Master's Degree in Computer Science

OPTIMIZATION IN OPERATIONS RESEARCH (ORO)

This programme is the second year specialty of Nantes Université's Master's degree in Computer Science, specialized in the field of operations research. It deals in particular with graphs and mathematical programming (discrete, non-linear, multi-objective), constraint programming (discrete and continuous), computational intelligence and decision support. The objective of this course is to provide the necessary knowledge to specify, design, implement and integrate software solutions in the field of optimization that meet the specific needs and challenges of our society. The training is centered on the algorithmic foundations of optimization, as well as their applications to production and logistics systems, robotics and genomics.

This programme is co-accredited by IMT Atlantic.

Syllabus

Third Semester (30 ECTS)

(i.e. first semester of this second year of master)

- Multi-objective optimization
- Mathematical programming
- Global optimization
- Genome algorithms
- Optimization in robotics
- Conferences and integrating project
- Multi-objective solvers
- Scheduling and planning
- Transportation and logistics
- Global constraints

Fourth Semester (30 ECTS)

(i.e. second semester of this second year of master)

- A 5 months master thesis or internship

Hosting research lab

The laboratory of Digital Science of Nantes

https://www.ls2n.fr/?lang=en

Language

The programme is taught in French in year 1 and in English in year 2. A good command of the English language is required (B2 score as defined by the Council of Europe).

Skills

- Modelise and solve complex problematics
- Design algorithmic solutions for a multidisciplinary context

Career Opportunities

Sectors

- Computing (big data, data mining, cloud computing)
- Design (mechanical, VLSI)
- Logistics (port, airport, humanitarian, distribution)
- Management (traffic, projet, team, energy, sport)
- Transportation (urban, air, maritime, road, space)
- Production (planning, timetabling, inventory control, scheduling)
- Telecom
- Network
- Health
- Bioinformatics
- Robotics

Faculté des sciences et des techniques

univ-nantes.fr/sciences

Admission

› To enter this Master's degree in 2nd year (3rd semester), applicants should hold a degree equivalent to the first year of a master (i.e. a 3-year Bachelor is not acceptable), for example a 1st year of MSc. You will need to have validated the corresponding courses (or their equivalent) of the 1st year.

Applicants should be able to demonstrate their knowledge from transcripts of their degrees.

› You can also enter the programme in first year (1st semester). Applicants should hold a Bachelor's degree that includes some computer science and mathematics; for example, science, engineering, statistics or economics.

⚠ The first year is entirely taught in French.

Application

› Students coming from a country using the CEF/Campus France procedure must enroll with Campus France.

› Students coming from a country not using the CEF/Campus France procedure follow the non CEF-procedure.

› Exchange students follow the application procedure for exchange students.

+ More details on application procedu-res on the programme's website.

Cost

The cost refers to education and training costs that includes additional services such as French language classes.

+ A provisional budget is available on Nantes Université's website.

Academic calendar

Courses start in early September.

Faculty key figures

5 000
Students

19%
International Students

96%
Professional integration*

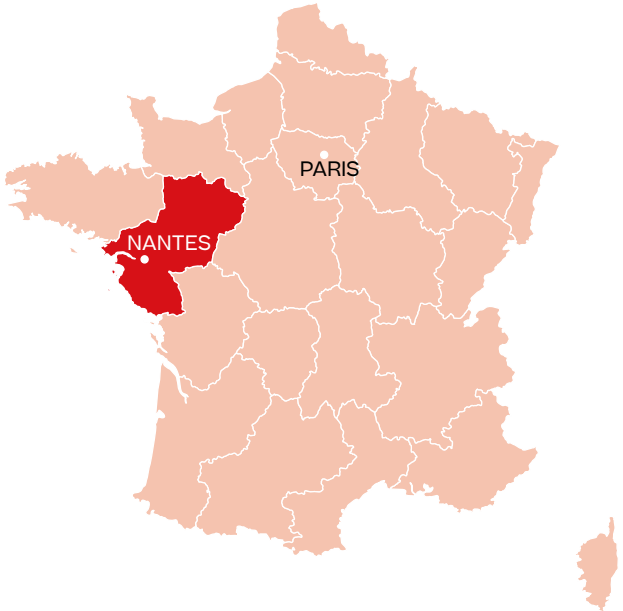
11
Research Units

Location

In Nantes, the university is organized into four major campuses along the Erdre River, crossing the city from north to south to the Ile de Nantes on the Loire River.

The programme courses are located on the Lombarderie Campus which is a wooded area well served by public transportation.

Nantes (600,000 inhab.) is located close to the Atlantic Ocean and is regularly rated as one of the most pleasant French cities to live in. Thanks to its beautiful parks, efficient public transport and other policies for sustainable development, Nantes has been awared the status of European Green Capital.



Contact

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* Source : SUIO - Enquête à 30 mois, Déc.2021 - Domaine "sciences, technologie, études d'ingénieur" / Crédit photos: Service Photo, Nantes Université, Pexels.

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