UNIVERSITÄT BAYREUTH

Master of Science

Computer Science

An English-taught master's programme dedicated to the development of software and hardware systems





Computer Science is research-oriented at the University of Bayreuth. On the basis of broad knowledge of the subject area and specializations in selected areas, you will hone your analytic, creative, and constructive abilities in order to develop and improve software and hardware systems.

Well equipped for research-oriented computer science.

Are you looking for an English-taught master's programme in computer science that offers a smooth transition from your bachelor's studies? Maybe you graduated from another institution or you are interested in doing a master's now that you have completed a teacher education programme in computer science? If so, the University of Bayreuth's research-oriented master's programme *Computer Science* may be just what you're looking for. We place a great deal of emphasis on gaining a broad understanding of the subject area, to which specializations can then be added.

On this basis, you will learn to sharpen your analytic, creative, and constructive abilities, enabling you to later develop software and hardware systems without any difficulty. These are ideal conditions for a career in computer science — not just in the industry, but also in the areas of fundamental and applied research.



Computer science offers exciting career prospects — e.g. in research and development departments in trade and industry and in sales and advising departments. However, thanks to your skills you will also be in demand as a problem-solver for small and medium-sized enterprises.

The future belongs to computer science.

Are you seeking to pursue an academic career in computer science? Or maybe you are more interested in addressing complex challenges in the private sector? With your master's degree from the University of Bayreuth, you will be highly qualified for whatever you choose.

Highly skilled graduates are in greater demand now than ever before, for example among manufacturing companies, software houses, and research institutes. You will be able to work in IT departments at companies or in the administrative sector, or you could go to the computer industry and manage the operation, distribution, and maintenance of IT products. Employment prospects on the national and international job markets continue to be very good and have also remained constant even in economically difficult times.



You can choose from the following topics: Software Engineering, Parallel and Distributed Systems, Robotics and Embedded Systems, Databases and Information Systems, Visual Computing, Algorithms and Data Structures, Theoretical Computer Science, and Human-Computer Interaction.

Studying Computer Science in Bayreuth.

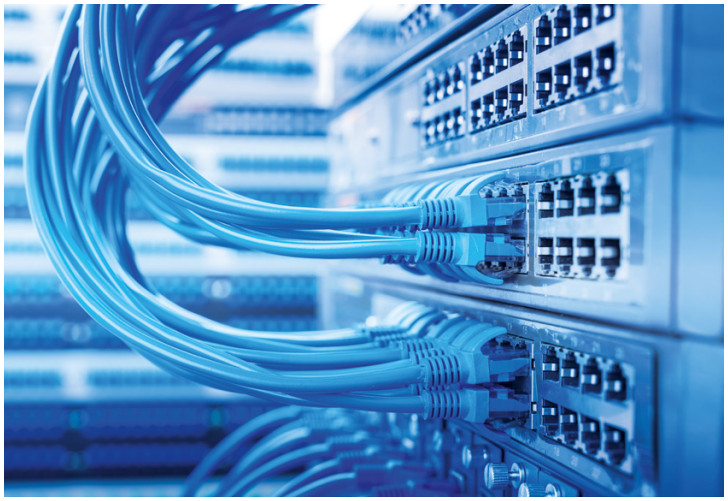
The master's programme Computer Science is based on the recommendations of *Germany's Society for Informatics (GI)*. In other words, this programme has proven its quality in all parameters and meets the international standards for computer science degrees.

In contrast to the German-taught master's programme *Informatik*, this English-taught programme features a higher number of practice-oriented modules. It is divided into the sections *Computer Science*, *Projects*, *Language*, and *Final Thesis*. The first two semesters of study are dedicated to building on and further developing your understanding of theory.

Programme Overview — period of study: 4 semesters.

Section A: Computer Science	ECTS*
- Computer Graphics I	5
- Animation and Simulation	5
- Theoretical Computer Science II	5
- Foundations of Modelling	5
- High Performance Computing	8
- Data Analytics	8
- Robotics II	5
- Pattern Recognition	5
- Computer Graphics II	5
- Computer Graphics III	5
- Parallel Algorithms	5
- Theoretical Computer Science III	5
- Software Product Line Engineering	5
- Foundations of Data Science	5
- Human-Computer-Interaction III	5
- Advanced Information Systems	5
To be earned	35–45
Section B: Projects	**ECTS***
- Small Master Project	8
- Large Master Project	15
- Large Master Seminar	8
To be earned	30–31
Section C: Language	**ECTS***
Language Centre modules to improve English or German language skills	
To be earned	15–24
Section D: Master's Thesis	**ECTS***
Master's Thesis	30
To be earned	30
Total	**120**

*ECTS Credit points awarded in accordance with *ECTS*. The *European Credit Transfer System (ECTS)* facilitates the international comparability of coursework completed at European higher education institutions.



While computers keep getting smaller, the software used to control them keeps getting larger. Programmes encompassing thousands of pages of programme text are no longer the exception. Such programmes are not only large, but also highly complex.



Our campus is the heart of the University. It is where friendships are made, collaboration is initiated, and ideas are conceived. It also features regular film screenings, art exhibitions, theatre performances, music performances, our annual "Uni Open Air" Festival, and much more.

The project semester.

One special feature of the master's programme is the second and third semester of study. Half of these terms are dedicated to semester projects that give you the opportunity to apply what you have learned in practice. You will have the chance to work on current research projects at the University of Bayreuth under the close supervision of researchers and instructors.

Small and large projects, amounting to 8 and 15 credit points respectively, include both a practical component (e.g. an internship) and a theoretical component (e.g. seminars). Students are free to choose whether they divide the large project into a small project and a seminar. Ideally, it is chosen such that it can serve as the basis for your master's thesis, thus opening the third and final phase of your master's studies.

Why you should study Computer Science in Bayreuth.

The University of Bayreuth has performed well in the *CHE* University Ranking for years thanks to the strong supervision its students receive in the various subject areas. As a master's student, you will be enrolled in an intensive programme of study in which small groups, modern instrumentation, and a friendly working atmosphere between students and instructors are the rule. Students love our charming campus. Everything you need is right at your doorstep, and it's easy to get to know students from other subject areas. Our campus also has a lot to offer outside the lecture halls. Examples include the University's orchestra, its big band, and the extensive University Sport programme.

In addition, life in Bayreuth is not nearly as expensive as it is in many other parts of Germany. The town and surrounding region provide a great setting for student life, with plenty to do in your free time.

UNIVERSITÄT BAYREUTH

An attractive environment awaits you.
We are pleased that you are interested in the English-taught master's programme *Computer Science*. New students can begin the programme in the winter term or summer term.

Admission requirements are a bachelor's degree in *Computer Science* (comparable with the degree awarded by the University of Bayreuth) with a grade of "good" (2,5) or better. You will also need evidence of German language skills at the level of at least A1 according to the *Common European Framework of References*. (This must be submitted by the end of the second semester.)

You will also need to provide evidence of English language skills via the *IELTS Academic* test with a grade of 6,5 or better or a *TOEFL (ibt)* test with a score of 88 or better. For questions concerning recognition of your degree, please contact our departmental advisors at informatik@uni-bayreuth.de.

Programme Coordinator:
Prof. Dr. Daniel Buschek
Universität Bayreuth
95440 Bayreuth

informatik@uni-bayreuth.de

Additional information is available at
www.ai.uni-bayreuth.de

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