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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

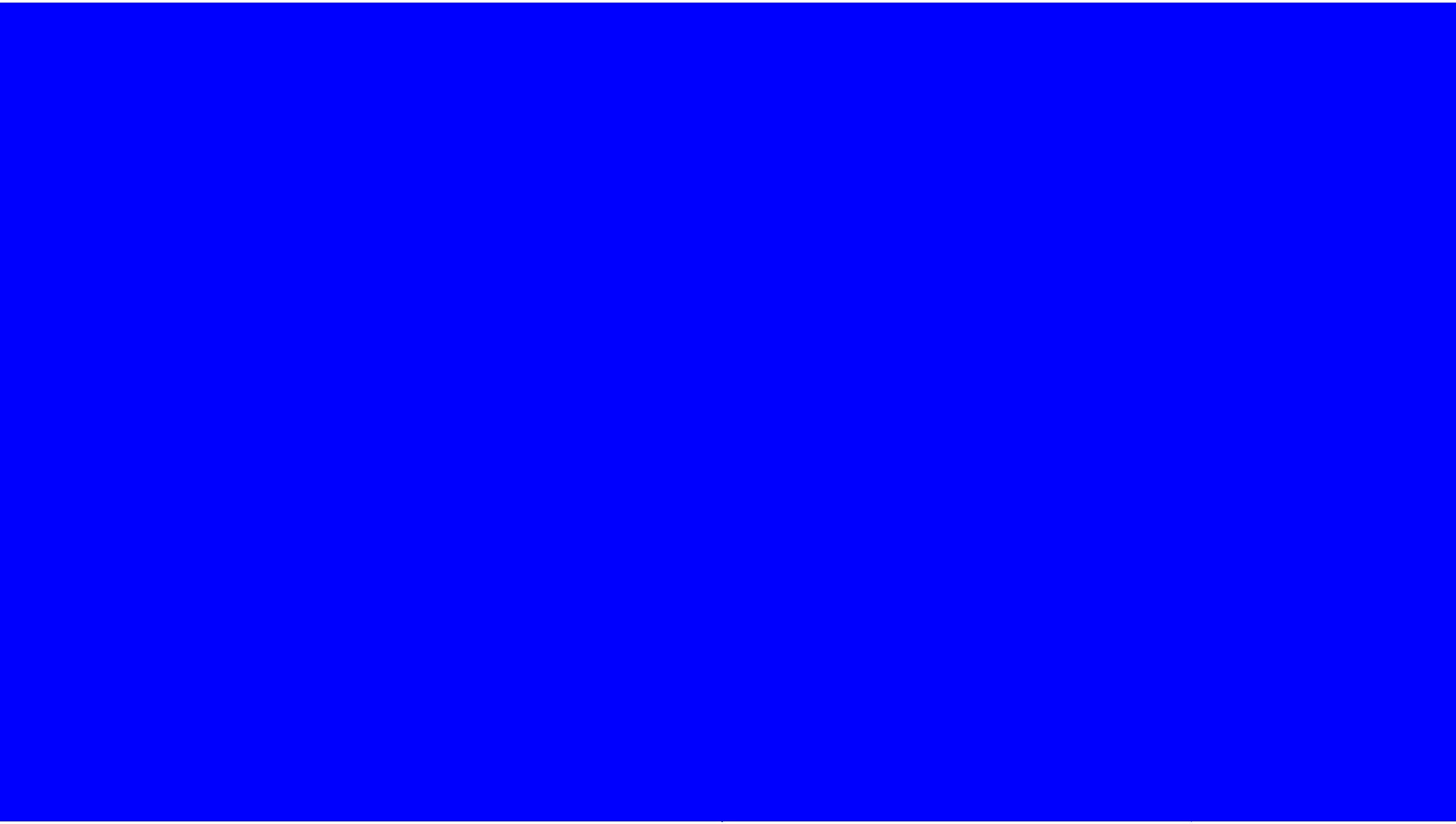
Flexible study plan with diverse elective opportunities, preparing students comprehensively for global careers

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



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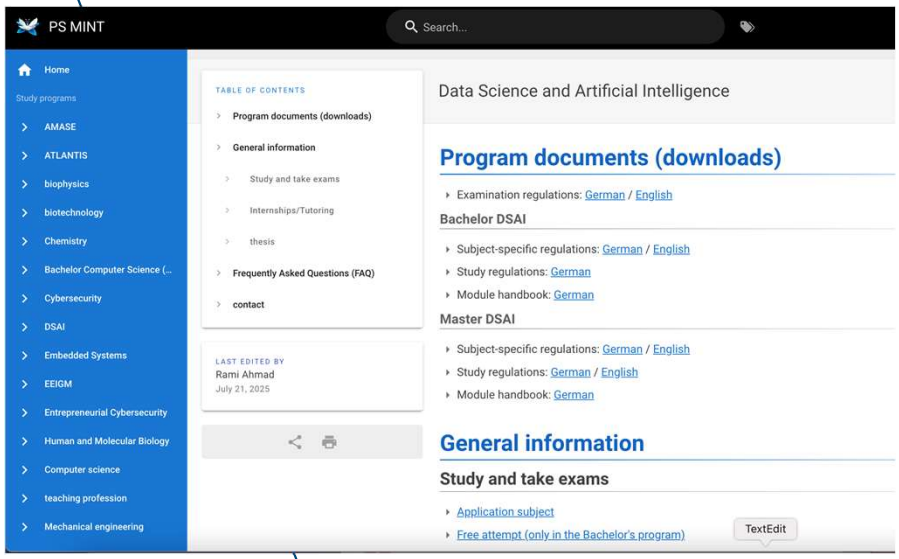
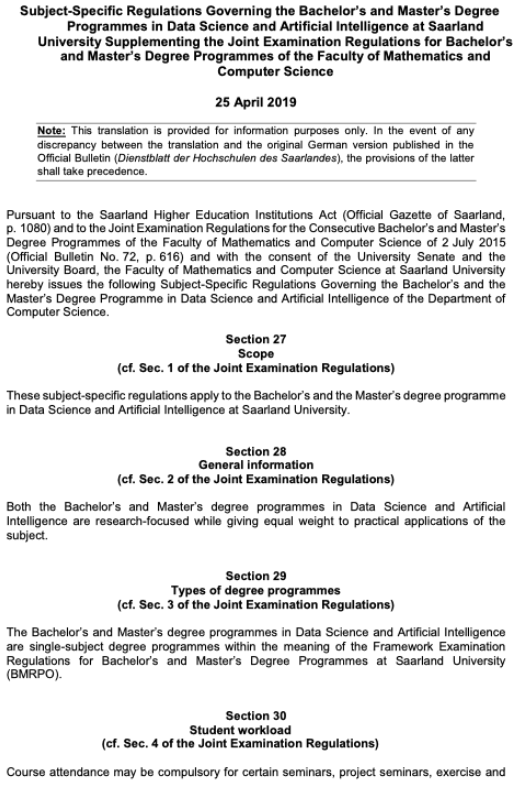
Regulations



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

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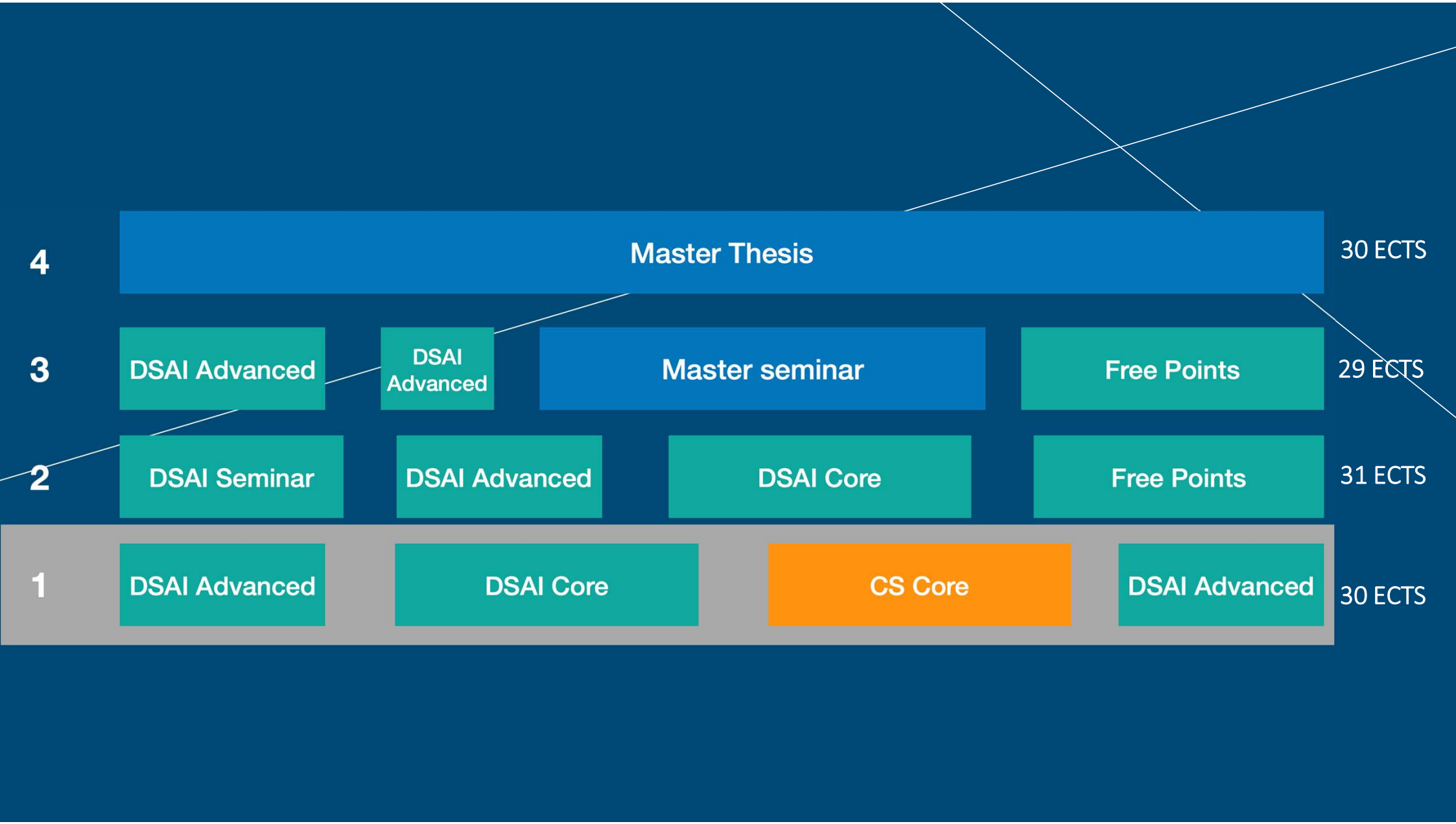
Program Structure & Duration

- 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
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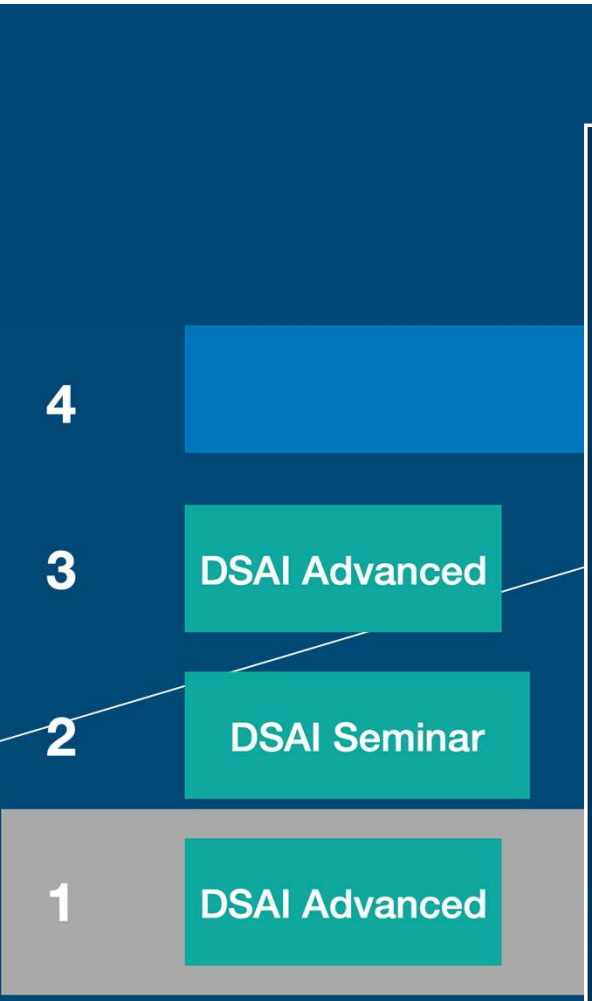
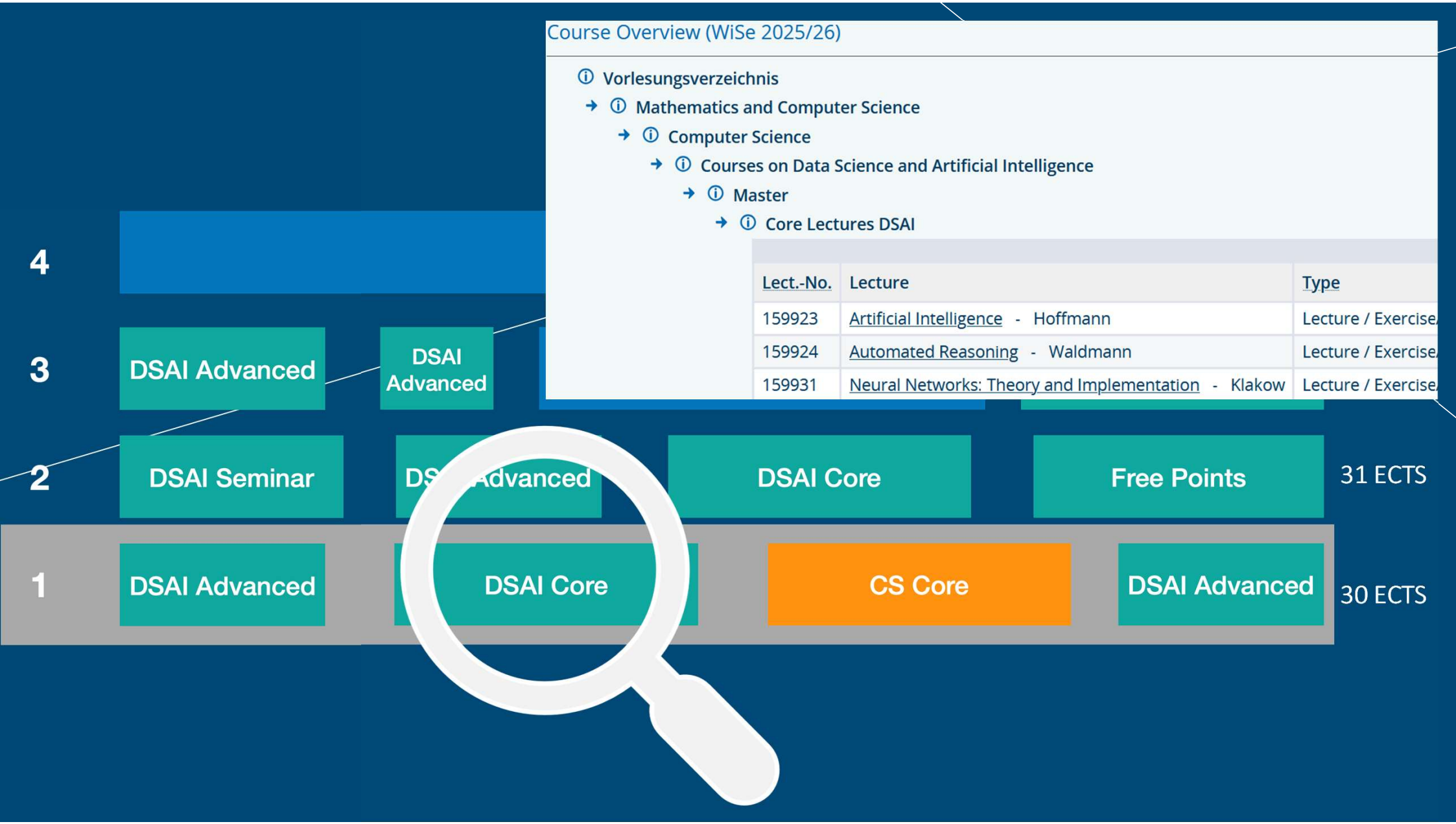
CS Core
DSAI Advanced
30 ECTS

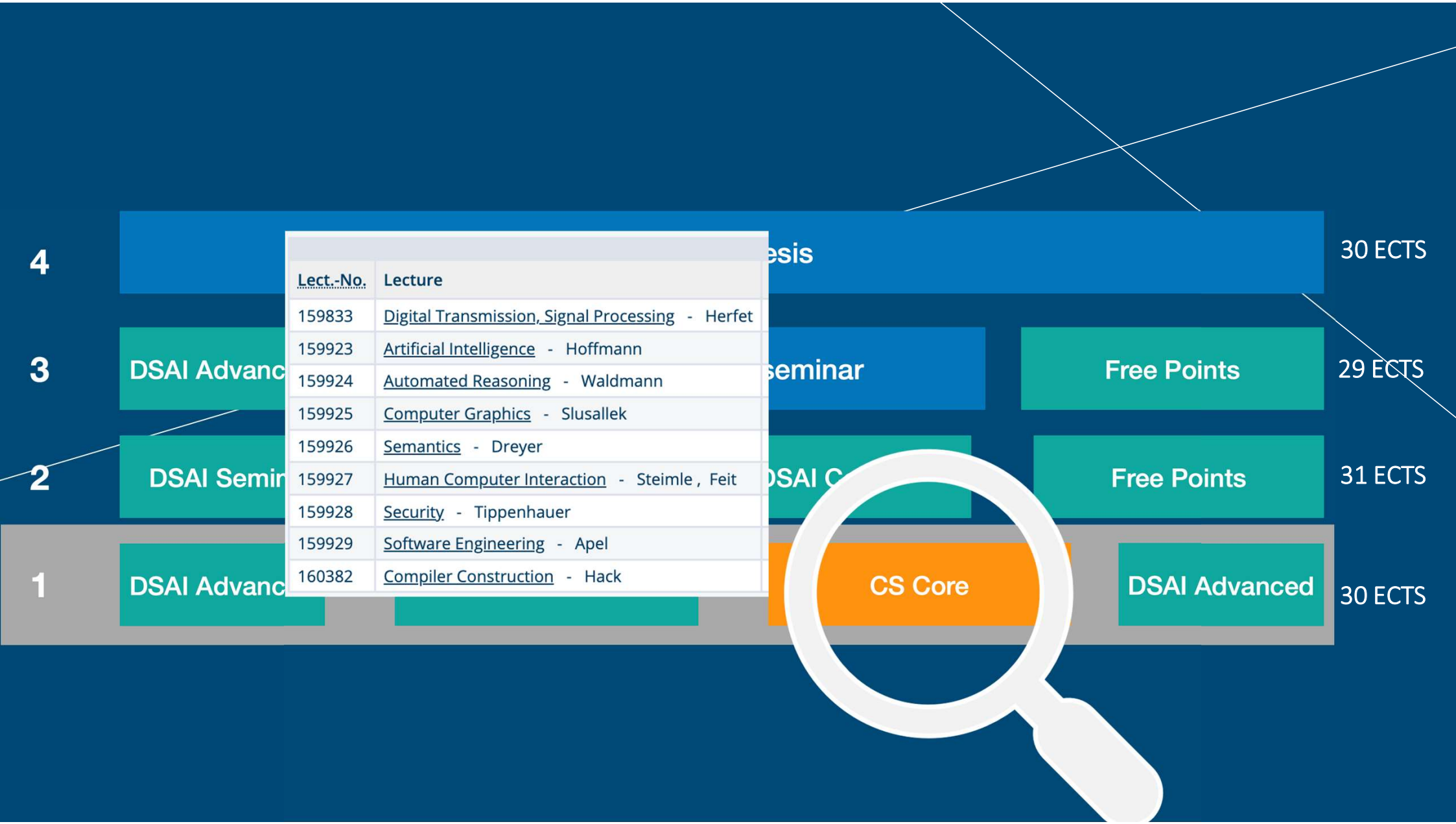


Credit Points Calculation

- 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 Overview (WiSe 2025/26)
Vorlesungsverzeichnis
Mathematics and Computer Science
Computer Science
Courses on Data Science and Artificial Intelligence
Master
Core Lectures DSAI
Lect.-No.
Lecture
Type
159923
Artificial Intelligence - Hoffmann
Lecture / Exercise
159924
Automated Reasoning - Waldmann
Lecture / Exercise
159931
Neural Networks: Theory and Implementation - Klakow
Lecture / Exercise
4
3
DSAI Advanced
DSAI Advanced
2
DSAI Seminar
DSAI Advanced
DSAI Core
Free Points
31 ECTS
1
DSAI Advanced
DSAI Core
CS Core
DSAI Advanced
30 ECTS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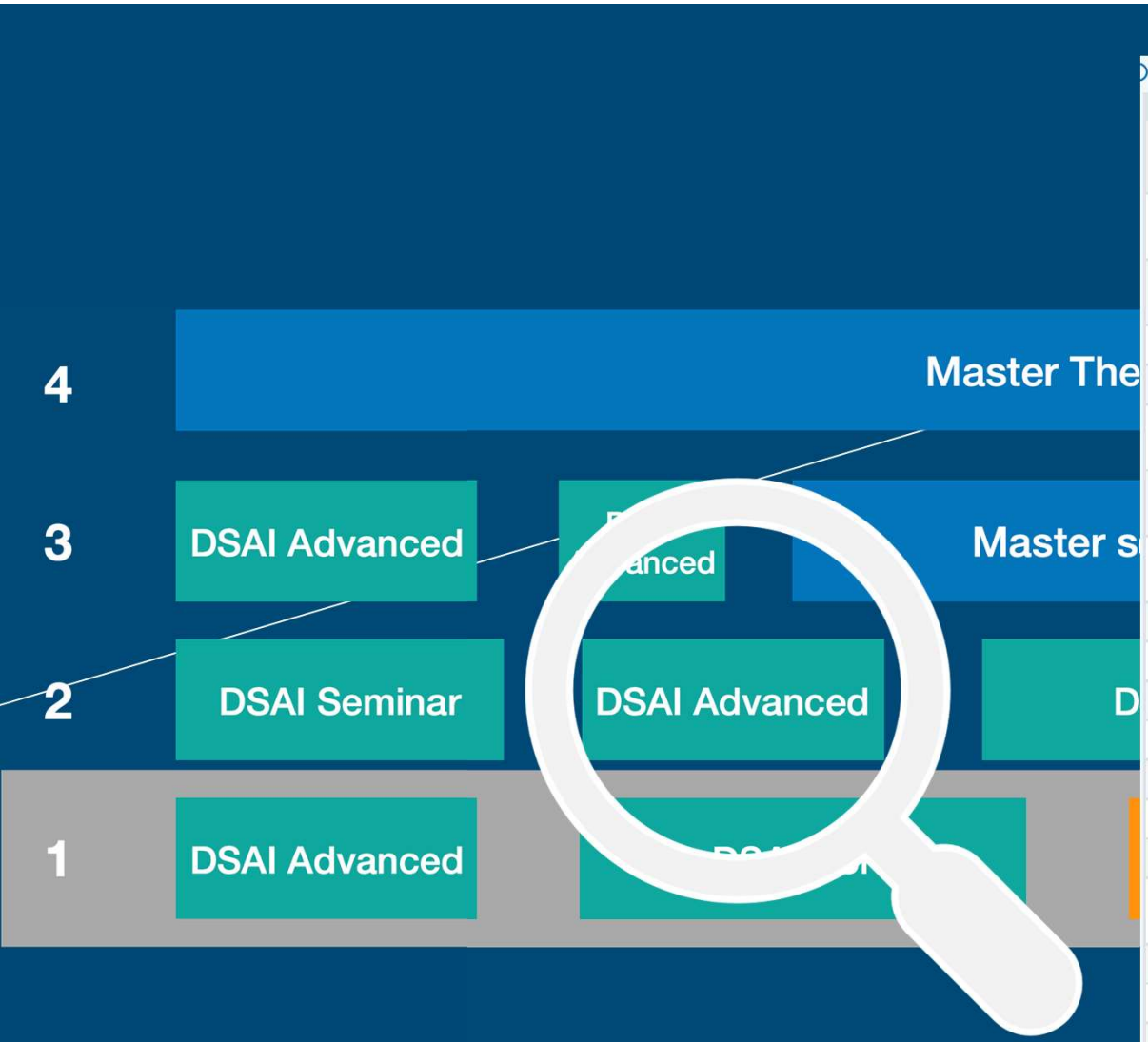
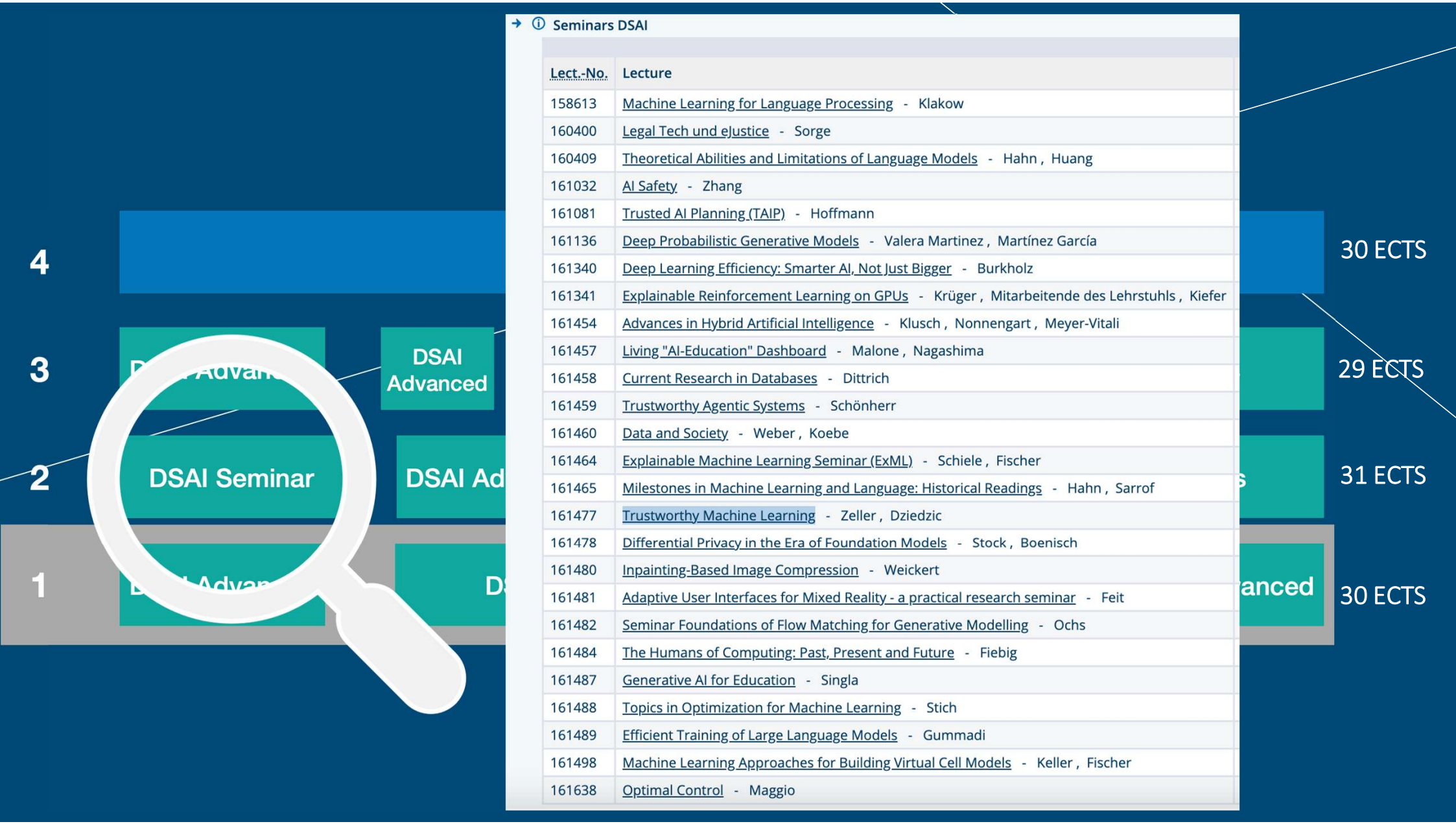
Free Points
31 ECTS
1
DSAI Advanc
CS Core
DSAI Advanced
30 ECTS
Lect.-No.
Lecture
159833 Digital Transmission, Signal Processing - Herfet
159923 Artificial Intelligence - Hoffmann
159924 Automated Reasoning - Waldmann
159925 Computer Graphics - Slusallek
159926 Semantics - Dreyer
159927 Human Computer 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
160071	Randomized and Approximation Algorithms - Na Nongkai
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



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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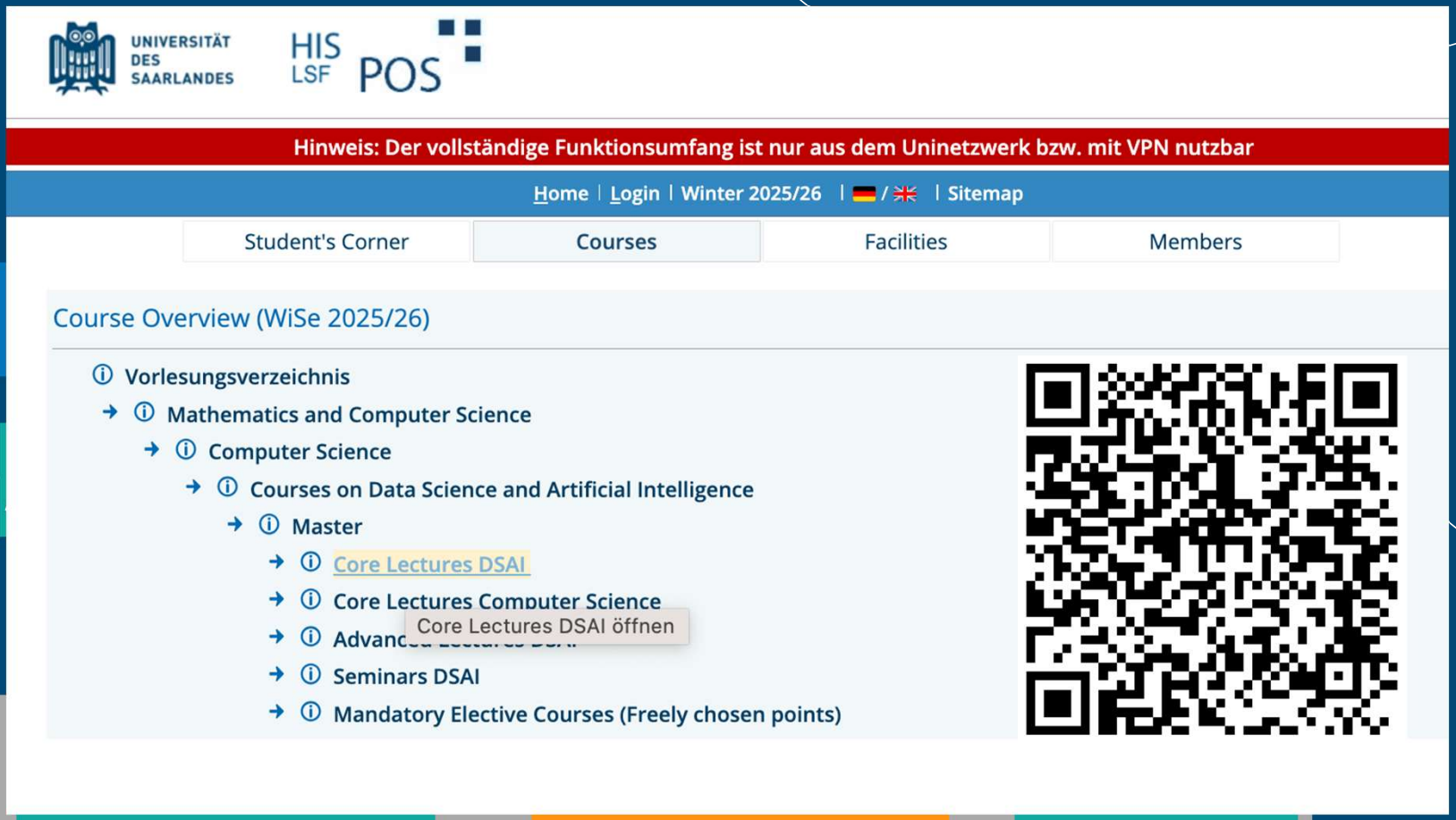
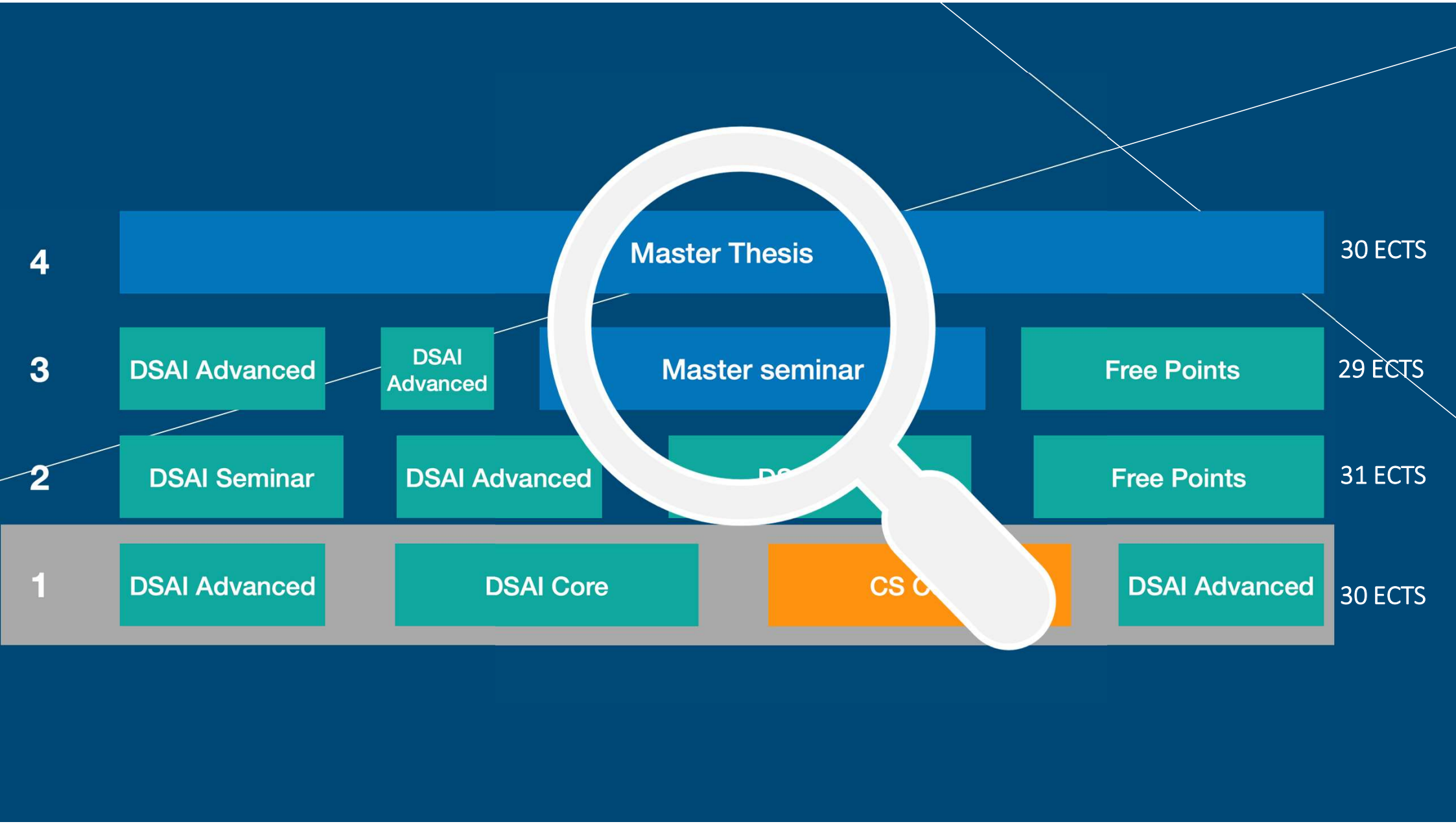
3 DSAI Advanced

2 DSAI Seminar

1 DSAI Advanced

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DSAI Core
DSAI Advanced
30 ECTS

Master seminar & Master thesis

Master Seminar (12 ECTS)

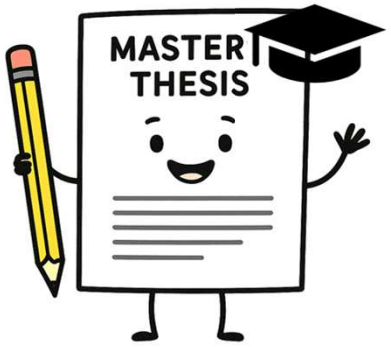
Objective: Prepares students for their Master's Thesis by introducing them to independent research and topic presentation

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

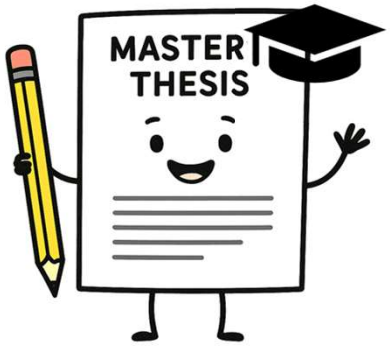
Duration: The thesis must be completed within six months after official registration

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)!



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Welcome!

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CBI CENTER FOR BIOINFORMATICS

M2CI CLUSTER OF EXCELLENCE

CISPA HELMHOLTZ CENTER FOR INFORMATION SECURITY

DFKI German Research Center for Artificial Intelligence

mpi max planck institut informatik

MAX PLANCK INSTITUTE FOR SOFTWARE SYSTEMS

Assessment and examination: academic integrity & original work

Written exams, oral exams, semin
presentations, and project work

➢possibility to retake core lecture e
in the same semester to improve

- **Originality:** All submitted work, partic
theses, and seminar assignments, mus
thoughts, analyses, and conclusions.
- **Proper Citation:** Always acknowledge
data, code, images, or direct quotatio
accordance with academic standards
- **Zero Tolerance for Plagiarism:** Plagia
severe academic penalties, including f
suspension, or expulsion.

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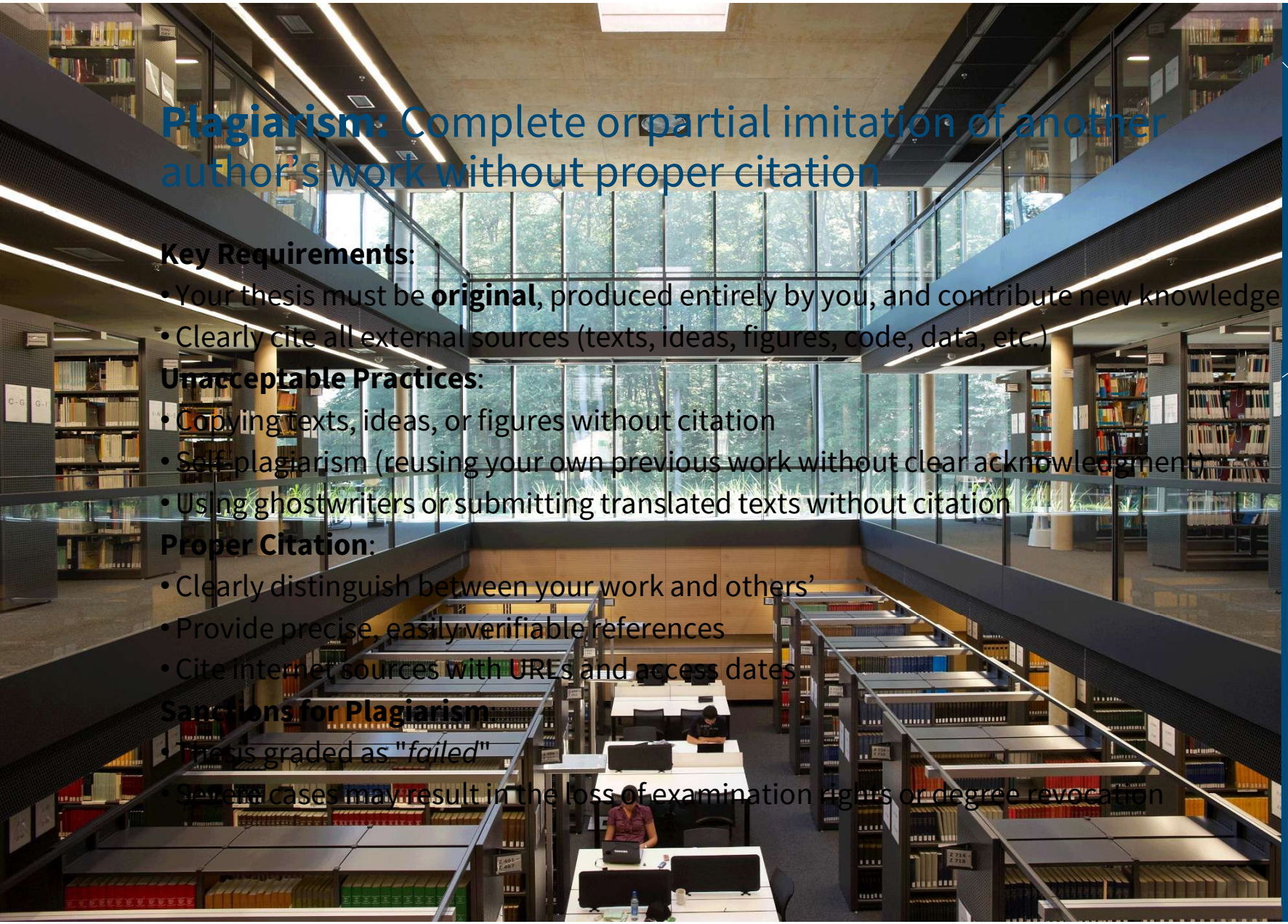

Plagiarism: Complete or partial imitation of another author's work without proper citation

Key Requirements:

- Your thesis must be **original**, produced entirely by you, and contribute new knowledge
- Clearly cite all external sources (texts, ideas, figures, code, data, etc.)

Unacceptable Practices:

- Copying texts, ideas, or figures without citation
- Self-plagiarism (reusing your own previous work without clear acknowledgment)
- Using ghostwriters or submitting translated texts without citation

Proper Citation:

- Clearly distinguish between your work and others'
- Provide precise, easily verifiable references
- Cite internet sources with URLs and access dates

Sanctions for Plagiarism:

- Thesis graded as "*failed*"
- Severe cases may result in the loss of examination rights or degree revocation

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