INTRODUCING THE MASTER

The Master Degree Course in Mathematics and Applications
- strengthens knowledge of Pure Mathematics,
- proposes three different curricula introducing students to research and didactics in Mathematics, or applications to Economics and Finance, or applications to Technology and Engineering,
- through the High Apprenticeship or teaching experiences, prepares students for the world of work.

The master benefits of a longstanding and well appreciated educational expertise, a friendly and skilful teaching staff, and reliable supporting structures (such as study and work rooms, computer facilities, libraries) in addition to dedicated tutorship services. Among the research programs developed in Mathematics in Camerino and related to our Master one could mention: design of electric cars and racing cars, applications to earth and sea sciences, economics and finance, health (medical diagnostic), disability problems (exoskeleton) and much more.

ADMITTANCE REQUIREMENTS
Bachelor Degree in Mathematics or other Bachelor Degrees with at least 30 ECTS in Mathematics and adequate knowledge of Algebra, Analysis and Geometry.

Further information on admission rules, pre-admission deadline and other services for foreign students at http://international.unicam.it

CAREER OPPORTUNITIES
- Italian students can consider a teaching experience, please ask prof. Sonia L’Innocente - sonia.linnocente@unicam.it - about kit courses introducing to the Italian educational world and similar perspectives.
- Students interested in a job in industry (constructing and applying mathematical models in economical and industrial settings, in public departments or managements) are invited to visit www.unicam.it/master or ask prof. Pierluigi Maponi - pierluigi.maponi@unicam.it or prof. Carlo Lucheroni - carlo.lucheroni@unicam.it
- Students interested in scientific research are invited to consider the PhD programs of the International School of Advanced Studies, more info at http://isas.unicam.it

Classes will be held face to face in the University halls but it is possible to attend them also in streaming.
Practical activities and laboratories will be organized in different modalities that will be communicated at the due time.

Classes are held in English

COURSE STRUCTURE
The Master Degree Course in Mathematics and Applications is organized into three different curricula: one in Pure Mathematics, the second in Mathematics for Industrial Engineering and the third in Mathematics for Analytics and Finance. There are two Semesters, from mid-September to the end of January, and from March to mid-June. The Winter Exam Session is in February.
Pure Mathematics

96 ECTS Mandatory: ECTS
Advanced Algebra and Mathematical Logic (1 year) 12
Advanced Geometry (1 year) 12
Advanced Mathematical Analysis (1 year) 6
Calculus of Variations (1 year) 6
Advanced Applied Mathematics (1 year) 12
Advanced Probability (1 year) 6
Optional courses chosen by the student 12
Master thesis (see below) 30

12 ECTS among the following courses: ECTS
Lie algebras and Lie groups (2 year) 6
Knot theory (2 year) 6
Educational Mathematics (2 year) 6
History of Mathematics (2 year) 6
Revisiting Calculus (2 year) 6
General Relativity (2 year) 6

12 ECTS among the following courses: ECTS
Inverse problems in remote sensing applications (2 year) 6
Quantum Computation (2 year) 6
Theoretical Physics (2 year) 6
Computability and complexity (2 year) 6
Advanced Mathematical Physics (2 year) 6
Stochastic Processes (2 year) 6
Applied Topology (2 year) 6
Embedded Systems Lab for Industry and Education (2 year) 6

Mathematics for Industrial Engineering

102 ECTS Mandatory: ECTS
Advanced Algebra (1 year) 6
Advanced Geometry I (1 year) 6
Advanced Mathematical Analysis (1 year) 6
Advanced Applied Mathematics (1 year) 12
Advanced Probability and Stochastic Process (1 year) 12
Systems Analysis and Control Theory (1 year) 12
Embedded Systems Lab for Industry and Education (1 year) 6
Optional courses chosen by the student 12
Master thesis (see below) 30

6 ECTS among the following courses: ECTS
Lie algebras and Lie groups (2 year) 6
Knot theory (2 year) 6
Inverse problems in remote sensing applications (2 year) 6
Calculus of Variations (2 year) 6

6 ECTS among the following courses: ECTS
General Relativity (2 year) 6
Advanced mechanical design (2 year) 6
Advanced Geometry II (2 year) 6
Computational graphics and data visualization (2 year) 6
Nonlinear control theory (2 year) 6
Dynamic and Stochastic Optimization in Finance and Economics (2 year) 6
Advanced Statistics (2 year) 6
Fundamentals of materials science (2 year) 6
Polymer chemistry and applications (2 year) 6

* Courses in blue are interdisciplinary courses in common with other departments

Optional courses chosen by the student

The ETCS reserved for these activities can include
- Additional courses in Mathematics,
- courses in Physics, Computer Science, and so on,
- courses of Advanced English, or other languages,
- seminars on Mathematics and its Applications (in Italian),
- High Apprenticeship (see below).

Students with an undergraduate degree not in Mathematics are strongly recommended to choose the optional courses to complete their preparation in basic Mathematics.

Moreover, they are warmly invited to contact the Course Coordinator and discuss the best choice.

High Apprenticeship

It is a 1 year job training experience. To this end, students may use

- the ETCS devoted to optional courses,
- the ETCS of the final thesis.

Knowledge of the Italian language is strongly recommended.

For any information please ask well in advance prof. Pierluigi Maponi (pierluigi.maponi@unicam.it) or prof. Carlo Lucheroni (carlo.lucheroni@unicam.it) also in order to define a specific study plan.

Master thesis

The final thesis is prepared under the supervision of a professor. Students are asked to contact with due advance their advisor to define the topic.

QUALITY ASSURANCE SYSTEM UNICAM

Quality Management System Certificate ISO 9001:2015 (from AFAQ-France, a French leader and one of the first certification bodies at the global level) guarantees students the quality of services provided. The guarantee is via a rigorous analysis of internal organizational procedures and the prompt addressing of any weaknesses or shortcomings whether detected or reported by the students themselves. The Quality Management System includes the following support services for students: orientation and guidance, mentoring, International mobility, Internships and communication.

These integrate with and support the educational activities, so as to contribute to the complete training of the student.

More information

https://www.unicam.it/didattica/guida-dello-studente
https://www.unicam.it/international-student