Welcome Meeting for International Master’s Students of Computer Science and Computational Mathematics

Faculty of Computer Science and Mathematics
Wednesday, 24 April 2019
Introduction

- Prof. Dr. Michael Granitzer, Dean
- Prof. Dr. Tobias Kaiser, Vice Dean
- Prof. Dr. Matthias Brandl, Dean of Studies
- Prof. Dr. Matthias Kranz, Chair of the Board of Examiners

- Dr. Robert Offinger, Faculty Manager
- Wolfgang Mages, International Coordinator
- Luise Haack, iStudi Coach
- International Student Assistants
Agenda

- German Language Skills
- Course Enrolment and Examinations
- Ethical Standards
- M.Sc. Computer Science
- M.Sc. Computational Mathematics
- Support for International Master‘s Students
- Professors
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)
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 binding
- specific sign-up periods for each Faculty
- information event by International Student Assistants before each semester's sign-up period
- exceptions in cases of hardship must be reported immediately to the Board of Examiners
Ethical Standards

- Zero tolerance for plagiarism:
  - Quotations including source and author(s)
  - Origins of copyrighted material/images
- Cheating in examinations: unacceptable!

Violations will result in course failure or expulsion from the programme.
Master’s Programme Computer Science
About the Programme: Structure

• you can put together your **individual curriculum**

• all offered modules (but compulsory seminar and presentation of master’s thesis) and courses 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 the moment. 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

Faculty of Computer Science and Mathematics

24 April 2019
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

(At the moment, only 1. and 2. can be chosen as specialisation by students studying in English exclusively. 3. and 4. with limitations, depending on future staff development within the Faculty.)
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 1\textsuperscript{st} semester, recommended in the 3\textsuperscript{rd} semester
  – presentation of most seminars offered in the next semester at an event toward the end of each semester
  – limited number of participants
  – max. 3 attempts: 3\textsuperscript{rd} fail ultimately irrecoverable (exmatriculation)

• **Master's Thesis & Presentation**
  – usually at the end of your studies (at least 40 ECTS required, recommended 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/thesis
  – 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: 2\textsuperscript{nd} fail ultimately irrecoverable (exmatriculation)
Focus Information and Communication Systems: 68 ECTS

- Multimedia Databases (Döller/Kosch)
- Programming Applications for Mobile Interaction (Kranz)
- Industrial Innovation Lab (Kranz)
- Ideation and Prototyping for Industrial Innovation (Kranz)
- Science and Technology Project in Physical Making, Prototyping and Testing (Kranz)
- Data Science Lab (Granitzer)
- Text Mining Project (Mitrovic/Endres)
- Preference-Based Information Retrieval (Endres)
- Computer Performance Evaluation (Basmadjian)
Focus Intelligent Technical Systems: 21 ECTS

- Block: Search Engine Implementation (Krestel)
- Fourier and Laplace Transforms (Forster-Heinlein)
- Ideals in Numerical Applications (Sauer)

Focus IT Security and Reliability: 37 ECTS

- System Security (Posegga/Cuellar)
- Security Insider Lab II – System and Application Security (Posegga)
- Cloud Security (Reiser)
- Secure Computation (Katzenbeisser)
- Cryptography (Kreuzer)
Focus Algorithmics and Mathematical Modeling: 34 ECTS

- Cryptography (Kreuzer)
- Model Theory (Kaiser)
- Rings and Modules (Zumbrägel)
- Efficient Algorithms (Rutter)

Focus Programming and Software Systems: 25 ECTS

- Software Analysis (Fraser)
- Software Process Engineering (Kuhrmann)
- Functional Programming (Griebl)
- Software Project Management (Palm)

General Area: 9 ECTS

- Functional Analysis (Wirth)
## Sample Curriculum 1

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

- Text Mining (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
- Logics for Computer Scientists (7 credits)
- Computer Algebra (9 credits)

#### Intelligent Technical Systems
- Embedded Systems Programming (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**

<table>
<thead>
<tr>
<th>Master seminar: 5 credits</th>
<th>Thesis: 30 credits</th>
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**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)
- Security Insider Lab II (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)
- Computer Networking and Energy Systems (6 credits)

**Total: 34 (≥30) credits**

- Master seminar: 5 credits
- Thesis: 30 credits

**Overall Total: 121 (≥120) credits**
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)
  \[ \rightarrow \text{presentation of seminars offered in the next semester at an event toward the end of the preceding semester} \]
- **for the remaining 16 credits, you are completely free** in your choice of courses
- **German-language** skills at level A1 (minimum)
Focus Algebra, Geometry and Cryptography : 18 ECTS

- Cryptography (Kreuzer)
- Rings and Modules (Zumbrägel)

Focus Mathematical Logic and Discrete Mathematics: 16 ECTS

- Model Theory (Kaiser)
- Efficient Algorithms (Rutter)

Focus Analysis, Numerics & Approximation Theory: 27 ECTS

- Fourier and Laplace Transforms (Forster-Heinlein)
- Ideals in Numerical Applications (Sauer)
- Functional Analysis (Wirth)
Focus Stochastics, Statistics: 5 ECTS

- Panel Data Analysis (Schnurbus)

Focus Data Analysis, Data Management & Programming: 13 ECTS

- Multimedia Databases (Kosch)
- Data Science Lab (Granitzer)
- Text Mining Project (Mitrovic/Endres)
- Design and Implementation of Search Engines (Krestel)

Focus Applications: 10 ECTS

- Quantitative Methods in Finance (Entrop)
- Market Analysis (Totzek)
- Corporate Finance und Kapitalmärkte (Entrop)
### Sample Curriculum

<table>
<thead>
<tr>
<th>AGC, MLMD</th>
<th>DADMP, A</th>
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<tbody>
<tr>
<td>Cryptanalysis (9 credits)</td>
<td>Visual Analytics (5 credits)</td>
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<tr>
<td>Cryptography (9 credits)</td>
<td>Network Science (5 credits)</td>
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<tr>
<td>Mathematical Logic (9 credits)</td>
<td>Advanced Topics in Data Science (5 credits)</td>
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Total (AGC, MLMD): 27 (≥15) credits

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<thead>
<tr>
<th>ANAT, DSO, SS</th>
<th>KCLT</th>
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<tr>
<td>Continued Fractions (6 credits)</td>
<td>Scientific Methods and Technical Writing (5 credits)</td>
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<td>Operator Theory (9 credits)</td>
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<tr>
<td>Mathematical Logic (9 credits)</td>
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<tr>
<td>Learning Theory (9 credits)</td>
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Total (ANAT, DSO, SS): 33 (≥15) credits

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

<table>
<thead>
<tr>
<th>Master seminar 1: 5 credits</th>
<th>Master seminar 2: 5 credits</th>
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<tr>
<td>Thesis: 30 credits</td>
<td>Overall Total: 120 (≥120) credits</td>
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The iStudi Coach is the contact person for international degree-seeking students.

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

Luise Haack
Project Coordinator Study & Work and iStudi Coach
Innstr. 41, VW 106
Tel.:+49 (0)851 509-1173
Luise.Haack@uni-passau.de
http://www.uni-passau.de/en/iStudi
Drop-in hours Wednesday 9-12
Individual appointments through my profile in Stud.IP
Career Orientation Programme

iStudi Pass

- Attend six training activities from at least five of the following modules to get your certificate:
  - Job seeking and applications
  - Company networking
  - Intercultural skills
  - German language skills
  - Degree success
  - Volunteering

http://www.uni-passau.de/en/iStudiPass

We recommend to complete the programme during two semesters.
iStudi Pass

1. Get your personal pass
   - Register for the pass during the event “Working in Germany – your successful application”
   - Register during the open office hours Wednesdays 9-12, Administration VW 106

2. Select and register for specific events
   - [http://www.uni-passau.de/en/iStudiPass](http://www.uni-passau.de/en/iStudiPass)

3. Document your participation in your pass

4. Receive a certificate to support your application
Career Orientation Programme

Upcoming events

- Presentation of student associations: May 8, 2 to 5 p.m. in front of the refectory (for module “volunteering”)

- Working in Germany – Your Successful Application (introduction): May 7, 6 to 8 p.m. room ITZ SR 004 (Stud.IP 63101)

Registration for workshops organized by the Centre for Careers and Competencies before April 28, e.g.:

- Your Application for Germany, May 24 - 25 (Stud.IP 63102); Job interview training, May 26 (Stud.IP 63106)

- Look out for the pink dot for seminars in English!

- [http://www.uni-passau.de/zkk/](http://www.uni-passau.de/zkk/)
Career Orientation Programme

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 infortainment (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.“
International Coordinator & Student Assistants

International Coordinator

Wolfgang Mages

Room 239, IT-Zentrum (International House)
Phone: 0851/509 3066
E-Mail: masters@fim.uni-passau.de

International Student Assistants

E-Mail: master-help@fim.uni-passau.de
Room 003, IT-Zentrum (International House)

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Faculty of Computer Science and Mathematics

The Faculty

Computer Science

Prof. Dr. Joachim Posegga

IT Security

Prof. Dr. Burkhard Freitag

Information Management

Prof. Dr. Michael Granitzer

Data Science
Faculty of Computer Science and Mathematics

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
New stand-in Professors

Prof. Dr. Ralf Krestel  
*Intelligent Systems*

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

Prof. Dr. Robert Basmadjian  
*Sensorics*

Prof. Dr. Marco Kuhrmann  
*Software Engineering I*
Thank You for Your Attention!
Any Questions?