



# **The research community in France**

Parcours Recherche  
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# Where to Research (Now!)

A master's thesis is a comprehensive scientific document that allows you to delve into a subject, develop it and show your scientific and technical skills. Graduate schools often require a dissertation for students of research-oriented degrees to apply their practical skills before completion.

The dissertation gives you the opportunity to immerse yourself in interesting research for greater depth of learning in your career field. Employers often prefer students with a dissertation in their portfolio because it showcases their acquired writing skills, domain knowledge, and ambition to learn. Defending your dissertation will also hone critical communication and public speaking skills, which can be applied in any career. In fact, many graduates end up publishing their thesis work in academic journals to gain a higher level of credibility for leadership positions as well.

# Where to do (public) research in France

Public research is mainly carried out within:

- universities and around a hundred Grandes Ecoles and higher education establishments.
- 26 public research organizations (C.N.R.S., INSERM, INRA, INRIA, CNES, C.E.A., CNES, IFREMER, etc.).
- 25 university and scientific groups including 8 COMUE (communities of universities and establishments).
- private foundations (Pasteur and Curie institutes).
- university foundations and scientific cooperation foundations.
- 37 Carnot institutes.
- 71 competitiveness clusters.

In France, there are 115,308 researchers in public research (source 2020).

# Where to do (private) research

It is carried out in companies that employ 180,400 researchers (FTE) in 2017.

Researchers in companies outnumber those working in government and represent 61% of all researchers.

Five branches among the thirty-two branches benefiting from research concentrate half of the number of researchers: "Specialised, scientific and technical activities" (12%), "Computer activities and information services" (12%), "Automotive industry" (11%), "Aeronautical and space construction" (9%) and "Publishing, audiovisual and broadcasting" (7%).

Private research is possible even without completing a thesis (only 13% of doctors), the engineering degree is very popular (25% of doctors from an engineering school).

# Where to do (private) research

The "Global Innovation 1000" study by the audit firm PwC, produced in 2018, established a ranking of companies according to their investment in Research and Development. In this ranking, we find the following French companies:

1. Sanofi (€5.77 billion) - pharma, cyber
2. Renault (€2.73 billion) - mechanics, energy, IoT, IA, cyber
3. Groupe PSA (€2.36 billion) - mechanics, energy, IoT, IA, cyber
4. Valeo (€1.19 billion) - mechanics, energy, IoT, AI, cyber
5. Safran (€1.01 billion) - mechanics, energy, IoT, AI, cyber
6. Schneider Electric (€975m) - energy, IoT, AI, cyber
7. L'Oréal (€922.3m) - pharma, cyber
8. Thales (€843.3m) - mechanics, energy, IoT, AI, cyber
9. Total (€799.3m) - mechanics, energy, IoT, AI, cyber
10. Ubisoft (€746.6m) - IoT, AI, cyber
11. Orange (€737.8m) - IoT, AI, cyber
12. Michelin (€676.3m) - mechanics, energy, IoT, AI, cyber
13. Dassault Systèmes (€606m) - mechanics, energy, IoT, AI, cyber
14. EDF (€579.7m) - mechanics, energy, IoT, AI, cyber
15. Saint Gobain (€474m) - mechanics, energy, IoT, AI, cyber

# Roles and ranks (France)

- The PhD student

Holders of a master's degree can prepare a doctorate in three years. A PhD student, under the supervision of a thesis director, works in a research project including the writing and defense of a thesis with the aim of obtaining the PhD degree.

The doctoral contract provides all the social guarantees of an employment contract, in accordance with public law in a doctoral school.

It sets a minimum guaranteed remuneration from which no establishment can derogate: since July 1, 2010, it amounts to 1684.93 euros gross monthly for a research activity alone and 2024.70 euros gross in the event of additional activities. This salary can be negotiated above this minimum with no limit on the remuneration ceiling, in particular for theses in a private structure.

# Roles and ranks (France)

- The Post-Doctorate and the ATER

In France, the duration of a post-doctorate varies from 6 months to 3 years. A post-doctoral fellow is considered a full-fledged researcher. Experiments, publication of articles, animation of seminars, participation in conferences... he participates fully in the activities of his research laboratory. His annual salary for a full-time position can range from 2100 to 5830 euros net per month.

Universities recruit post-docs under the status of temporary teaching and attached researcher, or commonly known as ATER. The latter can then continue their research while delivering approximately 200 hours of teaching per year. These hours include lectures, tutorials and practical work.

# Roles and ranks (France)

- Assistant Professor and Lecturer

Upon obtaining the doctorate, the PhD must first be qualified as a lecturer by a section of the National Council of Universities (C.N.U.). Once the qualification has been obtained, he can take part in the recruitment competitions opened by employment in each public establishment of higher education and research.

The application file includes in particular a description of activities in teaching, research, administration or other collective responsibilities and presents three copies of its work, books and articles. It is examined by the C.N.U. competent for the discipline. It may be possible to apply for registration with several sections of the C.N.U.

The salary can vary from 2060 to 4400 euros per month (there are 9 levels defining the responsibilities).



# Roles and ranks (France)

- Associate Professor (HDR in France, Tenure in USA)

The authorization to direct research (HDR in French) is a diploma in the same way as the thesis. This is the highest distinction in the university system and allows you to supervise doctoral students, young researchers, and to manage a laboratory. The HDR is necessary to apply for the highest grade of executive, University or Full Professor.

To pass the HDR, you must obtain the authorization of the HDR Committee of a doctoral school (composed of Full Professors). The rest unfolds as for a thesis: a dissertation and a defence. The jury must be validated by the doctoral school with expertise of the dissertation by rapporteurs as for the thesis.

The salary is very variable because it depends on the additional activities acquired after obtaining the HDR (in general at least 20% more than an Assistant Professor).

# Roles and ranks (France)

- University professor or Full professor

As for lecturers, candidates must first have been registered on a list of qualifications for university professorships, established by the C.N.U.

The body of university professors has three classes ("grades"), a second class which includes 7 levels; a first class which includes 3 levels; an exceptional class which includes 2 levels.

Remuneration varies from 3100 euros per month at the start of the career up to 6200 euros per month for the exceptional class.

# Roles and ranks (France)

- Miscellaneous

All the degrees mentioned follow a thesis, there are many research professions that do not require a thesis.

- Research engineer
- Engineering studies
- Assistant engineer
- Research Technician
- Research Technical Assistant

You will be under the responsibility of one or more professors (any grade).

# Research Production Evaluation

Research is by definition extremely difficult to evaluate, since it involves state-of-the-art knowledge, the discoveries of which must be assessed over time. However, there are a number of indicators that can be used to assess the scientific production of a country (number of publications, patents, etc.), or of individual researchers (use of bibliometrics). In France, laboratories are evaluated every four years by the Agency for the Evaluation of Research and Higher Education (AERES), since 2007, now HCERES.

According to the Ministry of Higher Education and Research, France ranked 7th in the world in 2015 in terms of the production of scientific publications (1,643,000 publications). According to the National Institute of Intellectual Property, the number of patent applications filed in 2018 was 16,222.

# Research products

Here are the most common research products relevant to the evaluation of the quality of a laboratory's research:

- Journals with an international committee
- Internationally-classified journals (e.g. WoS)
- Book chapters
- Conferences with international committee
- Classified international committee conferences (e.g. CORE)
- National committee conferences (GdRs such as ROADEF)
- Management and scientific editing
- Theses published
- Research seminars
- Patents, databases, corpus, expertise and instrumental developments
- Popular articles (written, TV, newspapers, oral presentation) and Notices

# Research activities

Here are the most common research activities included in the evaluation of the quality of a laboratory's research:

- Management and scientific publishing (committee, chairman, etc.)
- Direction of collections and series
- Direction and supervision of thesis
- Direction and responsibility of Research Chair
- Direction and responsibility of the Research Project (see in funding)
- National and international scientific outreach (conferences, workshops, etc.)
- Influence in Learned Societies (for example ROADEF)
- Evaluation activities (CST, bodies, jury, etc.)
- Review and evaluation of scientific works
- Laboratory evaluation activities (HCERES) and research project (see funding)
- Consulting and expert bodies (example ANSES)
- Guest researcher and stays
- Recognition and awards/honours (award, knight, laureate)
- Scholarship and research allowance

# Funding

- Thesis funding

Doctoral schools, laboratories and research organizations regularly publish offers of funded thesis subjects on their websites. This doctoral funding is the first way to find funding for your doctorate. There are three types:

- Funding on doctoral contract: your doctoral school funds your doctorate up to 1,400 euros net per month for three years. It does this either from its research budgets or by supplementing your contribution. This doctoral contract is an employment contract dedicated to doctoral students, without age or nationality conditions. It is renewable twice for a year, for a total of 5 years.
- Funding under a research organization contract: your research organization (Cnes, CNRS, CEA, etc.) finances your doctorate up to 1,500 euros net per month.
- Funding on contract linked to a project funded by the National Research Agency (ANR) up to 1400-1500 euros net per month.

Salary may greatly change depending on activities.

# Funding

- Thesis funding

In partnership with the National Association for Research and Technology (ANRT), the CIFRE system (Industrial agreements for training through research) allows young researchers to be hired by a company or a public authority to conduct their research. , in conjunction with a university team.

The company or the community then finances your doctorate via a private law employment contract. It pays you a minimum wage of around 1,800 euros net per month for three years. This is a good opportunity to gain experience in corporate research.



# Funding

- Thesis funding

Set up within the framework of the Marie Skłodowska-Curie actions, the joint European doctorate makes it possible to benefit from funding for 36 months. It is aimed at foreign students who are registered for a doctorate in a European higher education institution that is a member of a consortium of at least three institutions from three different countries. The request for funding must be sent to the coordinating institution.

Finally, there are other sources of funding for doctorates which emanate from research organisations, local authorities (particularly regions), foundations, associations likely to finance the research of doctoral students which should not be neglected.

# Useful link for Thesis or Internship

- Specialized website
  - a. <https://doctorat.campusfrance.org/phd/offers>
  - b. <https://www.abg.asso.fr/fr/candidatOffres>
  - c. <https://offres-et-candidatures-cifre.anrt.asso.fr/>
  - d. <https://carrieres.cnrs.fr/fr>
  - e. <https://cadres.apec.fr/>
- Mailing list
  - a. [https://listes.services.cnrs.fr/www/search\\_list\\_request](https://listes.services.cnrs.fr/www/search_list_request)
  - b. <https://groupes.renater.fr/sympa>
- Spontaneous applications and via your supervisors.