

MASTER BIOINFORMATIQUE
Program EM Chemoinformatics+ 2025-2026 :
In Silico Drug Design - Bioactive Molecules MSc
Paris Cité - Degli studi di Milano
(double diplôme franco-italien)

SEMESTRE 1 - Université Paris Cité (30 ECTS)

UE1	Methodology (A Badel, 10 ECTS)	
	BQAAY000	Initiation to Unix and R (G. Moroy)
	BQ2AY040	Mathematics I- Forcefield method/physical chemistry (A-C. Camproux & S. Pasquali) (3 ECTS)
	BQAAY070	Python programming1 or
	BQAAY080	Python programming2 (P. Fuchs & P. Poulain) (3 ECTS)
	BQAAY020	Statistics and R (L. Regad) (3 ECTS)
UE2	BQ2AU150	English communication (1 ECTS)
	Chemistry (O Taboureau, 12 ECTS)	
	BM0BY250	RéSO: Reactivity and organic synthesis (F. Chau) (3 ECTS)
	XXX	Biological Chemistry (O. Reinaud) (3 ECTS)
	BQ2AE170	Chirality - non covalente bounds (F. Maurel, O. Taboureau) (3 ECTS)
UE3	XXX	NMR for molecules (N. Giraud) (3 ECTS)
	Molecular Modelling and chemoinformatics (8 ECTS) (O. Taboureau)	
	BQ2AE160	Chemoinformatics I (J. Diharce & V.K. Tran Nguyen) (3 ECTS)
	BQ2AE140	Chemoinformatics II : ADME/chemometric (O. Taboureau) (2 ECTS)
	BQ2AY180	Option in drug design / Chemoinformatics (Schrödinger software, R project + EM invited professor) (3 ECTS)

SEMESTRE 2 - University Degli studi di Milano (30 ECTS)

UE1	Programming in C Or Synthetic methods in biotechnology or organics CHIM06 courses or Chemistry module (6 ECTS)	C. Lorenzo
UE2	Structural Biology and enzymology (6 ECTS)	M. Vanoni
UE3	Medicinal chemistry (6 ECTS)	L. Belvisi
UE4	Simulation, Modelling and Biomolecules (6 ECTS)	S. Pieraccini
UE5	Chemometrics (6 ECTS)	L. Belvisi

SEMESTRE 3 - Université Paris Cité (30 ECTS)

Block UE0 - Refresher course (L Regad)	
EC000	Unix and R Basics (Upgrade) (L. Regad)
EC001	Toxicology -Methodology upgrade (A-C Camproux)
Block UE1 - Data analysis in drug design (8 ECTS) (A-C. Camproux)	
EC101	Python programming 2 or Python project (S. Murail) (3 ECTS)
EC102	Data analysis in Drug Design II (A-C Camproux & L. Regad) (3 ECTS)
EC103	Application in Drug Design & QSAR (Taboureau & Regad) (1 ECTS)
EC104	Seminars and R&D (A-C Camproux) (1 ECTS)
Block UE2 - Molecular analysis and dynamics & drug design (7 ECTS) (D. Flatters)	
EC201	Structural exploration of proteins (L. Regad) (3 ECTS)
EC202	Dynamic Target Analysis I (D. Flatters) (2 ECTS) or Dynamic analysis of targets II (G. Moroy) (2 ECTS)
EC203	Structural and dynamic modeling (G. Moroy & D. Flatters) (2 ECTS)

Block UE3 - Virtual screening: structure & ligand-based (5 ECTS) (G. Moroy)	
EC301	Structure-based (G. Moroy) (3 ECTS)
EC302	Ligand-based (O. Taboureau) (1 ECTS)
EC303	Hits to lead (O. Taboureau) (1 ECTS)
Block UE4 - Space analysis of macromolecules (4 ECTS) (A. Badel)	
EC401	Quantum chemistry (2 ECTS)
EC402	Understanding macromolecules or Data analysis I (D. Flatters) (2 ECTS)
Block UE5 - Preparation for research in Drug Design (6 ECTS) (L. Regad)	
EC501	3-projects in Drug Design (L. Regad & O. Taboureau) (2 ECTS)
EC502	Tutored research project design (A-C Camproux) (2 ECTS)
EC503	Application of virtual screening (G. Moroy) (2 ECTS)

SEMESTRE 4 - Université Paris Cité (30 ECTS)

UE6	STAGE (30 ECTS)		A-C. Camproux
	EC 601	Tutored research project (A-C Camproux & S. Murail) (3 ECTS)	
	EC 602	Research internship (A-C Camproux) (27 ECTS)	