

Faculty of Computer Science and Mathematics

Infosheet

M.Sc. Computational Mathematics

www.uni-passau.de/en/msc-compmaths

This infosheet applies to programmes started in or after October 2019

Last revised in September 2020

About the programme, entry requirements and how to apply

Basic facts about the programme

Degree awarded: Master of Science (M.Sc.)

Programme start: October (winter semester) and April (summer semester)

Language of instruction: The entire programme is taught in English

Programme description

In addition to being a science in its own right, mathematics plays a fundamental role in the quantitative areas of practically all other academic disciplines, particularly in the natural sciences, engineering, business administration, economics, medicine and psychology. Mathematical results permeate nearly all facets of life and are a necessary prerequisite for the vast majority of modern technologies – and as our IT systems become increasingly powerful, we are able to mathematically handle enormous amounts of data and solve ever more complex problems.

Those studying this programme learn to conduct independent scientific work, critically appraise and classify new scientific discoveries and apply them when solving specific, complex theoretical or practical problems. Special emphasis is placed on developing students' ability to formalise given problems in a way that facilitates algorithmic processing as well as enabling them to choose or develop, and subsequently apply, suitable algorithms to solve problems in an appropriate manner. The degree programme is theoretical in its orientation, with strongly application-oriented components. Students can gain advanced knowledge in the mathematical areas of cryptography, computer algebra, algorithmic algebra and geometry, image and signals processing, statistics and stochastic simulation, dynamical systems and control theory as well as gain expert knowledge in computer science fields such as data management, machine learning and data mining. Furthermore, students will have the chance to learn how to apply their knowledge in areas as diverse as marketing, predictive analytics, computational finance, digital humanities, IT security and robotics.

As English is the lingua franca in the field of mathematics and the literature used is usually only available in English, the degree programme is entirely English-taught, with some exceptions in the elective modules.

Career prospects

Mathematicians continue to enjoy excellent career prospects, as they are highly sought after wherever high-level analytical thinking skills are a requirement. Their potential occupational fields are therefore less limited than is the case with medical doctors or engineers, who specialise in a specific sub-field of their discipline.

Outside of academic and research organisations, mathematicians find employment in nearly all private- and public-sector organisations. Nowadays, mathematicians' work typically makes heavy use of computing technology. Traditionally, mathematicians are employed in the pharmaceutical industry, the financial industry, insurance companies, consulting and business intelligence, market research, logistics, information technology and in the research and development departments of high-tech companies.

The Prospects UK website has pertinent information on job options for mathematicians:

www.prospects.ac.uk/careers-advice/what-can-i-do-with-my-degree/mathematics

Entry requirements

You are eligible for this degree programme if you have an undergraduate/first university degree (bachelor's degree, *Magister*, *Diplom*, state examination or equivalent) in mathematics or a related discipline with a **mathematics component of at least 110 ECTS credits**, earned in a study programme of a standard length of three years, with a **final grade of 2.7** under the German marking system or the relevant equivalent grade in a foreign marking system. Those who have not attained a minimum grade of 2.7, or the relevant foreign equivalent, may still apply if they can prove that they were among the best 70% of graduates of their cohort.

If you completed a **four-year non-ECTS degree**, the 110 ECTS-credit requirement is deemed to be met if approximately two-thirds of your credit points were earned in mathematics-related modules/courses.

As part of the application you must submit an English or German-language abstract or summary of your **undergraduate dissertation/bachelor's thesis/final year project**. If you did not write a dissertation/thesis as a formal part of your prior degree programme, you may instead submit an academic research paper or publication that demonstrates your ability to solve a scientific research problem independently.

Unless **English** was the language of instruction for your prior university education, you should provide a language certificate at level **B2** of the Common European Framework of Reference for Languages (CEFR), such as:

- TOEFL (567 paper-based, 87 internet-based, ITP 543 'silver' or better)
- IELTS (score 5.5)
- Cambridge English Language Assessment at level 'Advanced' (CAE) or 'Proficiency' (CPE)
- or an equivalent English language certificate. **A first degree or secondary education completed exclusively in English** also counts as proof of English-language proficiency.

To facilitate living in Germany, you should ideally also have **German language skills at level A1 CEFR** (beginner's level) or higher. If cannot provide a certificate but meet all other requirements, you will still be admitted to the programme; however, you will be required to complete a compulsory beginner's German course during the first year of study in addition to your regular modules.

If you cannot provide your final bachelor's (or equivalent) university degree certificate and transcript/final student record at the time of application or enrolment, you may submit a written request to the Board of Examiners asking for an extension of the submission deadline by which you have to submit your first degree certificate and outlining the reasons why you are unable to provide them at the current time. The Board of Examiners will grant you a deadline up to no later than the **tenth week** of lectures of the first semester. For this to be approved, you must have already completed all coursework and assessments for your first degree at the beginning of the degree programme at the University of Passau and have submitted a (preliminary) transcript showing a (preliminary) grade of 2.7 or an equivalent foreign grade.

How to apply

For information on how to apply, please visit www.uni-passau.de/en/apply, answer the questions and then follow the link. You will be directed to a **page listing which documents are required for your application and how to start the application process**.

The **application deadlines** for this degree programme are:

- **15 December** for the **April** starting date (**summer semester**),
- **31 May** for the **October** starting date (**winter semester**).

Your application must be **received** by these strict cut-off deadlines to be considered.

If you have any questions on the application and selection procedure, please contact the Student Registration Office, Innstrasse 41, 94032 Passau, Germany, phone +49 851 509 ext. 1127 or 1128, www.uni-passau.de/en/student-registration-office.

Double master's programme

Double master's programme University of Passau – HSE Nizhny Novgorod, Russia

This international, English-taught double degree programme in the field of mathematics offers participants the possibility to spend one year studying at the University of Passau and one year at the Higher School of Economics (HSE) in Nizhny Novgorod. The University of Passau gives credit for courses completed at Nizhny Novgorod and vice-versa, and both institutions award their respective degrees at the end of the programme. Programme participants can choose whether to write the master's thesis at Passau or Nizhny Novgorod.

www.uni-passau.de/en/msc-compmaths/double-masters-with-nizhny-novgorod

At the start of the degree programme

Orientation Week of the Faculty of Computer Science and Mathematics (FIM)

The FIM Orientation Week ('O-Woche') programme comprises:

- **study tips from the FS Info student committee** and the IEEE student society
- practical introduction to the FIM's IT services in a **computer introduction session** (www.fim.uni-passau.de/studium/fuer-studienanfanger/o-woche/rechnereinfuehrung)
- familiarising you with the campus
- guided tours of the library
- various courses and fun activities where you can get to know your fellow students

New students are strongly encouraged to make use of these orientation offers. For details and to register, visit www.fim.uni-passau.de/studium/fuer-studienanfanger/o-woche.

The general O-Woche programme of the University of Passau includes information events on, for instance, how to use the Stud.IP virtual learning environment as well as the University's computing facilities.

www.uni-passau.de/en/getting-started/orientation-weeks

International Students' Orientation Weeks

International students starting out at the University are invited to participate in the special orientation weeks for international students organised by the International Office. Starting a number of weeks before the official beginning of the semester they include **English-language guided tours of the town, campus and university facilities** as well as short-term **German language and area studies courses** – and usually one or two **outings to famous places in Germany**. As the International Students' Orientation Weeks coincide with the regular Orientation Week, new students coming to Passau will be able to take part in both.

www.uni-passau.de/en/orientation

Foreign language training and German courses

While you are studying your degree programme, you can learn a language by taking courses offered by the University's Language Centre, e.g. as part of the **'Key Competencies and Language Training'** module group or if you need to obtain your **A1 certificate in German** during the first year. German as a Foreign Language is only available to international students. Language courses are offered **free of charge to enrolled students** and all languages with the exception of English can be started without any prior language skills on the part of the student.

www.sprachenzentrum.uni-passau.de/en/language-courses

If you do have existing language skills in your chosen foreign language, you are required to take a placement test, the results of which determine the level at which you will join the language course.

Many placement tests are conducted online as C-Tests; you can take these even before the start of the Orientation Week. If no placement tests are carried out for your chosen language, please arrange an interview appointment with the relevant language lecturer well in advance of the start of the language course.

www.sprachenzentrum.uni-passau.de/en/placement-tests

Course catalogue, Stud.IP and HISQIS

The course catalogue can be found at www.uni-passau.de/en/course-catalogue

To **find and register for your courses**, go to Stud.IP (<https://studip.uni-passau.de>). Click on 'Search (the looking-glass symbol)', then 'Course directory', 'Fakultät für Informatik und Mathematik' and finally 'Master Computational Mathematics'. This takes you to the module areas, modules and individual module courses for your degree programme. In addition to this, Stud.IP gives you access to module-related content, timetable functions as well as updates on the module sessions and allows you to engage with lecturers and fellow students via the notice boards.

Finally, Stud.IP is used for managing **CampusCard** (i.e. student ID card) functions. The username and password used for Stud.IP are the same as your University computer network credentials (aka 'ZIM credentials', 'ZIM account' or in German: 'ZIM-Kennung').

HISQIS, another virtual learning environment (VLE) system, is the platform students use to register for **module and language examinations**. It is important to remember that even after you sign up for a lecture, seminar, tutorial etc., you have to sign up separately for the exams in the exam registration period announced during the semester. Use your ZIM credentials to log on to HISQIS.

During the Orientation Week and on the ZIM website (www.zim.uni-passau.de/en/new-student-info) you will be given an introduction to the IT systems of the University of Passau by the Centre for Information Technology and Media Services (ZIM).

Academic calendar

Check the academic calendar for teaching dates and other important dates during the semester. Please note that the **semester break** is the part of each semester during which there is no teaching; however, for administrative purposes the semester break still counts as being within the respective semester. Most **module examinations** take place during the first weeks of the semester break. In many degree programmes, students also have to complete written assignments and internships during the semester break. www.uni-passau.de/en/academic-calendar

Programme structure and course credits

Modular structure and European Credit Transfer and Accumulation System (ECTS)

The programme is divided into modules. A module is a complete unit of study and consists of one or more courses (i.e. lectures, seminars or tutorials) on the same or a closely related topic. Every module has a specific ECTS credit value (aka ECTS load) which reflects the time students are expected to spend on coursework (including both teaching contact hours in class and self-study at home or in the library) if they are to successfully complete the module. A rule of thumb is that one ECTS credit amounts to a student workload of roughly 30 hours, including class attendance and self-study.

You should try to attend all classes for the respective course. Assessments will take the form of written examinations, written assignments, colloquiums, oral presentations, written reports or other assessment formats. Most modules conclude with a written or oral examination, for which you will receive a mark. When you pass the examination, you are awarded the full ECTS credit value of the module.

In order to complete your programme within the standard period of study, you should aim to obtain **approximately 30 ECTS credits every semester**.

Module areas

This degree programme comprises a minimum of 120 ECTS credits, of which 93 ECTS credits are awarded for the taught modules, and the remaining 27 ECTS credits for the master's thesis.

The degree programme is divided into core modules and compulsory elective modules.

The **core modules** are:

- Mathematics seminar module 1 (5 ECTS credits)
- Mathematics seminar module 2 (5 ECTS credits)
- Presentation of your master's thesis (3 ECTS credits)

The **compulsory elective module groups** are:

- 1) Algebra, Geometry and Cryptography
- 2) Mathematical Logic and Discrete Mathematics
- 3) Analysis, Numerics and Approximation Theory
- 4) Dynamical Systems and Optimisation
- 5) Stochastics, Statistics
- 6) Data Analysis and Data Management and Programming
- 7) Applications
- 8) Key Competencies and Language Training

Please see the **appendix** and the **module descriptions** for details about the modules: www.uni-passau.de/fileadmin/dokumente/fakultaeten/fim/dekanat/Anrechenbarkeitstabelle/Modulkatalog-Master-CompMath.pdf

Internships

If you complete an internship you may have it counted towards your M.Sc. Computational Mathematics degree: up to 240 hours (six weeks of full-time work) can be credited with **four ECTS credits** as an elective module in the 'Key Competencies and Language Training' module group). In order for the internship to be credited, at least 50% of the internship content must be related to the degree subject and it must be in the form of a project. You will be supervised by a lecturer from the relevant academic area for the purposes of the internship. Please consult the module catalogue or the following document for information on acceptance for credit and the acceptance process: www.fim.uni-passau.de/fileadmin/dokumente/fakultaeten/fim/dekanat/Anrechenbarkeitstabelle/praktikum_anforderungen.pdf. If you have any questions about the internship, you may contact the academic adviser.

Study abroad

Even if studying abroad is not obligatory in this degree programme, you can still spend a semester or more at one of our many partner universities throughout the world. Furthermore, the Faculty of Computer Science and Mathematics offers a **double degree option** (see page 2).

For details, visit www.uni-passau.de/en/international/going-abroad or www.fim.uni-passau.de/studium/auslandsstudium.

Master's thesis

When writing your thesis, you will demonstrate your ability to independently carry out academic research by applying scientific methods to a defined subject matter.

Prior to commencing the thesis, you will have to accumulate a minimum of 60 ECTS credits in this degree programme.

You will be given **six months** to write the thesis, which should be written in German or English. Once you achieve a pass mark on your thesis, you are awarded **27 ECTS credits** for it.

You may re-attempt a failed master's thesis once; however, you must do this with a new topic.

Award requirements

To successfully complete the programme, you have to earn 13 ECTS credits in the core modules and for the thesis presentation; furthermore, you are required to achieve a pass mark on your thesis, for which you will gain 27 ECTS credits. Finally, you must accumulate a minimum of 80 ECTS credits from compulsory elective modules.

Out of these 80 ECTS credits from the compulsory elective modules:

- at least 4 ECTS credits must come from module group 8;
- at least 10 ECTS credits from module groups 6 and 7;
- at least 50 ECTS credits from module groups 1 to 5, which must be gained as follows:
 - at least 15 ECTS credits from module groups 1 and 2; and
 - at least 15 ECTS credits from module groups 3 to 5.

To pass your master's thesis, you need to achieve a mark of 4.0 or better. To be awarded the degree, you must acquire an overall 120 ECTS credits.

At the end of the degree programme, you should send a **written request for your degree documents** (i.e. the final transcript, degree certificate etc.) to the **Examinations Office**. If you have completed more modules than are required to achieve the overall 120 ECTS credits, you must inform the Examinations Office which modules are to count towards your final grade.

www.uni-passau.de/en/examinations-office/general-information

Voluntary completion of additional modules

In addition to the modules required for the degree programme, you may complete assessments in other modules not required for the degree. A separate transcript will be issued for the marks attained in these additional modules; however, these do not count towards the final grade of your degree. If you wish to attend individual courses from other degree programmes, you have to register directly with the relevant lecturer/module convenor. You will then receive a certificate of attendance, but it will not be listed in your regular transcripts.

Moreover, you can acquire various additional qualifications and certificates (for details, visit www.uni-passau.de/en/study/study-options/additional-qualifications), and all students enrolled at Bavarian universities can take advantage of the virtual course offering of the **Bavarian Virtual University** (*Virtuelle Hochschule Bayern*, www.vhb.org).

Key competencies and career planning

The **Centre for Careers and Competencies (ZKK)** provides students with a comprehensive offering of **transversal skills seminars** and a vast range of resources and services to facilitate students' **job orientation, internship search and career entry**. Through the ZKK, students can find out about internships, student jobs and employment vacancies, as well as apply for scholarships for internships abroad. In the seminars and computer courses you can acquire important interdisciplinary qualifications in addition to your studies. In addition, the ZKK supports you with special seminars on applying for a job and information on career entry in Germany and abroad: www.uni-passau.de/zkk

Additional career and job market services

The University's iStudi Coach offers specific advice to **international degree-seeking students** enrolled at the University of Passau. This service is specifically targeted at international students – which is what the 'iStudi' stands for – and helps you with all your **questions regarding your studies, career orientation and everyday life** in Passau. For details see the 'key contacts' section below or visit www.uni-passau.de/en/istudi.

In addition to this, the Federal Employment Agency offers all students **consultations** at the University **for study and careers guidance** and **academic employment services**.
www.uni-passau.de/studium/service-und-beratung/studienberatung/berufsberatung

Doctoral study

This master's programme enables you to work according to scientific principles and thus gives you the prerequisites for doctoral study. When undertaking a doctoral project, you should ideally have already done research in the field of your future doctoral topic in your master's thesis. If you are considering doctoral study, you should contact the supervisor for your master's thesis. The University of Passau offers excellent conditions for pursuing a scientific research project within the framework of a doctorate.
www.fim.uni-passau.de/en/research/doctoral-study

Important examination-related rules and regulations

Regulations and module catalogue

Please visit the programme webpage for the **study and examination regulations** and the **module catalogue**: www.uni-passau.de/en/msc-compmaths

- The **general study and examination regulations** for the faculty's master's programmes and the **subject-specific study and examination regulations** for the degree programme together govern the required assessments and examination modalities for successful completion of the programme.
- The **module catalogue** contains detailed module descriptors, including required assessments. It is also available for download from the following web page: www.fim.uni-passau.de/en/study/module-catalogues

Programme duration and ECTS credits

Standard period of study: four semesters' full-time study, not counting semesters on leave.

Maximum period of study: six semesters. If you have not completed all required modules (i.e. passed all required module examinations) by the end of the sixth semester, the master's examination is deemed to have been failed for the first time; you will be given a further year to complete the missing modules.

If you have not passed all required modules by the end of the eighth semester, you will fail the programme without the possibility of re-sitting the examinations. It is important to understand that this

'*endgültig nicht bestanden*' status, which means 'final fail', also bars you from enrolling in the same degree programme at other German universities.

Guidance interview

During your first year on the programme, you are required to complete a guidance interview with a module convenor – a professor who is in charge of one of your modules. A record will be issued as proof that you have completed this interview.

Exceeding the deadline after the first or second semester

You have to acquire at least **20 ECTS credits** by the end of the **first** semester. If this requirement is *not* met, you must gain at least **30 ECTS credits** by the end of the **second** semester. If you fail to do so, you will be de-registered from the programme and lose your right to take the final examination.

Resits

You may resit failed module examinations up to **two times**; however, you cannot resit an exam that you have previously passed for mark improvement. Resits must take place within one year of failing the module. This resit deadline is not affected by any semesters on leave of absence or termination of enrolment.

Cheating in examinations; plagiarism (see §13(3) AStuPO)

If you attempt to influence the result of an assessment by **cheating** (e.g. plagiarism or use of unauthorised examination aids), the assessment in question is assigned a mark of 5.0 ('insufficient', '*nicht ausreichend*') or 'fail' ('*nicht bestanden*').¹

Plagiarism occurs when someone violates the intellectual property of others by making unauthorised use of their **copyrighted work**, either intentionally or by acting with gross negligence. Specifically, you commit plagiarism if you present someone else's work (e.g. scientific findings, hypotheses, theories or research approaches) as your own.

It is important that you familiarise yourself with the **citation style** used in your academic discipline. If you are unsure about something or have specific questions, please contact the lecturer of the respective course or your master's thesis supervisor.

When submitting your written work, you also have to enclose the following:

- A declaration that the written work was written independently and without undue assistance and that all aids and sources used, as well as passages reproduced from other works either verbatim or in paraphrased form, have been identified as such.
- A written declaration that you agree to the use of anti-plagiarism software by examiners when marking the thesis.

You must comply with the University's **Rules for the Ascertainment of Good Academic Practice (by-laws)**² for all written papers, such as presentations, seminar papers, master's theses, etc. Such written work should usually be submitted in electronic form.

The University Library offers courses on **reference management software**. For details and dates, see www.ub.uni-passau.de/en/publishing/reference-management and, specifically for LaTeX & BibTex, www.ub.uni-passau.de/suchen-finden/fachinformation/informatikmathematik (German text).

Credit transfers

If you wish to apply for a credit transfer, i.e. having coursework or assessments completed elsewhere or for a different programme counted towards your current degree programme, please contact the module convenor or the Board of Examiners of the Faculty of Computer Science and Mathematics.

¹ In written examinations, an attempt to cheat shall be deemed to have occurred if an invigilator finds prohibited aids on or near the candidate's desk. The Board of Examiners will permanently revoke a student's right to sit the master's examination of the M.Sc. Computational Mathematics programme if the student was found to have cheated or attempted to cheat repeatedly during his/her studies and it considers the severity of the transgression to be of a level that warrants this step.

² www.uni-passau.de/fileadmin/dokumente/beschaefigte/Rechtsvorschriften/sonstige_Vorschriften/Satzung_wissenschaftliches_Fehlverhalten.pdf

Module convenors are listed in the module catalogue. The credit transfer form can be downloaded from www.uni-passau.de/en/examinations-office/general-information.

Illness and inability to attend examinations

If you fall ill before an exam, you must decide whether to withdraw from the exam due to illness **before the start of the exam**. A **medical certificate** is required. If you become ill during an examination and have to abort the examination, you must provide a medical certificate issued by an **official medical officer ('Amtsarzt')**.

In either case you must submit the completed **Inability to Attend Examinations due to Illness Form** at the earliest opportunity. You should submit the form and medical certificate to the Examinations Office as described in the **information sheet on inability to attend examinations**. Please make sure you follow the information given in the leaflet! For the form and information sheet, visit the Examinations Office website: www.uni-passau.de/en/examinations-office/general-information

If you **fall ill for a longer period of time** during the semester, it may be expedient for you to take leave of absence for the whole semester. Leave of absence must be requested from the Student Registration Office (using the Leave of Absence Request Form), and you will need a certificate from a registered doctor stating that you are unable to study and sit exams in the current semester. You cannot request leave of absence retroactively after the end of the semester. For the Leave of Absence Request Form and further information, visit the Student Registration Office's website: www.uni-passau.de/en/study/getting-organised/reregistration/leave-of-absence

If you receive a **BAföG** loan/grant, please note that **interrupting your studies for more than three months** due to illness will result in your BAföG loan/grant being **terminated**. If you find yourself in this situation, contact the Welfare Office of the Student Services Association (Studentenwerk): www.stwno.de/en/counseling/kontakt-6-en.

Access arrangements for people with disabilities or chronic illness

If you have a physical or mental disability or suffer from chronic illness, you may be able to apply for an access arrangement (e.g. additional time for written examinations or similar). Requests for access arrangements should be addressed to the chairperson of the Board of Examiners and submitted to the Examinations Office. Further details: www.uni-passau.de/en/disabilities

Examinations and credit transfers

The Examinations Office has overall responsibility for all examinations-related matters, including credit transfers. It also issues your final examination certificate upon request.

Your contact for enquiries on exam-related questions for this programme is:

Ms Gerlinde Lang
Examinations Office 1
Innstrasse 41, 94032 Passau
Phone: +49 851 509 1198
gerlinde.lang@uni-passau.de

For information and forms, visit www.uni-passau.de/en/examinations-office/exam-information-on-the-masters-programmes-of-the-faculty-of-computer-science-and-mathematics and www.uni-passau.de/en/examinations-office/general-information.

Accommodation, student finance and support

Accommodation in Passau

The Student Services Association (Studentenwerk) runs four student halls of residence in Passau. In addition to these state-run student residences, there are other residential complexes operated by the Church or private organisations. Finally, the private housing market offers many flats (apartments), which can be rented by students, often as shared flats. For a more detailed description of the accommodation available in Passau, visit www.uni-passau.de/en/housing.

Once it has been validated, the CampusCard serves as a semester bus pass, allowing you to use the buses in Passau around the clock. Buses are a convenient way to travel to and from the University, particularly if your flat is located in a district that is further away from the city centre. www.uni-passau.de/en/international/coming-to-passau/getting-settled/semester-bus-pass

If you are an international student and wish to **arrange accommodation for the first semester** through the University, please contact Ms Alexandra Winterkorn of the International Office:

International Office
Room 106, Administration building
Innstrasse 41, 94032 Passau
E-mail: alexandra.winterkorn@uni-passau.de
Phone: +49 851 509 1161
Fax: +49 851 509 1164
www.uni-passau.de/en/accommodation

If you need temporary accommodation for the first days or weeks after your arrival, the tourist information office provides details about **hotels, B&Bs and guest houses**:

Tourist Information Passau
Rathausplatz 3, 94032 Passau
Phone: +49 851 955980
E-mail: tourist-info@passau.de
www.passau.de

Student loans and grants (BAföG)

If you would like to receive financial support in accordance with the federal training assistance act (*Bundesausbildungsförderungsgesetz; BAföG*), you should submit your application in good time before the start of the semester. Information and application forms can be found at www.bafög.de.

Scholarships

There are a large number of scholarships available to students, such as the *Deutschlandstipendium* scholarship (which is equally available to foreign nationals, despite the potentially misleading name). Make sure you find out early on about the various funding opportunities available to you. A good way to start is by attending one of the information events or visiting www.uni-passau.de/en/scholarships.

Key contacts at the University of Passau

Programme Adviser

Please contact the programme convenor if you have in-depth questions, particularly if you are at an advanced stage of the programme:

Professor Tobias Kaiser
Room IM 228, Innstrasse 33
Phone: +49 851 509 3138
Fax: +49 851 509 2866
E-mail: tobias.kaiser@uni-passau.de

Academic Advice Service

The Academic Advice Service provides information on the degree programme and advises students who are unsure which degree programme to apply for, those who are thinking of transferring programmes or changing subjects as well as students who wish to discontinue their studies. Contact us in person, by phone or e-mail to make an appointment.

Academic Advice Service, Innstrasse 39, 94032 Passau
Phone: +49 851 509 1154 (Mon to Fri 8:30 a.m. to 12 noon and Mon to Thurs 1 to 3 p.m.)
Please make an appointment for a consultation session.
Drop-in hours: Wed 9:00 a.m. – 12:00 noon
E-mail: advice@uni-passau.de
www.uni-passau.de/en/academic-advice

International Coordinator and International Student Assistants

International students at the Faculty of Computer Science and Mathematics receive support from the **International Coordinator**, Mr Wolfgang Mages (wolfgang.mages@uni-passau.de), and the **International Student Assistants** (master-help@fim.uni-passau.de). You may ask them if you encounter any problems related to your studies at the University or life in Passau.

iStudi Coach: job-market coaching for international students

The University's iStudi Coach offers specific advice to international degree-seeking students enrolled at the University of Passau. This service is specifically targeted at international students – which is what the 'iStudi' stands for – and helps you with all your **questions regarding your studies, career orientation and everyday life** in Passau. The '**iStudi Pass**' programme helps you to prepare for entering the job market in and around Passau. To be able to answer your questions as fully as possible, the iStudi Coach co-operates with the Academic Advice Service, the Centre for Careers and Competencies and the International Office as well as a network of partners within and outside the University. For details, visit www.uni-passau.de/en/istudi-coach.

Examinations Office

The Examinations Office has overall responsibility for all examinations-related matters. Visit the Examinations Office website for important information and applications concerning your degree programme. Website: www.uni-passau.de/en/examinations-office

Student Services Association (Studentenwerk Niederbayern/Oberpfalz)

The Student Services Association runs the refectory, cafeterias and student halls of residence, provides student welfare advice and facilitates involvement in cultural projects, e.g. theatre, film, photography, art, dance and music. Student Services Association staff also offer advice on social and financial matters. For information on our range of services, visit www.stwno.de/en.

For an overview of all advice services, visit www.uni-passau.de/en/study/services-and-advice.

Student societies related to the programme

Student committee (FS Info)

The student committee ('Fachschaft') of the Faculty of Computer Science and Mathematics, FS Info, can help you with matters related to student life from a student perspective. It also represents students' interests in university policy committees and organises numerous leisure activities.

Room IM 244, Innstrasse 33

Phone: +49 851 509 3004

<https://fsinfo.uni-passau.de>

IEEE Student Branch Passau

The Institute of Electrical and Electronics Engineers (IEEE), is the world's largest professional association of electrical engineering and computer science. IEEE organises conferences, publishes technical journals and forms committees for technical standards for hardware and software. The IEEE Student Branch Passau organises workshops by students for students and establishes contacts to the business community through excursions and company presentations. In addition, its information for first-semester students, lectures and professors' introductions are intended to make everyday study easier. <https://ieee.uni-passau.de>

PROGRAMME STRUCTURE

The degree programme is divided into **core modules** and **compulsory elective modules**. The compulsory elective modules are divided into eight module groups.

In order to gain your degree, you must complete:

- 1) all **core modules** (see table A)
- 2) at least 80 ECTS credits' worth of **compulsory elective modules** (see table B); of these:
 - a. at least 4 ECTS credits must come from module group 8;
 - b. at least 10 ECTS credits from module groups 6 and 7;
 - c. at least 50 ECTS credits from module groups 1 to 5 inclusive; these 50 ECTS credits must, in turn, be sub-divided as follows:
 - i. at least 15 ECTS credits from module groups 1 and 2; and
 - ii. at least 15 ECTS credits from module groups 3 to 5.

You must obtain at least 60 ECTS credits on the programme before you are allowed to commence writing your master's thesis.

Please read the **module descriptions** for detailed information about the available modules in each module group:

www.uni-passau.de/fileadmin/dokumente/fakultaeten/fim/dekanat/Anrechenbarkeitstabelle/Modulkatalog-Master-CompMath.pdf

A) CORE MODULES

<i>Module title</i>	<i>ECTS credits</i>	<i>Assessment</i>
Mathematics seminar module 1	5	A written presentation paper (no more than 10 pages) and the oral presentation itself (45 to 90 minutes in length); the exact form of assessment will be announced on the noticeboards and on the faculty website by the start of the semester.
Mathematics seminar module 2	5	A written presentation paper (no more than 10 pages) and the oral presentation itself (45 to 90 minutes in length); the exact form of assessment will be announced on the noticeboards and on the faculty website by the start of the semester.
Presentation of your thesis	3	Presentation (45 to 90 minutes in length); the examiner will announce the exact duration beforehand.

B) COMPULSORY ELECTIVE MODULE GROUPS

<i>Module group</i>	<i>Description</i>
1) Algebra, Geometry and Cryptography	This module group imparts advanced results in the areas of algebra and geometry, which constitute the fundament for algorithmic calculations, particularly in cryptography but also in many other mathematical areas.
2) Mathematical Logic and Discrete Mathematics	The theoretical possibilities and limitations of algorithm-based solutions are treated in this module group.
3) Analysis, Numerics and Approximation Theory	Methods from the fields of mathematical analysis, applied harmonic analysis and approximation theory for modelling and approximating continuous and discrete data and systems as well as efficient numerical implementation and evaluation of these methods are the scope of this module group.

4) Dynamical Systems and Optimisation	Dynamical systems theory deals with the description of change over time. This module group is concerned with methods used for the modelling, analysis, optimisation and design of dynamical systems, as well as the numerical implementation of such techniques.
5) Stochastics, Statistics	This module group deals with methods for modelling and analysing complex random phenomena as well as the construction, analysis and optimisation of stochastic algorithms and techniques used in statistical data analysis.
6) Data Analysis and Data Management and Programming	This module group examines the core methods used in computer science for the analysis of data of heterogeneous modalities (e.g. multimedia data, social networks and sensor data) and for the realisation of data analysis systems.
7) Applications	In this module group, students practise applying the mathematical methods learned in module groups 1 to 6 to real-world applications such as Marketing, Predictive Analytics and Computational Finance.
8) Key Competencies and Language Training	In this module group, students choose seminars that develop their non-subject-specific skills, such as public speaking, academic writing and other soft skills; they may also undertake internships. This serves to complement their technical expertise gained during their degree studies and helps to prepare them for their professional life after university.
