Saarland Informatics Campus

Welcome for Master Students in Cybersecurity

Dr.-Ing. Sven Bugiel | October 23, 2023
About SIC (as per October 2023)

- 5 informatics institutes and 3 collaborating departments on campus
- Around 2,500 students from more than 81 countries
- 77 research groups, 300 doctoral candidates
- ~ 900 scientists at SIC
- 24 informatics study programs, 16 research fields
- 6 Konrad Zuse Medals, 30+ ERC Grants, 7 Leibniz Awards
- 4 Collaborative Research Centres

More about us:
https://saarland-informatics-campus.de/en/ueberuns-aboutus/
About CISPA

• (my employer 😊)
• Helmholtz Center for Information Security
  □ 40+ faculty and senior researchers
  □ 200+ doctoral/postdoctoral researchers focused on Cybersecurity topics
  □ 60+ Hiwi students
  □ Top place for academic research
  □ Heavily involved in teaching MSc CySec
About CISPA: Our Faculty

RA1: Algorithmic Foundations & Cryptography
- Brandt
- Döttling
- Hanzlik
- Joux
- Loss
- Marx
- Döttling
- Boens
- Burkholz
- Dziedzic
- Fritz
- Lueks
- Muandet
- Stich
- Vreeken
- X. Zhang
- Y. Zhang
- Boenisch
- Finkbeiner
- Golia
- Jacobs
- Lueks
- Stich
- Vreeken
- X. Zhang
- Y. Zhang

RA2: Trustworthy Information Processing
- Backes
- Boens
- Burkholz
- Dziedzic
- Fritz
- Lueks
- Muandet
- Stich
- Vreeken
- X. Zhang
- Y. Zhang

RA3: Reliable Security Guarantees
- Cremers
- Dimitrova
- Holz
- Schönherr
- Schwarz
- Zeller
- Jacobs
- Jacobs
- Jacobs

RA4: Threat Detections & Defenses
- Abbasi
- Bugiel
- Rossow
- Singh
- Tippenhauer

RA5: Secure Connected and Mobile Systems
- Finkbeiner
- Golia
- Schwarz
- Zeller
- Jacobs
- Jacobs
- Jacobs

RA6: Empirical and Behavioral Security
- Abbas
- Bugiel
- Rossow
- Singh
- Tippenhauer
- Pellegrino
- Staicu
Your Studies at Saarland University
Winter term 2023

On October 23, Saarland University will start lectures for the winter semester of 2023.

Information about courses and tutorials is provided on the web pages of the lecturers and the LSF / HISPOS
https://www.lsf.uni-saarland.de/
Study Regulations 2021 for Master of Cybersecurity

Read your study documents carefully!

Examination regulations, subject-specific regulations, and study regulations: Check the website for the joint examination offices of all faculties of Natural Sciences and Technology

You must know your rights and duties as a student!

https://www.ps-mint.uni-saarland.de/en/programmes/cybersecurity
Study Regulations 2021 for Master’s programme Cybersecurity

1. **27 graded** credits **core lectures** in computer science
   - Security and Cryptography are mandatory subjects (unless already taken; then you cannot take them)

2. **30–34 graded** credits **core lectures in Computer Science, advanced lectures in Cybersecurity, or seminar** in Cybersecurity (here: at most one seminar!)
   - Note: not proseminars (only BSc students)

3. **7 graded** credits in the category of **seminars** in computer science

4. At least **14 ungraded credits** must be acquired by:
   - Further courses in computer science (usually 6-9 CP), Master practical training (6 CP each) in research groups at the CS department
   - Internship in a company (max. 6 CP); approved by the examination board
   - Leading a tutorial (tutor, typically 4 CP), Language courses (max. 6 CP, living language)
   - Courses from other departments, which have been applied for and approved by the examination board (e.g., in mathematics, business informatics, or computer linguistics)

5. **12 graded** credits for the **Master’s seminar** and **30 CP** for the **Master’s thesis**
## Suggested schedule for MSc Cybersecurity

<table>
<thead>
<tr>
<th>Semester</th>
<th>Course 1 (CP)</th>
<th>Course 2 (CP)</th>
<th>Course 3 (CP)</th>
<th>Course 4 (CP)</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Security (9)</td>
<td>Core Lecture (9)</td>
<td>Advanced Lecture Cyber Security (6)</td>
<td>Advanced Lecture Cyber Security (6)</td>
<td>30</td>
</tr>
<tr>
<td>2</td>
<td>Cryptography (9)</td>
<td>Advanced Lecture Cyber Security (6)</td>
<td>Seminar CySec (7)</td>
<td>Mandatory Elect (8)</td>
<td>30</td>
</tr>
<tr>
<td>4</td>
<td>Master’s Thesis (30)</td>
<td></td>
<td></td>
<td></td>
<td>30</td>
</tr>
</tbody>
</table>
Example Course List: All our core courses (offered at least every two years)

Algorithms and Data Structures
Artificial Intelligence
Automated Reasoning
Compiler Construction
Complexity Theory
Computational Logic
Computer Algebra
Computer Architecture
Computer Graphics
Cryptography
Data Base Systems
Data Networks
Distributed Systems
Embedded Systems
Geometric Modelling
Human Computer Interaction
Image Processing and Computer Vision
Information Retrieval and Data Mining
Machine Learning
Operating Systems
Optimization
Security
Semantics
Software Engineering
Telecommunications
Verification
Course catalogue (#1: LSF)

How to choose a lecture – for example: a core lecture

Faculty Mathematics and Computer Science

Courses on Computer Science

https://www.lsf.uni-saarland.de/qisserver/rds?state=wtree&search=1&trex=step&root120232=356732%7C367629%7C361398%7C360426%7C361978&P.vx=kurz
# Course catalogue (#2: CISPA CMS)

## How to choose a lecture – example: in Cybersecurity

[https://cms.cispa.saarland](https://cms.cispa.saarland)

### Winter term 2023/2024

<table>
<thead>
<tr>
<th>Course</th>
<th>Instructor(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Games in Machine Learning</strong></td>
<td>Tatjana Chavdarova, Sebastian Stich</td>
</tr>
<tr>
<td><strong>Machine Learning in Cybersecurity</strong></td>
<td>Mario Fritz</td>
</tr>
<tr>
<td><strong>Mobile Security</strong></td>
<td>Sven Bugiel</td>
</tr>
<tr>
<td><strong>Robustness in Machine Learning</strong></td>
<td>Xiao Zhang</td>
</tr>
<tr>
<td><strong>Security Testing</strong></td>
<td>Andreas Zeller</td>
</tr>
<tr>
<td><strong>Side-Channel Attacks and Defenses</strong></td>
<td>Michael Schwarz</td>
</tr>
<tr>
<td><strong>Systems Security</strong></td>
<td>Ali Abbasi, Thorsten Holz</td>
</tr>
<tr>
<td><strong>Elements of Machine Learning</strong></td>
<td>Krikamol Muandet and Jilles Wreeken</td>
</tr>
<tr>
<td><strong>Foundations of Cybersecurity 1</strong></td>
<td>Ben Stock</td>
</tr>
<tr>
<td><strong>Security</strong> (WS 2023/2024)</td>
<td>Thorsten Holz</td>
</tr>
<tr>
<td><strong>Verification</strong></td>
<td>Bernd Finkbeiner</td>
</tr>
<tr>
<td><strong>Perspectives of Entrepreneurial Cybersecurity</strong></td>
<td>Sven Bugiel, Giancarlo Pellegrino</td>
</tr>
<tr>
<td><strong>Cybersecurity Lab</strong></td>
<td>Ben Stock</td>
</tr>
<tr>
<td><strong>CySec Project Winter Term '23/24</strong></td>
<td>CISPA</td>
</tr>
<tr>
<td><strong>Decision Procedures for Verification and Synthesis</strong></td>
<td>Rayna Dimitrova</td>
</tr>
<tr>
<td><strong>Usable Security Research to Enhance Online Child Protection</strong></td>
<td>Carolyn Guthoff, Katharina Krombholz</td>
</tr>
<tr>
<td><strong>Wireless and Mobile Security</strong></td>
<td>Mrudula Singh</td>
</tr>
<tr>
<td><strong>Advanced Theory of Secure Messaging</strong></td>
<td>Cas Cremers</td>
</tr>
<tr>
<td><strong>An Extravaganza of Algorithmic Models</strong></td>
<td>Sebastian Brandt, Alexandre Nolin</td>
</tr>
</tbody>
</table>

- **Complexity of Games**
  Seminar - Dániel Marx, Tim Hartmann
- **Machine Learning Security Reproducibility**
  Seminar - Lea Schönherr
- **Mining Input Structures**
  Seminar - Rafael Dutra + Andreas Zeller
- **New Developments in PETS**
  Seminar - Wouter Lueks
- **Privacy of Machine Learning**
  Seminar - Yang Zhang
- **Pruning deep neural networks for lottery tickets**
  Seminar - Rebekka Burkholz
- **Static Program Analysis Lab**
  Seminar - Jordan Samhi + Andreas Zeller
- **The Web Security Seminar**
  Seminar - Aurore Fass, Giancarlo Pellegrino, Cristian-Alexandru Staicu, Ben Stock
Course catalogue (#3: Seminars)

IMPORTANT: MANDATORY SEMINAR BIDDING & REGISTRATION DEADLINE ON OCT 24 23:59!

https://seminars.cs.uni-saarland.de

Seminar Assignment Winter 2023/2024

The central registration for all computer science seminars will open on September 22nd.

This system is used to distribute students among the available seminars offered by the CS department. To register for any of the seminars, you have to register here until October 24th 23:59 CET. You can select which seminar you would like to take, and will then be automatically assigned to one of them on October 26th.
Control of progress

Full-time students are expected to deliver the following minimum requirements in the Master course of study:
• At least 9 credits after 1 semester
• At least 30 credits after 2 semesters
• At least 60 credits after 4 semesters
• At least 90 credits after 6 semesters

In case a student does not meet the minimum requirements for the second time, he/she shall lose the right to participate in examinations.

Students shall be given the opportunity to make a written statement before the examination board makes the final decision in the matter.
Examination registration

Please notice: For all examinations, you must register in LSF **one week before** the exam at the latest (final exam and/or re-exam)! **A delayed registration is not allowed!**
A withdrawal is possible **one week** before the exam at the latest; later only with a medical certificate!

For some courses, e.g., seminars, you also must register **before the course starts** (limited number of participants): Please have a look at the respective website because of the conditions for registration.

Seminar registration: [https://seminars.cs.uni-saarland.de/](https://seminars.cs.uni-saarland.de/)
A withdrawal from a seminar registration is only possible three weeks after getting the topic for presentation.

Problems? Please contact the study coordination!
YOUR STUDIES

Contacts (1/2)

**Computer Science Students‘ Representative Council**
Students of different study programmes
E1.3, Raum 107
https://cs.fs.uni-saarland.de/en/

**Study Coordinators: Dr. Tanja Breinig and Barbara Schulz-Brünken**
Assistance in your study organisation and progress:
• questions about the examination and study regulations
• academic or personal problems
• information about exchange semesters, etc.

Building E1.3, rooms 209 and 207
**Office hours:** Tuesday and Thursday, 11 a.m.-1 p.m.: Please book your online appointment via MS Teams: https://www.uni-saarland.de/en/department/department-of-computer-science/department.html
**Emails to:** studium@cs.uni-saarland.de
Contacts (2/2)

**Examination office:** Administration and processing of your programme achievements:
- Transcript of record
- registration master thesis
- official certificates
- recognition of external academic achievements, etc.

Building E1.3, room 202

**Office hours:** information on website:
Emails to: contact person according to degree programme

**SIC System Administration:** [https://it.cs.uni-saarland.de/](https://it.cs.uni-saarland.de/)
Enjoy your studies!
saarland-informatics-campus.de