Cybersecurity

Universität des Saarlandes
Bachelor of Science

Introduction

Solving the challenges of today and providing security for tomorrow.

Cybersecurity threats have become prevalent in our daily lives. Vulnerabilites in computer systems are exploited to spy on users and sabotage even the most security-critical infrastructure (e.g. energy and water supplies, healthcare systems or transport networks). The abundance of readily available, large-scale, privacy-sensitive datasets poses unprecedented risks to user privacy. Consequently, there is an almost unlimited demand for cybersecurity professionals, both from the academic sector and from industry.

This is why Saarland University has teamed up with the CISPA Helmholtz Center for Information Security to offer a unique B.Sc. course in Cybersecurity that teaches the essentials from the very start. CISPA is the world's no. 1 research institute for Cybersecurity, which attests to its high scientific standards and the broad range of topics investigated in CISPA's cutting-edge research. And best of all: courses in this program are taught entirely in English, making them accessible to international students.

Particularities

- Young field of crucial importance with a bright future
- Close collaboration with leading research institutions in the local area
- Unique degree course taught entirely in English from the very first semester
- Opportunities for language courses and internships that complement the academic syllabus
- Choose your specialization from among a broad variety lectures and seminars on IT Security
- Stay on at Saarland University after graduating and study for a master's degree in Cybersecurity or Entrepreneurial Cybersecurity or enroll on a PhD preparation program at the Graduate School for Computer Science and embark on an academic career at CISPA.

UNIVERSITÄT DES SAARLANDES

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Course details

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The standard period of study for the 'Bachelor of Science' degree is six semesters. At the beginning of the program, the fundamentals of both a regular computer science degree and those of cybersecurity are laid. In the further course of the study there are various elective options whose topics are always inspired by the research of the CISPA. In addition to these in-depth cybersecurity and computer science courses, there are practical elements such as the Cybersecurity Lab and supplementary elective courses. A German course is also offered early in the program for English-speaking students and an English course for German-speaking students.

Details:
A total of 180CP is earned in the program, i.e. 30CP per semester. The following courses are compulsory:

1. Mathematics for Computer Scientists 1 (9 CP) Mathematics for Computer Scientists 2 (9 CP)
2. Compulsory area of the Fundamentals of Computer Science (54CP):
a) Programming 1 (9 CP)
b) Programming 2 (9 CP)
c) Fundamentals of Data Structures and Algorithms (6 CP)

d) Introduction to Theoretical Computer Science (9 CP)
e) System Architecture (9 CP)
f) Statistics Lab (6 CP)
g) Elements of Machine Learning (6 CP)

3. Compulsory practical training (15 ungraded CP):
a) Practical Training "Software Engineering Lab" (9 CP)
b) Practical Training "Cyber Security Lab" (6 CP)

4. Specialized compulsory area of Cyber Security (24 CP):
a) Foundations of Cyber Security 1 (9 CP)
b) Foundations of Cyber Security 2 (6 CP)
c) Cryptography (9 CP)

In the elective courses, students attend lectures on core and complementary topics of cyber security as well as a proseminar and seminar on cyber security topics (total of at least 36 CP). Furthermore, 6CP each are earned from the area of language courses as well as the free elective. Finally, the program is completed with the bachelor thesis and the associated seminar.

A sample study plan can be found in the study program documents further down on this page, sample plans for individual specialization in cybersecurity topics here.

Application

Admission Requirements

Our course aims to train the next generation of elite cybersecurity experts and is therefore competitve. We select the best of the best, which also creates a great atmosphere for learning once you start your studies here. Since our course is taught in English, good proficiency in English (level C1) is required.
Students have to submit their application documents via an online application portal. The best candidates will then be selected by our admissions panel. Please find detailed information about requirements on the bachelor's website of Saarland University.

Application

The English-language bachelor's degree program is admission-restricted. The Application deadline for WS 2022/23 is **15 July.** Until **15 January, 01 April and 15 June** you can apply for an optional early admission. If you wish to take part in the oral entrance test on site in Saarbrücken, the last possible **application date is 15 June**.

The admission requirements consist of two components:

* You need a high-school diploma that is eligible as a German university entrance qualification. See the question below on how to check if your diplomas constitute a German university entrance qualification.
* Standard study entrance test together with a proof of your English proficiency.

    There are two alternatives for the standard study entrance test:?
    - You provide a proof of your English proficiency together with a certificate proving that you have taken part in the (semi-)finals of an international Computer Science competition (such as IOI).
    - You will take part in an oral study entrance test (interview) on site in Saarbrücken. The number of places for this oral entrance test may be limited. If you wish to take part in the interview, you must have submitted **your application by 15 June at the latest**

Please find recent information about the accepted tests and certificates in these FAQs.

Once you have been admitted to Saarland University, you will receive a letter of admission. The further procedure is regulated in the admission letter.

CISPA

In Strategic Collaboration with CISPA

CISPA Helmholtz Center for Information Security is a German national Big Science Institution within the Helmholtz Association. Our research encompasses all aspects of Information Security. Research at CISPA feeds into the curriculum of the degree programs in Cybersecurity at Saarland University, ensuring that seminars and lectures will cover the very latest research topics. Cybersecurity is a young and fast-developing field. As a Helmholtz Center for Information Security, CISPA is dedicated to cutting-edge foundational research combined with innovative application-oriented research in the fields of Cybersecurity and Privacy. We are committed to the highest international academic standards. Our world-class research environment offers extensive

resources to a wide range of researchers, thus providing an attractive destination for talented academics and top scientists from around the globe.

Place of study

Why Saarbruecken?

Our Computer Science courses are rated as excellent in CHE rankings. There are no tuition fees and the cost of living in a smaller city with a vibrant cultural scene is moderate. Sounds too good to be true? Saarland University's study courses are state-funded so there are no tuition fees for bachelor' and consecutive master's degreee courses. Students only have to pay an administrative fee of €286 per semester. This includes a pass for free public transport throughout the state of Saarland, payment of premiums for insurance coverage as well as access to university facilities that entitles students to eat at the university canteens at reduced prices.

Situated in the region where the borders of France, Luxembourg, and Germany meet, everyday life in Saarland has traditionally been international in character. Investigate our Center for International Students.

Five more reasons to live and study in Saarbruecken or its surroundings:

1. The open and down-to-earth nature of the people from Saarland (the Saarländers) has always made it easy for newcomers to settle in quickly. Whether you come from Germany, an EU country or other regions of the world - you are always welcome in Saarland!
2. Saarland is located in the heart of Europe. In only 1h and 50 minutes, you can reach Paris by train and we have 4 international airports within easy reach. (Saarbrücken, Luxembourg, Frankfurt-Main, and Frankfurt-Hahn)
3. Saarland is green! It has the highest proportion of public forest with over 70% and the most natural forest in Germany. It can come up with no less than 3,545 kilometres of rivers and creeks. So: go out into nature, recharge your batteries, and simply leave the stress of everyday life behind you. With its varied landscapes and extensive forests, Saarland is the number one address for health-conscious people from everywhere.
4. We love festivals and one event follows another, no matter if you are looking for street food, French-German theater, rock music or classical music: everyone finds an event matching his or her own taste. The festival year begins in Saarbrücken with the Max Ophüls festival for talented German-language filmmakers, which marks the discovery of young talents from Austria, Germany and Switzerland for 36 years. It is followed in early summer by the PERSPECTIVES festival with theatre, acrobatics, dance and performance and in summer, there are several open-air events.
5. We are enthusiastic about sports! No surprise, because there could not be a better framework. More than 390,000 people take part in sports in app. 2,200 Saarland clubs. With 40 percent of the population, the state is the absolute leader in a nationwide comparison. Popular sports include hiking, cycling, running, tennis, horseback riding, etc.

Informatik