



**UNIVERSITÀ
DI TRENTO**

MSc in Quantitative and Computational Biology - QCB



Master of Science in Quantitative and Computational Biology - QCB

QCB integrates **quantitative sciences and applied biology** in order to capture the increasing need for researchers and experts able to transform the huge amount of biological information **-big data- into knowledge**.

Students will learn how to gain quantitative insight into the behaviour of biological systems by means of bio-mathematical and bio-physical models.

Key target areas are the applied research fields where the growing availability of multidimensional data demands **high interdisciplinarity**, like pharmacogenomics, biotechnology, food science, and precision medicine.

Strong emphasis will be given to **quantitative and computational aspects**, with a focus on tools to analyze, model and understand biological systems and phenomena.

Teaching activities **include lectures, laboratory courses and seminars**.

Students will carry out research projects in Trento, at partner Universities at **international level** or in **relevant companies**. They will focus on their Master of Science thesis in the final semester.

Programme overview

Degree awarded

Master of Science - "Laurea Magistrale" - in Quantitative and Computational Biology

Language

English

Class size

Up to 45 students

Workload

The total workload for each student is 120 ECTS (European Credit Transfer System)

Intake

September each year

Duration

2 years full-time

Fees and funding (approximate range)

- EU: 340€ - 3.400€ (based on income/merit)
- Non-EU: 1.000€ - 6.500€ (based on merit)
- Income/merit based scholarships and tuition waivers available

Admission

Application deadlines (check online for updates)

- March for non-EU citizens living outside Italy
- June for EU citizens and non-EU citizens regularly living in Italy

Selection criteria

- Assessment of previous studies and their coherence with the MSc
- Academic curriculum
- Statement of Purpose

Requirements

- Bachelor's degree (or equivalent) in Biology, Computer Science, Mathematics, Physics or related fields
- English at B2 level of the Common European Framework of Reference for Languages

How to apply

- Access the online application form
- Upload the required documents
- Submit your online application by the deadline
- Check online for more information and updates: www.unitn.it/qcb

Study Plan

Admitted students will follow one of the **two tracks** based on their educational background acquired in previous studies. Teaching activities include lectures, laboratory activities, and seminars.

Biological track - Mandatory courses

- Biostatistics
- Scientific Programming OR Data Mining
- Genomics
- Chemistry and Biochemistry OR Biotechnology Engineering

Quantitative track - Mandatory courses

- Molecular Biology of the Cell
- Chemistry and Biochemistry
- Advanced Data Analysis
- Mathematical Modeling and Simulation OR Molecular Physics

For all tracks

- Electives
- Internship
- Research Seminars/Journal Club
- English C1
- Final thesis

Electives

- Scientific Programming
- Bioinformatics
- Advanced Data Analysis Genomics
- Biotechnology Engineering
- Data Mining
- Molecular Physics
- Mathematical Modeling and Simulation
- Computational Biophysics
- Foundations of Entrepreneurship in Biotech and Pharma
- Digital Signal Processing
- Knowledge Graph Engineering

Career opportunities

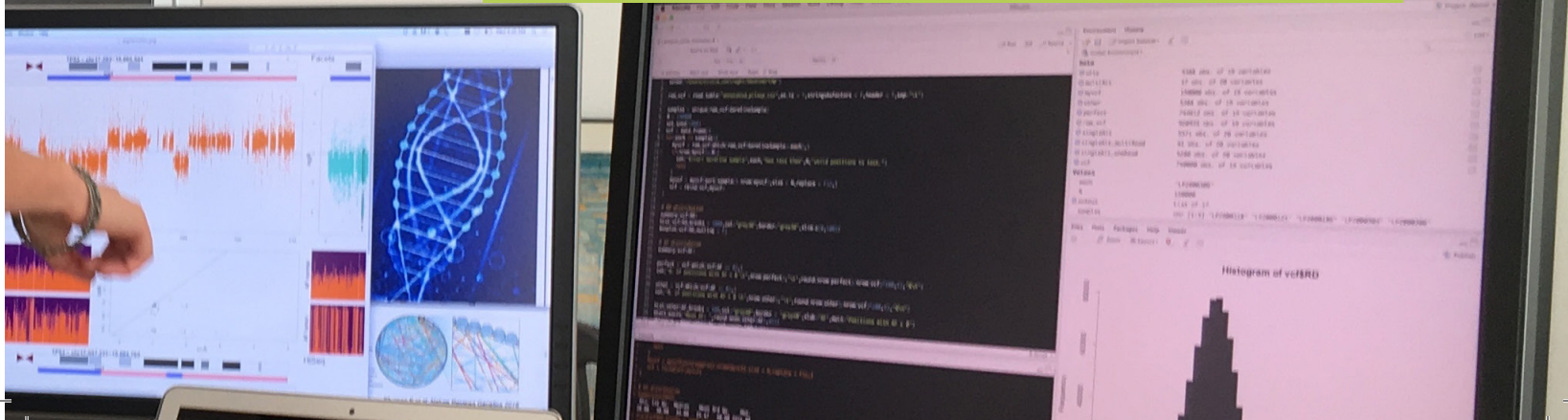
Graduates in Quantitative and Computational Biology will be trained to work as:

- Biotechnologist
- Computational Biologist
- Bioinformatics
- Biologists data and systems biology analyst



Graduates in Quantitative and Computational Biology will be ready to work in public and private **research centers** as well as in pharmaceutical, food and biotechnology **companies** or in advanced medical investigation **laboratories**.

They will also be able to use publicly available biological data and to work closely with biologists, clinicians, pharmacologists, engineers, epidemiologists in experimental research and pre-clinical context as well as in analysis/hospital laboratories.







CONTACT DETAILS

International Mobility Office

Science and Technology Area

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