Introduction Master Computer Science

Wintersemester 2018/19

Anne Gehre

Agenda

- Masters Goals & Overview
- Courses & Exams
- Which courses should I take?
- Study Advisor & further Information

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Goals

- In depth education
 - → Presentation Elective Courses
- Greater Independance
 - → Seminars, Practicals, Masters Thesis
- More responsibility for future job
 - → Ideation and Leadership qualities, less implementation
- Possibitlity for PhD

Terms / Institutions

- Credits = Kreditpunkte = ECTS
- ZPA: Zentrales Prüfungsamt/Central Examination Office Organisation of exams, Administration of grades
- VZPA: Virtuelles ZPA
- RWTHonline:
 - → https://online.rwth-aachen.de
 - Online Lecture index of the RWTH Offered courses per semester
 - Study management for students
 Overview of status, Grades, Registration for exams
 - Examinationregulations
 Overview over all Courses (Module)

Overview Masters

- 120 Credits = 4 semesters normal period (Regelstudienzeit)
- Low madatory requirements
 - → elected courses
 - → no fixed study plan
 - → freedom of choice
 - → large responsibility for own studies

Overview Masters

Distribution Credits:

Lectures 57-63 Credits

1 Seminar4 Credits

1 Practical
 6-8 Credits

Oral Colloquium 3 Credits

Masters thesis
 30 Credits

Minor (Anwendungsfach) 14-18 Credits

120 Credits

Computer science (Major) 72 Credits

Minor 18 C.

Masters thesis
30 Credits

Elective Courses Rules



Four fields in Computer Science:

Theoretical CS

12-35 Credits

Software & Communication

0-35 Credits

Data- & Information- Management

0-35 Credits

Applied CS

0-35 Credits

Restrictions for choice of courses:

- Minimal / maximal amount of Credits in 4 Fields
- Exams in at least 3 fields

Possible (!) Course of Study

1. Semester	Wahlpflichtvorlesung Theoretische Informatik Wahlpflichtvorlesung Informatik Wahlpflichtvorlesung Informatik Wahlpflichtvorlesung Informatik Anwendungsfach I	V3 Ü2 V3 Ü2 V3 Ü2 V3 Ü2 V3 Ü2		30 ECTS
2. Semester	Wahlpflichtvorlesung Theoretische Informatik Wahlpflichtvorlesung Informatik Wahlpflichtvorlesung Informatik Seminar I Anwendungsfach II	V3 Ü2 V3 Ü2 V3 Ü2 S2 V3 Ü2	6 ECTS 6 ECTS 4 ECTS 6 ECTS	28 ECTS
3. Semester	Wahlpflichtvorlesung Informatik Wahlpflichtvorlesung Informatik Wahlpflichtvorlesung Informatik / Seminar II Praktikum Anwendungsfach III	V3 Ü2 V3 Ü2 V2 Ü1 / S P4 V3 Ü2	6 ECTS 6 ECTS 7 ECTS 6 ECTS	29 ECTS
4. Semester	Schwerpunktkolloquium Master-Arbeit Master-Vortragskolloquium		3 ECTS 27 ECTS 3 ECTS	33 ECTS

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Lectures

- Usually: V3 Ü2 oder V3 Ü1, 6 Credits
- Might require registration,
 - → RWTHonline, explained by lecturer

Exercise courses

- Solve exercises
- Hand in exercises which are corrected by lecturer
- Exam admission might require an achieved minimum score in the exercises
 - → Details will be given by the lecturer

Admission from previous semesters is not sufficient any more!



Exams

- Written or oral exam
 - → Lecturer will give details on the exam



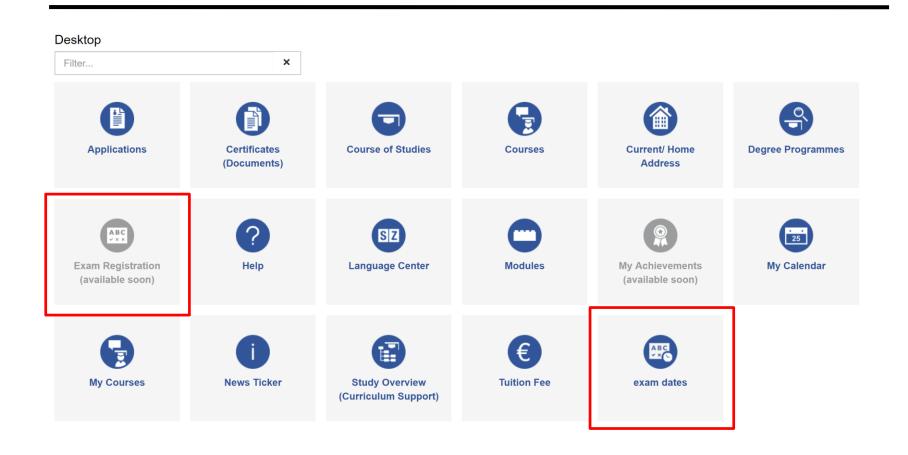
Registration for exams

- Always register via RWTHonline first
 - → Exam registration
- First and second exam are separate
 - → only register for one of the dates

Registration period: 3rd of December 2018 – 10th of January 2019 (Registration for second exam until 7 days before exam)

DO NOT FORGET REGISTRATION: Registration after registration period ends is generally not possible!

Exam Registration



Questions: rwthonline@rwth-aachen.de

Exam Dates

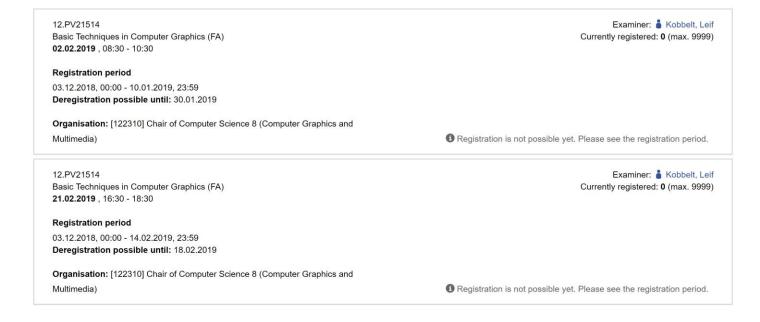


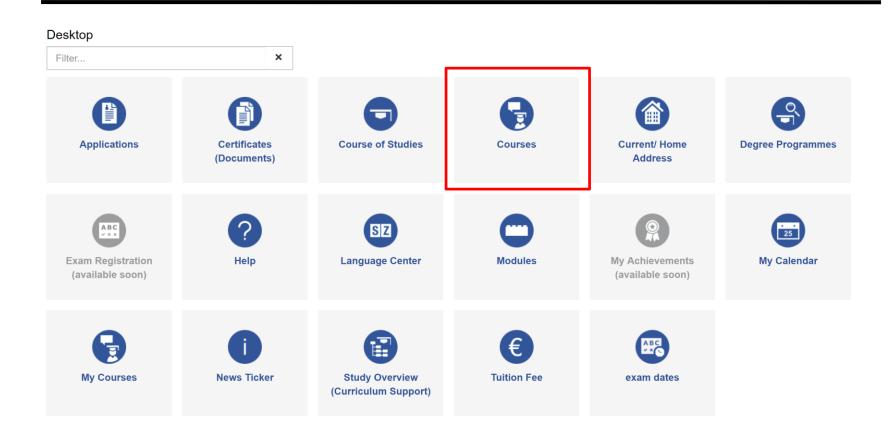


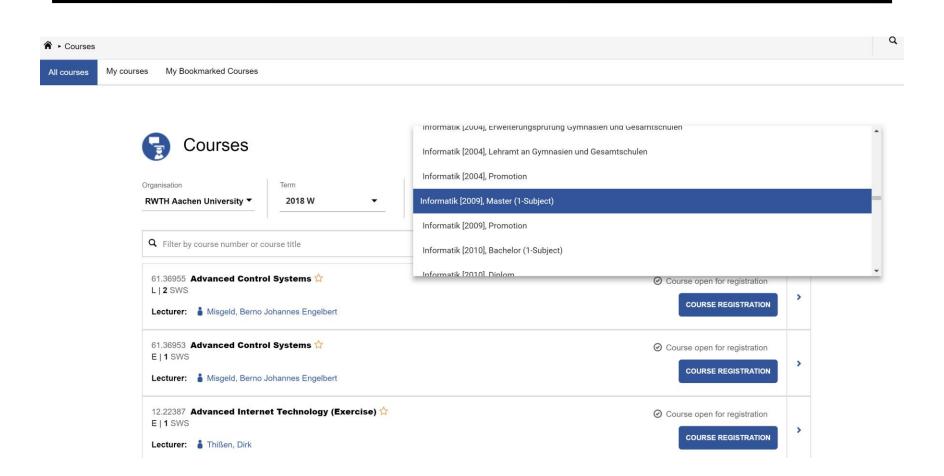
Exam Dates

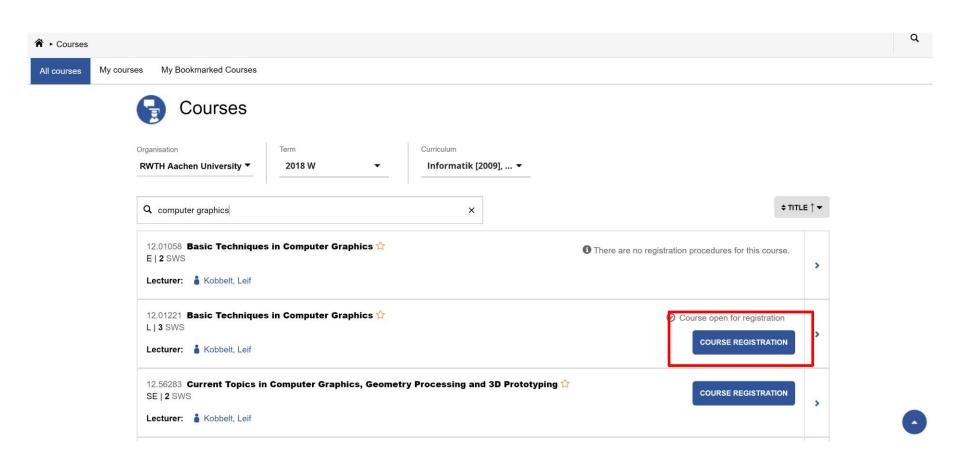
Exam Dates at the Organisation

Chair of Computer Science 8 (Computer Graphics and Multimedia) ▼





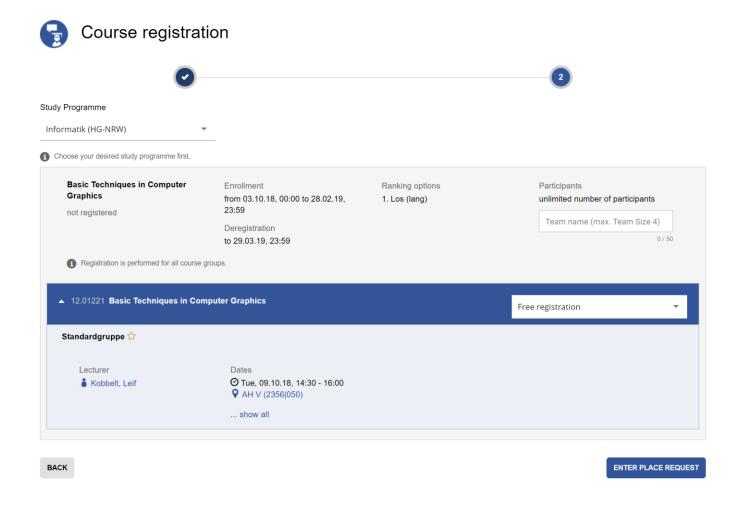


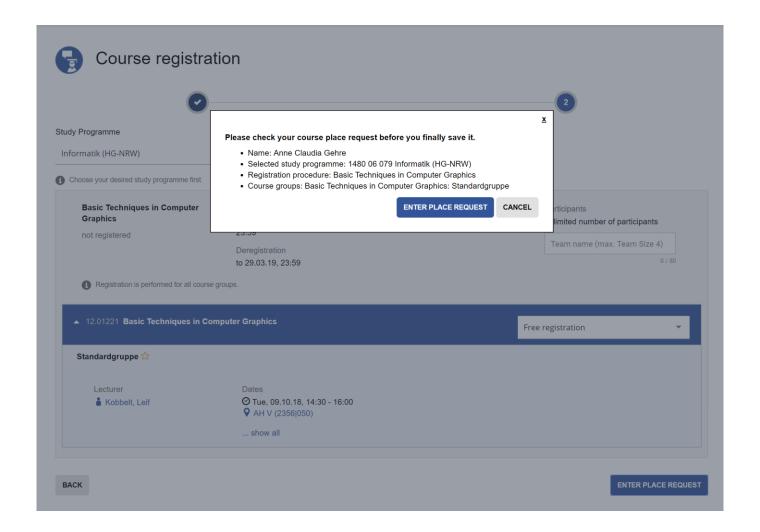


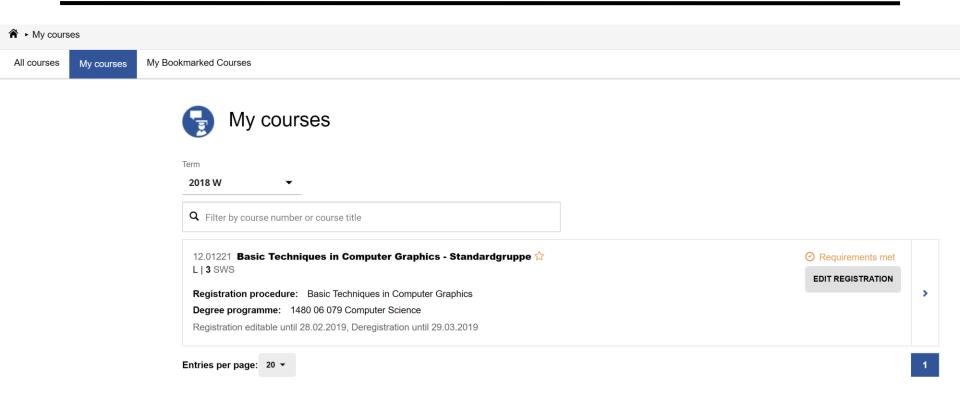
♠ Course registration Course registration 2 **Basic Techniques in Computer** Enrollment Ranking options **Participants** Graphics from 03.10.18, 00:00 to 28.02.19, 1. Los (lang) unlimited number of participants 23:59 not registered Deregistration CONTINUE to 29.03.19, 23:59 ▲ 12.01221 Basic Techniques in Computer Graphics Standardgruppe 🏠 Lecturer Dates O Tue, 09.10.18, 14:30 - 16:00 & Kobbelt, Leif Q AH V (2356)050) ... show all

19

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Exams

- Arbitrarily many withdrawals possible:
 - Withdrawal of registration via RWTHonline Until: 10th of January 2019
 - Withdrawal of a contrete exam in the **VZPA** Until: three workings days before the exam
- each Exam must be registered actively
- In case of withdrawal at the 1st exam date (VZPA), doctor's certificate, or oder fail, registration of **2nd exam** in VZPA.
 - Frist: (after publishing grades) 7 days before second exam
- Doctor's certificates must be issued on the day of the exam. They must be handed in at the ZPA on the third working day (the latest) after the respective exam.



Exam repetition

- Exam + two repetitions (= 3 tries)
- oral supplementary examination after 2nd repetition

Seminar



- Independant elaboration of a topic from existing literature
- Talk + seminar paper
- Assessment: 4 Credits
- Three tries
- Lecturers offer seminars on various topics
- 10 30 Participants

Practical



- Solve practical tasks
 (not confuse with industry practical)
- Presentation of own results
- Assessment: 7 Credits
- Three tries

- Lecturers offer practicals on various topics
- 10 20 Participants, Teamwork

Seminar / Practical



- Central distribution independant of RWTHonline
- Online registration ca. 5 weeks before end of lecture period
 - Registration via: algo.rwthaachen.de/fgi/test.quax?code=Angebot
 - Information mailing list: mailman.rwthaachen.de/mailman/listinfo/informatik/
- Lecturers can register you in RWTHonline
 - Discuss process in kickoff-meeting
- "Orientationwithdrawal" until three weeks after distribution of topics (unregister in RWTHonline)
- Later withdrawal: fail

Focus Colloquium



- Oral exam
- Coherent topics
- Lectures with an amount of 12 18 Credits in total (the same exams can be regular exams from your Masters)
- Assessment: 3 Credits
- Weight for final score (Masters): 12 Credits (4-fold)
- Registration:
 - 1. Discuss extent and date with examiner
 - 2. Personal registration in ZPA

Final Masters Grade



- Weighting of modules corresponds to their expense (ECTS)
- Exception: Focus Colloquium: 4-fold weighting

Voluntary Elected Courses



- Additional Lectures / Seminars / Prakticals can be taken as voluntary elected courses
- Grades will be on Masters certificate, but they will not influence the final grade
- Registration:
 - Regular via RWTHonline
 - After registration, but before exam the ZPA must be informed that this course is taken as a voluntary course (Wahlleistung)

Masters Thesis



- Independant work on a topic with methods learnt during the course of studies
- Practical work, written thesis, talk
- Masters thesis is handed out (exclusively) by a Computer Science professor (and his/her research assistants)
- Industry-cooperation is possible in agreement with the supervising professor
- Thesis is evaluated by two reviewers (= professors)
- Topic can be renewed once,
 Thesis can be repeated once

Masterarbeit



Assessment:

27 Credits for Thesis

3 Credits for Talk

(corresponds to one full-time semester)

Registration:

- At least 60 Credits are required
- Prerequisits (Auflagen) have to be fulfilled
- Topic is handed out by supervising professor (primary reviewer)
- Personal registration in ZPA

Minor (Anwendungsfächer)



- Standard-Subjects:
 - Buisness Administration (BWL)
 - Electrical Engineering
 - Mathematics
 - Philosophy

- Mechanical Engineering
- Medical Sciences
- Physics

- Possilbe to apply for other subjects
- Switch minor subject or no minor subject in Bachelor:
 - Additional 8-12 credits from Bachelor
- Separate study advisors for minor courses

Electrical Engineering



- Two Catalogues, register for courses from both
- Catalogue A: "1 of 3", 2 x 5 Credits
 - Systemtheorie 1 [SS] und 2 [WS]
 - Theoretische Informationstechnik 1 [WS] und 2 [SS]
 - Elektromagnetische Felder 1 [WS] und 2 [SS]
- Catalogue B: "n of m", 8 Credits
 - See website of study advisor

Mathematics



Elective Courses:

 Numerische Analysis III 	
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- Numerische Analysis IV
- Optimierung A
- Optimierung B
- Optimierung C
- Funktionentheorie II
- Funktionentheorie in mehreren Variablen
- Fourieranalysis I
- Fourieranalysis II
- Diskrete Mathematik I
- Diskrete Mathematik II
- Kontrolltheorie
- Algebra
- Netzwerkoptimierung in der Praxis
- ... s. website of study advisor

[WS]

[SS]

[unregelmäßig]

[WS]

[SS]

Mechanical Engineering



- Eight Specializations:
 - Produktionstechnik
 - Konstruktionstechnik
 - Energietechnik
 - Verfahrenstechnik

- Kunststofftechnik
- Textiltechnik
- Fahrzeugtechnik
- Luftfahrttechnik

- Prescribed Lectures
- No choice within specialization (exept production technology)
- It is possible to apply of other specializations

Medical Sciences



- Two madatory courses, each 2 Credits
 - Einführung in die Medizinische Informatik [WS]
 - Medizinsche Informationssysteme [SS]
- Two elective courses, in total 8 Credits
 - See website of study advisor
- Term paper (Studienarbeit), 6 Credits

Physics



- Choose one of three specializations
 - 1. Block A
 - From Molecular to Continuum Physics I + II
 - Computational physics
 - Block B
 - From Molecular to Continuum Physics I + II
 - Quanteninformation
 - Block C
 - Experimentalphysik III + IV
- No choice of courses within specialization

Philosophy

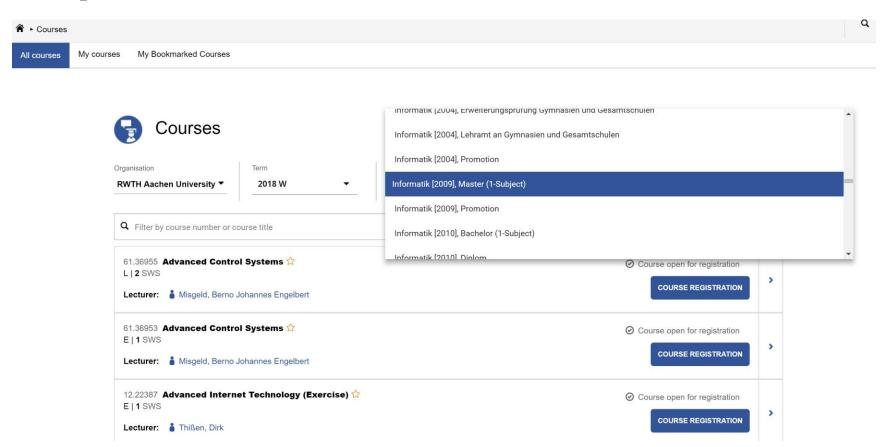


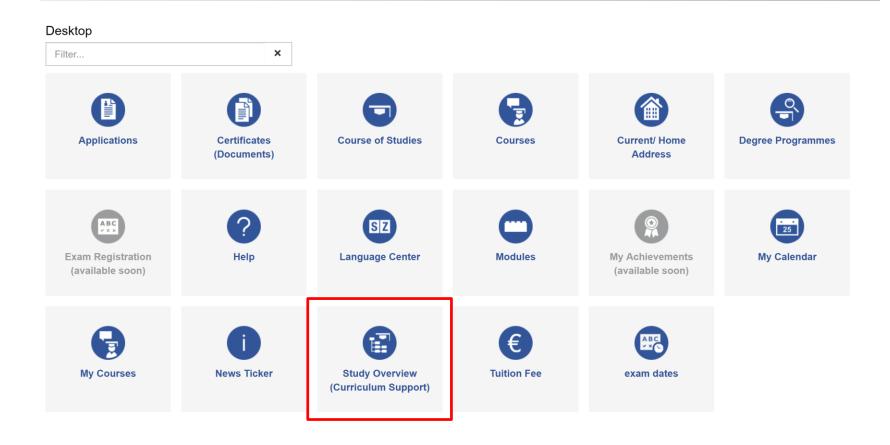
- Courses from
 - Practical Philosophy
 - Theoretical Philosophy
 - Specialization (Vertiefungsmodul)

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https://online.rwth-aachen.de





88 079 Computer Science (HG-NRW/2009, Master programme, current)

Curriculum

Academic year 2018/19

Node-Name	Rec. Sem. (W/S)	Credits	Duration	WF
[2009] Informatik		120		1
+ Wahlpflichtbereiche 🕓 🛅				1
+ — Anwendungsfach 🕓 🛅				1
+ — Praktikum, Seminare, Schwerpunkt-Kolloquium 🕓 🧰				1
+ Masterarbeit 🕒 🛅				1

Welche Vorlesungen soll ich besuchen?

Node-Name	Rec. Sem. (W/S)	Credits	Duration	WF
[2009] Informatik		120		1
— Wahlpflichtbereiche <a>O <a>I				1
— Theoretische Informatik ⑤				1
+ — Wahlpflicht Theoretische Informatik 🕓 🏢				1
+ — Software und Kommunikation 🕒 🏢				1
+ — Daten- und Informationsmanagement 🕒 🛅				1
+ — Angewandte Informatik 🕒 🧰				4
— Anwendungsfach				1
Anerkanntes Anwendungsfach				1
+ — Anwendungsfächer auf PA Antrag 🕒 🯢				1
+ Betriebswirtschaftslehre 🕓 🔤				1
+ Biologie 🕓 🧰				1
+ Chemie 🕒 🛅		18		1
+ Elektrotechnik 🕒 🛅				1
+ — Maschinenbau 🕓 🏢				1
+ Mathematik 🕓 🏢		18		1
+ Philosophie 🕓 🛅				1
+ Physik 🕓 🛅				1
+ — Praktikum, Seminare, Schwerpunkt-Kolloquium 🕓 🛅				1
+ Masterarbeit 🕓 🛅				1

Node-Name	Rec. Sem. (W/S)	Credits	Duration	WF
[2009] Informatik		120		1
— Wahlpflichtbereiche <a>O <a>Image: The control of the co				1
— Theoretische Informatik < □				1
+ Wahlpflicht Theoretische Informatik 🕓 🏢				1
+ Software und Kommunikation 🕒 🛅				1
+ Daten- und Informationsmanagement 🕒 🏢				1
— Angewandte Informatik ⑤				4
— Wahlpflicht Angewandte Informatik < □				1
+ 💠 [1212691] Derivative Code Compilers 🕓 🧰	m	4		1
+ 🔷 [1211912] Advanced Machine Learning 🕓 🧰	<u> </u>	6		1
+ 🔷 [1211904] Advanced Methods in Automatic Speech Recognition 🕓 🧰	11	6		1
+ 💠 [1212684] Advanced Statistical Classification 🕓 🛅	m	6		1
+ 🔷 [1212685] Advanced Topics in Statistical Natural Language Processing 🕓 🛅	11	6		1
+ 🔷 [1212693] Automatic Generation and Analysis of Algorithms 🕓 🤖	m	6		1
+ ♦ [1215750] Automatic Speech Recognition ᠍	11	8		1
+ 🔷 [1215721] Combinatorial Problems in Scientific Computing 🕓 🛅	60	4		1
+ ♦ [1215724] Computer Vision ()	m	6		1
+ ♦ [1211921] Computer Vision 2 ()	100	6		1
+ ♦ [1211908] Current Topics in Media Computing and HCI	<u> </u>	6		1
+ ♦ [1215698] Designing Interactive Systems I 🕒 🧰	iii	6		1
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Node -> Semester Plan

88 079 Computer Science (HG-NRW/2009, Master programme, current)			
Curriculum Academic year 2018/19			
Node-Name Recommended Sem. (W)	Credits	Duration	WF
1st semester 🔾 🛅			
2nd semester 🔾 🧰			
▶ 3rd semester ③ 📺			
4th semester 🕓 📺			
▶ 5th semester ③ □			
▶ 6th semester ③ □			
no semester recommended 🕓 📺			

Time Table

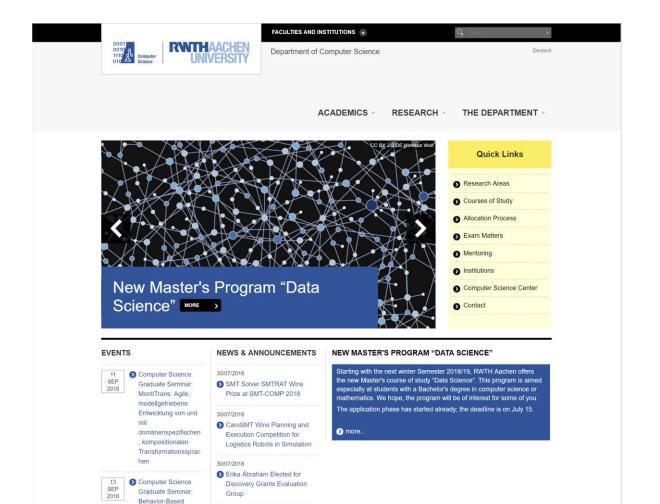
000001 RWTH Aachen University / 88 079 Computer Science (HG-NRW/2009, Master programme, current) (1. Semester)...

Course timetable

000001 RWTH Aachen University / 88 079 Computer Science (HG-NRW/2009, Master programme, current) (1, Semester)...



- 1. RWTHonline: https://online.rwth-aachen.de
- 2. Lehrstuhl-Seiten: www.informatik.rwth-aachen.de



Welche Vorlesungen soll ich besuchen?

- 1. RWTHonline: https://online.rwth-aachen.de
- 2. Group websites: www.informatik.rwth-aachen.de
- 3. Introduction to elected courses slides
- 4. At the beginning of the semester: Visit diverse courses to get an impression!
- 5. Mentor program

Mentor program

```
www.informatik.rwth-aachen.de

→ www.informatik.rwth-aachen.de/cms/Informatik/Studium/Im-
Studium/Mentoring/~oiqu/Professorenmentoring-fuer-
Masterstudiere/lidx/1/
```

- Mentordiscussion with a Computer Science Professor in small groups
- Separation in four fields of Computer Science
- Registration required

Prerequisits (Auflagen)

- Prerequisits listed in approval notice
- Need to be fulfilled before start of Masters thesis
- Bachelor-Courses: RWTHonline

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Stays abroad in Bachelor/Master Informatik

Dirk Thißen astube@informatik.rwth-aachen.de

Stay Abroad during Studies?

Personal Development

- New environment
- New culture

Get to know new learning culture

- Different focus
- Different education style

No delay of studies

- (... If everything goes well!)
- Semester leave (Urlaubssemester) possible
- Achievements abroad can be acknowledged
 - Should be discussed/coordinated before the stay abroad!

Duration of stay abroad

Master

- Start any time (only elected courses)
- ▶ Best, as soon as possible
- Choose courses at university abroad
 - Check acceptability! Not all courses can be excepted!
- Only 30 Credits can be exepted according to MPO (examination regulations)
 - Corresponds to one semester

Exchange Programs

Erasmus

- ▶ Within Europe, Agreement with 31universities in different countries
- Organisation by Computer Science Department and International Office
- No tuition at university abroad

Cooperation Agreement

- Bilaterale agreement with individual universities world wide
- Organisation by International Office
- No common agreements (tuition?)

UNITECH

Combination of stay abroad and practical

Freemover

Own organization, regular student: tuition ect.

Inform yourself early!

Further Information:

- International Office: www.international.rwth-aachen.de
 - List of partner universities
 - Deadlines
 - Application forms
 - Information on stays abroad outside of Europe
- Auslandsstudienberatung Informatik: astube@informatik.rwth-aachen.de
 - Information on ERAMUS-Program
 - Discuss acceptance von achievements made abroad
 - Application forms

Websites of Study Advisory

- Slides
- FAQs
- Contact information of study advisors
- Mailing list of study advisory

mailman.rwth-aachen.de/mailman/listinfo/informatik/

- Registration for consultation hour of study advisors
- Current examination regulations
- etc.

Contact Study Advisors

www.informatik.rwth-aachen.de

→ Studium → Fachstudienberatung

Master Informatik:

Jera Hensel master@cs.rwth-aachen.de

Bachelor Informatik:

Julian Schamper bachelor@cs.rwth-aachen.de

Anwendungsfächer BWL, Mathematik, Physik, Biologie, Chemie:

Ralf Klamma klamma@informatik.rwth-aachen.de

Anwendungsfächer Elektrotechnik, Maschinenbau, Medizin,

Philosophie:

Thomas Noll noll@cs.rwth-aachen.de

Auslandsstudienberater

Dirk Thissen astube@informatik.rwth-aachen.de

Central Study Advisory

www.rwth-aachen.de/studienberatung

- General and interdisciplinary questions
- Psychological counselling

Contact:

Templergraben 83, 52062 Aachen

Tel.: 80-94049/50/51

zsb@zhv.rwth-aachen.de

Institutions

www.informatik.rwth-aachen.de → Servicegruppen

Computer Science Library

- Literature for current lectures
- Seminars for literature research
- Where: Informatik Zentrum, E1, Ground floor

Computer Lab Informatik

- Computer lab for students
- Helpdesk, Installations-Support
- Where: Informatik Zentrum, E1 & E2, Basement

Institutions

Main library

- www.bth.rwth-aachen.de
- Where: Templergraben 61

Textbook collection (Lehrbuchsammlung)

- Commonly used course literature (multiple copies)
- www.bth.rwth-aachen.de/lbs.html
- Where: Wüllnerstr. 3

Study Advisor Master Informatik

- Jera Hensel, Informatik 2
- E-mail: master@informatik.rwth-aachen.de
- Consultation hour: Mondays 12:30 1:30 p.m.