Applied Mathematics

$$Max \sum_{i \in I} \sum_{k=1}^{p} d_i(1-q)q^{k-1}y_{ik}$$

$$\sum_{j \in J_i} x_j \geq \sum_{k=1}^{p} y_{ik}, \forall i \in I$$

$$\sum_{j \in J} x_j \leq p$$

$$x_j \in \mathbb{N}, \forall j \in J$$

$$y_{ik} \in \{0,1\}, \forall i \in I, k = 1, \dots, p$$

Applied mathematicians devise models and algorithms that influence our daily lives. For example, everybody uses search engines to find information on the internet. Thanks to advanced mathematical algorithms, these search engines give us this information in a fraction of a second. Another example is how mathematicians help to save lives by using optimization models and algorithms to determine the optimum coverage of emergency helicopters.

Degree	Master of Science
Starts	September
Type	full-time
Credits	120 ECTS, 24 months
Language	English
Application deadline	1 April 2019
Tuition fee	€ 18.750 (non-EU) € 2.083 (EU)
Scholarships	scholarships.tudelft.nl

The objective of the MSc programme in Applied Mathematics is to deepen your knowledge of applicable mathematics and to develop your expertise in applying the methods and tools of mathematics to problems in science and engineering.

Computational and mathematical tools are used to predict the behaviour of technical, physical and even social systems, ranging from tomorrow's weather to the viability of social insurance systems and the global climate one hundred years from now.

Programme

When you join the MSc Programme in Applied Mathematics at TU Delft you will gain a thorough knowledge of applicable mathematics, in addition to developing expertise in applying the methods and tools of mathematics to problems in science and engineering.

This programme focuses on the acquisition of broad experience in simulation and the mathematical modelling of problems in science and engineering, in the mathematical analysis of these models and in the implementation of

TUDelft

Applied Mathematics

First Year		Second Year	
1st semester	2nd semester	1st semester	2nd semester
Scientific writing for AM	Specialisation courses and free electives	Specialisation courses and free electives	Graduation Project (42 EC)
Ethics for AM		Start Graduation project	
Choose 3 out of 5 common core courses			
Specialisation course or free elective			

For more information on all courses, please visit: www.studyguide.tudelft.nl

the results. You will gain sufficient insight into the underlying mathematical theories, allowing you to develop new mathematical methods and techniques.

Specialisations

You can specialise in the following subjects:

Stochastics focuses on the modelling and mathematical analysis of scientific and engineering problems that are characterised by uncertainty.

Computational Science and Engineering focuses on mathematical modelling and the simulation of problems that arise in science and engineering, the mathematical analysis of such models and the development of new mathematical methods and techniques for analysing such problems.

Financial Engineering focuses on the development and application of quantitative methods in finance and economics.

Analysis provides the mathematical tools required for the rigorous analysis of mathematical models. Such models are typically formulated as a partial differential equation. Apart from very special cases, a closed-form solution cannot be given, and deeper tools are required to study the properties of the solutions.

Optimisation focusses on the formulation and solution of optimisation problems from a broad perspective. You learn to develop and analyse models, investigate computational complexity, and how to design, analyse, implement and test algorithms. The main focus is on deterministic optimisation.

Master's Thesis

The master's thesis is the final challenge. You'll have to demonstrate your capacity to successfully carry out a research project. The projects can be completed at one of the research groups or at a company. After three quarters, you can complete the entire project by successfully presenting the results during a public presentation.

Examples of Master's Theses

- The Riesz transform on a complete Riemannian manifold with Ricci curvature bounded from below (Analysis, internal)
- Investigation of Different Solvers for Radiotherapy Treatment Planning Problems (CSE, with Erasmus Medical Center)
- Numerical Pricing of Bermudan Options with Shannon Wavelet Expansions (Financial Engineering, with CRM Barcelona)
- Optimal ambulance locations in the Netherlands (Optimisation, with RIVM)
- The evidential value of gunshot residue composition comparisons.(Stochastics, with NFI)

58th
THE World University Rankings 2019

Career perspective

Companies
Deltares, KNMI, NFI, ABN Amro, Philips, KPN, TNO, Rijkswaterstaat

Positions
Consultant, Scientific Software Developer, Project Manager, Researcher, Academic career