This degree program is tailored to the current needs in applied mathematics and scientific computing. It is designed for students who appreciate using rigorous mathematical analysis or scientific computing to predict phenomena or to optimize processes in the sciences or in engineering. You will acquire a firm grounding in mathematical modeling and applied analysis as well as in high performance computing. You will learn to derive mathematical models and to reflect upon their properties and limitations.
This degree program is designed for students with an interest in mathematics and its application in science and engineering. Mathematical modelling, rigorous analysis and scientific calculations are essential for producing predictions and optimizing processes in scientific and engineering applications. The degree program is tailored to these needs.
As a student on this degree program, you will first acquire a solid knowledge of mathematical modelling, applied analysis and scientific calculation. You will learn how to set up mathematical models and investigate their properties and limitations.
All modules are conducted in English, the international scientific language. The degree program is aimed at students from Germany and from all over the world. In addition to mathematical knowledge, students also strengthen their cultural and communication skills, offering them an advantage in today’s world with international teams working in industry and science.
Compulsory elective modules enable students to tailor their studies to their interests from a wide range of options. The compulsory elective modules reflect the mathematical research which is being conducted at FAU. They range from modelling, PDE analysis and numerical simulations in mathematical continuum mechanics (transport processes in complex multiphase flows, fluid-structure interactions) to multiscale analysis and mathematics in life sciences through to different areas of mathematical optimization, for example structure optimization, optimization with PDEs and discrete optimization.
Compulsory modules in the 1st to 3rd semesters: All students take
Elective modules in the 1st to 3rd semesters: Each student selects modules from the elective modules of the CAM degree program (40 ECTS). Modules can also be chosen from the complete catalog of Master’s-level modules at FAU (15 ECTS).
4th semester: The Master’s phase (30 ECTS). Over a period of 6 months, students work on their own scientific project under the supervision of a professor and write their Master’s thesis on this topic. Students familiarize themselves with the topic beforehand by taking a Master’s seminar. They present their results in a final oral examination.
You can specialize in two of the three fields
You should be interested both in rigorous mathematics and in applications of mathematics in science and engineering.
The degree program prepares graduates for a broad spectrum of professional tasks, including the analysis of complex processes, their mathematical modelling, their computer-based solution by mathematical methods, and the development of mathematical software.
Graduates are able to perform research-oriented and application-oriented projects in business, industry and universities. Typical employment fields areresearch and development in business and industry (automotive industry, electrical industry, machine building industry), the software industry, consulting, banking and financial industry, and academia.
15.07.
15.01.
The requirement for admission to the Master’s degree program is a good Bachelor’s degree in a mathematical program – or in a closely related field with a substantial content of mathematical courses (at least 45

ECTS). Qualification or aptitude for the Master’s degree program is examined in the qualificationassessment process.
Applicants with a degree that is not in mathematics but in a related field can only be admitted after passing an oral exam. The criteria of this oral exam are: Basic knowledge in the theory of differential equations or functional analysis, basic knowledge in numerics or in optimization, ability to discuss mathematics in English, based, for example, on the applicant’s Bachelor’s thesis.
Applicants must provide proof of their English language skills, including one of the following:
Students can start the program in either the winter semester or the summer semester. However, we recommend starting in the winter semester.
Our Student Advice and Career Service (IBZ) is the central point of contact for all questions about studying and starting a degree programme. Our Student Service Centres and subject advisors support you in planning your studies.

Degree: Master of Science
Duration of studies in semester: 4
Start of degree program: Summer semester, Winter semester
Study location: Erlangen
Number of students: 50-150
Subject group: Mathematics, Natural sciences
Special ways to study: International degree program
Teaching language: completely in English
Admission Requirements: Qualification assessment
Admission requirements (first semester): Qualification assessment
Application deadline winter semester: 15.07.
Application deadline summer semester: 15.01.
Content-related admission requirements: The requirement for admission to the Master’s degree program is a good Bachelor’s degree in a mathematical program – or in a closely related field with a substantial content of mathematical courses (at least 45 ECTS). Qualification or aptitude for the Master’s degree program is examined in the qualificationassessment process.
Applicants with a degree that is not in mathematics but in a related field can only be admitted after passing an oral exam. The criteria of this oral exam are: Basic knowledge in the theory of differential equations or functional analysis, basic knowledge in numerics or in optimization, ability to discuss mathematics in English, based, for example, on the applicant’s Bachelor’s thesis.
General language skills: Applicants must provide proof of their English language skills, including one of the following:

English level B2 CEFR (vantage or upper intermediate), or
university entrance qualification or a university degree acquired in English, or
six years of English study at a German grammar school (“Gymnasium”).
Details and notes: Students can start the program in either the winter semester or the summer semester. However, we recommend starting in the winter semester.