MASTER

Université Bordeaux 1 - Université Paris-Sud 11
Universita degli Studi di Padova (Italy)
Leiden University (Netherland)
www.math.u-bordeaux.fr/ALGANT/

Erasmus Mundus Master in Mathematics ALGANT Algebra, Geometry and Number Theory

- 50% courses are taught in English
- **Length:** 2 years
- **Admission requirements:**
  - Have completed a Bachelor of Science degree in Mathematics or equivalent, with good results.
  - Have a thorough proficiency in written and spoken English.

  Application procedure : http://www.math.u-bordeaux.fr/ALGANT/
- **English proficiency**: Proof of a thorough proficiency in written and spoken English, e.g. by a IELTS score of 6.5 (for non-native English speakers; students from China should submit an Academic IELTS score; if possible proof should be submitted directly from the test Centrex);
- **French proficiency:** not required
- **Tuition fees:** Third-country students : 2,500 €/year. European students : 1,500 €/year
- **Objectives**: We propose a two-year Master course in Algebra, Geometry and Number Theory (ALGANT). The teaching staff is very active in research and the students will profit from the many connections it entertains with research centres throughout the world.
  Traditionally number theory used the methods of algebra and analysis, to solve problems such as finding the number of integral of solutions of equations. In recent times geometric methods have been playing a more important role. Also, number theory has important applications in areas such as cryptography, theoretical computer science, and numerical mathematics. These led to a unification of number theory. The ALGANT course aims at introducing students into the latest developments of this fascinating subject.
  Our consortium involves the universities of Bordeaux (France), Leiden (The Netherlands), Padova (Italy), and Paris-Sud (France). Classes will not exceed twenty students and professors have long office hours.
  Every student of the ALGANT master will be offered the possibility to follow his entire curriculum in English. For each student a program will be tailored individually, but every student will have to go through at least two hosting institutions of the consortium.
  The students having successfully completed the requirements of the ALGANT program will be well armed to pursue a career in research by preparing a Ph.D. or by directly applying for a job in the many companies that are looking for the know-how we teach. They will be awarded a double degree composed of two nationally recognized degrees issued by the two hosting institutions, completed by a diploma supplement.

  Main focus on ALgebra, Geometry And Number Theory : ALGANT

  The Master Course is built on wider Master programs in mathematics and our course allows for the choice of optional courses in other areas of mathematics, physics, computer science, and the history and philosophy of science. Still the main focus is on Algebra, Geometry and Number Theory because:

  - these are subjects that have a much greater tradition in Europe than anywhere else in the world;
  - some of the most important recent advances in mathematics have taken place in our field and our staff is perfectly in synch with these advances: our departments have a worldwide reputation in these fields;
  - Number Theory is a "royal way" into higher, contemporary mathematics, thus permitting to attract good students who might not have had the necessary formal training at the bachelor level; starting with classical, "concrete" problems, such students will be quickly introduced to the more sophisticated algebraic and geometric techniques that lie at the foundations of so much current work;
  - as is well-known, but still unexpected few years ago, the most recent advances in Algebraic Geometry have led to important applications (cryptography, error correcting codes, etc.); we offer training towards employment in areas were expertise in these fields is necessary for the development of applications.

Université de Cergy-Pontoise
www.u-cergy.fr/phy/MPIE

Master in Maths, Physics and Informatics (MPIE) [Master 1]
http://www.u-cergy.fr/phy/st/madocs/MPIE.html

- 50% of courses are taught in English (240h)
- **Length:** 1 year
- **Admission requirements:** Admission to MPIE is conditioned on admission to a full Master's program in maths or physics or computer science at Cergy-Pontoise or elsewhere. Priority will be given to successful applicants within a list of recommended Master's at Cergy-Pontoise, Paris 1, 6, 7, 11, ENS-Cachan, UVSQ, Grenoble, Orléans.
- **English proficiency:** IELTS 6.0 or TOEFL 550/213
- **French proficiency:** TEF A1
- **Tuition fees:** 2,500 €
- **Objectives**: Consolidate knowledge from a Bachelor's degree in Maths, Physics or Computer Science, and learn French so as to complete a Master's taught in French during the following year. Courses taught in English include relational databases, object oriented programming, computational fluid dynamics and structural mechanics, statistics and statistical learning, partial differential equations. French as a Foreign Language plus tutoring alongside specialty courses in French prepare for a second year of a Master's taught in French.

Université Joseph Fourier - Grenoble 1
www.fourier.ujf-grenoble.fr/enseignement/~Master-M2R-Mathematiques.html

Master degree in Mathematics

- Courses are given in English if some students are not fluent enough in French (In 2008-2009, 75% of the courses are in English)
- **Length:** One year (60 ECTS)
- **Admission requirements:** beginning graduate students or advanced undergraduate students in pure mathematics
- **English proficiency:** Applicants should be able to understand enough English to read books or research papers and to attend the classes.
- **French proficiency:** not required
- **Tuition fees:** 440 € (including national insurance)
- **Objectives**: The main goal of the master research in pure mathematics is to provide the students with a solid knowledge in pure mathematics in order to prepare a phd thesis. The courses change every year and are related to the research fields of the Fourier Institute (Algebraic geometry, complex geometry, real and complex analysis, number theory, Riemannian geometry, topology mathematical physics and PDE, probability).

MASTER

Université de Limoges - www.unilim.fr/acsyon

Master ACSYON "Algorithmics, Symbolic Computation and Numerical Optimization"

- All courses are taught in English
- **Length:** 2 years
- **Admission requirements:** The candidate must have previously an undergraduate Licence level diploma (European LMD system), or an equivalent degrees such as Bachelor's degree in Science (BSc) or in Engineering (Beng) that include courses in pure and applied mathematics.
- **English proficiency:** TOEFL for example or equivalent
- **French proficiency:** not required
- **Tuition fees:** less than 600 € per year
- **Objectives**: This master's degree in Applied Mathematics prepares students for a career as an engineer or a Researcher in the rapidly expanding field of Scientific Computing. Cutting edge companies and research laboratories are in need of specialists able to develop and apply innovative mathematical methods to solve increasingly complex problems. ACSYON's two years graduate program responds to this challenge. ACSYON focuses on applications of Mathematics where the University of Limoges has a leading expertise and strong research track records: Optimization, Symbolic-Numeric Computation, Cuves and surfaces for Computer Aided Design, Mathematical methods for controlTheory and electromagnetism. Most instructors are researchers at XLIM (http://www.xlim.fr) a joint laboratory of the University of Limoges and the French National Centre for Scientific Research (CNRS). XLIM gathers 350 researchers in mathematics, computer science, electronics, optics and telecommunications. Successful students may pursue a Ph D at XLIM or other laboratories of research.

Université de Nice - Sophia Antipolis
www.unice.fr

Erasmus Mundus MSc course : MATHMODS - Mathematical Modelling in Engineering : Theory, Numerics, Applications
www.mathmods.eu

- All courses are taught in English
- **Length:** 2 years
- **Admission requirements:** Applicants must have obtained a recognized Bachelor's Degree (BS, BSc, SB, etc.) – or an equivalent degree, for instance from a college, university, or technical school of high standing, or 180 ECTS credits in the European system – in Mathematics, Applied Mathematics, Physics, Engineering, Informatics, Computer Science.
- **English proficiency:** Level of spoken and written English, certified by TOEFL (550 points), IELTS (6.0 points), or equivalent .
- **French proficiency:** Students will be offered an introduction to local culture and French language in each semester.
- **Tuition fees:** 5,000 € per year for « Third Countries » Applicants and 500 € per year for « European » Applicants, which will include all the fees for the local University taxes.
- **Objectives**: Mathematical modelling lies at the heart of most current technological innovations and has become a fundamental tool in many fields of engineering, as it appears essentially multidisciplinary in its applications within industries and business innovation departments.The MathMods programme reflects this multidisciplinarity, drawing on the unifying mathematical aspects from various engineering disciplines, for the development of an unified methodological approach to modelling and simulation of real engineering challenges.