Master Physique fondamentale et applications - Parcours : Physics of Complex Systems

SCIENCES, TECHNOLOGIES, SANTÉ

Présentation

he MASTER'S in PHYSICS OF COMPLEX SYSTEMS (PCS) is a research-oriented fundamental physics program. Students receive the Master's degree in Physics from the University of Paris Cité "Complex Systems." The program focuses on the study of complex systems through statistical physics, equilibrium and non-equilibrium physics, field theory, stochastic processes, dynamical systems, nonlinear physics, and numerical simulation. The subjects of study are complex networks, graphs, inference, big data, machine learning, active matter, the physics/social science interface, econophysics, soft matter, biological systems, complexity in quantum physics, etc.

This academic program is part of Université Paris Cité's Graduate School of Innovative Materials, connecting master's and doctoral courses with cutting-edge research laboratories. This interdisciplinary graduate school, bringing together physics, chemistry, biology, and medicine, offers students the opportunity to explore the creation of innovative materials to address emerging socioeconomic challenges.

OBJECTIFS

To train future doctoral students in university and CNRS physics laboratories, as well as executives in companies and startups, focusing on big data, social and financial models, etc.

COMPÉTENCES VISÉES

Obtaining in-depth conceptual knowledge in statistical physics, nonlinear physics, dynamic systems, and interfaces with biological or human sciences, enabling students to address various theoretical or experimental problems in physics or interfaces between physics and other sciences.

Programme

ORGANISATION

All courses are taught in English. The first semester (S3) coincides with the third semester of the international Master's program in "Physics of Complex Systems" (i-PCS). It takes place in Paris, on the Grands Moulins campus and at Jussieu. It consists of a core curriculum and a selection of electives. The second semester (S4) consists of elective courses and an internship.

STAGE

Stage : Obligatoire

Durée du stage : 3 months

Stages et projets tutorés :
The internship takes place in the fourth semester in a physics research laboratory or in disciplines related to physics. It may be extended beyond the official three-month duration in agreement with the host team and the master's program director.

Pour en savoir plus, rendez-vous sur > u-paris.fr/choisir-sa-formation

Informations non contractuelles. Les formations sont proposées sous réserve d'accréditation ministrielle délivrée tous les 5 ans.
Dernière mise à jour le 23 mai 2025

Admission

Students

PRÉ-REQUIS

Good level of English. Very good level in theoretical subjects, particularly physics and statistics.

Droits de scolarité :
National tuition fees are set annually by the Ministry of Higher Education and Research. Mandatory and optional contributions are added depending on the student's individual situation. Additional tuition fees may apply to vocational training students. More information is available here.

Et après ?

POURSUITES D'ÉTUDES

90% doctorat

PASSERELLE

Teaching competitions, training in promotion, scientific communication.

DÉBOUCHÉS PROFESSIONNELS

Researcher, lecturer-researcher in physics laboratories at universities and the CNRS, as well as executives in companies and start-ups working on “big data”, social and financial models, etc.

Contacts

Responsable de la mention
Francesco Nitti
francesco.nitti@u-paris.fr

Responsable du parcours
Frédéric Van-Wijland
frederic.van-wijland@u-paris.fr

Gestionnaire de Scolarité
Stessy Mondongue
01 57 27 61 30
stessy.mondongue@u-paris.fr

En bref

Composante(s)
UFR Physique

Niveau d'études visé
BAC +5 (niveau 7)

ECTS
60

Public(s) cible(s)

- Étudiant

Modalité(s) de formation

- Formation initiale
- Formation professionnelle

Formation à distance
Non

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Langue(s) des enseignements

- English

Lieu de formation

Campus des Grands Moulins, Campus Paris Saclay,
Campus Jussieu

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