



## Master 2 Mathématiques Avancées

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## IMPORTANT !

- ▶ The main means of communication in our world is **email**.
- ▶ Give imperatively to the people in charge/teachers an email address that you will consult **daily**.
- ▶ Acknowledge reception of messages and answer if needed.
- ▶ **Send me an email right after this meeting for me to record you address** ... or you'll miss info
- ▶ Mention your thematic program in the email, and where you are from (academically speaking !)
- ▶ Spread the news amongst students not at this meeting.
- ▶ I need their emails too.

## General Organisation

- ▶ Refresher courses (no credits)
- ▶ First semester: fundamental courses
- ▶ Second semester: advanced courses + seminar in english
- ▶ Grading of courses: depends on the teacher !
- ▶ Internship: crucial, in particular as regards your future thesis.
- ▶ You must validate ( $\geq 10/20$ ) **both** semesters **and** the internship.

**Five thematic programs** (possibility to mix if it makes sense)

- ▶ Partial Differential Equations and Applications
- ▶ Statistics and probability
- ▶ Transcendence (number theory)
- ▶ Groups and Dynamics
- ▶ Mathematical Physics

# Contacts

## Secretary/Webpage

- ▶ Sophie Bonche `departement.math@ens-lyon.fr` or `sophie.bonche@ens-lyon.fr`
- ▶ Webpage `mathematiques.ens-lyon.fr`, Master 2, and `etudes.ens-lyon.fr`

## Partial differential equations and applications

- ▶ Nicolas Rougerie, ENSL. `nicolas.rougerie@ens-lyon.fr`
- ▶ Filippo Santambrogio, Lyon 1. `santambrogio@math.univ-lyon1.fr`

## Statistics and Probability

- ▶ Marielle Simon, Lyon 1. `msimon@math.univ-lyon1.fr`
- ▶ Aurélien Garivier, ENSL. `aurelien.garivier@ens-lyon.fr`

## Groups and Dynamics

- ▶ Damien Gaboriau, ENSL. `damien.gaboriau@ens-lyon.fr`
- ▶ Adrien Le Boudec, ENSL. `adrien.le-boudec@ens-lyon.fr`

## Transcendence

- ▶ Julien Roques, Lyon 1. `roques@math.univ-lyon1.fr`

## Mathematical Physics

- ▶ Thomas Strobl, Lyon 1. `strobl@math.univ-lyon1.fr`

## First semester

- ▶ Refresher courses, *over, hope you were there !*
- ▶ Presentation meeting, *now, hope your are here !*
- ▶ Beginning of first semester course, 11/09
- ▶ Vacation : 28/10 to 05/11
- ▶ End of semester 22/12 (probably before, depending on courses)
- ▶ Vacation : 23/12 to 07/01
- ▶ Exams probably before christmas vacation

⇒ 3 courses, 24 hours each, 6 ECTS credits each.

## Second semester

- ▶ Beginning of courses 08/01
- ▶ Vacation : 24/02 to 03/03
- ▶ “Séminaire en anglais”, february or march
- ▶ End of courses 15/03
- ▶ Exams, 25/03 to 29/03
- ▶ Internship start beginning of April

⇒ 3 courses, 24hours/6 ECTS credits **OR** 4 courses 18hours/4.5 ECTS credits  
(depends on thematic program)

Seminar = 6 ECTS credits

**Beware:** that is a rather loaded semester.

## Research internship

- ▶ 4 months (min 16 weeks). 18 ECTS credits.
- ▶ Memoir ( $\lesssim$  30 pages) and defence (30 min, 15 min questions) at ENSL
- ▶ Committee: two mathematicians knowing your field **in a broad sense**
- ▶ April to July, defence late August/early September, memoir one week prior
- ▶ Non-“Elèves” students: the internship should come with a stipend paid by the host organization
- ▶ Topic must be in an **active** field of Research. Original contribution not mandatory (feasibility thereof depends very much on the field).
- ▶ Clarity of memoir and defence **extremely important**: capacity to communicate level-research info to professional mathematicians.
- ▶ NB: you (hopefully) know more about your topic than your committee. Take it into account ! Not too much prerequisites please.
- ▶ An *excellent* memoir looks like a research or review paper from your field.

## After the master

- ▶ The natural continuation of the master is a phd thesis. Details depend on what group of students you belong to.
- G1 “Auditeurs” (do not prepare the ENSL diploma), e.g. funded through Milyon or Ampère grants.
- G2 “Etudiants/Elèves” (prepare the ENSL diploma) in their 4th year (having passed the “agrégation” usually)
- G3 “Etudiants/Elèves” (prepare the ENSL diploma) in their 3rd year (skipping the “agrégation” usually)
- ▶ G1/G2: usually begin a thesis right after the M2.
- ▶ G3: PLR “projet long de recherche”, typically two more research internships in different labs. For more info: Jean-Claude Sikorav, [jean-claude.sikorav@ens-lyon.fr](mailto:jean-claude.sikorav@ens-lyon.fr)



# Thesis

- ▶ Often (but not always) your future thesis advisor is your internship advisor. Looking for a good one is important and should be done early (e.g. end of first semester).
- ▶ Lasts 3 years most of the time. Most phd grants in France are limited to three years.
- ▶ In case you do a PLR, it is advisable to get help from internship advisor to organize transition to thesis.

## Grants or rather salaries

- ▶ G1 students: typically through the doctoral school of their advisor. In Lyon, ED InfoMaths.
- ▶ Maybe MiLyon grants or the like ?
- ▶ For a thesis abroad, check conditions and deadlines early.
- ▶ G2 and G3 students are eligible to CDSN contracts. Information meeting in October: Eric Freyssingéas, [eric.freyssingéas@ens-lyon.fr](mailto:eric.freyssingéas@ens-lyon.fr)
- ▶ Grants via research projects (Agence Nationale de la Recherche, European Research Council ...) Do enquire !!
- ▶ Teaching during phd is a good idea (finance- and CV-wise).