Université Paris-Saclay

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M1 Bioinformatique, Biostatistiques et applications de l'intelligence artificielle

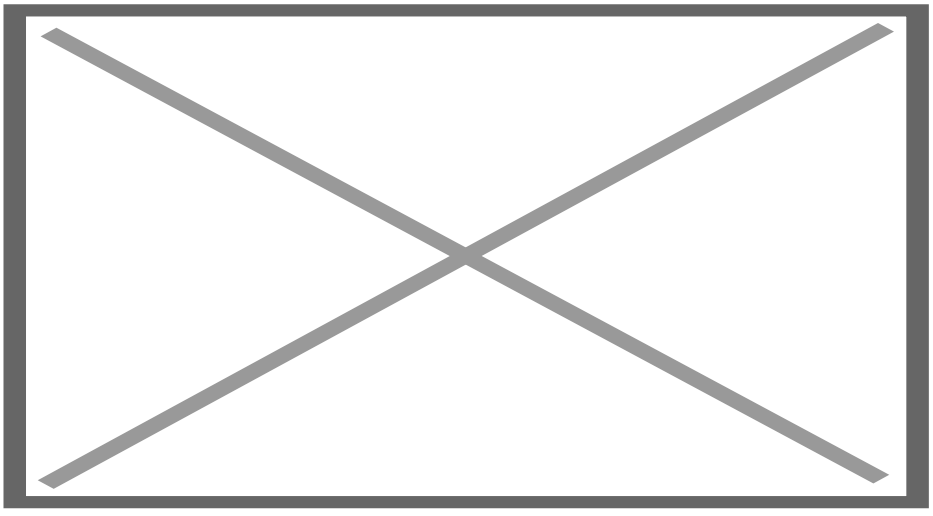
Master's degree
Specialisation Bioinformatics / Computational Biology
Enrolment type
Formation initiale
Formation continue
Language(s) of instruction
French

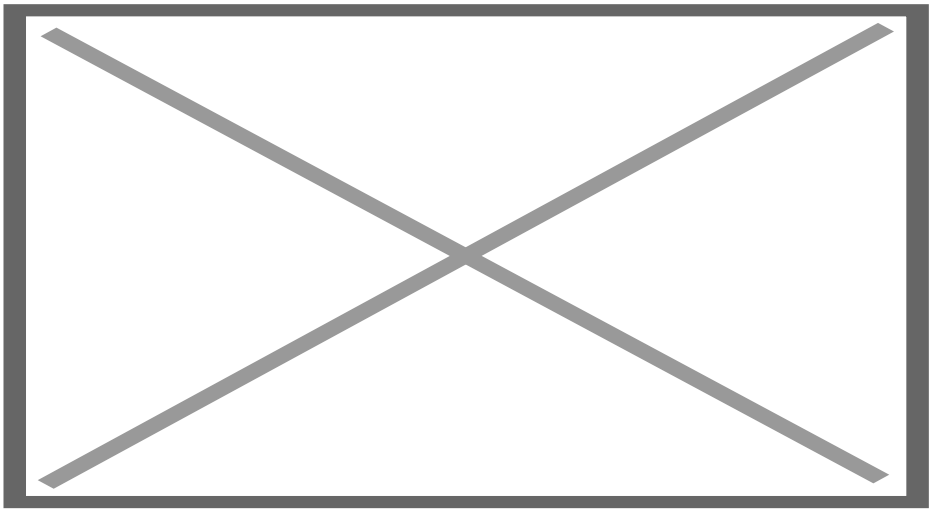
The M1 BIBS-IA program focuses on the high-level research and development needs of companies and research organizations in bioinformatics and biostatistics. This multidisciplinary program meets this demand by training specialists at the interface of three disciplines: Biology, Computer Science, and Mathematics.

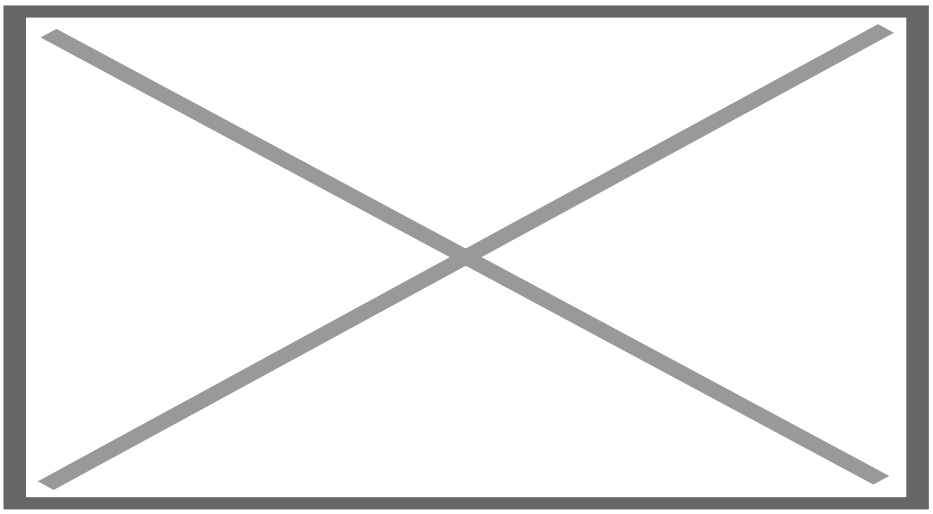
The M1 BIBS-IA program is structured around several knowledge and skills blocks (Refresher, Bioinformatics and Biostatistics, Algorithms and Programming, Professionalization).

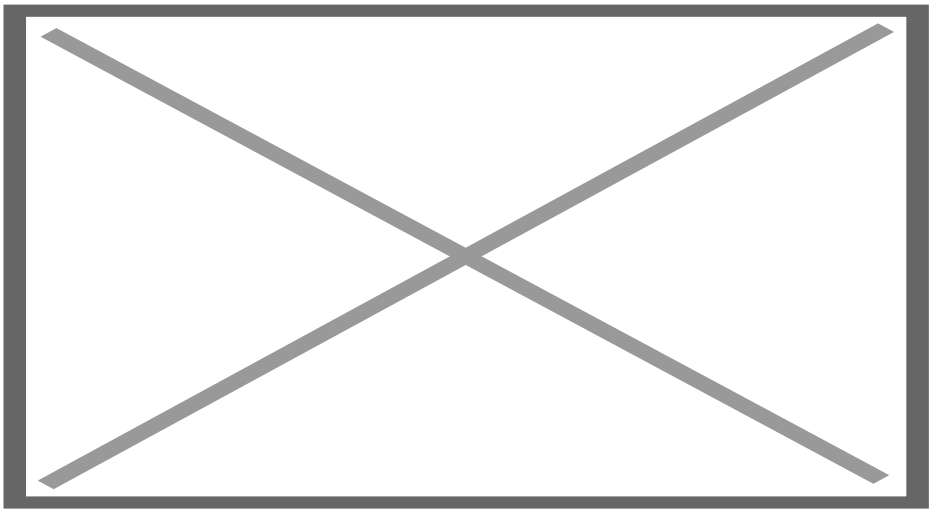
This first year of the Master's program initially focuses on differentiated refresher courses in computer science, mathematics, and biology, tailored to each student's initial background. It then allows students to acquire the necessary theoretical and practical foundations to address the various challenges in bioinformatics. The year concludes with a mandatory 2-month research internship in a research laboratory or a company.

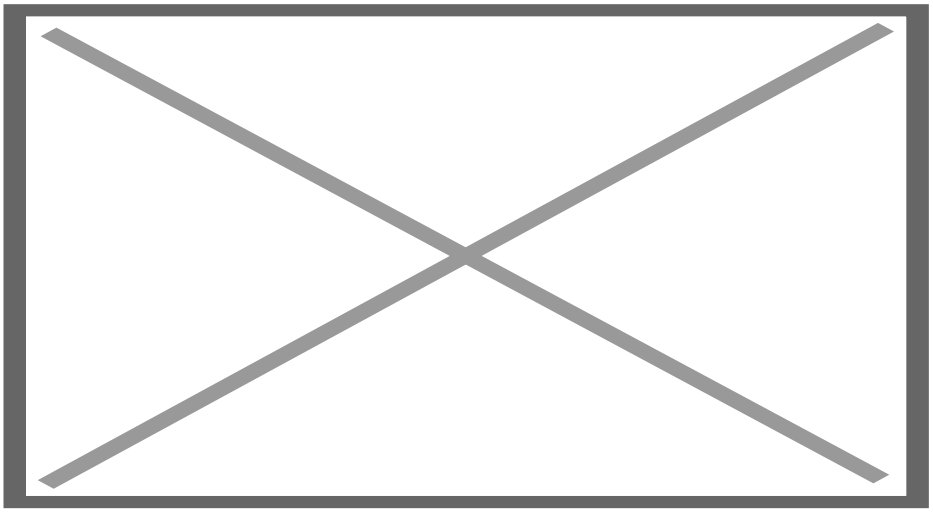
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Information

- Overview
- Application requirements
- Schedule

Présentation

Skills

Upon completion of the M1 BIBS-IA year, students are capable of independently implementing innovative computer and mathematical methods to perform a data analysis or a simple modeling task. They will also be able to understand, modify, and/or design a bioinformatics workflow, extract the most relevant results from it, and present them clearly.

Objectives

The main objective is to equip students with the necessary tools for the analysis and modeling of massive data (Big Data) in biology. To achieve this, students will progressively gain mastery of several programming languages as well as a number of methods in algorithms, databases, artificial intelligence, statistics, and mathematics. They will also deepen their knowledge of various key areas of bioinformatics such as systems biology, structural biology, functional genomics, and more.

Admission

Admission Route

Computer Science
Mathematics
Life Sciences

Capacity

Available Places

24

Target Audience and Entry Requirements

As this is a multidisciplinary program in Biology, Computer Science, and Mathematics, students holding a Bachelor's degree in Biology, Mathematics, or Computer Science, a dual-major Bachelor's degree (CompSci+Math, CompSci+Bio, Math+Bio), or any equivalent diploma are eligible to apply for admission. Although they are not excluded, applications from students who already hold a Master's degree or an equivalent qualification will be considered not prioritized.

Période(s) de candidature

Inception Platform

From 15/01/2026 to 16/03/2026

MonMaster Platform

From February 17th to March 16th, 2026

To find out which platform you should apply through, please see the Masters' applications and enrolment page.

Supporting documents

Compulsory supporting documents

Motivation letter.

All transcripts of the years / semesters validated since the high school diploma at the date of application.

Curriculum Vitae.

Additional supporting documents

Certificate of French (compulsory for non-French speakers).

VAP file (obligatory for all persons requesting a valuation of the assets to enter the diploma).

Supporting documents :
- Residence permit stating the country of residence of the first country
- Or receipt of request stating the country of first asylum
- Or document from the UNHCR granting refugee status
- Or receipt of refugee status request delivered in France
- Or residence permit stating the refugee status delivered in France
- Or document stating subsidiary protection in France or abroad
- Or document stating temporary protection in France or abroad.

Programme

Subjects	ECTS	Semester	Lecture	directed study	practical class	Lecture/directed study	Lecture/practical class	directed study/practical class
Bases de Données et Génie Logiciel	3	Semestre 1	12	6	6			
Charger le détail								
Concepts fondamentaux et enjeux societaux en biologie	6.5	Semestre 1	45					
Charger le détail								
Anglais 1	2	Semestre 1		24				
Charger le détail								
TER de Bioinformatique à 4.5 ECTS	4.5	Semestre 1						
Charger le détail								
Outils Mathématiques	4	Semestre 1	20	10	0			
Charger le détail								
TER de Bioinformatique à 5.5 ECTS	5.5	Semestre 1						
Charger le détail								
TER de Bioinformatique à 4 ECTS	4	Semestre 1						
Charger le détail								

Subjects	ECTS	Semester	Lecture	directed study	practical class	Lecture/directed study	Lecture/practical class	directed study/practical class
TER de Bioinformatique à 2 ECTS	2	Semestre 1						
Charger le détail								
TER de Bioinformatique à 3 ECTS	3	Semestre 1						
Charger le détail								
Algorithmique et Programmation impérative	5.5	Semestre 1	30	15	21			
Charger le détail								
TER en Biologie	2	Semestre 1		5				
Charger le détail								
Bases de l'inférence statistique	4.5	Semestre 1	12	12	18			
Charger le détail								
TER de Bioinformatique à 6.5 ECTS	6.5	Semestre 1						
Charger le détail								

Subjects	ECTS	Semester	Lecture	directed study	practical class	Lecture/directed study	Lecture/practical class	directed study/practical class
NGS	3	Semestre 2	10		11			
Charger le détail								
Biostatistiques : modèles de regression linéaire	3	Semestre 2	10		11			
Charger le détail								
Statistiques : Méthodes de vraisemblance	3	Semestre 2	10		11			

Subjects	ECTS	Semester	Lecture	directed study	practical class	Lecture/directed study	Lecture/practical class	directed study/practical class
Charger le détail Bioinformatique structurale 2	3	Semestre 2	10		11			
Charger le détail Programmation Orientée Objet	2	Semestre 2	10		11			
Charger le détail UE d'un autre master	2	Semestre 2						
Charger le détail Algorithmique pour la biologie	2	Semestre 2	10	11				
Charger le détail TER stage à 4 ECTS	4	Semestre 2						
Charger le détail TER stage à 2 ECTS	2	Semestre 2						
Charger le détail Programmation Python	2	Semestre 2	10		11			
Charger le détail TER stage à 6 ECTS	6	Semestre 2						
Charger le détail Modélisation des systèmes et réseaux biologiques	2	Semestre 1	7	0	14			

Subjects	ECTS	Semester	Lecture	directed study	practical class	Lecture/directed study	Lecture/practical class	directed study/practical class
Bioinformatique structurale 1	2	Semestre 1	9		12			
Charger le détail								
Analyse de séquences	4	Semestre 1	16	8	8			
Charger le détail								
Introduction à la recherche clinique et épidémiologique	3	Semestre 1	12	12				
Charger le détail								

Subjects	ECTS	Semester	Lecture	directed study	practical class	Lecture/directed study	Lecture/practical class	directed study/practical class	distan learni cours
Stage d'été optionnel	0	Semestre 2							
Charger le détail									
Anglais 2	2	Semestre 2		24					
Charger le détail									
Stage	10	Semestre 2							
Charger le détail									

Teaching Location(s)

ORSAY

Contact

- **Olivier LESPINET**

http://www.universite-paris-saclay.fr/formation/master/bio-informatique/m1-bioinformatique-biostatistiques-et-applications-de-lintelligence-artificielle-bibs-ia