Welcome Meeting for Master‘s Students

Faculty of Computer Science and Mathematics
Monday, 2 November 2020
Introduction

- Prof. Dr. Tobias Kaiser, Dean
- Prof. Dr. Ignaz Rutter, Vice Dean
- Prof. Dr. Matthias Brandl, Dean of Studies
- Dr. Robert Offinger, Faculty Manager
- Wolfgang Mages, International Coordinator
- International Student Assistants
- Fachschaft Informatik Student Committee
- Luise Haack, iStudi Coach
Agenda

• Coronavirus Implications
• German Language Skills
• Study and Examination Regulations:
  – M.Sc. Computer Science
  – M.Sc. Computational Mathematics
• Course Enrolment and Examinations
• New Professor and Stand-In Professors
• Course Offerings in the Winter Semester
• Support for International Master’s Students
• Questions and Answers

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Coronavirus Implications

- Most courses in the winter semester will be taught online.
- Examinations (1st date: 15 February – 12 March; 2nd date: 29 March – 16 April) may require students’ presence on campus.
- If you are uncertain whether you can be in Passau for your examinations, please cf. information on Stud.IP or consult the lecturer before you sign up.
- Please follow the University’s coronavirus updates at https://www.uni-passau.de/en/coronavirus.
Basic German-Language Skills

If you do not have proof of German-language skills when starting out on the programme, you are required to complete a compulsory German course during the first year of study at level A1 CEFR or higher (proof of skills necessary at the end of the first year of study).
About the Programme: Structure

• You can put together your individual curriculum

• All offered modules and courses (but compulsory seminar and presentation of master’s thesis) are assigned
  – to one respective focus area or
  – to “General Area”

• You should choose one focus area as your specialisation

• Language restrictions: not all focus areas do have a sufficient number of English-taught modules to be studied as your specialisation at all times. However, you may study individual modules from those areas as ‘freely selectable courses’ in accordance with the rules below

• If you improve your German proficiency to an extent that you can follow the courses taught in German, you will have a wider range of choices in this degree programme
About the Programme: Focus Areas

Five Focus Areas:

1. Information and Communication Systems
2. IT Security and Reliability
3. Intelligent Technical Systems
4. Programming and Software Systems
5. Algorithmics and Mathematical Modeling

Acceptability of courses for credit transfers:
https://www.fim.uni-passau.de/en/study/acceptability-for-credit-transfers/
To obtain the degree, you need to accumulate **120 credits** as follows:

- **30 credits for the thesis**, supervised by a professor
- A **minimum of 40 credits from your specialisation** modules (chosen focus area)
- A **minimum of 30 credits from modules outside your specialisation** (from other focus areas or from “General Area”)
- One **seminar** (5 credits, typically in the field of your specialisation)
- For the remaining 15 credits, you are **completely free in your choice** of credits (from your specialisation or from any other focus area – including the “General Area” - but only within the programme)
- German-language skills at level A1 (minimum)
Compulsory Modules

• Seminars
  – Aim: specialisation on a research topic and preparation for master’s thesis
  – Not in the 1st or 2nd semester, recommended in the 3rd semester or later
  – Presentation of seminars offered in the next semester at an event toward the end of each semester (Stud.IP event 6030 in the corresponding semester)
  – Limited number of participants
  – Max. 3 attempts: 3rd fail ultimately irrecoverable (exmatriculation)

• Master’s Thesis & Presentation
  – Usually at the end of your studies (at least 40 ECTS required, recommended at least 70-80 ECTS)
  – Typically in the field of your specialisation
  – Look for potential topics on the pages of the chairs and professorships: www.fim.uni-passau.de/en/study/theses
  – Maximum duration of 6 months for the completion of the thesis (from the day of the supervisor’s confirmation of acceptance until the due date)
  – Max. 2 attempts: 2nd fail ultimately irrecoverable (exmatriculation)
### Sample Curriculum 1

**Specialisation:** focus area Information and Communication Systems

- Implementation of Database Systems (7 credits)
- Text Mining Project (8 credits)
- Web of Things and Services (5 credits)
- Data Science Lab (6 credits)
- Multimedia Databases (7 credits)
- Programming Applications for Mobile Interaction (7 credits)

**Total:** 40 (≥40) credits

**Outside your specialisation:**

- **Algorithmics and Mathematical Modelling**
  - Computational Logic (7 credits)
  - Computer Algebra (9 credits)

- **Intelligent Technical Systems**
  - Control and Robotics (7 credits)

- **IT Security and Reliability**
  - Cloud Security (6 credits)
  - Dependable Distributed Systems (6 credits)
  - Advanced IT Security (6 credits)

- **General Area**
  - Internship (4 credits)

**Total:** 45 (≥30) credits

**Master seminar:** 5 credits

**Thesis:** 30 credits

**Overall Total:** 120 (≥120) credits
## Sample Curriculum 2

### Specialisation: focus area IT Security and Reliability

- System Security (5 credits)
- Security Insider Lab I (12 credits)
- Wireless Security (5 credits)
- Cloud Security (6 credits)
- Dependable Distributed Systems (6 credits)
- Advanced Security Engineering Lab (12 credits)
- Advanced IT Security (6 credits)

**Total: 52 (≥40) credits**

### Outside your specialisation:

#### Information and Communication Systems

- Web of Things and Services (5 credits)
- Foundations of Energy Systems (6 credits)
- Network Science (5 credits)
- Advanced Topics in Data Science (5 credits)
- Multimedia Databases (7 credits)
- Safety and Security of Critical Infrastructures (6 credits)

**Total: 34 (≥30) credits**

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### Master seminar: 5 credits

### Overall Total: 121 (≥120) credits

### Thesis: 30 credits

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Study and Examination Regulations

Master’s Programme Computational Mathematics
Focus Areas:

1. Algebra, Geometry and Cryptography (AGC)
2. Mathematical Logic and Discrete Mathematics (MLDM)
3. Analysis, Numerics and Approximation Theory (ANAT)
4. Dynamical Systems and Optimization (DSO)
5. Stochastics, Statistics (SS)
6. Data Analysis and Data Management and Programming (DADMP)
7. Applications (A)
8. Key Competencies and Language Training (KCLT)
To obtain the degree, you need to accumulate **120 credits** as follows:

- **30 credits for the thesis**, supervised by a professor (typically in the field of your specialisation, usually at the end of your studies)
- A **minimum of 50 credits from the focus areas AGC, MLMD, ANAT, DSO, SS and in doing so**
  - A minimum of 15 credits from AGC, MLMD
  - A minimum of 15 credits from ANAT, DSO, SS
- A **minimum of 10 credits from the focus areas DADMP, A**
- A **minimum of 4 credits from the focus area KCLT**
- Two **seminars** (each 5 credits, typically in the field of your specialisation and not in the first semester)
  → Presentation of seminars offered in the next semester at an event toward the end of each semester (Stud.IP event 6030 in the corresponding semester)

- For the remaining 16 credits, you are **completely free** in your choice of courses
- **German-language** skills at level A1 (minimum)
## Sample Curriculum

### AGC, MLMD
- Cryptanalysis (9 credits)
- Cryptography (9 credits)
- Mathematical Logic (9 credits)

Total (AGC, MLMD): 27 (≥15) credits

### ANAT, DSO, SS
- Partial Differential Equations (6 credits)
- Operator Theory (9 credits)
- Functional Analysis (9 credits)
- Learning Theory (9 credits)

Total (ANAT, DSO, SS): 33 (≥15) credits

In total (AGC, MLMD, ANAT, DSO, SS): 60 (≥50) credits

### Master seminar 1: 5 credits

### Thesis: 30 credits

### DADMP, A
- Visual Analytics (5 credits)
- Network Science (5 credits)
- Advanced Topics in Data Science (5 credits)

Total: 15 (≥10) credits

### KCLT
- Scientific Methods and Technical Writing (5 credits)

Total: 5 (≥4) credits

### Master seminar 2: 5 credits

### Overall Total: 120 (≥120) credits
Additional Study Regulations

• Academic progress: requirement to accumulate at least 20 ECTS points after the first semester or 30 ECTS points after the second semester
  ➢ Failure to do so will inevitably lead to exmatriculation

• Plagiarism assessment: declaration of consent with screening of written work (e.g., use of anti-plagiarism software)
  ➢ Zero tolerance for plagiarism (improper citation of sources/authors and origins of copyrighted material/images etc.) or cheating in examinations

Violations will result in course failure or expulsion from the programme!

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**Course Enrolment and Examinations**

**Stud.IP**
- Sign up only for courses you really intend to take
- Crucial for adequate allocation of resources (suitable lecture halls etc.)
- You should enroll for both lecture (V) and exercise (Ü)

**Examinations**
- HISQIS examination registration is binding!
- Exceptions in cases of hardship must be reported immediately to the Board of Examiners
Research Interests:
• Randomised Algorithms
• Algorithmic Analysis
• Evolutionary Algorithms
• Swarm Intelligence
• Estimation-of-Distribution Algorithms
• Hybridisation and Parallelisation of Metaheuristics
• Evolutionary Processes in Population Genetics
• Combinatorial Optimisation
New Stand-In Professors

Prof. Dr. Elif Bilge Kavun  
*Secure Intelligent Systems*

Prof. Dr. Lorenz Gilch  
*Mathematical Data Science*

Prof. Dr. Jelena Mitrovic  
*Computational Rhetoric and Natural Language Processing*
Stand-In Professors

Prof. Dr. Markus Endres
*Digital Libraries and Web Information Systems*

Prof. Dr. Marco Kuhrmann
*Software Engineering I*
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The Faculty
Computer Science

Prof. Dr. Michael Granitzer
Data Science

Prof. Dr. Joachim Posegga
IT Security

Prof. Dr. Burkhard Freitag
Information Management

Prof. Dr. Stefanie Scherzinger
Scalable Database Systems

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The Faculty
Computer Science

Prof. Dr. Hermann de Meer
Computer Networks & Communication

Prof. Dr. Matthias Kranz
Embedded Systems

Prof. Dr. Stefan Katzenbeisser
Computer Engineering

Prof. Dr. Ignaz Rutter
Theoretical Computer Science

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The Faculty
Mathematics

Prof. Dr. Matthias Brandl
Didactics of Mathematics

Prof. Dr. Tomas Sauer
Digital Image Processing

Prof. Dr. Fabian Wirth
Dynamical Systems

Prof. Dr. Tobias Kaiser
Pure Mathematics
The Faculty Mathematics

Prof. Dr. Thomas Müller-Gronbach
Stochastics and Its Applications

Prof. Dr. Brigitte Forster-Heinlein
Applied Mathematics

Prof. Dr. Jens Zumbrägel
Cryptography

Prof. Dr. Martin Kreuzer
Symbolic Computation
Focus Information and Communication Systems

• Data Science Lab (Granitzer)
• Advanced Topics in Data Science (Granitzer)
• Science and Technology Project in Physical Making, Prototyping and Testing (Kranz)
• Foundations of Energy Systems (de Meer)
• Transaction Systems (Freitag)
• Scaling Database Systems (Scherzinger)
• Multimedia Retrieval (Skopal)
M.Sc. Computer Science Courses

Focus IT Security and Reliability

- IT Security (Posegga)
- Wireless Security (Posegga)
- Dependable Distributed Systems (Reiser)
- Advanced Security Engineering Lab (Katzenbeisser)
- Hardware-Based Security (Katzenbeisser)
- Security of Computer and Embedded Systems (Kavun)

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M.Sc. Computer Science Courses

Focus Programming and Software Systems
- Search-Based Software Engineering (Fraser)
- Empirical Methods for Software Engineering (Kuhrmann)
- Advanced Software Product Development (Fraser, Kuhrmann)
- Virtual Machines and Runtime Systems (Größlinger)
- Programming Styles (Gambi)

Focus Intelligent Technical Systems
- Advanced Imaging (Sauer)
- Security of Computer and Embedded Systems (Kavun)
- Advanced Topics in Management Science: Planning of Complex Interactive Systems (Otto)
Focus Algorithmics and Mathematical Modeling

- Operator Theory (Forster-Heinlein)
- Mathematical Logic (Kaiser)
- Parameterized Algorithms (Rutter)
- Algorithmic Graph Theory and Perfect Graphs (Rutter)
- Computer Algebra (Sauer, Kreuzer)
- Stochastic Analysis (Müller-Gronbach)
- Randomisierte Algorithmen (Sudholt)

General Area

- IT-Sicherheitsrecht
Focus Algebra, Geometry and Cryptography

• Cryptanalysis (Zumbrägel)
• Computer Algebra (Sauer, Kreuzer)

Focus Mathematical Logic and Discrete Mathematics

• Mathematical Logic (Kaiser)
• Parameterized Algorithms (Rutter)
• Algorithmic Graph Theory and Perfect Graphs (Rutter)
• Randomisierte Algorithmen (Sudholt)

Focus Analysis, Numerics & Approximation Theory

• Operator Theory (Forster-Heinlein)
• Advanced Imaging (Sauer)
• Topologie (Glück)
M.Sc. Computational Mathematics Courses

Focus Stochastics, Statistics

- Stochastic Analysis (Müller-Gronbach)
- Computational Statistics – Regression in R (Schnurbus)
- Computational Statistics – Statistical Learning in R (Schnurbus)
- Methoden der Ökonometrie (Fritsch)

Focus Data Analysis, Data Management & Programming

- Data Science Lab (Granitzer)
- Scaling Database Systems (Scherzinger)
- Multimedia Retrieval (Skopal)

Focus Applications

- Foundations of Energy Systems (de Meer)
- Advanced Topics in Management Science: Planning of Complex Interactive Systems (Otto)
- Quantitative Methoden in Finance (Entrop)
- Financial Engineering und Strukturierte Finanzierung (Entrop)
Support for International Master’s Students

International Coordinator

Wolfgang Mages
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E-Mail: masters@fim.uni-passau.de

International Student Assistants

Ashish, Basma, Laura
E-Mail: master-help@fim.uni-passau.de

2 November 2020
Axelle Cheney

The Women’s Representative is responsible for ensuring that no disadvantages arise for female researchers, teaching staff and students.

Contact details:
Axelle Cheney
Room ITZ/IH 246
Innstraße 43
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Axelle.Cheney@uni-passau.de
https://www.fim.uni-passau.de/en/faculty/womens-representative/
Faculty's Student Committee (FSinfo)

We support you in your studies, represent you in university committees, collect and provide old exams, and keep you informed about important dates and deadlines.
Consultation hours
As long as no teaching can be held on campus, our consultation hours are taking place virtually at https://fsinfo.uni-passau.de/videochat.

The schedule will be announced next week via our website and social media.
Contact

Please don’t hesitate to approach us in case you face any problems or open questions regarding your studies!😊

Feel free to give us feedback on teaching in general or on the online teaching in particular.

Office: IM 244 (currently closed)
Mail: fsinfo@uni-passau.de
Homepage: https://fsinfo.fim.uni-passau.de
Chat: https://fsinfo.uni-passau.de/chat

Facebook Twitter Instagram fsinfopassau
Follow-up Q&A session

- Q&A english: stay here
- Q&A german:
  https://uni-passau.zoom.us/j/97700619668

Why?
Our experience is that the questions of international and local students focus on very different topics. To save you some time, we split the Q&A. Of course you are free to decide which one you want to participate in.
FIM Technical Support

General overview of FIM IT services: 
https://www.fim.uni-passau.de/en/it-services/

First Steps - A guide to using the FIM IT services for beginners: 
https://www.fim.uni-passau.de/en/it-services/login-and-account/first-steps/
Support for Degree-Seeking Students

iStudi Coach: your central contact person

Coach for international degree-seeking students:

- Individual orientation: Whom to ask?
- Network of partners inside and outside the University
- Career coaching and application checks
- Career orientation programme: iStudi Pass

Contact details:
Luise Haack
iStudi Coach
Tel.: +49 (0)851 509-1173
Administration Building, VW 106
ZOOM drop-in Wednesday 10-11 am
(access info in Stud.IP)
istudicoach@uni-passau.de
http://www.uni-passau.de/en/iStudi

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iStudi Pass: how does it work?

1. Find all details, registration options and recommended events online: http://www.uni-passau.de/en/iStudiPass

2. Attend at least six training measures from five of the following modules:
   – Application skills
   – Company networking
   – Intercultural skills
   – German language skills
   – Degree success*
   – Volunteering*
iStudi Pass: how does it work?

1. Find all details, registration options and recommended events online: [http://www.uni-passau.de/en/iStudiPass](http://www.uni-passau.de/en/iStudiPass)

2. Next possible events:
   - Get to know student clubs, Stud.IP 62123, Nov. 5 (German), Nov. 13 (English), 6 p.m. CET
   - How to Prepare for (Virtual) Career Events Stud.IP 65208 W, November 10, 6 p.m. CET
   - Virtual Career Event, Stud.IP 65301, November 23, 10 a.m. – 4 p.m. CET

3. Receive a certificate to convince possible employers that you are well prepared for the German job market
iStudi Pass: why to attend?

„Guys, participate in this programme without any considering! It will broaden your horizons in the field of career in Germany. Attend all events even if you have already a stamp in that particular module!“

„It was simply infotainment (information + entertainment)“

„I would definitely recommend this program for every student considering the fact that I managed to get a job offer with no prior work experience.“

...say international students who have completed the programme.
Thank You for Your Attention!
Any Questions?