Université Paris-Saclay
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M1 Engineering, Data Science, Human Movement.

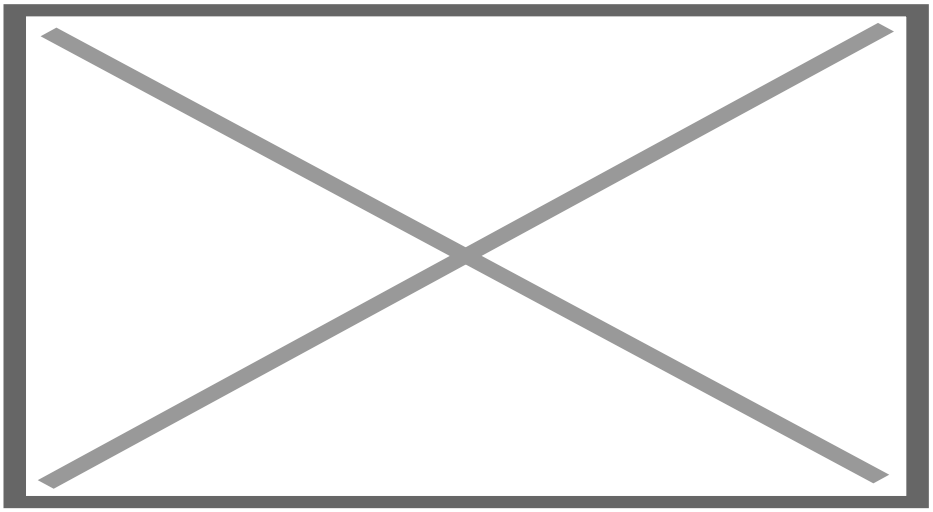
Master's degree
Specialisation Human Movement & Sport Sciences : Engineering and Ergonomics
Enrolment type
Formation initiale
Formation continue
Language(s) of instruction
English
French

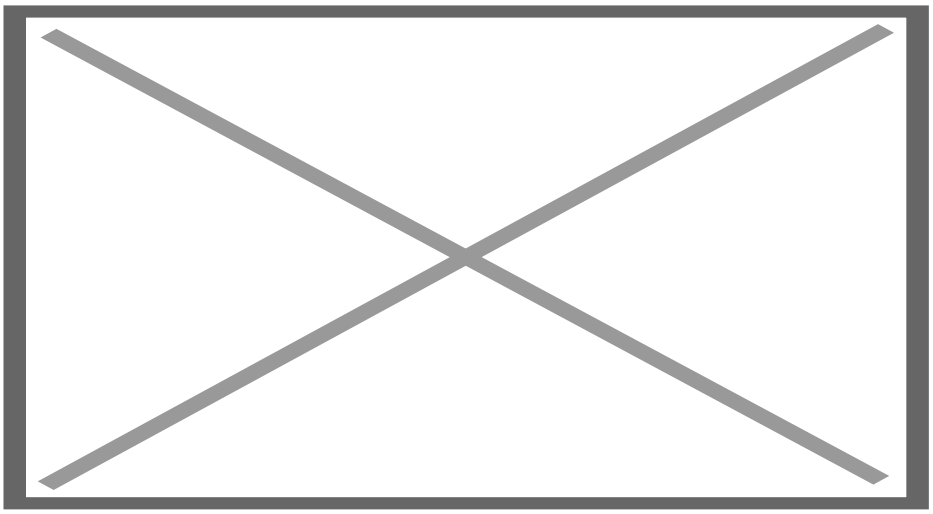
This master's program trains experts in human movement analysis, combining physical ergonomics, biomechanics, data science, robotics, and cognitive sciences. Students deepen their knowledge in musculoskeletal modeling, AI applied to movement, and human-machine interaction, blending scientific methodology with technological projects. The program includes numerous practical sessions (measurement, programming, etc.), internships, specialized conferences, and courses in project management.

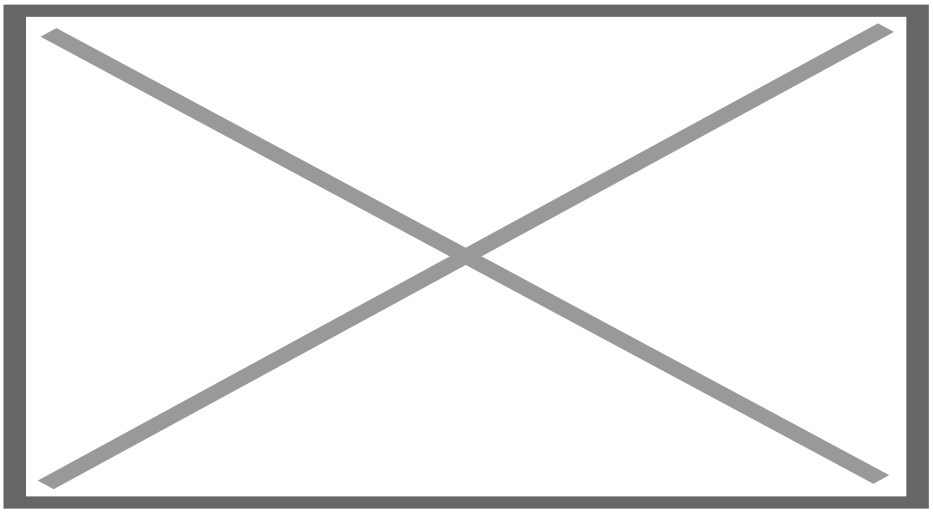
The master’s program covers data science (statistics, machine learning, data visualization), movement analysis (3D biomechanics, sensors, musculoskeletal modeling), physical engineering (mathematics, mechanics, robotics), scientific methodology, and cognitive sciences (AI, psychophysics), with programming as a transversal skill.

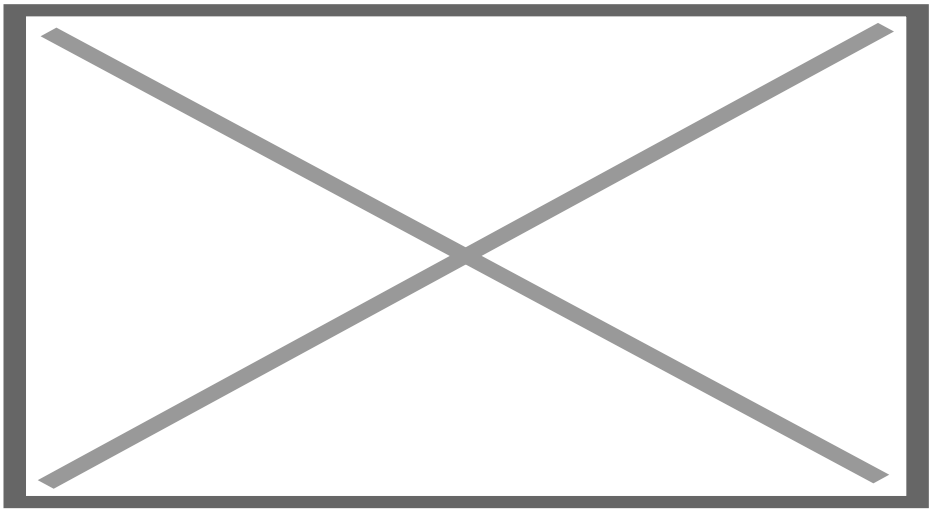
In the first year, students gain solid foundations through practical projects. In the second year, the program specializes in physical ergonomics, assistive robotics, human-machine interaction, AI for movement, and systems approach. The second semester is dedicated to an extended internship in a lab or company (health, sports, R&D, etc.). The program also includes modules in project management, innovation, and entrepreneurship, complemented by immersive experiences: practical work (measurements, programming), hackathons, interdisciplinary conferences, and collaborative projects.

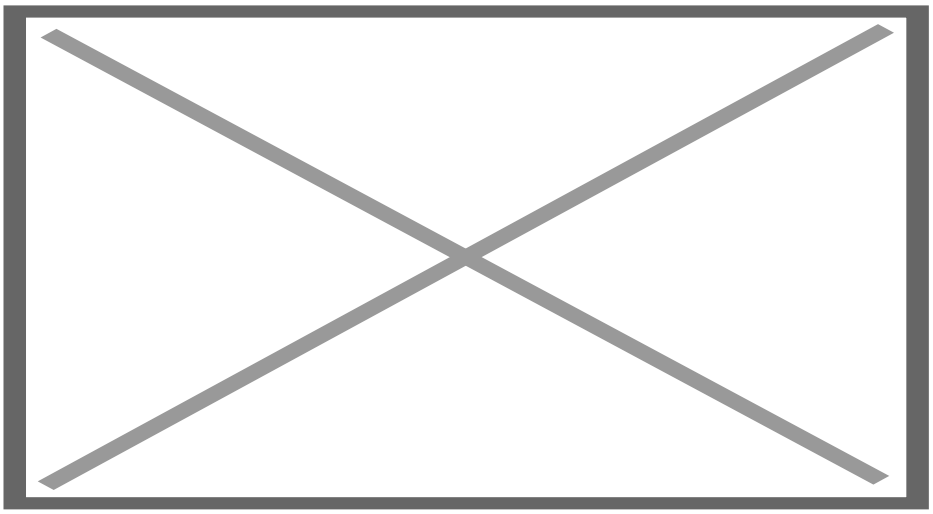
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Information

- Overview
- Application requirements
- Schedule

Présentation

Skills

Acquire and apply complex and highly specialized multidisciplinary knowledge.

Engineering and data science applied to human movement.

Objectives

The Master's program in STAPS – *Engineering and Ergonomics of Physical Activity* (IEAP) at Université Paris-Saclay trains professionals at the intersection of human movement science, engineering, and data science. It is built around a single track, *Engineering, Data Science, Human Movement* (*Ingénierie, Data Science, Mouvement Humain,* IDSMH), open to students from STAPS (sport sciences), fundamental sciences, and engineering backgrounds, as well as engineering students in a dual-degree program.

The curriculum develops a dual expertise in engineering and data science applied to human movement, addressing the growing needs in assistive robotics, human-machine interaction, and movement analysis across professional, sports, and healthcare contexts. The goal is to design human-centered technological systems capable of measuring, modeling, and analyzing both healthy and pathological movement.

The curriculum covers a broad spectrum, including data science (statistics, machine learning, data visualization), human movement analysis (3D biomechanics, sensors, musculoskeletal modeling), physical engineering (mathematics, mechanics, robotics), scientific methodology, and cognitive sciences (AI, psychophysics). Programming, a transversal skill, is applied across all these fields.

In the first year (M1), students acquire strong foundational knowledge, applied through hands-on projects (technical reports, technological projects, internship). In the second year (M2), the program offers specialization in physical ergonomics, assistive robotics, human-machine interaction, AI for movement, and system-based approaches. The second semester is fully dedicated to a long-term internship, either in a research lab or in industry (health, sports, R&D, etc.).

The training also includes modules on project management, innovation, and entrepreneurship, reinforced through immersive experiences such as practical labs (measurement, programming), hackathons, interdisciplinary conferences, and collaborative projects.

Career opportunities include human movement analysis, physical ergonomics (occupational health, workplace design), sports performance, R&D in human-machine interaction, robotics, and data science applied to human behavior. Graduates go on to work as R&D engineers, data scientists, research officers, ergonomists, technical sales engineers, or pursue PhDs (CIFRE fellowships or ministerial contracts).

The program relies on a strong academic network within Université Paris-Saclay: the Faculty of Sport Sciences, the Faculty of Science (Departments of Physics and Biology), CentraleSupélec, UVSQ (Faculty of Sciences), and Polytech Paris-Saclay.

Débouchés

Career prospects

After a Master's or Master's + PhD: engineer (R&D, control, production, etc.)
After a Master's + PhD: researcher or lecturer
Data Scientist

After a Master's degree: Data scientist
After a Master’s degree: Research analyst
R&D Project Manager
Consulting
Research and Innovation Manager
Research professions
Lecturer (after a PhD)
Human-computer interaction ergonomist - HCI
Human factors ergonomist
Head of mission / projects
Human Factors Engineer
Project follow-up and evaluation manager
Data scientist

Further Study Opportunities

PhD
PhD thesis
Students with a 2nd year Master's degree have the possibility to pursue doctoral research.
Students in this track can turn to research at the end of the 2nd year Master's.
Engineering, research and development
Data Scientist, Data Analyst, Ingénieur·e en Machine Learning dans des secteurs innovants (tech, finance, santé, énergie, etc.) ;
R&D researcher or data modelling and analysis expert in leading-edge companies or laboratories.

Calendar

Start of programme (indicative date)
01/09/2026
Admission

Admission Route

Life Sciences
Physical and sports sciences

Science and Technology

Capacity

Available Places

25

Target Audience and Entry Requirements

This Master's program is open to students from STAPS Bachelor's degrees, the dual-degree STAPS-SPI Bachelor's from Université Paris-Saclay, as well as from Bachelor's programs in Science and Engineering. It is also offered as a dual-degree option for engineering students.

As part of the selection process for entry into the first year of the Master's program (in accordance with the law of 23/12/2016) and subject to capacity limits, applicants must have completed a Bachelor's degree in one of the following fields: STAPS APA&S, STAPS Sport Training, STAPS Engineering and Ergonomics of Physical Activity, Life Sciences, Science and Technology, Mathematics, Biology & Health, or Physical Engineering. The program also welcomes students or professionals from paramedical fields (Physiotherapy, Occupational Therapy, Ergonomics, Osteopathy, Podiatry, Medicine, Nursing, etc.). Other backgrounds may be considered upon review of the application, especially for international degrees. For students in initial training, particular attention will be paid to final grades in scientific subjects. Academic results should be consistent with at least "Honours" (equivalent to *Assez bien* to *Très bien*) in the third year of the Bachelor's degree.

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

2nd letter of recommendation (compulsory for candidates who have already been enrolled in higher education in France before).

Motivation letter.

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

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

Curriculum Vitae.

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

Additional supporting documents

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	
From cognitive science to AI for human movement I	5	Semestre 1	28	16					
Charger le détail									
Ergonomie Physique	3	Semestre 1	14	2	6				
Charger le détail									
Mathématiques pour le mouvement humain	6	Semestre 1	20	30					
Charger le détail									

Subjects	ECTS	Semester	Lecture	directed study	practical class	Lecture/directed study	Lecture/practical class	directed study/practical class
Human biomechanics and motor control	4	Semestre 1	24	15				
Charger le détail								
Data Science I	5	Semestre 1	12	24	10			
Charger le détail								
Understanding scientific research I	3	Semestre 1	12	12				
Charger le détail								
Connaissance du Milieu Professionnel I	4	Semestre 1	28	8				
Charger le détail								

Subjects	ECTS	Semester	Lecture	directed study	practical class	Lecture/directed study	Lecture/practical class	directed study/practical class
Human movement analysis	3	Semestre 2		17				
Charger le détail								
Data Science II	3	Semestre 2	12	18				
Charger le détail								
Ingénierie Physique	7	Semestre 2	26	30	6			
Charger le détail								
Entrepreneuriat, comptabilité, jeu d'entreprise	3	Semestre 2		42				
Charger le détail								
Understanding scientific research II	2.5	Semestre 2		24				
Charger le détail								

Subjects	ECTS	Semester	Lecture	directed study	practical class	Lecture/directed study	Lecture/practical class	directed study/practical class
Projet transversal Charger le détail	1.5	Semestre 2	8					
Connaissance du Milieu Professionnel II Charger le détail	10	Semestre 2	6					

Teaching Location(s)

ORSAY
EVRY

Contact

- **Samuel Hybois**

  MCF
- **David RUDRAUF**

http://www.universite-paris-saclay.fr/formation/master/staps-ingenierie-et-ergonomie-de-lactivite-physique/m1-ingenierie-data-science-mouvement-humain