

## The MATS Summer School on Agricultural Finance

June 30 – July 4, 2025 // Centre Paul Langevin, Aussois (France)

### Call for Contributions (closed)

The aim of the summer school is to contribute to the development of research on the economic and financial implications of agricultural transitions, through the training of young researchers, with a dual focus on:

- raising awareness and understanding of these issues
- training in quantitative methods adapted to these issues

Particular emphasis will be placed on:

- methods that make use of massive or high-dimensional data
- risk management of agricultural transitions issues
- connection with energy issues (through markets, through managing land and water use conflicts)

4 courses will be held:

- A course on Farmers and Risk Management by **Bertrand Villeneuve** (U. Paris Dauphine - PSL)
- A Course on Machine Learning and Big Data to Identify Market Expectations and Surprises: Evidence from Agricultural Markets, by **Ann N. Q. Cao** (U. Bonn) & **Michel Robe** (U. Richmond).
- A course of Multi-scale Modelling of Precipitations by **Marc Hoffmann** (U. Paris Dauphine - PSL) & **Thomas Deschatre** (EDF R&D)
- A course on Network Analysis and Systemic Risk: An Application to Agricultural Markets by **Delphine Lautier** (U. Paris Dauphine - PSL), **Julien Ling** (Collège de France) & **Franck Raynaud** (U. Genève).

It will also include some hands-on (supervised) sessions, some paper sessions (invited and contributed talks), some poster sessions and some spare time to allow the participants to discuss / advance their own research.

**Submission Details:**

Contributions on the specified topics will be considered:

- Oral contributions will be selected based on an abstract and a working paper, both of which must be submitted via the summer school website: <https://matsschool.sciencesconf.org/>.
- PhD students are also invited to submit a poster proposal.

***The deadline for submitting oral contributions and posters is postponed to April 15 (at the latest), or until the program is complete. Authors will be notified of the Program Committee's decision as submissions are reviewed and no later than April 30 for the latest submissions. As the total number of participants is limited, we encourage applicants not to wait until the deadline to submit their proposals.***

**Coverage of expenses**

Accepted PhD students will have all their accommodation and food expenses covered by the organization, as well as their registration fees. They will be asked to pay for their travel expenses as much as possible. In case they have difficulties in financing their trip, PhD students could apply for partial or full funding of these costs. Whenever possible, we will ask senior participants to pay for their own accommodation expenses directly at the Centre Paul Langevin (around 700 euros, including accommodation, food and all other activities).

**Motivation:**

The evolution of agricultural practices is inevitable and necessary. Inevitable because climate change has an increasing footprint on agriculture and the lives of farmers. Necessary because agriculture can play a central role in adapting our world to climate change and in mitigating its effects.

The world population is predicted to grow to 9.7 billion people in 2050. To feed everyone, food production needs to increase by 70%. The transition of agricultural practices must provide enough food for an ever-increasing population and match the growing demand for healthy products. However, the current global food system has sustained a major negative impact on, among others, climate change and freshwater resources. Yet, farmers are in first line to fight against global warming in many ways: by reducing methane emissions and pollution, capturing CO<sub>2</sub>, preserving biodiversity, ensuring the regeneration of soil, etc.

Implementing and supporting these transitions is a challenge for traditional analyses in finance and economics: they involve many actors (public players – EU, States, Chambers of Agriculture – and private players – farmers, industry, consumers, financial institutions); they bring into play numerous positive and negative externalities; the time horizon of the decisions is farther than usual in financial and economic analyses; the level of uncertainty encountered is unprecedented.

We believe it is crucial to make young researchers in economics, management and applied mathematics aware of these issues, and to train them to use specific quantitative methods to address them.

**Target audience:**

The summer school is primarily aimed at PhD students in economics, finance, actuarial studies, and applied mathematics. It is also open to academic and industrial researchers interested in these subjects who can propose contributions (presentations of research work, which may be work in progress or already published) in line with the theme of the school and / or the research areas of the MATS Project.

**Committees:**Scientific committee

- Olivier Féron (EDF R&D)
- Marc Hoffmann (Université Paris Dauphine - PSL)
- Delphine Lautier (Université Paris Dauphine - PSL)
- Pierre-Louis Lions (Collège de France)
- Evgenia Passari (Université Paris Dauphine- PSL)
- Joost Penning (Wageningen University)
- Franck Raynaud (Université de Genève)
- Michel Robe (Richmond University)
- Peter Tankov (ENSAE)
- Bertrand Villeneuve (Université Paris Dauphine - PSL)

Organizing committee:

- Polina Bulavko (Université Paris Dauphine PSL)
- Damien Fessler (Institut Louis Bachelier)
- Marc Hoffmann (Université Paris Dauphine - PSL)
- Delphine Lautier (Université Paris Dauphine - PSL)
- Julien Ling (Collège de France)
- Bertrand Villeneuve (Université Paris Dauphine - PSL)
- Jinteng Wu (Université Paris-Dauphine PSL)

## **The MATS project**

The origin of the [MATS \("Modeling Agricultural TransitionS"\)](#) project lies in the conviction that understanding and anticipating this evolution requires an economic and financial modeling effort that considers the interests of the various players involved and their interactions. It is also important to consider sectors which, at first glance, might seem further removed from agricultural practice: water, energy, financial protection (insurance and guarantee funds).

More specifically, this MATS project aims to meet three needs:

- (1) To understand how agricultural markets work, and to gain a better grasp of the complex interactions between the various players involved, so as to better design transitions for which market signals are insufficient or inappropriate.
- (2) To exploit the new data from which researchers now benefit to develop a more detailed understanding of the behavior of farmers faced with multiple uncertainties.
- (3) To approach the question of agricultural transition by taking into account the systemic aspect of the problem, so as to contribute to the search for solutions, beyond the signals provided by markets.

The project is led by Pierre-Louis Lions, Professor at the Collège de France and holder of the "Partial Differential Equations and Applications" Chair, Delphine Lautier, Professor at Université Paris Dauphine - PSL, and Bertrand Villeneuve, also Professor at Université Paris Dauphine - PSL.

The MATS project is supported by the French Research National Agency (ANR) through the Laboratory of excellence of "[Institut Louis Bachelier](#)" and by the "[Avenir Commun Durable](#)" Initiative.

The MATS Summer school is also supported by the [PEPR Maths-Vives](#).