Preparing a scientific career after a PhD



École doctorale et informatique



Where you are

PhD

What's next?

MANY different possibilities, among which Academic Career in France

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PhD

What's next?

MANY different possibilities, among which Academic Career in France

ATER

Chaire de Professeur·e Junior (CPJ)

AGPR

Professeur·e dans le secondaire

R&D in Industry

Maitre·sse de Conférences (Associate Prof.) Research Engineer

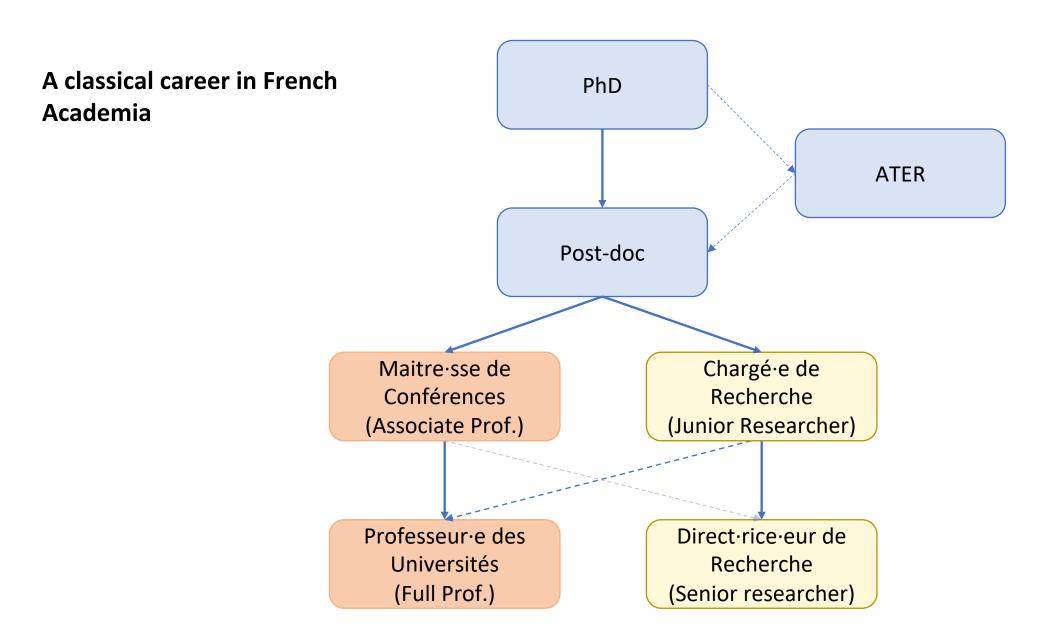
Chargé∙e de Recherche (Junior Researcher)

Professeur∙e Agrégé∙e (PRAG)

Direct·rice·eur de Recherche (Senior researcher)

Post-doc

Professeur∙e des Universités (Full Prof.)



Remark: Difficult (Inria, Assistant prof (MCF) in Maths.) or even strictly forbidden (CNRS) to be recruited in the lab where you did your PhD

1. Just after the PhD

- ATER
- Postdoc
- AGPR
- Professeur·e dans l'enseignement secondaire

2. Scientific careers after a PhD in France

- Associate Professor (Maître-sse de Conférences, McF)
- Researcher
- Chaire de Professeur·e Junior
- PRAG
- Research Engineer
- Research and Development in industry, Private sector

3. General advices

ATER

Attaché.e Temporaire d'Enseignement et de Recherche

- Teaching duty:
 - 192 h Eq TD for one year ATER
 - 96 h Eq TD for half year ATER (6 months positions),
 - Less frequent: 96h Eq TD for 1/2 ATER (one year position)

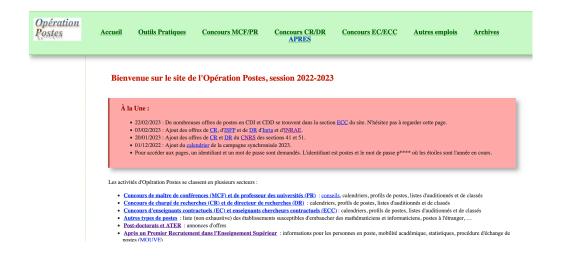
Do not expect to do new research if you have not finished your manuscript

- Two years in the same university at most.
- Often a position at the end of the PhD or to finish the PhD.
- Usually for French speaker.
- Employers: Universities, IUT, Engineering Schools.
 - Not necessarily where you did your PhD
 - In UFMI (U. Bordeaux), only half year ATER positions. (Can have 2 in one year).
 - Could be positions in IUT (Univ. Bordeaux) and /or ENSEIRB-Matmeca
- More information https://www.education.gouv.fr/attache-temporaire-d-enseignement-et-de-recherche-ater-12767

ATER

Where to find ATER offers?

- Opération postes / ATER
- On the website of each university, IUT, Engineer school, etc
- <u>Galaxie</u> Website
 Possibilité lettre d'information





ATER

How and when to apply?

- On Galaxie website Galaxis / ALTAÏR
- Schedule set by each institution: one application by institution.

 Approximate schedule in Univ/ Bordeaux: Applications from mid-March to mid-April, results around mid-June.

 Sometimes a second call in July-September if not all positions have been filled.
- CV : Mainly an online form
- Application file (important) containing:
 - The details of your teaching activities (if any), with for each lecture / TD, the name of the course, the level, the number of hours, the responsible of the lecture (name and email).
 - A short presentation of your research work, contact local scientific contact if you away from Bordeaux. Be pedagogical and concise, the evaluation panel may not contain specialist of your field.
- No auditions.
- Ad hoc evaluation panel for each institution.

Post-doc

- After a PhD
- In another department, possibly in another country
- On a slightly different topic from the one of the PhD
- Can be with or without teaching duty
- Variable length, from 6 months to 5 years!

Post-doc

Where to find postdoctoral offers?

- Contacts with the community:
 - From the PhD Supervisor(s),
 - Through meetings, conference,
 - Direct contact with researchers with grants (ERC, ANR), etc...
- Calls for post-doctoral positions :
 - Opération postes
 - Mathjobs
 - EMS Jobs,
 - Register to mailing lists of relevant CNRS GDRs: <u>INSMI</u>, <u>INS2I</u>
 - Labex Websites in France (e.g. FSMP, Fondation Hadamard), etc.
- Many different fellowships: Marie Curie fellowships (Europe), PIMS (Canada & US), CRM (Montréal), Humbolt (Germany), FWF (Austria), Veni Vedi Vici (Nederlands)

Post-doc

How and when to apply?

- Start looking for post-doctoral positions at least 8 10 months before the PhD defense.
- How to apply ?
 - Contact people from the research (and teaching if appropriate) teams to have information concerning the position.
 - Offer yourself to a discussion or a seminar to present yourself and your research if possible.
 - Send a CV in the academic format (English is OK).
 - A contract of at least 2-year is great

Recruitment process is specific in each place

AGPR

Agrégé·e-Préparateur·rice

- Teacher-Researcher position in one of the École Normale Supérieure (ENS)
 Your employer will be ENS Ulm, Paris-Saclay, Lyon or Rennes
- Very few AGPR positions per year (generally between 0 to 8)
- 3-year position (with possible extension)
- Teaching duty: 192h Eq TD / year (with possible unload in specific cases)
 Courses at levels Licence 3, Master or Préparation à l'Agrégation
- Applicants must be already Professeur Agrégé de Mathématiques You work as « Professeur Agrégé détaché dans l'Enseignement Supérieur », with related career benefits
- Recruitment process:
 - Open positions: AGPR positions are advertised by email and on the ENS websites
 - How to apply: Register on Galaxie website. Require a detailed CV and a research project
 - Audition: For each AGPR position, selected applicants are interviewed

Professeur·e dans le secondaire

Enseignement collège / lycée

- French speaker only. Concours de l'éducation nationale.
- Agrégation Externe, le concours (<u>https://agreg.org/</u>)
 - Pour passer le concours, il faut choisir entre
 - Concours « classique » : environ 300 postes / an.
 - Concours « docteur·e·s » : environ 15, 20 postes /an. (Doit être docteur·e aux résultats des écrits) (Les deux concours sont en même temps.)

A priori, pas de report de stage possible pour un post-doc.

- Calendrier:
 - Pré-inscription Septembre-Octobre,
 - Ecrits en mars : Analyse Probas / Mathématiques Générales,
 - Oraux en juin / juillet (Analyse-Probas / Mathématiques Générales / Modélisation option Proba-stat, calcul scientifique ou calcul formel).

Professeur·e dans le secondaire

Enseignement collège / lycée / CPGE

- Si vous êtes agrégé :
 - Stage validé pendant le doctorat avec les MCE par 128h d'enseignement sur 3 ans, mise en disponibilité quasi automatique pendant la thèse.
 - Demande de mise en disponibilité à faire dès que possible (si possible avant avril) pour les post-doctorats.

 A noter : cette demande de mise en disponibilité n'est pas automatique et il faut parfois insister, et il faut quand même participer au mouvement (novembre, puis mars).
- Demander une classe prépa (CPGE) :
 - Fortement recommandé d'avoir un doctorat en plus de l'agrégation.
 - Procédure de voeux au *mouvement spécifique* en novembre.
 - Ne pas hésiter à faire jouer son réseau.

1. Just after the PhD

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2. Scientific careers after a PhD

- Associate Professor (Maître-sse de Conférences, McF)
- Researcher
- Chaire de Professeur · e Junior
- PRAG
- Research Engineer
- Research and Development in industry, Private sector

3. General advices

Maitre-sse de Conférences (Associate Prof.)

- Permanent position, as Civil Servant (fonctionnaire)
- Possible employers: Universities / Schools.
- Teaching load: 192h Eq TD
- Mostly for French speakers
- A qualification is required.

Maitre·sse de Conférences (Associate Prof.)

QUALIFICATION

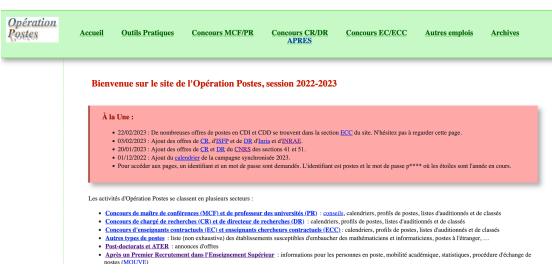
- Qualification is a « certification » given by the « sections » of the Conseil National des Universités (CNU) :
 - Free, online, once a year.
 - But mandatory to apply to a MCF position.
 - Better to have a teaching experience
- Done by section CNU (25: Theoretical Maths, 26: Applied Maths)
 - Can apply to qualification in 25 and 26 (2 applications then)
 Requires administrative documents and a CV
 (teaching, research, responsibilities, etc) in French
 - Valid during 4 years (can be done again afterwards).
 - More information on <u>Opération postes</u>
- Application on <u>Galaxie / ANTARES</u>
- BE CAREFUL WITH THE SCHEDULE
 - Register between September 202X and November 202X, for a PhD defense up to mid-December 202X
 - Send the application in December 202X, and if validated, allows applying for MCF positions in March 202(X+1)



Maitre-sse de Conférences (Associate Prof.)

Where to find calls?

- Galaxie
- Opérations postes / postdoc
- Mailing lists on CNRS GDR, websites of universities, departments ...



Opérations postes may become your favourite website during the application period

Maitre·sse de Conférences (Associate Prof.)

How to apply?

- Galaxie / ANTEE
- Some administrative document and
 - CV in the academic format.
 - Resume of your main contributions
 - Research project
 - Teaching project (do not underestimate this point)
 Ask (to the teaching referent) for information on the teaching needs in license, master...
 - Insertion within the math department and within the teaching department.
- Schedule: Most positions in « Session Synchronisée » (applications opened up to the end of March). Some positions « au fil de l'eau » with specific schedule.
- Positions with reduced teaching load in some Engineer schools associated to other ministries (Industry, Agriculture)

Maitre·sse de Conférences (Associate Prof.)

The recruitment process: main steps

- Reception of applications by the jury
 - Jury = Public committee made by junior and senior Associate Professors / Researchers, with at least half coming from a different university
- Selection: First meeting of the jury to select candidates for the auditions
- Audition: The selected candidates present their application and answer questions of the jury
 Only 30-40 minutes for a lifetime job! Auditions can take place between 2 weeks and 2 months after selection: be ready!
 It can be costly if you have several auditions in different cities
- Admissibility: Ranking of the candidates by the jury, announcement of the results (a few days after the auditions)
 See on <u>Operation postes</u> website for Associate Professor positions.
- Admission: Final validation of the ranking by another committee (CA of the university/institute)

Maitre-sse de Conférences (Associate Prof.)

The recruitment process: your application

CV with identified sections

Responsibilities (seminar, workshops, committees, leader of a group/project); collaborations (participation to funded projects, networks); teaching (how may hours, level, TD/CM); supervision (student projects, internships); diffusion (publications, codes, invited talks); expertise (paper/project reviews, participation to jury)

- A resume of your contributions, with a highlight on what you think is your main result Why is it important with respect to the existing literature? What is the (potential) impact on the community?
- Research project, including potential future collaborations / integration in the target team and lab
 What skill will you bring to the lab? How can you collaborate with local researchers (and local labs)?
 Contact and discuss with the local team before applying.
 In your application, you can mention scientific papers of a team, but do not claim that you will collaborate personally with someone if you have not discussed directly with this person.
- A teaching project (do not underestimate this point)
 There is a teaching referent for each position: before applying, ask for information on the teaching needs in license, master...
- Letter of recommendation

 Ask them in advance (colleagues are busy) potenially «prewrite» the letter (give a list of your main achievements)

Maitre·sse de Conférences (Associate Prof.)

The recruitment process: your audition

Usually 30-40 minutes (15-20 minutes for presentation and 15-20 minutes for questions)

- Your background (2/3)
 - Your experiences and responsibilities
 - Your general research thematic, your main scientific contribution and its impact
 - Your teaching experience
- Your project (1/3)
 - Research project, integration and potential collaboration
 - Teaching project with respect to the local needs (show that they can count on you for next September!)
- A personal point of view :
 - Evaluation of your file is done on the first round by people from your community
 - At the audition, try to convince people not from your community

- Permanent position, as Civil Servant (fonctionnaire)
- Possible employers: CNRS, Inria, INRAE, INSERM
- No teaching load
- Not necessary to speak French

The recruitment process: main steps

Almost the same as before

- Reception of applications by the jury
- **Selection:** First meeting of the jury to select candidates for the auditions
- Audition: The selected candidates present their application and answer questions of the jury
- Admissibility: Ranking of the candidates by the jury, announcement of the results (a few days after the auditions)
- Admission: Final validation of the ranking by another committee (CA of the institute)



How and when to apply?

- All information: https://www.cnrs.fr/fr/concours-ch
 - Announcement of positions: December
 - Application deadline: first week of January
 - Auditions : March/April
 - Admissions: June
 - Start: October
- Positions available in different scientific sections (41: math; 06/07: computer science; 51: math for life sciences)
 - You can apply to different CNRS positions
 - Different competitions involve different rules and advices: section 41, section 06, section 07, CID (section interdisciplinaire) 51
- For your applications: Do an integration project for 2 or 3 labs (maximum 1 in Paris).

How and when to apply?



• All information: https://www.inria.fr/fr/chargees-et-charges-de-recherche-de-classe-normale-crcn

Announcement of positions: December

Application deadline: February

Auditions : MayAdmissions: June

Start: October

- Local centers:
 - Application to a specific team of an Inria center
 - Possible to apply to different centers
 - At least half of the jury is coming from a different university/Inria center
- 2 type of positions:
 - CR: same as CNRS, Civil servant (Fonctionnaire)
 - Inria Starting Faculty Position (ISFP): permanent contract (CDI) with small teaching duties

The recruitment process: your application

Almost the same as before

- CV with identified sections
 - Responsibilities (seminar, workshops, committees, leader of a group/project); collaborations (participation to funded projects, networks); teaching (how may hours, level, TD/CM); supervision (student projects, internships); diffusion (publications, codes, invited talks); expertise (paper/project reviews, participation to jury)
- A resume of your contributions, with a highlight on what you think is your main result Why is it important with respect to the existing literature? What is the (potential) impact on the community?
- Research project: What are the fundamental challenges you want to tackle? What methodology will you follow to reach your objectives?
 - Include short-term (1 year), middle-term (3 years) and long-term (5 years) objectives
- Potential future collaborations / integration in the target team and lab
 What skill will you bring to the lab? How can you collaborate with local researchers (and local labs)?
 Contact and discuss with the local team before applying.
 - In your application, you can mention scientific papers of a team, but do not claim that you will collaborate personally with someone if you have not discussed directly with this person.

The recruitment process: your audition

Usually 20-30 minutes (10-15 minutes for presentation and 10-15 minutes for questions)

- Your background (2/3)
 - Your experiences, responsibilities, teaching experience
 - Your general research thematic, your main scientific contribution and its impact
- Your Research project (1/3)
 - Different axis of research
 - Complementarity with the target lab/team (Inria) is essential
 - Potential collaborations (locally, nationally, internationally) to reach the objectives

A personal point of view:

- Evaluation of your file is done on the first round by people from your community
- At the audition, try to convince people not from your community

Chaire de Professeur·e Junior (CPJ)

- Possible employers: CNRS, Universities
- Some kind of tenure track:
 - 5 year contract
 - Reduced teaching load (64h a year)
 - Research grant
 - Supposed to lead to a civil servant (fonctionnaire) senior position: Full Professor or Researcher
- Recruitment process:
 - Open positions: CPJ positions are advertised on <u>Galaxie</u> and <u>Opération Postes</u> websites
 No fixed timeline: positions can be opened at anytime!
 - Application on Galaxie / FIDIS : Require a detailed CV and a research project
 - Audition: selected applicants are interviewed

Professeur∙e Agrégé∙e (PRAG)

- Teacher position at University, IUT, or Engineering Schools
- Teaching duty: 384h Eq TD / year
- Permanent civil servant (fonctionnaire): teaching position, no research a priori
- Applicants must be already Professeur Agrégé de Mathématiques You work as « Professeur Agrégé détaché dans l'Enseignement Supérieur », with related career benefits
- Recruitment process:
 - Open positions: PRAG positions are advertised on Galaxie and Opération Postes websites
 - Application on Galaxie / VEGA: Require a detailed CV and a research project
 - Audition: selected applicants are interviewed

Research Engineer

- Permanent position, as Civil Servant (fonctionnaire)
- Possible employers: CNRS, Inria, University, Engineer school, CEA, INRAE...
- Require a PhD (Research Engineer)
- 8 sections (Branches d'Activités Professionnelles, BAP) such as:
 - BAP A: Sciences du vivant, de la terre et de l'environnement
 - BAP C: Sciences de l'Ingénieur et instrumentation scientifique
 - BAP E: Informatique, Statistiques et Calcul scientifique
- Missions: Defined in the job offer, e.g.
 - Participation in the research projects, training, management, knowledge dissemination,
 - Responsible for coordination in technical and administrative tasks
- Possible teaching and supervision tasks



Research Engineer

How and when to apply?

- All information: https://www.cnrs.fr/fr/concours-it
 - Announcement of positions: December
 - Application deadline: June
 - Selection, Audition : July November
 - Start: December



- Announcement of positions: December
- Application deadline: January
- Selection, Written Examination, Audition: February-March
- Start: May
- All information: <u>National instructions</u>, <u>Univ. Bordeaux</u>
 - Selection and Audition







R&D in Industry

- Association Bernard Grégory
- AMIES:
 - Forum Entreprises et Mathématiques (ex Forum Emploi Maths), Oct. 2023, Paris
 - Semaine Maths Entreprises (3 ou 4 / an)
- <u>Journée Emploi Maths et Interactions</u> (JEMI)
- ANDès: Association Nationale des Docteurs
- Aquidoc: (In Univ. Bordeaux)
- Mise en relation docteur·e·s / entreprises / Connecting doctors and companies: <u>adoc talent</u> <u>management</u>, <u>PhD Talent</u>, etc...

R&D in Industry

Doctoral School formations for industry (CV, job interview)

- The thesis: a successful professional experience
- Boostez votre réseau et vos lettres de motivation pour le marché français
- De l'autoévaluation de vos compétences à la rédaction du CV
- Préparation aux entretiens de recrutement en français
- Prepare and succeed a job interview in France or abroad,
- etc.

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2. Scientific careers after a PhD in France

- Associate Professor (Maître-sse de Conférences, McF)
- Researcher
- Chaire de Professeur · e Junior
- PRAG
- Research Engineer
- Research and Development in industry, Private sector

3. General advices for academic careers

General Advices for academic careers

- Keep an updated CV in the academic format in English and in French, at least with
 - your training
 - your publications, published articles, proceedings, preprints (in different sections), ...
 - your teaching (title of the course, course / TD, level, number of hours, approximate number of students, etc)
- Have an updated professional webpage with
 - your CV (without research project or teaching project)
 - your articles
 - your teaching (if any).
 - your talks (with slides if possible)
- Also check the possibilities abroad.

General Advices for academic careers

Information is the key

- As soon as you know where you want to apply, contact the team
 - If possible, offer to give a seminar to make yourself known.
 - For positions involving a local jury (Universities, Inria centers), seminar in the target lab must be given before the application deadline, in order to treat all applicants in the same way once the process has officially started
- **Stay informed** and keep up to date with positions, applications, calendars, composition of jurys, results Add bookmarks to <u>Opération Postes</u>, <u>Galaxie</u>, <u>CNRS</u> and <u>Inria</u> websites on your browser
- Make a **personalized application**Contact people from the research (and teaching) teams to have information concerning the positions
- Ask for **recommendation letters in advance**To help the person that will write you a letter: provide a list of your main achievements and details about the position
- Research is important but it's not everything: in the academy you'll have to wear several hats Teaching (MCE during the PhD, vacations), responsibilities (project, events, committee,...), diffusion, management (recruitment, supervision, reporting, finance)...
- **Ask for help**, advices and repeat your audition Your supervisor(s) and colleagues can give you useful feedback on your application and your presentation

General Advices for academic careers

What will make the difference?

- Unless you've cracked a 1M\$ problem, the clarity of your application and your performance at the audition

 Do not hesitate to ask post-docs / young recruited colleagues to share their qualification/application files and slides
- Quality of your research and thematic of your research
 What impact had / have your research? To which societal / ecological subject can you contribute?
- Adequation of your profile with the position

 Is your research complementary with local skills? Do you have experience regarding the specific teaching needs?
- Collaborations: justify your scientific autonomy with respect to your PhD advisor(s) and bring your network
- Involvement in the community: creation of teaching content, organization of seminars, PhD representative, ...)
 Important: people prefer to recruit a committed and reliable colleague
- Be informed about the research activities of the target lab, the teaching needs, the jury Knowing who are the members of the jury can help you prepare for the questions
- Code diffusion / Science vulgarization
- Student / Project supervision
- Chance / Keep the faith if you still have fun in research

A possible calendar

- April 2023:
 - Start to write your PhD manuscript
 - Make a web page and a CV
 - Apply for an ATER
- May 2023: Start to look for postdocs
- Summer 2023: Submit your manuscript (at least 2 months before the defence)
- Qualification (for assistant professor)
 - Register in October 2023
 - PhD defence before December 15th
 - Qualification application to prepare in November 2023
- Autumn 2023: Defend your PhD
- Sept. 2023 Jan. 2024: ATER
- Jan. 2024 Sept. 2025: Post-doc
- Apply for a position in 2025:
 - Contact the team/lab in 2024
 - Give a seminar there and start to prepare your research project in 2024
 - Apply for Assistant professor (March-May 2025) or Researcher (Jan. 2025)
 - If your application is successful, start your position in Sept.-Oct. 2025

Satisfaction Survey



Credits

Institut de Mathématiques de Bordeaux : Sylvain Ervedoza, Nicolas Papadakis,

> with the kind help and suggestions of Laurent Bessières, Michel Bonnefont, Mégane Bournissou, Astrid Decoene, Christèle Etchegaray, Arthur Leclaire, Baptiste Louf, Khodor Khadra

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