Université Paris-Saclay
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M1 Physique et Applications

Master's degree
Specialisation Physique fondamentale et applications
Language(s) of instruction
French

The Master 1 in Physics and Applications (M1PA) is the first year of a programme covering the **major interdisciplinary fields of applied research and engineering sciences**, as well as **advanced instrumentation**. In addition to fundamental theoretical teaching, a significant number of teaching units enable students to acquire **experimental and digital expertise** from the first year onwards

The theoretical and experimental teaching of the M1 Physics and Applications takes place between September and March. It is organised into **several thematic tracks** which allow students to **pre-specialise** in the first year of the Master's programme with a view to the M2 year. The thematic areas offered are as follows:

• Energy

• Nuclear Energy

• Medical Physics

• Condensed Matter and Nanosciences

• Instrumentation for Optics and Space

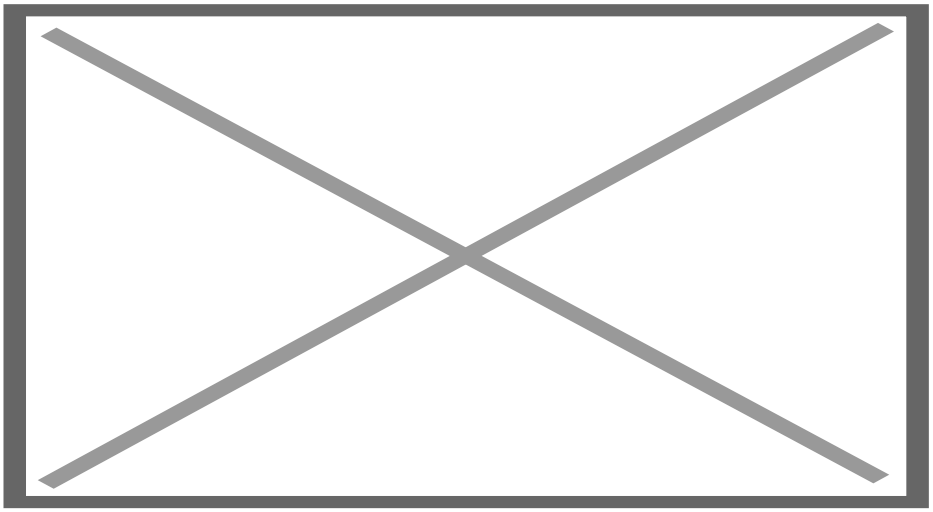
• Instrumentation - Large Instruments

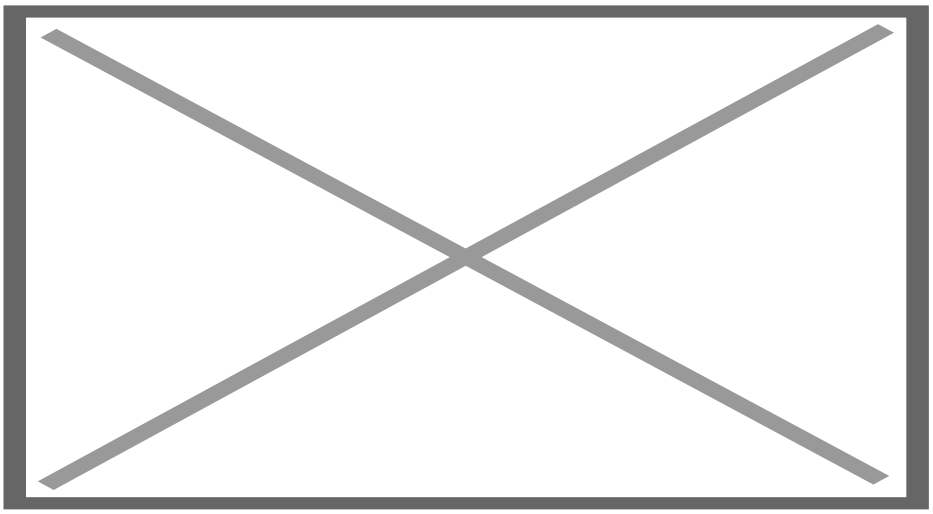
• Physics and Environment

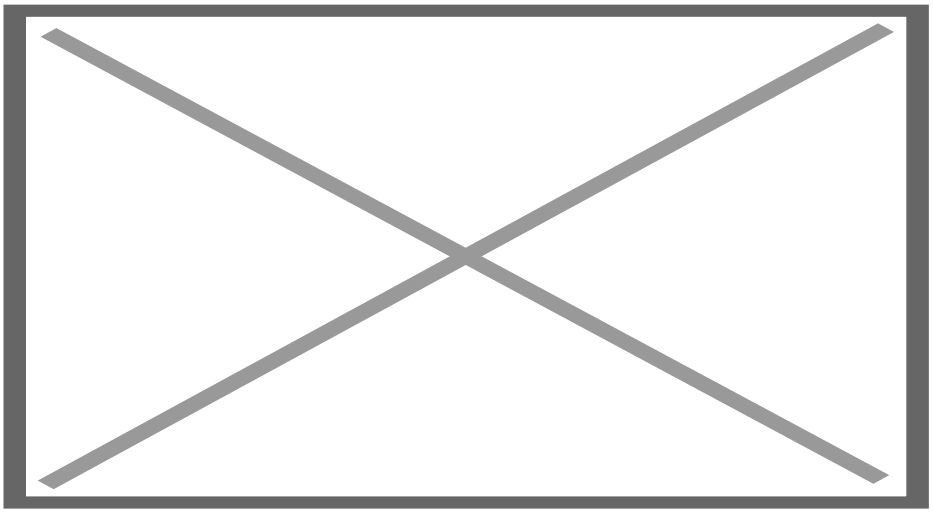
The programme includes a core curriculum (33 ECTS) and a wide range of options (21 ECTS) made possible by the exceptional scientific environment of the Orsay campus and, more broadly, the Saclay Plateau.

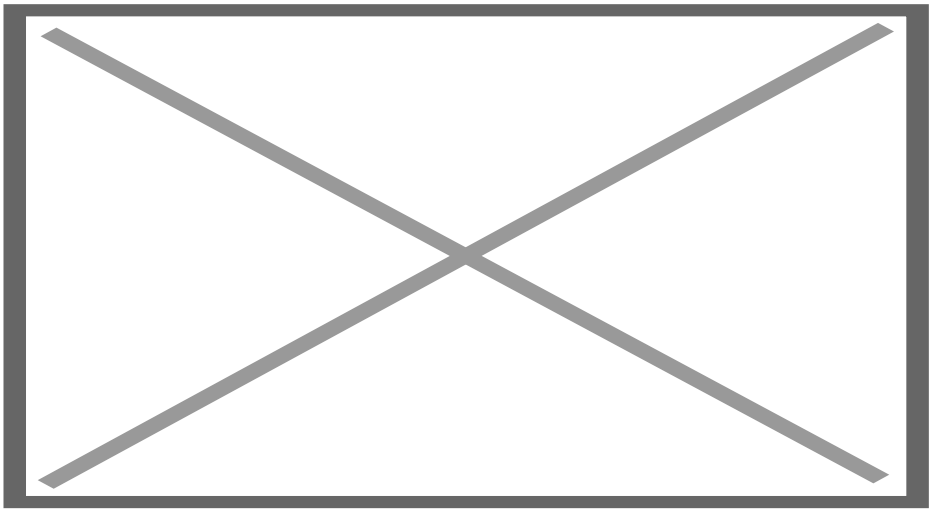
A **compulsory internship** in a laboratory or company, lasting a minimum of 8 weeks, completes the course and allows students to earn 6 ECTS credits.

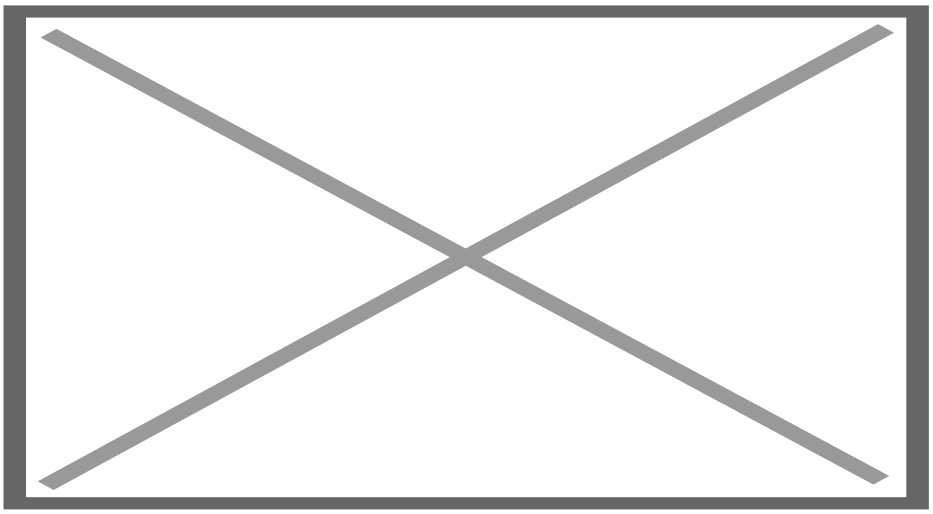
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Information

- Overview
- Application requirements
- Schedule

Présentation

Skills

Use specialised knowledge of physics with the necessary scientific rigour. Master the tools of the physicist.

Objectives

The M1 Physics and Applications programme aims to provide students with a solid foundation in the **major fields of physics and its interfaces with engineering sciences** (energy, nuclear science, the environment,

nanoscience, medical physics), as well as in **cutting-edge instrumentation** (optics, lasers, detectors and associated electronics, particle accelerator construction and instrumentation for astronomy).

The core curriculum corresponds to 33 ECTS credits. It includes fundamental instruction in optics and lasers, condensed matter physics and nuclear physics, supplemented by instruction in physics tools (Python programming, signal processing, detection chains, English). Several practical assignments are offered to illustrate fundamental concepts or in connection with the acquisition of tools for physicists. Depending on their thematic track, students choose options relevant to their course of study for a total of 21 ECTS credits.

The M1PA programme gives students access to a **dozen M2 specialisations at Paris-Saclay University**. Upon completion of the M1, career opportunities include **engineer, project manager, researcher and associate professor in physics, medical physician**, etc

Débouchés

Further Study Opportunities

Master of STePE and other Master of Earth Sciences
PhD
Engineering school
PhD thesis
Engineering, research and development
Master of applied physics
Master’s Degree in Engineering or Mechanical Engineering
Multidisciplinary Engineering School
Generalist Engineering School through Apprenticeship
Engineering Apprenticeship Program in Mechanical Engineering and Production
Engineering Apprenticeship Program in Materials and Mechanical Engineering
Engineering Apprenticeship Program in Energy Engineering
fields of statistical learning, artificial intelligence and advanced data analysis
In particular, this track prepares students for applied research activities, usually undertaken after a PhD, whether in academia or in R&D.

R&D researcher or data modelling and analysis expert in leading-edge companies or laboratories.
2nd year Master’s
Head of project/mission
Research officer

Calendar

Start of programme (indicative date)
01/09/2026
End of programme (indicative date)
31/08/2027
Admission

Admission Route

Physics
Physics, Chemistry
Engineering Sciences

Capacity

Available Places

60

Target Audience and Entry Requirements

Students admitted to the M1 Physics and Applications (M1PA) programme must hold a **bachelor's degree in general physics or physics and chemistry.** They must have a **solid foundation** in the following general physics subjects: **electromagnetism, optics, quantum mechanics and statistical physics**.

The M1PA enrols students who follow the standard curriculum and students who can complete a year of study abroad after establishing a course programme in consultation with the M1 programme coordinators. The programme occasionally welcomes research laboratory staff who are returning to study.

Période(s) de candidature

Inception Platform

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

From 19/06/2026 to 25/06/2026

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.

Detailed description and hourly volume of courses taken since the beginning of the university program.

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	
Traitement du signal	4	Semestre 1	14	10	10				
Charger le détail									
Optique et Lasers	5	Semestre 1	24	20					

Subjects	ECTS	Semester	Lecture	directed study	practical class	Lecture/directed study	Lecture/practical class	directed study/practical class
Charger le détail Physique expérimentale S1	2	Semestre 1			16			
Charger le détail Physique Nucléaire	5	Semestre 1	24	20				
Charger le détail Anglais	3	Semestre 1		25				
Charger le détail Mathématiques pour la Physique	2	Semestre 1		18				

Charger le détail

Subjects	ECTS	Semester	Lecture	directed study	practical class	Lecture/directed study	Lecture/practical class	directed study/practica class
UE à 6 ECTS								
Plasma physics and applications	6	Semester 1	24	24				
Charger le détail Astrophysique : concepts et observations	6	Semestre 1	18	14	18			
Charger le détail Physique appliquée à la médecine : de la biologie à la thérapie	6	Semestre 1	33	6	6			
Charger le détail Nanosciences et Nanotechnologies	6	Semestre 1	28		24			

Charger le détail

UE à 3 ECTS

Subjects	ECTS	Semester	Lecture	directed study	practical class	Lecture/directed	Lecture/practical	directed study/practica class
Enjeux de la transition énergétique Charger le détail	3	Semestre 1	16	6				
Connaissance de l'entreprise et Gestion de projet Charger le détail	3	Semestre 1						
Cycles de conférences en Environnement Charger le détail	3	Semestre 1	20					
Mécanique des Fluides Charger le détail	3	Semestre 1	12.5	12.5				
Rattrapage Physique Statistique Classique en M1 Charger le détail	3	Semestre 1	13	13				
Rattrapage Physique Statistique Quantique en M1 Charger le détail	3	Semestre 1	12.5	12				
Génie nucléaire : Science des matériaux appliquée au nucléaire Charger le détail	3	Semestre 1	9	8.5	7			
Initiation aux échanges thermiques Charger le détail	3	Semestre 1	10.5	10.5	4			
UE libre Catalogue S1 Charger le détail	2.5	Semestre 1						

Subjects	ECTS	Semester	Lecture	directed study	practical class	Lecture/directed study	Lecture/practical class	directed study/practical class
Matière Condensée	5	Semestre 2	24	20				
Charger le détail								
Chaîne de détection et mesure	3	Semestre 2	4	8	16			
Charger le détail								
Physique expérimentale S2	4	Semestre 2			32			
Charger le détail								
Programmation Python et bases de l'IA	3	Semestre 2	10	24				
Charger le détail								

Subjects	ECTS	Semester	Lecture	directed study	practical class	Lecture/directed study	Lecture/practical class	directed study/practic class
UE à 6 ECTS								
Projet informatique en physique médicale	6	Semestre 2						
Charger le détail								
UE à 3 ECTS								
Technologies de la transition énergétique	3	Semestre 2	14	7	4			
Charger le détail								
Systèmes et méthodes d'imagerie	3	Semestre 2	10	7.5	12			
Charger le détail								
Outils et indicateurs environnementaux	3	Semestre 2	18	9				
Charger le détail								

Subjects	ECTS	Semester	Lecture	directed study	practical class	Lecture/directed study	Lecture/practical class	directed study/practic class
Optique avancée et optique non linéaire	3	Semestre 2	11	12.5	6			
Charger le détail								
Simulation et analyse numérique des systèmes physiques	3	Semestre 2	12	12				
Charger le détail								
Introduction à la gestion des risques	3	Semestre 2	24					
Charger le détail								
Génie nucléaire – Processus stochastiques	3	Semestre 2	12.5	12.5				
Charger le détail								
Pollutions physiques et chimiques	3	Semestre 2	24					
Charger le détail								
Fluides complexes et interfaces	3	Semestre 2	11	11	3			
Charger le détail								
Physique des semi-conducteurs	3	Semestre 2	12.5	12.5				
Charger le détail								
UE libre catalogue S1 et S2	2.5	Semestre 2						
Charger le détail								

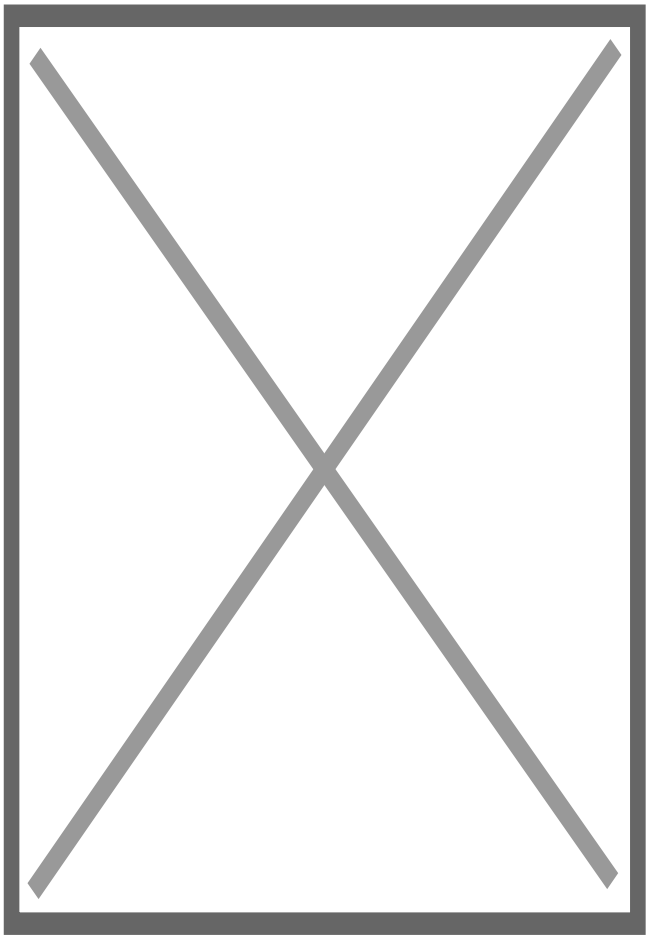
Subjects	ECTS	Semester	Lecture	directed study	practical class	Lecture/directed study	Lecture/practical class	directed study/practical class	distanc learni cours
Stage	6	Semestre 2							
Charger le détail									

Teaching Location(s)

ORSAY

Training campus

Javascript est requis pour visualiser cette carte.



Saclay Moulon

Saclay / Gif-sur-Yvette / Orsay
Bus 4606 / 4609 / 4611 / 5154
RER B Le guichet
Voir
Student restaurant (CROUS)
Library
Sports facilities
Student residence

Contact

- **Odile STEPHAN**
- **Séverine BOYE-PERONNE**
- **Laurent Audouin**

http://www.universite-paris-saclay.fr/formation/master/physique-fondamentale-et-applications/m1-physique-et-applications