

Master of Science (MSc)  
**QCSBD**  
**Quantitative and Computational Sciences  
for Biomedical Data**

**Admission**

Student with a bachelor (180 ECTS) in mathematics, computer science or physics, with a strong motivation to work at the interface with biology.

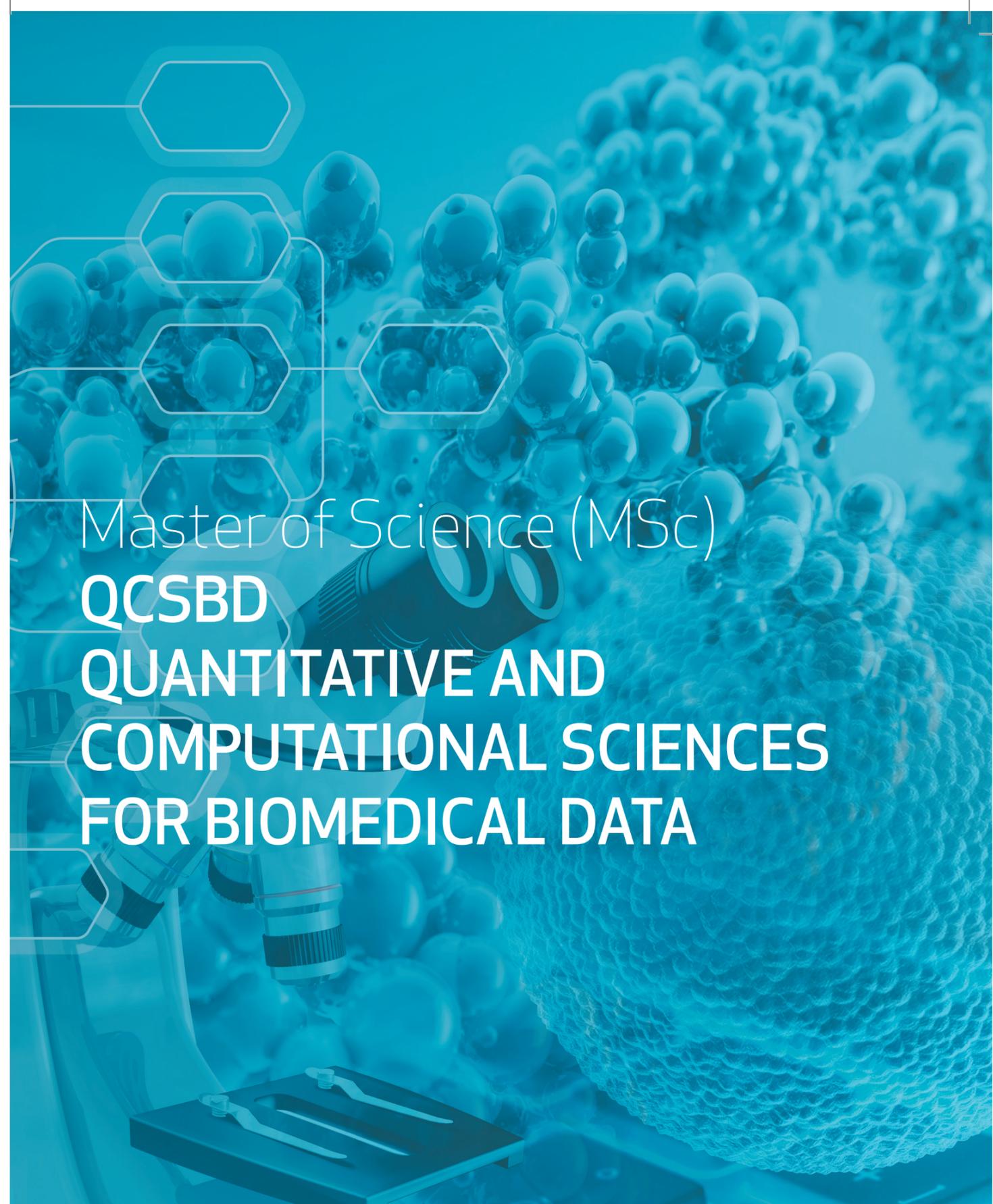
**Tuition fees:** 4000€\*

\*The tuition fee may vary according to your residence status, namely if you are a resident of an EU country or of a country outside the EU.  
In addition, financial aid (need-based or merit-based scholarships) will be available to students, and other sources of funding will also be available through each training course.

**Partners**



Members of UNIVERSITÉ **CÔTE D'AZUR** 



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**UCA** J.E.D.I.  
UNIVERSITÉ CÔTE D'AZUR



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UNIVERSITÉ **CÔTE D'AZUR** 

# Master of Science (MSc)

## QCSBD

# QUANTITATIVE AND COMPUTATIONAL SCIENCES FOR BIOMEDICAL DATA

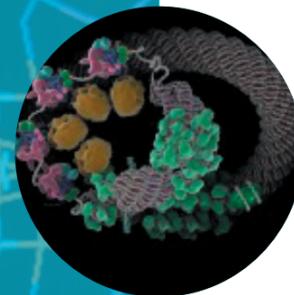
Computational biology is a multidisciplinary approach addressing and solving current problems in biology and medicine using methodologies stemming from mathematics, physical sciences and computer science. This program will provide prospective individuals with the opportunity to learn how to precisely understand a biological question, conceptualize biological phenomena with a mathematical model integrating observational data and find an appropriate way to solve it.

## Objectives

During the training, students will be taught relevant theoretical and methodological concepts in areas ranging from:

- Mathematical and computational methods in computational biology and bioinformatics;
- Modeling approaches to relevant to study biochemical and biophysical processes in cells and tissues;
- Analysis and interpretation of large datasets coming from high-throughput technologies ( "omics" data, images, signals, measurements), in particular single-cell data;
- Fundamental aspects of cell biology;
- Biology of cancer and aging.

In short, prospective students will learn to tackle computational biology problems in a scientific, evidence-based manner as well as have the opportunity to gain experience working in a true multidisciplinary mindset.



## Program

### First year

Fundamental Courses in:

- Cell and tissue biology
- Bioinformatics
- Data Science
- Systems Biology
- Biophysics
- 3 months internship and/or lab immersion on modeling and data analysis projects on biological topics.

### Second year

- Advanced cell and tissue biology
- Cancer systems biology
- Computational biology for biology of aging
- Formal and computational approaches for single cell biology
- 6 months internship

## Future careers

- Ph. D programs in bioinformatics, biophysics, systems biology
- Research Engineer in private R&D sector of pharma companies, software companies, hospitals, CRO, Diagnosis companies, whose activities address: Human genomics, Personalized and precision medicine, Regenerative medicine, Single cell data analysis, Cancer systems biology, Metagenomics, Bioengineering, Synthetic biology, Bioimaging