The master’s programme Mathematics offers a wide variety of courses ranging over analysis, probability theory, operations research, dynamical systems, algebra, number theory and geometry.

The master’s programme Mathematics (two years) offers two research specialisations: Applied Mathematics, with a focus on analysis, probability theory, operations research and dynamical systems, and the specialisation Algebra, Geometry and Number Theory with courses in topics such as algebraic number theory, algebraic geometry and cryptology. Both programmes train the student to become an independent researcher, and form an excellent preparation for a further career in scientific research. Also, the student develops the necessary skills to start a career in business or in public service.

**Why Mathematics at Leiden University?**

- The large amount of electives allows you to tailor your study programme to fit your own personal wishes and interests.
- Our teachers are internationally renowned and include Spinoza prize winners.
- The institute has an extensive international network and attracts many international students. Roughly half of our master students is from outside the Netherlands. In the Algebra, Geometry and Number Theory specialisation we actively participate in the Erasmus Mundus exchange programme ALGANT.

### Facts and figures

<table>
<thead>
<tr>
<th>Language</th>
<th>English</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duration</td>
<td>2 years</td>
</tr>
<tr>
<td>Degree</td>
<td>Master of Science</td>
</tr>
<tr>
<td>Start</td>
<td>September or February</td>
</tr>
</tbody>
</table>
| Admission  | Start September: 1 April non-EU / 15 June EU  
              Start February: 15 October non-EU / 1 December EU |
| Tuition fee| € 2,078 EU/18,300 non-EU |

### More information

For more information about the programme, entry requirements, admission procedures, tuition fees and scholarships, please visit our website: [masters.universiteitleiden.nl/mathematics](http://masters.universiteitleiden.nl/mathematics)
Mathematics: programme overview and courses

The master’s programme Mathematics offers two research specialisations: Applied Mathematics, and Algebra, Geometry and Number Theory. There are also three “combination” masters that prepare for a specific career outside scientific research: Mathematics and Education (partly in Dutch), Mathematics and Business Studies, and Mathematics and Science Communication.

**Programme overview research specialisations (120 EC)**
- Research project (40 EC)
- Advanced mathematics courses (80 EC)
- At least 30 EC should be obtained from courses from the national Master programme in mathematics, Mastermath.

**Programme overview Business Studies, Science Communication, and Education (120 EC)**
- Research project mathematics (30 EC)
- Advanced mathematics courses (30–60 EC)
- Specialisation specific courses (30–60 EC)

### Courses

**Applied Mathematics**
- Complex networks (6 EC)
- Introduction to dynamical systems (6 EC)
- Linear analysis (6 EC)
- Probability seminar (6 EC)
- Statistical learning (6 EC)
- Machine learning (8 EC)
- Mathematical biology (8 EC)
- Partial differential equations (8 EC)
- Bifurcations and chaos (6 EC)
- Differentiable manifolds 2 (6 EC)
- Dynamical systems seminar (6 EC)
- Ergodic theory and fractals (6 EC)
- Functional analysis seminar (6 EC)
- Information-theoretic learning (6-8 EC)

**Algebra, Geometry and Number Theory**
- Curves over finite fields (6 EC)
- Diophantine approximation (6-8 EC)
- Algebraic geometry 1 (8 EC)
- Algebraic geometry 2 (8 EC)
- Algebraic number theory (8 EC)
- Commutative algebra (8 EC)
- Differentiable manifolds 2 (6 EC)
- Ergodic theory and fractals (6 EC)
- Elliptic curves (8 EC)
- Modular forms (8 EC)
- Selected areas in cryptography (8 EC)
- Algebraic methods in combinatorics (8 EC)
- Algebraic topology (8 EC)
- Differential geometry (8 EC)