

MASTER Algebra, Geometry and Number Theory (ALGANT)

Program factsheet

ACADEMIC COOPERATION

Part of the **ALGANT network**
(consortium of 9 universities):

- › **Canada:** Concordia University (Montreal)
- › **France:** Université Paris-Sud (Orsay), University of Bordeaux
- › **Germany:** Duisburg-Essen University, Regensburg University
- › **Italy:** Milano University, Padova University
- › **Netherlands:** Leiden University
- › **South Africa:** Stellenbosch University

Students follow this two-year Master course in two of the partner countries and, upon completion of the course, are awarded a double degree from the two universities.

LEVEL

Double/multiple Master degree of Science in Mathematics.

ADMISSION REQUIREMENTS

Candidates must fulfill the following requirements:

- › Hold a Bachelor degree of Science in Mathematics or an equivalent degree.

LANGUAGE REQUIREMENTS

- › A good level of English is required.

PROGRAM DURATION

2 years (120 ECTS).

TUITION FEES

4,000€/year. A fee waiver may be granted.

Program outline

The ALGANT Master program provides a study and research track in pure mathematics, with a strong focus on algebra, geometry and number theory.

This track may be completed throughout Europe and the world, thanks to a partnership between leading research universities.

The ALGANT course introduces students to the latest developments within these subjects, and provides the best possible preparation for their forthcoming doctoral studies.

Program structure

The ALGANT program consists mainly of advanced courses within the field of mathematics and of a research project or internship leading to a Master thesis.

Courses are offered in: algebraic geometry, algebraic and geometric topology, algebraic and analytic number theory, coding theory, combinatorics, complex function theory, cryptology, elliptic curves, manifolds. Students are encouraged to participate actively in seminars.

The university partners offer compatible basic preparation in the first year (level 1), which then leads to a complementary offer for more specialized courses in the second year (level 2).

Each partner university offers a range of courses for the ALGANT program. For detailed information on the structure of the program in the different universities, please consult the partner university websites. You may also consult the ALGANT website (currently being updated).

In Bordeaux, the ALGANT program is structured as follows.

Year 1

Note: courses are taught in French.

SEMESTER 1

- › Théorie des modules (6 ECTS)
- › Théorie des groupes (6 ECTS)
- › Analyse complexe (6 ECTS)
- › Analyse : dualité et convergence (6 ECTS)
- › Théorie des ensembles, espaces quadratiques (6 ECTS)

SEMESTER 2

- › Géométrie (9 ECTS)
- › Théorie des nombres (9 ECTS)
- › Analyse fonctionnelle, analyse spectrale (9 ECTS)
- › Probabilités et statistiques (6 ECTS)
- › Outils hilbertiens (6 ECTS)
- › Algèbre et calcul formel (6 ECTS)

Year 2

Note: courses are taught in English and the content is redefined each year. For details, please consult: www.u-bordeaux.fr and www.u-bordeaux.com

SEMESTER 1

- › Number theory (9 ECTS)
- › Algorithmic number theory (6 ECTS)
- › Geometry (9 ECTS)
- › Elliptic curves (6 ECTS)
- › Algebraic geometry (9 ECTS)
- › Advanced course 1 (6 ECTS)

SEMESTER 2

- › Advanced course 2 (6 ECTS)
- › Advanced course 3 (6 ECTS)

Strengths



› Courses given by academic experts within the field of mathematics.



› Individually tailored study tracks.

Supported by the IdEx - International Master program of the Bordeaux Excellence Initiative.



› Top-quality scientific environment and facilities provided by leading global research institutes, e.g. Institut de Mathématiques de Bordeaux.

→ And after?

Students who successfully complete the ALGANT program will be well equipped to pursue a career in research by preparing a PhD.

They may also directly apply for positions as highly trained mathematicians, especially in the areas of cryptography, information security and numerical communications.

How to apply?

Applications may be completed on-line:

› <http://algant.eu>

Contact

GENERAL COORDINATOR:

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