



UNIVERSITY
OF COLOGNE

COMPUTATIONAL SCIENCES MASTER PROGRAM – WS23/24

Information for the 1. Semester

Computational Sciences / Faculty of Mathematics and Natural Science

11.10.2023

INTRODUCTION



UNIVERSITY
OF COLOGNE

Computational Sciences / Faculty of Mathematics and Natural Science

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Computational Sciences

Goals of the study program:

- Answer new questions in natural sciences with computational methods.
 - Provide you with the qualifications to start a PhD within your respective Area of Specialisation.
 - Teach you the skills required for modern, computational research methods in numerous scientific fields, in an interdisciplinary environment among other students from different scientific backgrounds.
 - Train you equally well in Simulation Science, Computer Science and Applied Mathematics as well as your selected Area of Specialization.
- **University degree:** Master of Science (M.Sc.)
 - **Credit points:** 120 ECTS
 - **Standard period of study:** 4 semesters (2 years)
 - **Start of study:** Winter semester
 - **Teaching language:** English
 - **Faculty:** Faculty of Mathematics and Natural Sciences

OVERVIEW OF THE STUDY PROGRAM



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Curriculum

Semester	Compulsory Modules total 18 CP	Mathematics/ Computer Science total 18 CP	Specialization total 78 CP	Supplementary Contents total 6 CP
1	Simulation & Modeling 1 9 CP	Elective Mathematics / Computer Science Area 18 CP	Specialization Area 30 CP	Suppl. Module 6 CP
2	Simulation & Modeling 2 9 CP			
3			Literature Seminar 6 CP	Project Work 12 CP
4			Master Thesis 30 CP	

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Simulation and Modeling 1 and 2

- These compulsory modules provide the necessary basis needed for your Area of Specialisation
- Taught methods range from numerical modeling to machine learning
- Practical examples and applications from all Areas of Specialisation
- **Credits:** 9 CP per module (18 in total)
- **Semesters:** 1st and 2nd
- **Course structure:** Lectures, Exercises and Projects

SimMod 1 current lecture times:

- Wednesdays, 10:30–12:00
- Thursdays, 10:00–10:45, 11:00–12:30 (exercises)

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Elective Mathematics and Computer Science Area

- Choose modules from a wide range of topics in Mathematics and Computer Science
- These modules shall widen your knowledge and benefit you in your Area of Specialisation and future research
- **Credits:** 9 or 6 CP per module (18 CP in total)
- **Semesters:** 1st to 3rd

Curriculum

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Specialization Area

- Computational Astro- and Space Physics
 - Computational Biology
 - Earth System Sciences
 - Theoretical Chemistry
 - Theoretical Condensed Matter Physics
- **Credits:** 9 or 6 CP per module (30 CP in total)
 - 2 Compulsory modules (except ESS)
 - **Semesters:** 1st to 3rd

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Research Part

3rd Semester:

- Literature Seminar (6 CP)
 - Introduction to your research topic
 - Literature research + presentation
- Project Work (12 CP)
 - Preparation work for your research
 - Conducted within your research group

4th Semester:

- Master Thesis (30 CP)
 - Duration: 4–6 months

Curriculum

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3			Literature Seminar 6 CP	Project Work 12 CP
4			Master Thesis 30 CP	

Supplementary Module

- Choose freely from a wide range of modules
- Including (but not limited to) courses offered by:
 - Excellence Startup Center Gateway
 - Digital Humanities
 - Area of Mathematics and Computer Science
 - Any Area of Specialisation
- If you wish to take a course outside these areas, ask the coordinator of the study program if it is eligible for the Supplementary Module
- **Credits:** 6 CP
- **Semesters:** 1st to 3rd

ORGANISATION AND INFRASTRUCTURE



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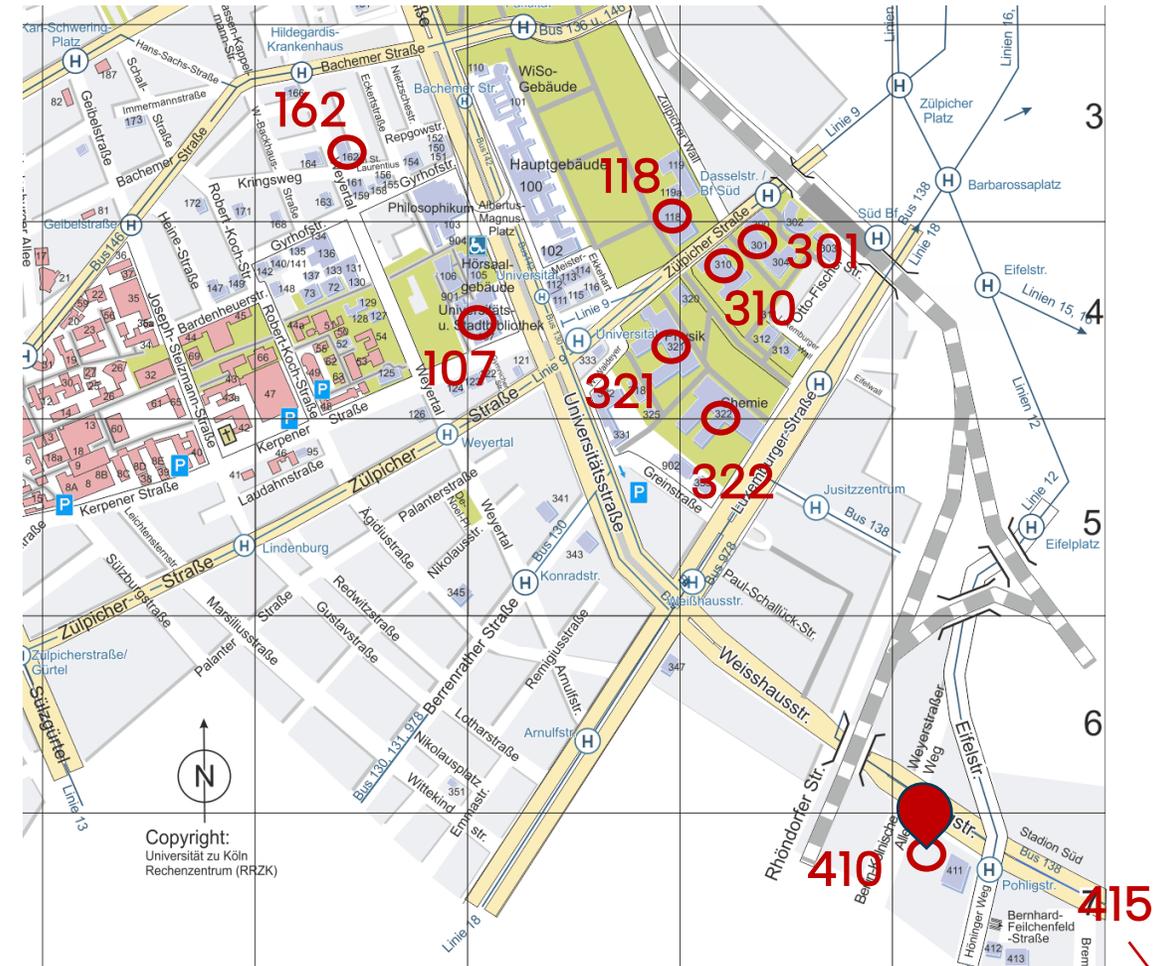
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Computational Sciences at the University of Cologne

Find an interactive Campus Map here: <https://lageplan.uni-koeln.de/>

- 410 – Institute for Geophysics and Meteorology
- 415 – Institute for Computer Science
- 322c – Institute for Theoretical Chemistry
- 321a – Institute for Theoretical Physics
- 321b – Institute for Astrophysics
- 301 – Institute for Genetics
- 310a – Institute for Geology and Mineralogy
- 162 – Mathematical Institute
- 107 – Library
- 118 – Mensa



<https://www.uni-koeln.de/uni/plan/uniplan.png>

Find Building Information in KLIPS2.0

Node filter-Name	rec. sem.	Credits	Duration	WF										
[-] [20222] Computational Sciences		120	4	1										
[-] [Simulation and Modeling]		18		1										
[-] [+ [5904MSiMo1] BM Simulation and Modeling 1		9		1										
[-] [5904MSiMo1] Vorlesung	-			1										
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[+] [Mathematics/Computer Science]				1										
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[+] [Supplementary Contents]				1										
[+] [Master Thesis]				1										
[+] [UZK1ExAn00] Extracurricular Courses				0										



Important Contacts

Coordinator of the Study Program

- For general inquiries
- GeoMet Institute (Pohligstr. 3), room 3.218
- Contact: info-compscie@uni-koeln.de

Examination Office

- For information and questions regarding exams and course registrations
- GeoMet Institute (Pohligstr. 3), room 3.132
- Contact: geo-pruefungsamt@uni-koeln.de

Mentoring Program

- You have been assigned a mentor after you have been admitted to the Computational Sciences program
 - Mentors are researchers and teachers from your respective Area of Specialisation
 - Mentors help you with selecting courses for your curriculum and guide you throughout your studies in Computational Sciences
- 2 mandatory mentor-mentee meetings per term:**
- Before the start of each term (to discuss the selection of modules)
 - During the term (for general discussion)

Examination Board and Speakers

- The master examination board is responsible for all provisions and decisions concerning the master course, especially for the regulations of examinations and the acceptance of course and examination achievements.
- List of current members, **including the student representative(s)**:
<https://computationalsciences.uni-koeln.de/help-and-advice/examination-board>
- Each of the Specialisation Areas in the Computational Sciences master program has an official speaker. The speakers support the coordination of the interdisciplinary study program across multiple departments within the Faculty of Mathematics and Natural Sciences.
- List of current speakers:
<https://computationalsciences.uni-koeln.de/help-and-advice/speakers>

Other Information

Mailing list:

- You will receive important announcements and information throughout your studies via this list
- Please make sure you are subscribed to info-msc-cs@uni-koeln.de for the entire duration of your master studies!

Website:

- <https://computationalsciences.uni-koeln.de/>

REGISTRATION FOR COURSES AND EXAMS



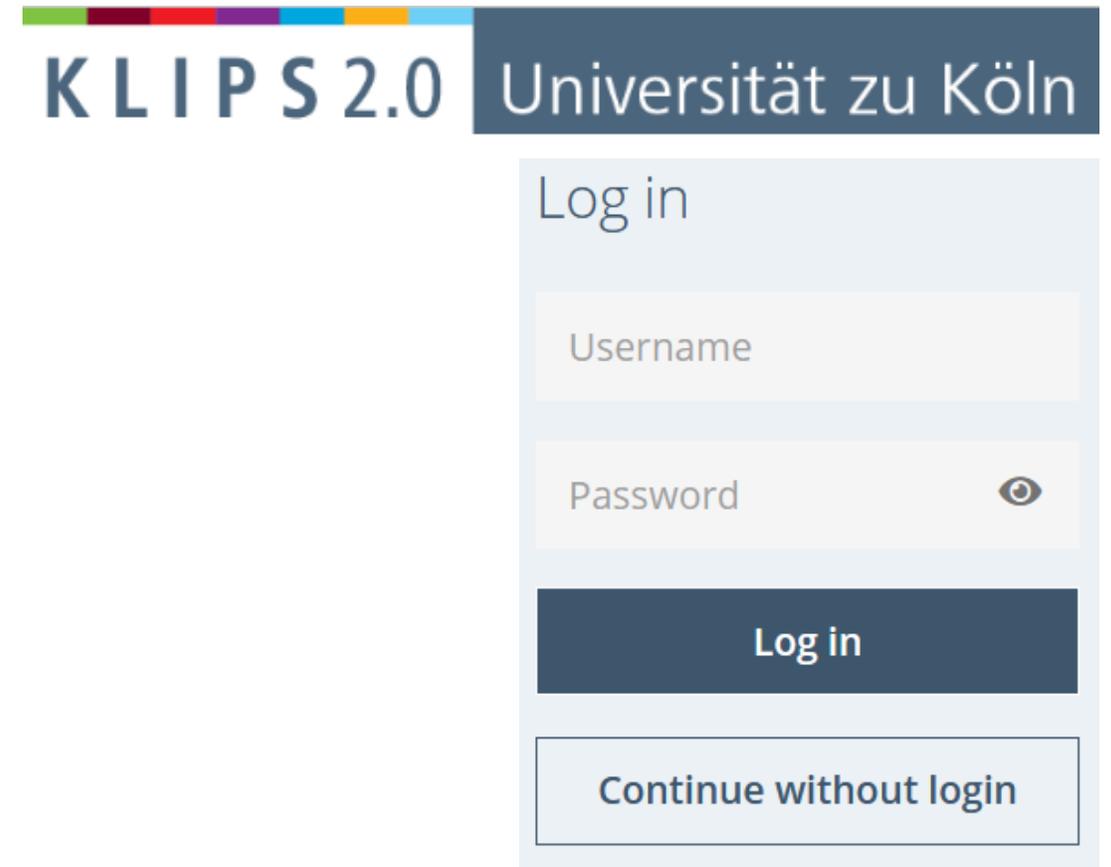
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KLIPS2.0

- All course and exam registrations are managed through the KLIPS2.0 online system
- Login via <https://klips2.uni-koeln.de> with your student (smail) account



The image shows a login interface for KLIPS 2.0 at the University of Cologne. At the top, there is a horizontal bar with a rainbow-colored segment on the left and a dark blue segment on the right containing the text "KLIPS 2.0" and "Universität zu Köln". Below this, the word "Log in" is displayed. There are two input fields: "Username" and "Password". The "Password" field has an eye icon to its right, indicating a toggle for visibility. Below the input fields is a dark blue "Log in" button. At the bottom, there is a light blue button labeled "Continue without login".

Degree Program



My Degree Programme



Courses



Exam Dates



Student Files



Recognitions



Search

KLIPS Support:

<https://klips2-support.uni-koeln.de/en/students-new-design>

Node filter-Name	rec. sem.	Credits	Duration	WF	Results	Sel	Pass										
[-] [20222] Computational Sciences		120	4	1			P										
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[+] Supplementary Contents		6		1			P										
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Course Registration Periods

News and Dates: <https://klips2-support.uni-koeln.de/en/klips-20-support/news-and-dates>

Winter Semester 23/24

- Registration for remaining spots: from 5.10.23

Summer Semester 24

- 1. Registration Period: 31.01.24 – 13.02.24
- 2. Registration Period: 29.02.24 – 21.03.24
- Registration for remaining spots: from 4.04.24

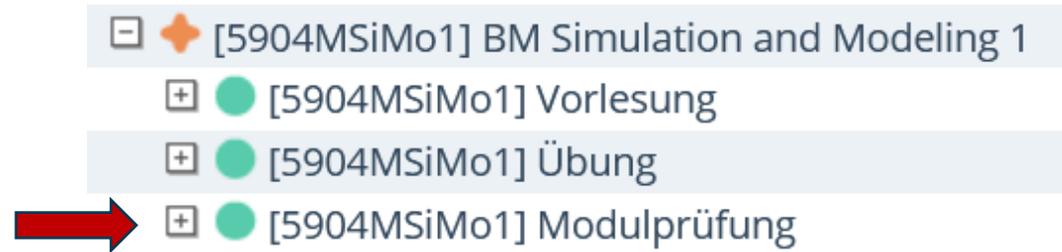
Winter Semester 24/25

- 1. Registration Period: 17.07.24 – 5.08.24
- 2. Registration Period: 27.08.24 – 18.09.24
- Registration for remaining spots: from 2.10.24

Summer Semester 25

- 1. Registration Period: 29.01.25 – 12.02.25
- 2. Registration Period: 6.03.25 – 20.03.25
- Registration for remaining spots: from 3.04.25

Sign-Up for Exams



Important: A special case are all modules that are preceded by the code number 5871, for example:

[5871CComBL] Computational Biology

- Sign up for exams („Modulprüfung“) in order to complete a course and receive credit points
- Registration for exams usually stays open until 2 weeks before the exam date
- **Please note:** registration periods may vary from department to department!

- Courses in these modules are administered by the respective department (for example Biology)
- Exams have to be administered by the examination office of the Department of Geosciences
- **Please support us by registering for module examinations within the first three weeks of lectures!**

QUESTIONS?

