

## Computer Science (M.Sc.)

Program of Study:	Computer Science
Department:	Computer Science
Degree Awarded:	Master of Science
Form of Study:	full-time study on campus
Language of Teaching:	German
Commencement of Study:	Winter trimester
Standard Period of Study:	1 years, 9 months
Academic Counseling:	Department Chair of Computer Science
Homepage:	<a href="http://www.unibw.de/inf">http://www.unibw.de/inf</a>

### I) Program Description

Computer Science deals with the systematic processing of information. To this end, computers can be used as tools, but this is not always necessary. Thus the focus is not limited to the construction of computers and how to work with them.

Computer science addresses complex systems in which humans and/or machines interact on the basis of certain rules. Hence the methods of processing information in such systems are examined in the course of one's studies. It is essential for students of computer science to be able to understand, describe, and create formal models and simulations of these processes. One must be able to plan and construct the desired processes and rules such that information processing systems can then be developed. Such information processing systems can be single devices such as a personal computer, but can also be sophisticated infrastructures consisting of complicated networks of various devices, e.g. mobile phones, notebooks, GPS-receivers, and workstations.

In the course of the master's program in computer science, basic knowledge and skills relevant to the field of computer science are built upon and further developed. Elective courses give students the opportunity to explore specialized areas of computer science as well as interdisciplinary connections between computer science and other fields. The master's program in Computer Science also prepares its students for an academic career in the field.

### II) Prerequisites

A solid foundation in the standard areas of computer science, especially in the mathematical methods, is an important prerequisite for the master's program. Such foundational knowledge can be acquired in the bachelor's program at the Universität der Bundeswehr or in a comparable undergraduate program of study.

The following are additional requirements:

- a good command of the German language
- English (if possible, a higher level high school certification)
- a higher level high school certification in mathematics or computer science

In preparation for the master's program, we recommend that students review their coursework in computer science and mathematics from their bachelor's program.

### III) Abilities & Tendencies

The decisive requirement is the ability to think in an abstract and structured way. Students who enjoy mathematics, especially set theory and logic, are in an excellent position to begin this course of studies. However, computer science also deals with the application-oriented construction of systems for

specific users. Communication and presentation skills are thus additionally required so that one can develop an appropriate system based on the users' goals and wishes. Social, psychological, economical, and political requirements and effects of the systems must be considered. Finally, command of English and the ability to work in a team are crucial characteristics in the field of computer science. Students rarely possess all of these qualities at the outset of their studies. One must also realize that computer science is constantly changing. Hence, it is essential that one be prepared to deal with new topics and challenges and to adapt accordingly.

#### **IV) Structure of the Program**

At the beginning of the master's program, students attend 3 modules dealing with central issues in the field of computer science. The remaining computer science courses are chosen from among the following 5 subjects:

- theoretical computer science
- software and information management
- IT systems
- technical computer science
- IT in organizations

The students choose an area of concentration as well as modules from at least two other subjects. In addition, students complete application-oriented modules such as "electrical engineering", attend a special seminar, take part in an internship, and write their master's theses, for which 6 months are allotted.

#### **V) Careers**

Graduates in the field of computer science are prepared for a variety of careers. In practice they deal with conception, planning, realization, modification, and maintenance of systems for information processing and transfer. Thus they may work with weapons systems, tracking systems, multimedia communication systems, control systems for machines, industrial facilities, traffic systems, or with telecommunication systems, just to name a few. With respect to small devices, the spectrum of jobs open to Computer Science graduates continues to grow: mobile phones, wristwatches, mobile computers, and medical technology are all things that are becoming more and more flexible and powerful, securer and user-friendlier by the day. Examples of occupations are

- developing new systems for data processing
- introducing and updating information technologies
- service, maintenance, or distribution of products in the computer industry
- a career at an educational institution, including research and teaching

#### **VI) Further Information**

For more information on study at the Universität der Bundeswehr München and the application process, please visit [www.unibw.de/studienberatung](http://www.unibw.de/studienberatung) . As a student at the Universität der Bundeswehr München, you can also complete a portion of your studies abroad. You will find information on our exchange programs and partner universities at [www.unibw.de/auslandsbuero](http://www.unibw.de/auslandsbuero) .