



CAREER PATH

The Master of Computational and Mathematical Biology leads to an Aix-Marseille University degrees and prepares students for scientific research.

This Master is structured around 2 different 2-year degrees: Statistics and Mathematical modeling or Computational Biology. These 2 majors lead students to address the new challenges of complex biological systems.

A bachelor in Mathematics or Statistics is required for the students applying to the Statistics and Mathematical Modeling path (MAS-CMB). They will receive a Master in Applied Mathematics, Statistics diploma (master Mathématiques Appliquées, Statistiques - parcours CMB)

A bachelor in life sciences (all fields with minimal basis in statistics) is required for the students applying to Computational Biology path (BIP-CMB). They will receive a Master in Biology and Integrative Physiology diploma (master Biologie Intégrative et Physiologie-parcours CMB).

The master can welcome 15 students in MAS-CMB and 10 students in BIP-CMB.

EDUCATIONAL PROGRAM

All students will have a common formation in Biology (Cell structure and function, Evolution, Immunology, Neurology, Dynamics of living systems), Computational issues (Python, R), Statistics (tests, machine learning), Mathematics (continuous and discrete modelling), Integrative biology, and will be prepared to their professional career.

MAS-CMB students will follow courses in Applied Mathematics (Optimization, linear algebra) and Statistics of data science. Students will have the choice to deepen their knowledge in statistics and big data or in theoretical and numerical analysis of deterministic partial differential equations (P.D.E.) or stochastic problems.

Statistics and big data will lead to exploration, analysis, interpretation and prediction of biological data. Courses will be shared with MSc "Applied Mathematics and Statistics " and particularly with the major Data Science.

Mathematical modelling will lead to analysis and prediction of biological systems. Courses will be shared with MSc "Mathematics and Applications " and particularly with the major ANADEAL in the second year.

BIP-CMB students will have a deeper training in biological processes (Development, Neurobiology, Immunology), Evolution, Bioinformatics and Statistical data analysis, Microscopy and image analysis, and the Advanced techniques in eukaryotic transgenesis.

Msc Biology and Integrative Physiology with the major "Integrative approach to life function" during semester 1 and with MSc "Structural biology and genomics" during semester 2 and 3.

OPPORTUNITIES AND PROFESSIONAL INTEGRATION

The master of Computational and Mathematical Biology prepares students for scientific research. With this Master's degree, graduates will be qualified for international research institutes as a PhD student or a Research engineer in data analysis, biological systems modelling, analysis of interaction networks, etc. Graduates also have the opportunity to join private companies' R&D departments in health care, pharmacology, biosystems and more generally to work on big data issues.

TIGER (Transform and Innovate in Graduate Education with Research) Scholarships :

Two scholarships will be awarded to CMB Master students for the University year.
The scholarship consists in 10 000 euros for one academic year and the possibility to get a room in a CROUS university residence.
CMB Scholarships are granted on academic results.
Students can apply to a CMB scholarship for both students using Etudes en France campus france procedure and Mon Master procedure.

Eligibility conditions:

- incoming Master 1 student
- not have been enrolled in a higher education institution in France
- not be French

To apply : <https://centuri-livingsystems.org/application-scholarship/>

