



Deutscher Akademischer Austauschdienst  
German Academic Exchange Service



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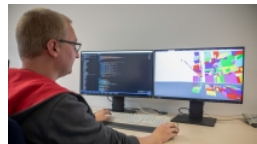
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# Master's degree



## MSc in International Software Systems Science

University of Bamberg • Bamberg



## Overview

Degree	Master of Science in International Software Systems Science
Teaching language	<ul style="list-style-type: none"><li>English</li></ul>
Languages	Participants with sufficient German language skills can also select from German-taught modules offered in the faculty's module prospectus that fall within the areas of the programme electives, subject to availability and learning agreements.
Full-time / part-time	<ul style="list-style-type: none"><li>full-time</li></ul>
Programme duration	4 semesters
Beginning	Winter and summer semester
Application deadline	<p>EU applicants: The registration is open from 15 March for the summer semester and 15 September for the winter semester.</p> <p>Non-EU applicants: The registration is open from 1 June for the following winter semester and from 1 December for the following summer semester.</p> <p>For current deadlines please visit this <a href="#">website</a>.</p>
Tuition fees per semester in EUR	None
Combined Master's degree / PhD programme	No
Joint degree / double degree programme	No
Description/content	<p>Software is the driving fabric behind many of the technological advances that enrich our everyday lives at home, at work and in public. More and more important tasks in government administration, industrial production, health care, public transport, etc., are put into the "digital hands" of mobile and networked computer systems. The underlying software must be extremely reliable and constructed according to the highest standards.</p> <p>The Master's degree programme in International Software Systems Science enables you to</p>

specialise in all tasks required for analysing, designing and developing large, networked software systems with innovative methods. The programme is informed by current trends in industry and research, and relays advanced knowledge on the architecture, development and analysis of modern software by teaching state-of-the-art techniques and methods in complex software engineering for functionally predictable and secure distributed and mobile software systems. The Master's degree programme imparts a broad variety of expert foundational knowledge and helps you gain insights into several application domains. Regarding foundations, the modules cover advanced software and data engineering methods; state-of-the-art networked, distributed and mobile software technologies, privacy and security; novel techniques for analysing and verifying complex software; and operating systems engineering and system-level programming. The application domains dealt with in the programme range from IT management, energy-efficient systems, smart environments, human-computer interaction, cognitive systems, and AI to computing in the cultural sciences and social networks.

We offer a large number of elective modules so that you can individualise your studies according to your interests. You can choose to specialise in one of four focal areas: distributed and mobile systems, software analysis and verification, service-oriented architectures or communication systems and protocols. You will also have the opportunity to work on hands-on projects, either individually or in teams, and to acquire valuable subject-specific English language skills.

Student projects, an optional study abroad period and/or an optional internship in an international context broaden your perspectives, strengthen your team aptitude and help you gain valuable experience. This will equip you with all skills and knowledge necessary to succeed as a highly valued software expert in the dynamic IT industry, or as a skilled researcher in international laboratories in industry or at a university.

The language of instruction throughout the entire programme is English.

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## Course Details

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### Course organisation

The Master's degree programme builds on a prior six-semester Bachelor's degree (180 ECTS) in Software Systems Science or a closely related field of study such as, but not limited to, informatics, computer science, software engineering, and computer engineering. The programme comprises 120 ECTS, which corresponds to a period of study of at least four semesters. Upon successful completion, you will have acquired the minimum 300 ECTS required for a subsequent third cycle post-graduate training following the Bologna scheme.

The ECTS credit points are awarded within the following five thematic module groups:

- Software Systems Science (36-54 ECTS)

In the module group "Software Systems Science", you will attend advanced-level modules in foundations of computer science, communication systems and computer networks, mobile software systems, privacy and security, software technology and programming languages, operating systems engineering, and distributed systems. This module group offers 18 ECTS of electives for specialisation.

- Electives in Domain-Specific Software Systems Science (0-18 ECTS)

The module group "Domain-Specific Software Systems Science" comprises 0-18 ECTS of optional advanced-level modules from applied fields of computer science related to software systems science, such as IT management, energy efficient systems, smart environments, human-computer interaction, cognitive systems, computing in the cultural sciences and social networks, AI systems engineering, and more.

- Seminar and Project (9 ECTS)

You will attend a seminar and run a project to deepen your understanding of the topics covered by the module electives. The topics addressed in the seminar and project highlight specific issues in the areas of computer science, applied computer sciences and information systems related to software systems science. In the seminar you will conduct independent literature research, deliver an oral presentation and write a short scientific essay. In the hands-on project you have the opportunity to practice your know-how individually or in teams.

- International Experience (27 ECTS)

The module group "International Experience" comprises an optional semester abroad and/or an optional internship in an internationally acting company or research institute. Where the credits earned from a study abroad semester and/or an internship do not make up 27 ECTS, further modules from Software Systems Science or Domain-Specific Software Systems Science must be selected. Credits from foreign language modules may also be included.

- Master's Thesis (30 ECTS)

In the Master's thesis, you will conduct independent research leading to a written dissertation on some advanced topic in an area related to software systems science. This individual work is proposed and supervised by a member of the faculty's academic staff.

Through the choice of elective modules, the seminar or project and the Master's thesis, one of the following four areas of specialisation can be formed and documented in your final degree certificate:

- Distributed and Mobile Systems
- Software Analysis and Verification
- Service-Oriented Architectures
- Communication Systems and Protocols

<b>A Diploma supplement will be issued</b>	Yes
<b>International elements</b>	<ul style="list-style-type: none"> <li>• Integrated study abroad unit(s)</li> <li>• Language training provided</li> </ul>
<b>Integrated study abroad unit(s)</b>	<p>The MSc in International Software Systems Science enriches your studies through a distinctively international academic or international industrial experience. This is optional and you can do this at several levels of "ambition".</p> <p>In a full study abroad period you complete at least 30 ECTS credit points at a foreign university, e.g. at one of the partner universities of the University of Bamberg. There you may select study modules from the graduate level offerings of the partner institution within the area of software systems science. Pre-arranged through learning agreements these are guaranteed to be credited towards your MSc degree.</p> <p>Alternatively, or in addition to the international mobility period, you may pursue an internship in a foreign or internationally acting domestic company or research institute that covers topics in the occupational field of software systems science.</p>
<b>Integrated internships</b>	Students may conduct an internship of at least ten weeks, or 360 working hours, which obtains 12 ECTS credit points towards the study programme. The faculty's Career & International Centre will assist students getting in contact with suitable companies, writing internship application letters and provide mentoring during their internship period.
<b>Course-specific, integrated German language courses</b>	Yes
<b>Course-specific, integrated English language courses</b>	Yes

## Costs / Funding

<b>Tuition fees per semester in EUR</b>	None
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<b>Semester contribution</b>	Students whose home institution is Bamberg must pay a regular contribution to the administrative costs at the University of Bamberg (103.80 EUR per semester at present). There are no additional tuition fees during the student's stay at the host institution. A "Semesterticket" for public transport in the city of Bamberg is included ( <a href="#">more information here</a> ).
<b>Costs of living</b>	Approximately 800 EUR per month to cover personal expenses
<b>Funding opportunities within the university</b>	No

## Requirements / Registration

<b>Academic admission requirements</b>	<p>Admission to the Master's Programme in International Software Systems Science is granted to applicants who have completed at least the equivalent of a three-year (180 ECTS) Bachelor's degree in Software Systems Science or a closely related field at a university or equivalent academic institution of higher education. The qualifying Bachelor's degree must have been passed with a grade of 2.7 or better on the German grading scale (or equivalent).</p> <p>A closely related Bachelor's degree, as a rule, must cover at least 115 ECTS credit points worth of modules in computer science and software engineering, including a Bachelor's thesis in one of these fields or in applied computer sciences. The required 115 ECTS must contain at least</p> <ul style="list-style-type: none"> <li>• 34 ECTS in mathematical foundations and theoretical computer science (such as propositional and predicate logic, linear algebra, calculus, probability theory, automata theory and formal languages, formal software verification, cryptography)</li> <li>• 33 ECTS in programming languages, algorithms and data structures, object-oriented modelling and software engineering)</li> </ul>
<b>Language requirements</b>	Applicants must provide proof of their English language proficiency at or above one of the following levels or the equivalent: IELTS 6.5, TOEFL iBT 90 (Internet-based).
<b>Application deadline</b>	<p>EU applicants: The registration is open from 15 March for the summer semester and 15 September for the winter semester.</p> <p>Non-EU applicants: The registration is open from 1 June for the following winter semester and from 1 December for the following summer semester.</p> <p>For current deadlines please visit this <a href="#">website</a>.</p>
<b>Submit application to</b>	<p>The online portal for applications is accessible at:</p> <ul style="list-style-type: none"> <li>• <a href="http://www.uni-bamberg.de/en/ma-isosysc">www.uni-bamberg.de/en/ma-isosysc</a></li> <li>• <a href="http://www.uni-bamberg.de/en/studies/non-exchange-students-masters-degree/online-application-form/">www.uni-bamberg.de/en/studies/non-exchange-students-masters-degree/online-application-form/</a></li> </ul>

## Services

<b>Possibility of finding part-time employment</b>	EU students can take a job while studying at Bamberg. Non-EU students may work for a maximum of 120 days or 240 half days per year. Employment adding up to more than 120 days requires a work permit. The faculty has no facilities to guarantee students can find a job. Students should not
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rely on getting a job when budgeting for their stay.

Qualified candidates may apply to join research groups as student tutors or student research assistants.

#### Accommodation

Bamberg's housing market has changed considerably in recent years. The demand for private accommodations is quite high, and rent prices continue to increase. The common trend seen in many cities, and particularly in university cities, is now quite apparent in Bamberg, too.

It is thus advisable to begin looking for a flats **early as possible** and to be patient, as the process can take quite a while. It also pays to check listings in the local newspaper (Fränkischer Tag), submit an announcement that you are looking for accommodation, or explore the numerous online housing portals.

[www.uni-bamberg.de/en/studies/living-studying/living-in-bamberg/](http://www.uni-bamberg.de/en/studies/living-studying/living-in-bamberg/)

#### Career advisory service

The [Career & International Centre](#) of the faculty acts as an information hub for students and provides first contacts with companies.

#### Support for international students and doctoral candidates

- Welcome event
- Specialist counselling

#### General services and support for international students and doctoral candidates

The faculty's Help Desk for the Master's programme of International Software Systems Science provides individual assistance regarding study affairs. Students will also be supported via web, e-mail and telephone concerning general information such as visa application, letters of invitation, contacts with embassies, residence permit, health services and insurance policy, logistics and financial services, academic life and social life as well as accommodation (e-mail: [helpdesk.maisosysc@uni-bamberg.de](mailto:helpdesk.maisosysc@uni-bamberg.de)). The university's Language Centre offers the opportunity to learn German as well as other languages. Intensive German language courses ("Deutsch als Fremdsprache") are available before the start of the semester, and German is also offered in semester courses at various levels.

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# University of Bamberg

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The Faculty of Information Systems and Applied Computer Sciences (ERBA Building)

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Since the founding of the University of Bamberg in 1647, it is the people who have been its top priority. The close proximity of students and instructors provides for excellent advisory services, personal communication and interdisciplinary studies.

The University of Bamberg, with about 12,000 students, is among Germany's medium-sized universities. The university currently offers roughly 100 programmes at the Bachelor's and Master's level.

The university's main areas of academic focus lie in the humanities, social sciences, economics, business administration and human sciences. These are rounded out by numerous programmes in application-oriented computer science. The premises of the four faculties are concentrated in three main locations that are easily reached by bicycle or via the local network of bus routes.

One of the University of Bamberg's main strengths is its commitment to a focus on international studies. The university's International Office maintains exchange programmes with approximately 300 universities in nearly 60 countries worldwide.

There are currently about 1,700 foreign students from 100 countries enrolled at the University of Bamberg. The range of courses offered at the university reflects this focus on international studies. Degree programmes in fields like international business administration and management, European economic studies, or the joint Master's degree in English and American Studies all require that students spend up to one year studying abroad. Furthermore, international students receive a great deal of support outside the classroom.

In order to help visiting students from around the globe become better integrated and acquainted with daily life, the International Office organises a tandem programme that brings together local and foreign students.

The university's international guests also have the opportunity to participate in an extensive programme of excursions and events meant to present a broader experience of life in Germany, even beyond the city of Bamberg. An international "Stammtisch" provides students with the opportunity to socialise and share experiences.

[www.uni-bamberg.de/en/university/profile/](http://www.uni-bamberg.de/en/university/profile/)

<https://www.uni-bamberg.de/en/studies/living-studying/>



## University location

Located in Northern Bavaria, it is easy to travel to and from Bamberg using many different means of transport. For those travelling by car, the city can be reached from all directions via the A70 and A73 motorways. Bamberg's railway station is also a stop on the ICE line between Munich and Berlin, which means that both cities can be reached without changing trains. Nuremberg, Bavaria's second-largest city, is approximately 45 minutes away by train, and its international airport provides flights to destinations worldwide.

[www.uni-bamberg.de/en/studies/living-studying/mobility/](http://www.uni-bamberg.de/en/studies/living-studying/mobility/)

# Contact

## University of Bamberg

Study Advisory Service MSc ISoSySc

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Last update 29.04.2024 06:08:52



# International Programmes in Germany - Database

[www.daad.de/international-programmes](http://www.daad.de/international-programmes)  
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## GATE-Germany

Consortium for International Higher Education Marketing  
[www.gate-germany.de](http://www.gate-germany.de)

## Disclaimer

The data used for this database was collected and analysed in good faith and with due diligence. The DAAD and the Content5 AG accept no liability for the correctness of the data contained in the "International Programmes in Germany" and "Language and Short Courses in Germany".

The publication is funded by the German Federal Ministry of Education and Research and by contributions of the participating German institutions of higher education.



Federal Ministry  
of Education  
and Research