation OMICS and system biology	BIOS/07A; BIOS/08A; BIOS/14A; BIOS/02A; MED/01A	
			0.5 CFU	Integrate biocatalysis and invertebrate systems for circular biotechnologies	BIOS/07A; BIOS/03A	
	1 CFU	Cross-Disciplinary and Soft Skills module A			NN	Information Literacy; Digital Literacy, Doctoral thesis and copyright; Open access; Collecting and processing information
Transversal activities	**1 CFU**	The courses are organized by the PhD School			NN	Courses/seminars open to all doctoral students
Seminars	**1 CFU**	Free choices seminars			NN	Participation in internal or external scientific seminars chosen by the student
Report	**2 CFU**				NN	Seminar (June) + 2-pages Report (September) related to the own research project
TOTAL	**10 CFU**					

2nd year – XLI cycle						
ACTIVITY TYPE	**CFU**	**COURSE / CONTENT**		**COURSE MODULES**	**SSD**	**DESCRIPTION**
Characterizing activities - 5 CFU	**3 CFU**	Bioinformatics		/	BIOS/07A	Held **every two years**. The course provides the student with practical knowledge of the main bioinformatic processes used in protein investigation.
	2 CFU	Trends in Biomedical Sciences	0.5 CFU	Biomarkers and translational research in human pathology	MED/18A; MED17/A; BIOS/07A	The course offers advanced on the cellular and molecular bases into pathological mechanisms, modern diagnostic techniques, and therapeutic strategies through a multi-scale approach. Each year the related activities will be organized in 3 modules chosen among the 5 proposed. For the XLI cycle, the following modules will be activated: - Cancer biology and target therapeutics - Molecular targets and precision medicine - Regenerative medicine and tissue engineering
			0.5 CFU	Inflammation, immunity &disease modulation	MED/02A; BIOS/03A	
			0.5 CFU	Cancer biology and target therapeutics	BIOS14/A; MED/02A; MED/18A	
			0.5 CFU	Molecular targets and precision medicine	MED/18A; MED/13B	
			0.5 CFU	Regenerative medicine and tissue engineering	BIOS/04A; BIOS/03A	
	1 CFU	Cross-Disciplinary and Soft Skills module B			NN	Presentation skills; Problem solving; Results dissertation
Transversal activities	**1 CFU**	The courses are organized by the PhD School			NN	Courses/seminars open to all doctoral students
Seminars	**1 CFU**	Free choices seminars			NN	Participation in internal or external scientific seminars chosen by the student
Report	**2 CFU**				NN	Seminar (June) + 2-pages report (September) related to the own research project
TOTAL	**10 CFU**					

3rd year – XLI cycle						
ACTIVITY TYPE	**CFU**	**COURSE / CONTENT**		**COURSE MODULES**	**SSD**	**DESCRIPTION**
English language		B2 Cambridge Certificate	/	/	/	**Mandatory**
Characterizing activities	**1 CFU**	Cross-Disciplinary and Soft Skills module C			NN	Economy; Project Management; Patents & trademarks; European research programs
Transversal activities	**1 CFU**	The courses are organized by the PhD School			NN	Courses/seminars open to all doctoral students
Seminars	**1 CFU**	Free choices seminars			NN	Participation in internal or external scientific seminars chosen by the student
TOTAL	**3 CFU**					
Thesis	**15 CFU**				NN	Preparation and discussion

Attendance at seminars and teaching activities is certified either by a certificate of attendance or by signing the attendance sheet, in the case of activities organized by the PhD program.
Match: one-day seminars: 1 CFU; half-day seminars: 0.5 CFU; single seminar: 0.25 CFU.

ACADEMIC DEBTS
Students who fail to meet the established standards in molecular and cellular disciplines are required to attend supplementary courses to address any deficiencies.

8 CFU (max 64 hours)	Supplementary coursework identified at the beginning of the first year based on previous studies

ENGLISH LANGUAGE

Optional activities for achieving the preparation for the B2 certification exam:

1st year			
English language	3 CFU	MEC, on line English course	Optional activities
2nd year			
English language	3 CFU	Course in preparation to the Cambridge certificate	Optional activities

LABORATORY SAFETY COURSE

The course consists of a general training module and a specific training module.

The general training is mandatory for all PhD students, while the specific training must be completed only by those PhD students who carry out part of their work in a laboratory (chemistry, biology, medicine, physics) or during fieldwork.

- General training: A short course (4 hours, 0.5 CFU) is available on the general training portal, offered in both Italian and English, for those who have never previously attended safety training activities. At the end of the course, a certificate of completion will be issued.
- Specific training: This is provided in a single-day format (8 hours, 1 CFU).
  The course is divided into two 4-hour modules:
  - SPECIFIC TRAINING – Evacuation and fire procedures, first aid organizational procedures, emergency situations, safety signage, display screen equipment, microclimate, lighting and noise, manual handling of loads, work-related stress, workplace environment, accidents, near misses, and related documentation.
  - SPECIFIC TRAINING – Chemical risks, technical gases and laboratory applications involving liquid nitrogen, biological risks and related safety measures, PPE (personal protective equipment).