MASTER (EN) MATHEMATICS AND APPLICATIONS
Probability and statistics of new data

FIELD Sciences, technologies, santé

Course suitable for
- Initial Education
- Continuing Education
- Recognition of prior learning

- How to apply:
  Via l'application de candidatures eCandidat

- Course venue:
  Université Gustave Eiffel (UGE) - Bâtiment Copernic

- Calendar:
  The Master 2 is organized in two semesters. It is common to Gustave Eiffel University and UPEC and the courses all take place at Gustave Eiffel University. The internship takes place in the second semester.

- Contacts:
  - Academic coordinator: EYMARD Robert (M2)
  - Academic secretary: Marie-Monique RIBON (M2)
  - Building: Bâtiment COPERNIC
  - Office: 2B183
  - Phone number: 0160957532
  - Email: marie-monique.ribon@u-pem.fr

For further details:
Information, Career guidance and Professional integration Department
(SIO-IP): sio@u-pem.fr / +33 1 60 95 76 76

ENTRY REQUIREMENTS
The M2 is aimed at students who have completed a first year of a Master's degree in Pure or Applied Mathematics or Mathematics and Computer Science or who have an equivalent level, as well as students of the Grandes Ecoles. The files are examined by a commission.

ACQUIRED SKILLS
At the end of the Master's degree, the graduate is able to:
- Master mathematical tools, whether they are differential, probabilistic, statistical or numerical in nature, and adapt to their evolution and increasing Conceive and implement theoretical knowledge to respond in the most appropriate way to real and concrete problems according to his field of expertise. Model random events. Recommend balanced solutions. to know how to search and make the most of documentary resources in order to invest in new subjects or to be able to.

YOUR FUTURE CAREER
The "Mathematics and Applications" master's degree trains high-level mathematicians for teaching or research in the academic or industrial environment or for the professions of market finance. Indeed, the modelling of financial markets uses sophisticated mathematical tools.

BENEFITS OF THE PROGRAM
Backing of very high level research laboratories (LAMA, CERMICS, LIGM) and Labex Bézout Attractiveness, readability and outlets for the three specialties Partnership with ENPC. Regional coherence (Paris East) of the training offer. Alternation and interventions of professional partners.
## SEMESTRE 3

<table>
<thead>
<tr>
<th>BIG DATA ARCHITECTURES</th>
<th>RANDOM MATRICES AND APPLICATIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIGH DIMENSIONAL STATISTICS</td>
<td>MALLIAVIN CALCULUS AND NUMERICAL APPLICATIONS IN FINANCE</td>
</tr>
<tr>
<td>STOCHASTIC CALCULUS</td>
<td></td>
</tr>
<tr>
<td>ENSEIGNEMENTS APPROFONDIS 4 COURS DE 6ECTS À VALIDER, 2 AU S3 ET 2 AU S4 (choix possible : 3 PARMI LES UE CI-DESSOUS ET 1 PARMI LES 2 AUTRES PARCOURS DU M2 MAA)</td>
<td>Modélisation multi-échelle et équation de Schrödinger</td>
</tr>
<tr>
<td>SIMULATION AND COPULAS</td>
<td></td>
</tr>
<tr>
<td>MONTE CARLO METHOD AND STOCHASTIC ALGORITHMS</td>
<td></td>
</tr>
<tr>
<td>STATISTICAL LEARNING AND APPLICATIONS</td>
<td></td>
</tr>
<tr>
<td>DISCRETE ISOPERIMETRY</td>
<td></td>
</tr>
</tbody>
</table>

## SEMESTRE 4

### Stage

**SEMESTRE 4**

| SIMULATION AND COPULAS                  |
| STATISTICAL LEARNING AND APPLICATIONS   |
| DISCRETE ISOPERIMETRY                    |