Second Year in Computer Science at ENS Paris-Saclay

David Baelde

Département Informatique
École Normale Supérieure Paris-Saclay

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Staff

David Baelde
baelde@lsv.fr
head of M1 year

Aminatou Mfonpeya
mfonpeya@lsv.fr
administrative assistant

Johnny Pinson
si@lsv.fr
system administrator
Master of Computer Science
M1 MPRI @ ENS Paris-Saclay
http://www.dptinfo.ens-cachan.fr/M1/

- Year of *diversification and broadening*
  - courses from M1 MPRI
  - external courses from other masters (Paris 7, 6, 11, etc.)

- Curriculum consists of
  - à la carte courses (first semester mostly)
  - internship (second semester)

- Lab visits; *at least one visit for each student*
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- Year of **diversification and broadening**
  - courses from M1 MPRI
  - external courses from other masters (Paris 7, 6, 11, etc.)
  - ... by contrast, M2 will be a time for specialisation

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  - à la carte courses (first semester mostly)
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- Lab visits; *at least one visit for each student*
Two possibilities

Need to choose rapidly between two types of curricula:

Long internship
- first semester in Paris-Saclay
  (30 ECTS, min. 18 from MPRI M1 and 24 in CS)
- 5+ months internship abroad

Short internship
- two semesters in Paris-Saclay
  (45 ECTS, min. 24 from MPRI M1 and 30 in CS)
- 2.5+ months internship abroad
- **aim**: strengthen knowledge in fundamentals or in another discipline like mathematics
**Courses à la carte**

MPRI (and local L3) courses:

- start on Sept. 14, 2020
- min. **18 ECTS** if long internship and **24** if short

External courses:

- must be validated by the department under your responsibility: e.g. finding out timetables, rooms, making sure the teacher or secretary sends me your grades, and managing second session exams in case of failure

TODO

contact me if you'd like to discuss your choices

your choices have to be on the pedagogical server by Sep. 28, 2020 (the M1 website will feature some info on how to do this)
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MPRI M1 courses

- Initiation to research (Paris-Saclay, mandatory, half)
- Lambda-calculi and categories (Ulm, full)
- Advanced complexity (Paris-Saclay, full)
- Rewriting techniques (Paris-Saclay, half)
- Tree automata and applications (Paris-Saclay, half)
- Basics of verification (Paris-Saclay, full)
- Algorithmics and bioinformatics (Paris-Saclay, half)
- Probabilistic aspects of computer science (Paris-Saclay, full)
- Logical aspects of AI (Paris-Saclay, two halves)
- Convex and combinatorial optimization (Ulm, two halves)
- Introduction to computer vision (Ulm, full)
- Robot motion planning (Ulm, full)
- Networks (Paris-Saclay, half)
- Software engineering (Paris-Saclay, full)
Examples of external courses (to be approved by dept.)

- Other CS masters at Paris-Saclay, including MPRI @ UFR
  
  https://sites.google.com/view/mastersagenda/

  
  http://www.math.univ-paris-diderot.fr/m2lmfi/

- Master of computer science (U. Paris 6 or 7)
  
  
  http://www-master.ufr-info-p6.jussieu.fr/lmd/

- Pure and applied mathematics, U. Paris-Saclay
  
  https://www.universite-paris-saclay.fr/fr/formation/master/mathematiques-et-applications#index-m1

- Introduction to Life Sciences, ENS Paris
  

- Cogmaster, ENS Paris
  
  https://cogmaster.ens.psl.eu/
Other options (requires dept. approval)

Some MPRI M2 courses can be followed, e.g.

- Foundations of proof systems (3 ECTS)
- Web data management (2nd period, 3 ECTS)
- Comp. structures and logics for natural language modelling (3 ECTS)
- Graph algorithms (first period, 3 ECTS)
- Proof of programs (2nd period, 3 ECTS)

Some L3 courses may also be taken (MPRI credits):

- Computability, Logic, Formal Languages, Algorithmics...
Course choices: important advice

Have a safety net

- Plan ahead for a potential failure.

Beware overloading!

Some courses are quite difficult / time consuming.

Keep some courses for next year.

Do not have a too important safety net: attempt to do well at a limited number of courses.

New credits (TBC): full courses = 7 ECTS; half ones = 3.5 ECTS.

Stay in touch with me. Let me know if you drop one course, or if you’re worried about failure.
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Internships

- **abroad** (except for international students)

- **long internships (30 ETCS)**
  - **duration:** 5 months between February and August
  - **search:** October–December with your tutor

- **short internships (15 ETCS)**
  - **duration:** 2½ months between June and August
  - **search:** December–February with your tutor
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  - start searching early: visa & administrative issues are commonplace, esp. for USA, Japan, Canada, …

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Internships

• abroad (except for international students)
  • start searching early: visa & administrative issues are commonplace, esp. for USA, Japan, Canada, ...
  • seek the help of your tutor

• long internships (30 ETCS)
  duration: 5 months between February and August
  search: October–December with your tutor

• short internships (15 ETCS)
  duration: 2\frac{1}{2} months between June and August
  search: December–February with your tutor
Plan ahead!

Oct. 15–31 Soul-searching **with your tutor**:
- research topic
- geographical preferences

Nov. 1–15 Identify potential supervisors

Nov. 15–30 Initial agreement from supervisors;
investigate **visa** and **financial** issues (fees, salary, **cumul**)
contact international services (ri@ens-paris-saclay.fr)

Dec. 1–Jan. 15 Finalise research project, dates, funding, practical issues
(accommodation, office space, etc.)

Jan. 15–30 Internship contract, travel booking, etc.
Then what?

Start thinking about next year (talk with me, your tutor and teachers):

**ARPE** research year abroad
- overseen by Thomas Chatain (chatain@lsv.fr)
- long internships: ARPE may be partly in France
- funding opportunities for unpaid students
  
  contact ri@ens-paris-saclay.fr and look at https://www.universite-paris-saclay.fr/fr/bourse-de-stage-a-letranger

**M2** MPRI or another research-oriented Master

**agréation** of mathematics

**bachelor** in another field like biology, physics, economy, etc.
Contacts

Common issues:

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Social, medical and psychological difficulties

Nurse, doctor, psychologue are available
http://ens-paris-saclay.fr/campus/sante
Talk about psychological difficulties with other students, and with referent at dept. (myself).
Questions?