saarland-informatics-campus.de

# MSc Data Science & Artificial Intelligence
# WELCOME

UNIVERSITÄT
DES
SAARLANDES

SIC Saarland Informatics Campus

**Winter Semester, 06.10.2025**
**Isabel Valera**

SIC Saarland Informatics Campus

# Program Objectives and Career Opportunities

- Prepare students for demanding national and international **research and development activities** in DSAI.
- Graduates become **highly qualified professionals** for careers in industry, research, and business sectors
- Foundations from mathematics and statistics to machine learning, artificial intelligence, big data, data management, modelling and simulation or data visualization.
- Career skills development (communication, teamwork, self-learning)

# Comprehensive Support and International Environment

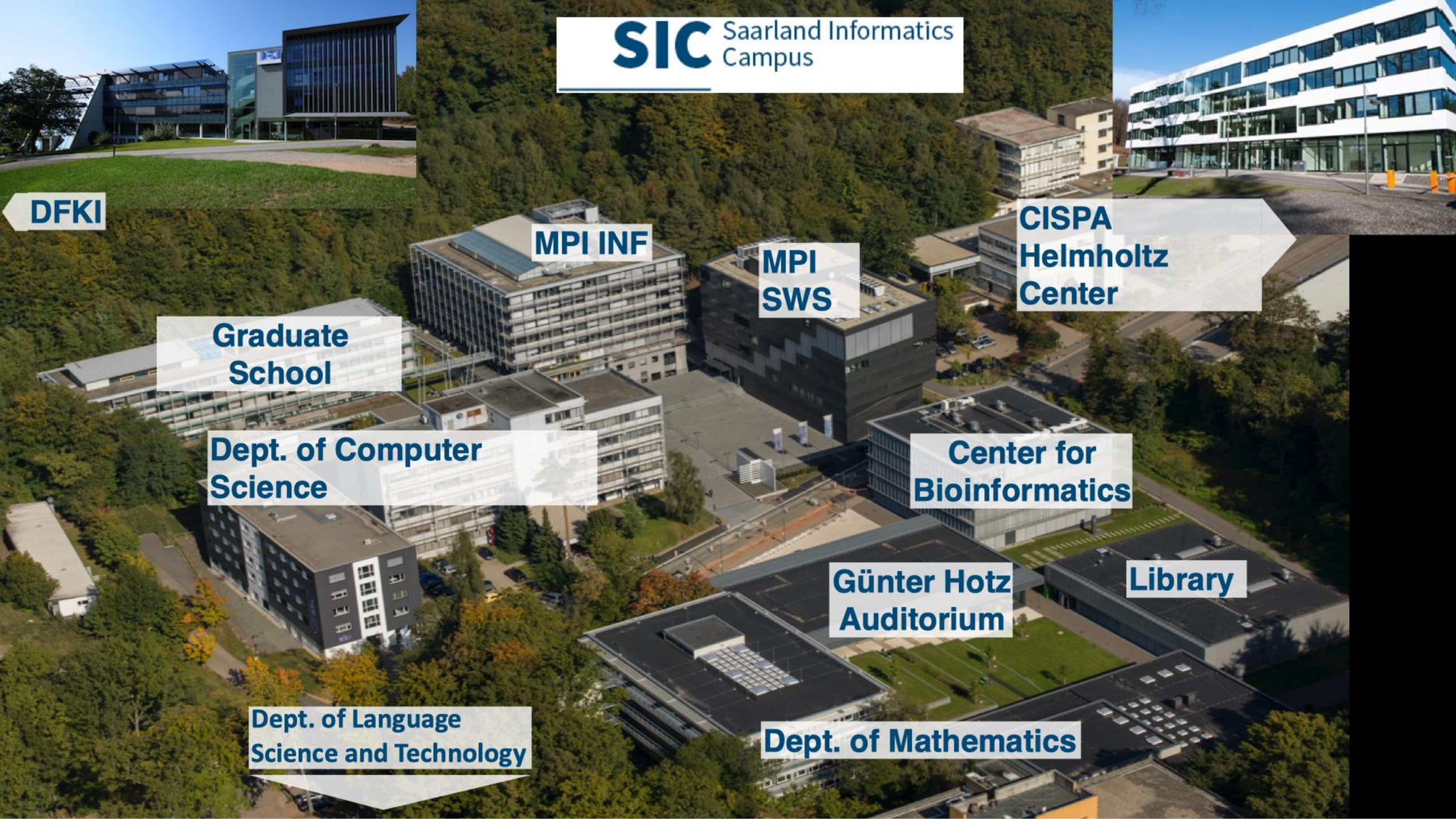
Flexible study plan with diverse elective opportunities, preparing students comprehensively for global careers

Clear guidance provided through structured academic advising and explicit guidelines on scientific integrity, fostering a responsible, ethical, and professional academic community

# Strong Emphasis on Research and Innovation

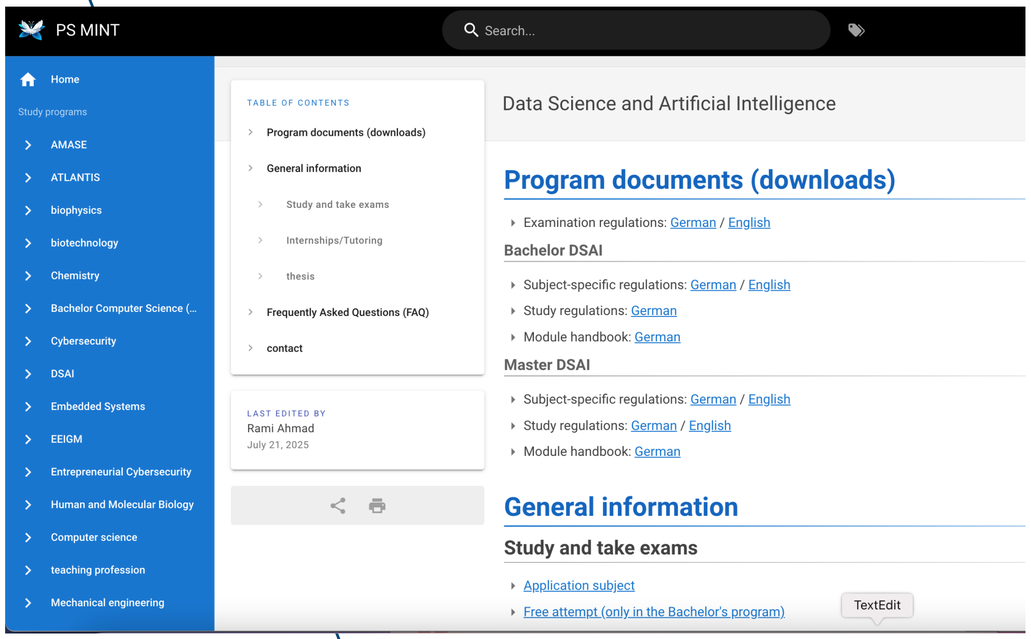
The program is integrated with world-leading research institutions, such as DFKI, MPIs, and CISPA, allowing students to engage in state-of-the-art research projects

Students graduate with advanced competencies in scientific methodologies, innovation, and original research

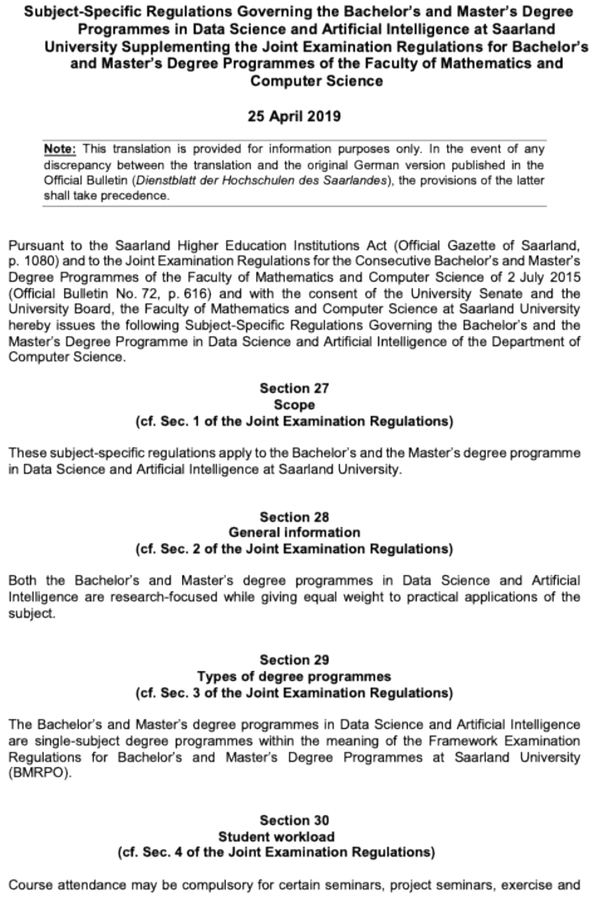

SIC Saarland Informatics Campus
DFKI
MPI INF
MPI SWS
CISPA Helmholtz Center
Graduate School
Dept. of Computer Science
Center for Bioinformatics
Günter Hotz Auditorium
Library
Dept. of Language Science and Technology
Dept. of Mathematics

SIC Saarland Informatics Campus

# Regulations




https://www.ps-mint.uni-saarland.de/de/programmes/dsai



**Subject-Specific Regulations Governing the Bachelor's and Master's Degree Programmes in Data Science and Artificial Intelligence at Saarland University Supplementing the Joint Examination Regulations for Bachelor's and Master's Degree Programmes of the Faculty of Mathematics and Computer Science**

**25 April 2019**

**Note:** This translation is provided for information purposes only. In the event of any discrepancy between the translation and the original German version published in the Official Bulletin (*Dienstblatt der Hochschulen des Saarlandes*), the provisions of the latter shall take precedence.

Pursuant to the Saarland Higher Education Institutions Act (Official Gazette of Saarland, p. 1080) and to the Joint Examination Regulations for the Consecutive Bachelor's and Master's Degree Programmes of the Faculty of Mathematics and Computer Science of 2 July 2015 (Official Bulletin No. 72, p. 616) and with the consent of the University Senate and the University Board, the Faculty of Mathematics and Computer Science at Saarland University hereby issues the following Subject-Specific Regulations Governing the Bachelor's and the Master's Degree Programme in Data Science and Artificial Intelligence of the Department of Computer Science.

**Section 27**
**Scope**
**(cf. Sec. 1 of the Joint Examination Regulations)**

These subject-specific regulations apply to the Bachelor's and the Master's degree programme in Data Science and Artificial Intelligence at Saarland University.

**Section 28**
**General information**
**(cf. Sec. 2 of the Joint Examination Regulations)**

Both the Bachelor's and Master's degree programmes in Data Science and Artificial Intelligence are research-focused while giving equal weight to practical applications of the subject.

**Section 29**
**Types of degree programmes**
**(cf. Sec. 3 of the Joint Examination Regulations)**

The Bachelor's and Master's degree programmes in Data Science and Artificial Intelligence are single-subject degree programmes within the meaning of the Framework Examination Regulations for Bachelor's and Master's Degree Programmes at Saarland University (BMRPO).

**Section 30**
**Student workload**
**(cf. Sec. 4 of the Joint Examination Regulations)**

Course attendance may be compulsory for certain seminars, project seminars, exercise and

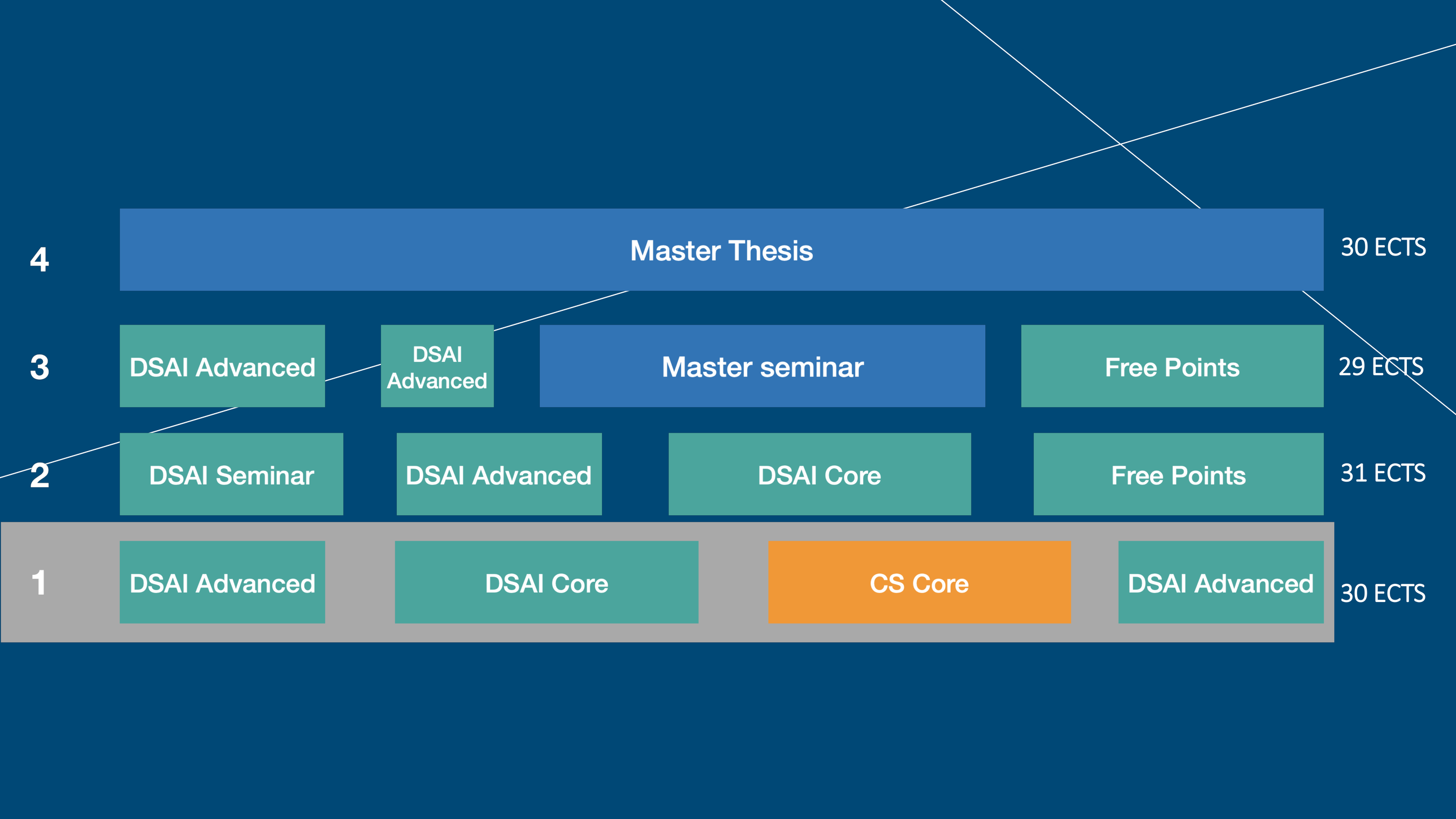
# Program Structure & Duration

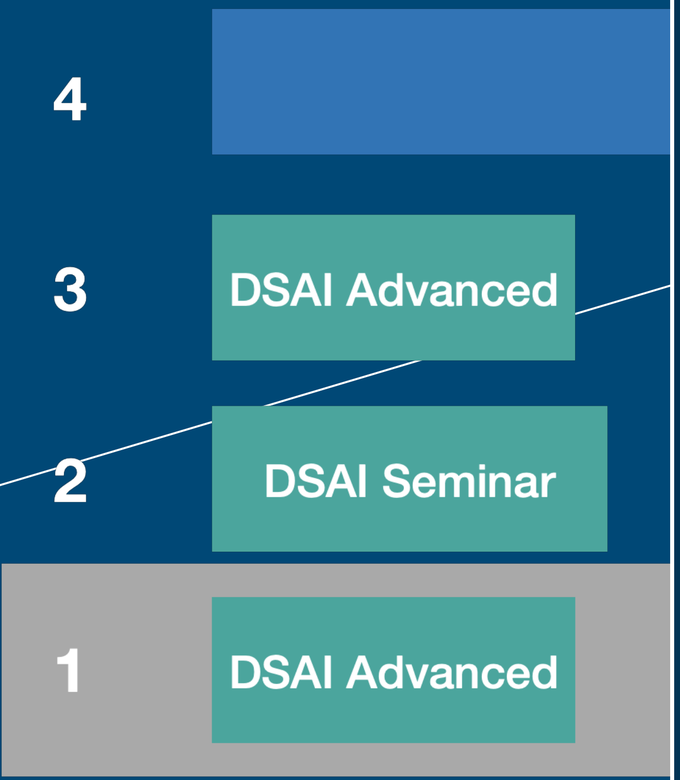
- Duration: 4 semesters
- Total credits: 120 ECTS

- **Mandatory elective modules** (total at least 78 ECTS):
  - Min of 18 ECTS in DSAI Core lectures
  - 9 CP core lectures in 'Informatics'
  - 27–31 CP in DSAI core lectures, advanced lectures or seminars
  - Min 7 ECTS in DSAI seminars

- **Freely selectable modules** (at least 17 credits ungraded):
  - Language courses
  - Tutoring
  - Soft skills
  - Internships, etc.

- **Compulsory modules:**
  - Master's Seminar (12 ECTS)
  - Master’s Thesis (30 ECTS)


4
Master Thesis
30 ECTS
3
DSAI Advanced
DSAI Advanced
Master seminar
Free Points
29 ECTS
2
DSAI Seminar
DSAI Advanced
DSAI Core
Free Points
31 ECTS
1
DSAI Advanced
DSAI Core
CS Core
DSAI Advanced
30 ECTS




# Credit Points Calculation

- 1 CP = 30 hours of work
- 30 CP = 900 hours of work
- 900/40* = 22.5 weeks of *full-time* work

* Assuming 40 hours of work per week

Course catalog (winter semester 2025/26)

- Course catalog
  - MI Faculty of Mathematics and Computer Science
    - Computer science
      - Data Science and Artificial Intelligence degree program
        - master
          - Core lectures from the DSAI area

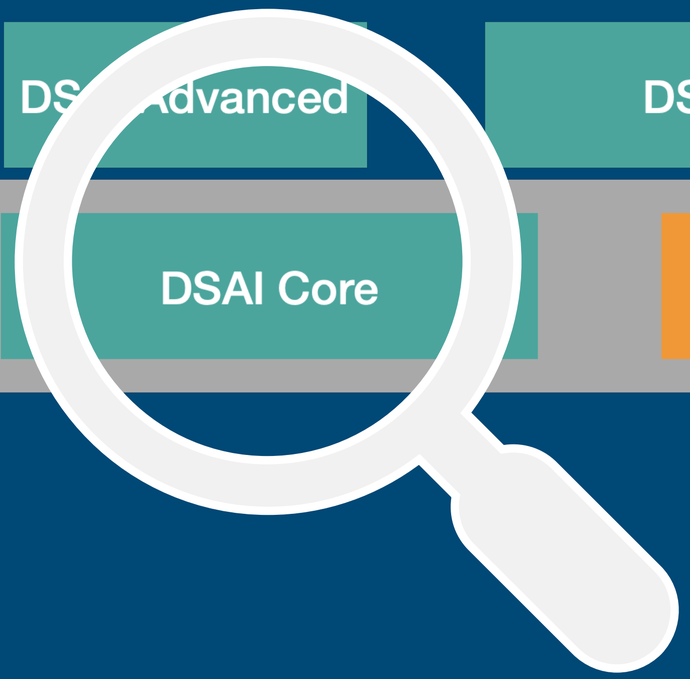
| VAT number | Event | VAT type | action |
|---|---|---|---|
| 159923 | Artificial Intelligence - Hoffmann | Lecture / Exercise | |
| 159924 | Automated Reasoning - Waldmann | Lecture / Exercise | |
| 159931 | Neural Networks: Theory and Implementation - Klakow | Lecture / Exercise | |
| 160071 | Randomized and Approximation Algorithms - Na Nongkai | Advanced lecture | |

4

3 DSAI Advanced | DSAI Advanced

2 DSAI Seminar | DS Advanced | DSAI Core | Free Points — 31 ECTS

1 DSAI Advanced | DSAI Core | CS Core | DSAI Advanced — 30 ECTS



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30 ECTS

3

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Free Points

29 ECTS

2

DSAI Semir

DSAI C

Free Points

31 ECTS

1

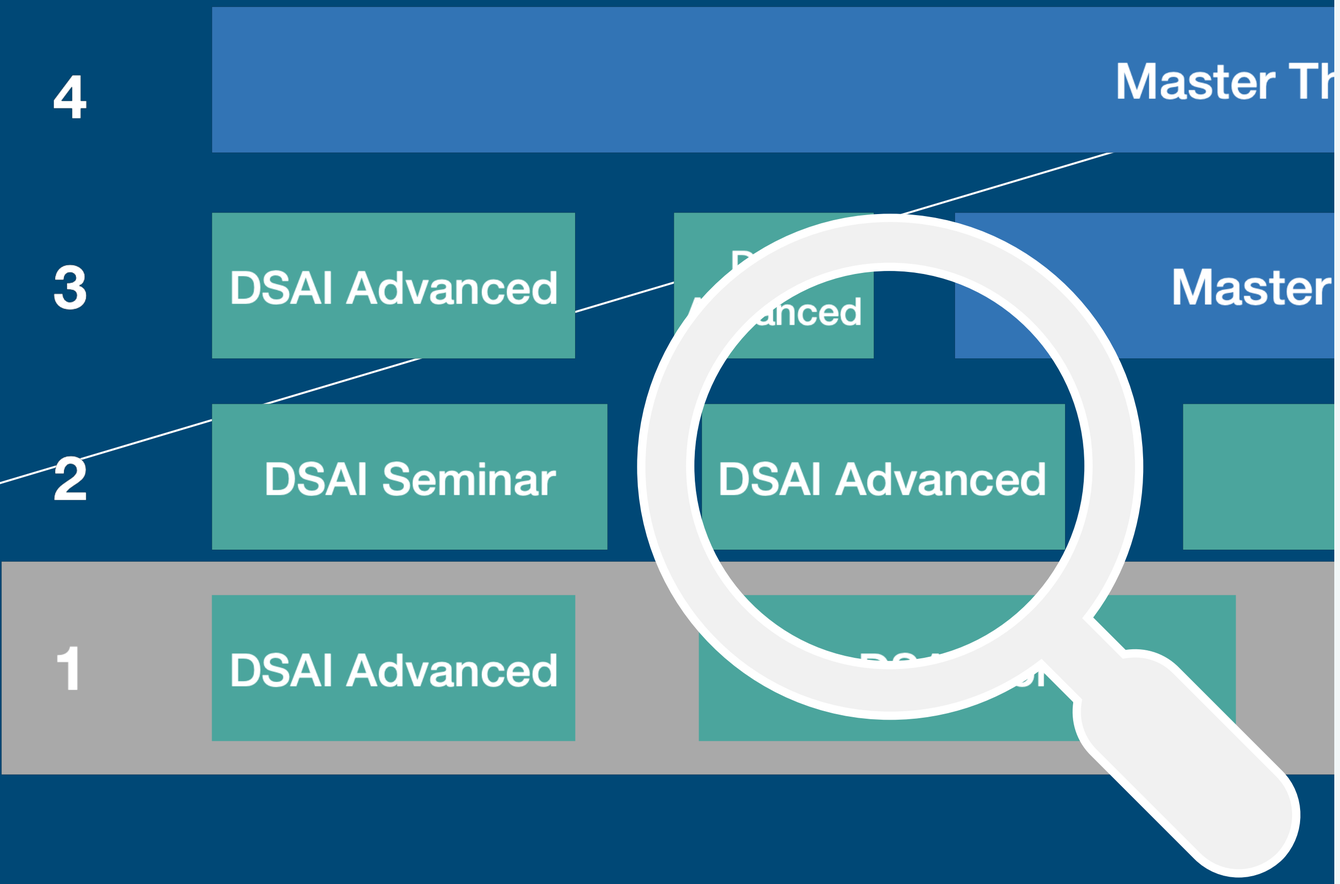
DSAI Advanc

CS Core

DSAI Advanced

30 ECTS

| Lect.-No. | Lecture |
|---|---|
| 159833 | Digital Transmission, Signal Processing - Herfet |
| 159923 | Artificial Intelligence - Hoffmann |
| 159924 | Automated Reasoning - Waldmann |
| 159925 | Computer Graphics - Slusallek |
| 159926 | Semantics - Dreyer |
| 159927 | Human Computer Interaction - Steimle , Feit |
| 159928 | Security - Tippenhauer |
| 159929 | Software Engineering - Apel |
| 160382 | Compiler Construction - Hack |




**Advanced Lectures DSAI**

| Lect.-No. | Lecture |
|---|---|
| 158655 | Statistics with R - Demberg , Ellsiepen , Pissani |
| 159834 | Audio/Visual Communication and Networks (Telecommunications 2) - Herfet |
| 159845 | Quantum Artificial Intelligence - Klusch , Macaluso |
| 159850 | Reinforcement Learning - Wolf |
| 159928 | Security - Tippenhauer |
| 159932 | Differential Equations in Image Processing and Computer Vision - Weickert , Mitarbeitende des Lehrstuhls |
| 159933 | Elements of Machine Learning - Valera Martinez |
| 160320 | Image Acquisition Methods - Peter |
| 160321 | Side-Channel Attacks and Defense - Schwarz |
| 160322 | Mobile Security - Bugiel |
| 160324 | Security Testing - Zeller |
| 160325 | Formal analysis of real-world security protocols - Cremers |
| 160326 | Machine Learning in Cybersecurity - Fritz |
| 160329 | Interpolation and Approximation for Visual Computing - Weickert , Chizhov |
| 160330 | 3D and 4D Computer Vision - Golyanik |
| 160398 | Program Analysis - Reineke |
| 160499 | Stochastics II - Bender , Mitarbeitende des Lehrstuhls |
| 160842 | Non-smooth Analysis and Optimization in Data Science - Ochs , Mitarbeitende des Lehrstuhls |

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3

2

1

DSAI Advanced

DSAI Seminar

30 ECTS

29 ECTS

31 ECTS

30 ECTS

## Seminars DSAI

| Lect.-No. | Lecture |
|---|---|
| 158613 | Machine Learning for Language Processing - Klakow |
| 160400 | Legal Tech und eJustice - Sorge |
| 160409 | Theoretical Abilities and Limitations of Language Models - Hahn , Huang |
| 161032 | AI Safety - Zhang |
| 161081 | Trusted AI Planning (TAIP) - Hoffmann |
| 161136 | Deep Probabilistic Generative Models - Valera Martinez , Martínez García |
| 161340 | Deep Learning Efficiency: Smarter AI, Not Just Bigger - Burkholz |
| 161341 | Explainable Reinforcement Learning on GPUs - Krüger , Mitarbeitende des Lehrstuhls , Kiefer |
| 161454 | Advances in Hybrid Artificial Intelligence - Klusch , Nonnengart , Meyer-Vitali |
| 161457 | Living "AI-Education" Dashboard - Malone , Nagashima |
| 161458 | Current Research in Databases - Dittrich |
| 161459 | Trustworthy Agentic Systems - Schönherr |
| 161460 | Data and Society - Weber , Koebe |
| 161464 | Explainable Machine Learning Seminar (ExML) - Schiele , Fischer |
| 161465 | Milestones in Machine Learning and Language: Historical Readings - Hahn , Sarrof |
| 161477 | Trustworthy Machine Learning - Zeller , Dziedzic |
| 161478 | Differential Privacy in the Era of Foundation Models - Stock , Boenisch |
| 161480 | Inpainting-Based Image Compression - Weickert |
| 161481 | Adaptive User Interfaces for Mixed Reality - a practical research seminar - Feit |
| 161482 | Seminar Foundations of Flow Matching for Generative Modelling - Ochs |
| 161484 | The Humans of Computing: Past, Present and Future - Fiebig |
| 161487 | Generative AI for Education - Singla |
| 161488 | Topics in Optimization for Machine Learning - Stich |
| 161489 | Efficient Training of Large Language Models - Gummadi |
| 161498 | Machine Learning Approaches for Building Virtual Cell Models - Keller , Fischer |
| 161638 | Optimal Control - Maggio |

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3 DSAI Advanced

2 DSAI Seminar

1 DSAI Advanced

UNIVERSITÄT DES SAARLANDES

HIS LSF POS

Hinweis: Der vollständige Funktionsumfang ist nur aus dem Uninetzwerk bzw. mit VPN nutzbar

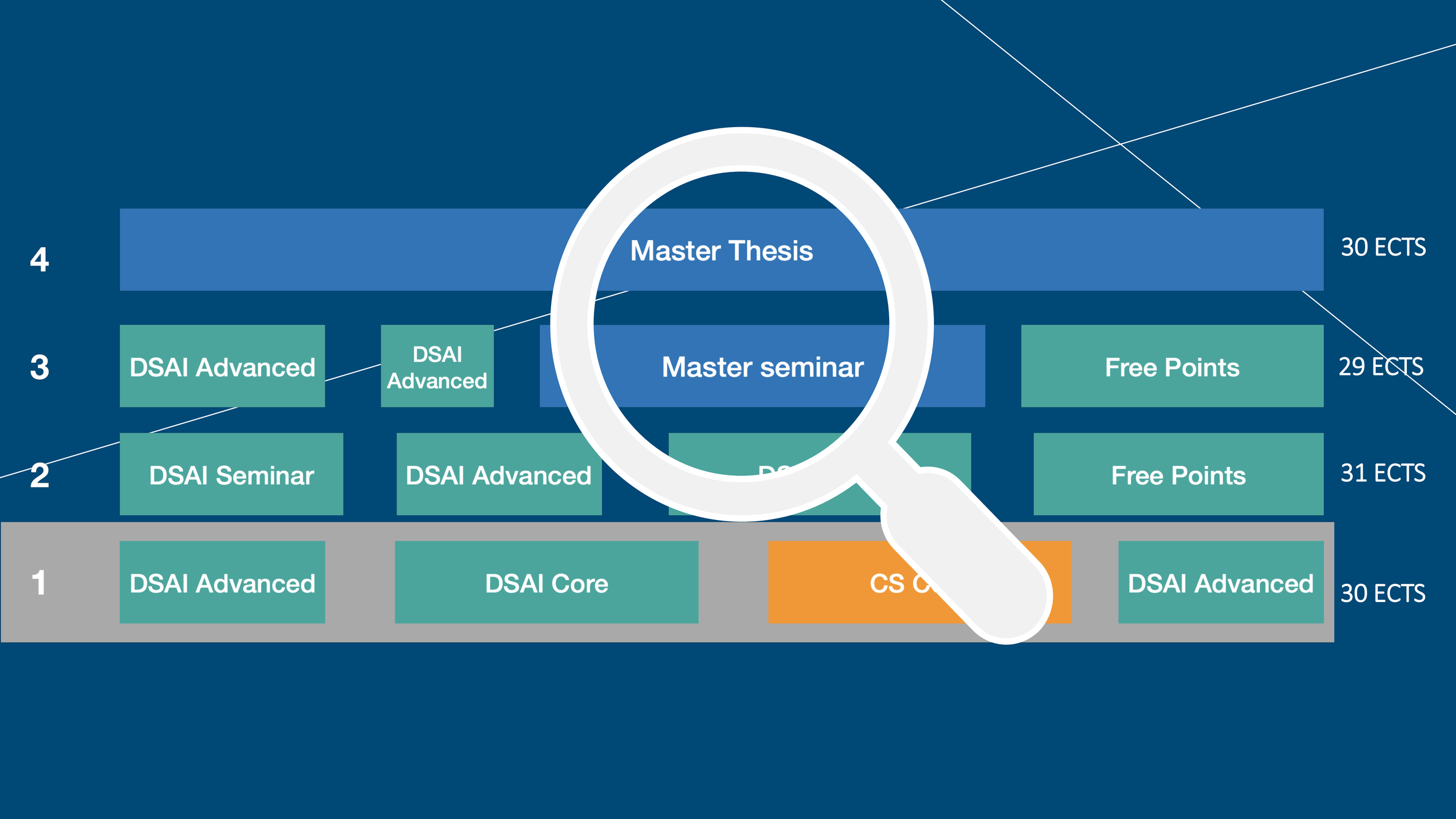
Home | Login | Winter 2025/26 | / | Sitemap

Student's Corner | Courses | Facilities | Members

## Course Overview (WiSe 2025/26)

- Vorlesungsverzeichnis
  - Mathematics and Computer Science
    - Computer Science
      - Courses on Data Science and Artificial Intelligence
        - Master
          - Core Lectures DSAI
          - Core Lectures Computer Science
          - Advanced Lectures DSAI
          - Seminars DSAI
          - Mandatory Elective Courses (Freely chosen points)

Core Lectures DSAI öffnen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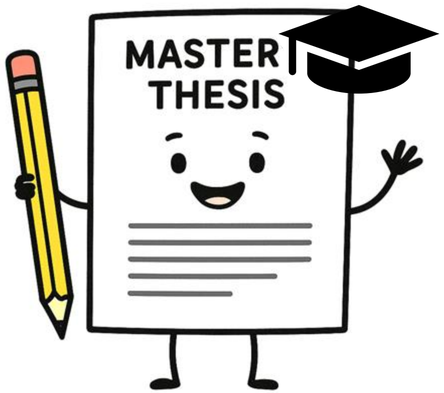
# Master seminar & Master thesis




## Master Seminar (12 ECTS)

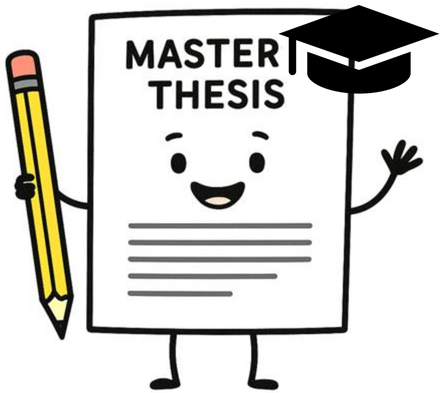
Objective: Prepares students for their Master's Thesis by introducing them to independent research and topic presentation

Presentation:

- Students must give an oral presentation clearly outlining their intended thesis topic
- *The seminar presentation is graded*

Timeline: The Master's thesis topic must be registered after successfully completing the Master Seminar

# Master seminar & Master thesis




## Master Thesis (30 ECTS)

Objective: Demonstrates the student's ability to independently solve complex problems in *DSAI* through original scientific work

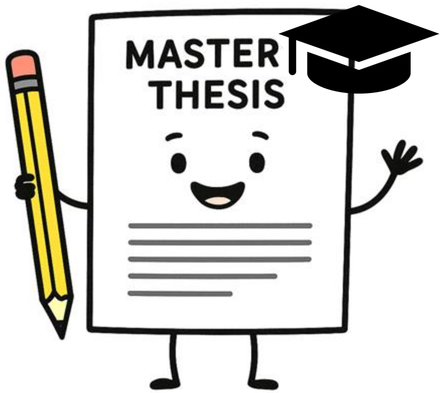
Duration: The thesis must be completed within six months after official registration

Colloquium: A mandatory 30-minute colloquium (oral defense) must be completed to validate the thesis as the student's own original work

Assessment and Grading: The thesis is graded, significantly contributing to the overall Master's degree grade

# Master seminar & Master thesis

Start looking for a Thesis supervisor and topic well in advanced (e.g., 1 semester before the start)!




Assessment and Grading: The thesis is graded, significantly contributing to the overall Master's degree grade

# Welcome!

SIC Saarland Informatics Campus

UNIVERSITÄT DES SAARLANDES

CBI CENTER FOR BIOINFORMATICS

M2CI CLUSTER OF EXCELLENCE

CISPA HELMHOLTZ CENTER FOR INFORMATION SECURITY

DFKI German Research Center for Artificial Intelligence

mpii max planck institut informatik

MAX PLANCK INSTITUTE FOR SOFTWARE SYSTEMS