

Welcome Meeting for International Master's Students of Computer Science, Mobile and Embedded Systems and Computational Mathematics



Faculty of Computer Science and Mathematics
Monday, 15th October 2018

- Prof. Dr. Michael Granitzer, Dean
- Prof. Dr. Tobias Kaiser, Vice Dean
- Prof. Dr. Matthias Brandl, Dean of Studies
- Prof. Dr. Joachim Posegga, Internationalization Representative of the Faculty

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

The Faculty Computer Science



Prof. Dr. Joachim Posegga
IT Security

Prof. Dr. Michael Granitzer
Media Computer Science



Prof. Dr. Burkhard Freitag
Information Management

The Faculty Computer Science



Prof. Dr. Matthias Kranz
Embedded Systems



Prof. Dr. Ignaz Rutter
Theoretical Computer Science

Prof. Dr. Hermann de Meer
Computer Networks & Communication



Prof. Dr. Gerold Hölzl
Computer Engineering
(stand-in professor)



The Faculty Computer Science

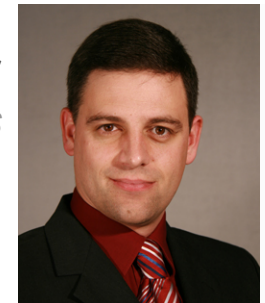


Prof. Dr. Gordon Fraser
Software Engineering II

Prof. Dr. Harald Kosch
Distributed Information Systems



JProf. Dr. Hans Reiser
Security in Information Systems



Prof. Dr. Sven Apel
Software Engineering I

The Faculty Computer Science



Prof. Dr. Sven Tomforde
Complex and Intelligent Systems
(stand-in professor)

Dr. Janet Siegmund
Junior Research Group PICCARD



Prof. Dr. Markus Baum
Sensorics
(stand-in professor)

N.N.
*Digital Libraries and
Web Information Systems*



The Faculty Mathematics



Prof. Dr. Matthias Brandl
Didactics of Mathematics

Prof. Dr. Tomas Sauer
Digital Image Processing



Prof. Dr. Tobias Kaiser
Pure Mathematics



Prof. Dr. Fabian Wirth
Dynamic Systems

The Faculty Mathematics



Prof. Dr. Brigitte Forster-Heinlein
Applied Mathematics

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



Prof. Dr. Jens Zumbrägel
Cryptography



Prof. Dr. Martin Kreuzer
Symbolic Computation

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.



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)



Master's Programme Computer Science



- 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

Link for further information:

www.fim.uni-passau.de/en/study/acceptability-for-credit-transfers/ or

Uni Passau→Faculty→Faculty of Computer Science and Mathematics→Study→Acceptability for credit transfers:

“list of English-taught courses”

German-Taught Courses

- 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
- Please refer to the German-language programme documentation for details on the German-taught courses

Five Focus Areas:

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

- You can currently choose from **three focus areas as your specialisation** if you intend to study the whole programme exclusively in English
 - Information and Communication Systems
 - IT Security and Reliability
 - Intelligent Technical Systems (with slight restrictions)
- The focus areas
 - Algorithmics and Mathematical Modeling *and*
 - Programming and Software Systems

do not 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.

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)
Look for potential topics for theses on the pages of the chairs and professorships: www.fim.uni-passau.de/en/study/thesis/
- 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)
 - typically not in the first semester
 - presentation of all the offered seminars for next semester
at the end of the preceding semester
- 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)

Modules for the Information and Communication Systems focus 1

Course number	Course title	Alternative English course title	Course convenor	ECTS	WS 18/19 / Lecturer
5721	Foundations of Energy Systems		de Meer	6	Yes / de Meer
5723	Computer Performance Evaluation		de Meer	6	No
5724	Sicherheit in Netzen	Network Security	de Meer	6	No
5725	Methodological Foundations of Distributed Systems		de Meer	6	No
5727	Energy Informatics		de Meer	6	No
5740	Transaktionssysteme	Transaction Systems	Freitag	7	No
5741	Cloud Data Management	(Only German)	Freitag	7	No
5742	Semantische Technologien	Semantic Technologies	Freitag	7	Yes / Freitag
5747	Datenbanktechnologien	Database Technologies	Freitag	7	Yes / Freitag
5771	Multimedia-Datenbanken	Multimedia Databases	Kosch	7	No
5772	Web of Things and Services		Kosch	5	No
5773	Implementierung von Datenbanksystemen	(Only German)	Kosch	7	No
5800	Mixed Reality		Kranz, Grubert	5	No
5802	Spatial Augmented Reality		Kranz, Grubert	5	No

Modules for the Information and Communication Systems focus 2

Course number	Course title	Alternative English course title	Course convenor	ECTS	WS 18/19 / Lecturer
5807	Programming Applications for Mobile Interaction		Kranz	7	No
6000	Innovative Industrial Software		Kranz	5	No
6002	Industrial Innovation Lab		Kranz	15	Yes / Kranz
6001	Ideation & Prototyping for Industrial Innovation		Kranz	5	Yes / Kranz
6003	Science and Technology Project in Physical Making, Prototyping and Testing		Kranz	8	Yes / Kranz
5942	Network Science/Social and User Centered Aspects of Web-based Information Systems		Granitzer	5	No
5944	Data Science Lab		Granitzer	6	No
5946	Visual Analytics		Granitzer	5	No
5945	Advanced Topics in Data Science		Granitzer	5	Yes / Granitzer, Jurgovsky
5980	Text Mining		N.N.	7	No
5981	Text Mining Project		N.N.	8	No
	Forschungsseminar im Schwerpunkt Informations- und Kommunikationssysteme	Research Seminar for the Information and Communication Systems focus	Lecturer from focus	5	Yes / Lecturer from focus

Modules for the IT Security and Reliability focus

Course number	Course title	Alternative English course title	Course convenor	ECTS	WS 18/19 / Lecturer
5622	System Security		Posegga	5	No
5782	Kryptographie	Cryptography	Kreuzer; Zumbrägel	9	No
5820	Advanced IT-Security		Posegga	6	Yes / Posegga, Pöhls
5821	Wireless Security		Posegga	5	No
5822	Security Insider Lab II – System and Application Security		Posegga	12	No
5823	Security Insider Lab I - Infrastructure Security		Posegga	12	Yes / Posegga, Belgacem
5824	Cloud Security		Possega; Reiser	6	No
5880	Dependable Distributed Systems		Reiser	6	Yes / Reiser
5881	Privacy Enhancing Techniques		Posegga	3	Yes / Posegga, Cuellar
	Forschungsseminar im Schwerpunkt IT- Security and Reliability	Research Seminar for the IT Security and Reliability focus	Lecturer from focus	5	Yes / Lecturer from focus

More modules are to be expected after refilling of the chair of *Computer Engineering*.

Modules for the Intelligent Technical Systems focus

Course number	Course title	Alternative English course title	Course convenor	ECTS	WS 18/19 / Lecturer
5734	Learning Theory		Sauer	9	No
5754	Constructive Approximation		Sauer	9	No
5757	Fourier- und Laplace-Transformation	Fourier and Laplace Transforms	Forster-Heinlein	9	No
5970	Sensor Data Fusion (Block Course)		Baum	9	Yes / Baum
5803	Context Recognition Architectures		Kranz	5	No
5951	Organic Computing		Tomforde	6	No
5963	Mathematische Systemtheorie	Mathematical Systems Theory	Wirth	9	Yes / Wirth
5968	Praktikum Regelung und Robotik		Wirth	7	No
NEW	Vernetzte Dynamische Systeme	Networked Control Systems	Wirth	6	No
NEW	ITS Practical		Forster-Heinl.; Sauer; Wirth	9	No
NEW	Mobile Human-Computer Interaction		Kranz	8	No
5804	Scientific Methods and Technical Writing		Kranz	5	No
6004	Embedded Systems Programming		Kranz	7	No
5956	Autonomous Learning		Tomforde	6	Yes / Tomforde
5995	Advanced Imaging		Sauer	6	No
NEW	Geometric Modeling Project		Sauer	9	No
5736	Continued Fractions		Sauer	6	Yes / Sauer
	Forschungsseminar im Schwerpunkt Intelligente Technische Systeme	Research Seminar for the Intelligent Technical Syst. focus	Lecturer from focus	5	Yes / Lecturer from focus

Modules for the Algorithmics and Mathematical Modelling focus 1

Course number	Course title	Alternative English course title	Course convenor	ECTS	WS 18/19 / Lecturer
5670	Computational Logic		Kreuzer	7	No
5710	Algorithmische Graphentheorie und perfekte Graphen	(Only German)	Rutter	5	No
5712	Algorithmen zur Visualisierung von Graphen	(Only German)	Rutter	5	Yes / Rutter
5781	Algorithmische Algebraische Geometrie	Computational Algebraic Geometry	Kreuzer; Le	9	No
5780	Computeralgebra	Computer Algebra	Kreuzer; Sauer	9	Yes / Kreuzer
5784	Codierungstheorie	Coding Theory	Kreuzer	7	No
5811	Stochastische Prozesse	Stochastic Processes	Müller-Gronbach	9	No
5814	Wahrscheinlichkeitstheorie	(Only German)	Müller-Gronbach	9	No
5815	Computational Stochastic Processes		Müller-Gronbach	6	No
6021	Einführung in die Statistik	(Only German)	Müller-Gronbach; Gilch	6	Yes / Gilch
5731	Einführung in die Numerik	(Only German)	Sauer	9	Yes / Sauer
5371	Stochastische Analysis	Stochastic Analysis	Müller-Gronbach	9	Yes / Müller-Gronbach

Modules for the Algorithmics and Mathematical Modelling focus 2

Course number	Course title	Alternative English course title	Course convenor	ECTS	WS 18/19 / Lecturer
5832	Algebra und Zahlentheorie I	(Only German)	Kreuzer; Kaiser; Zumbrägel	9	No
5861	Mathematische Logik	(Only German)	Kaiser	9	Yes / Kaiser
5873	Operator Theory	(Only German)	Forster- Heinlein	9	No
5962	Control of Stochastic Systems		Wirth	2	No
5964	Dynamische Systeme	(Only German)	Wirth; Mironchenko	9	No
5992	Stochastic Partial Differential Equations		Müller- Gronbach	7	No
5993	Numerical Methods for Stochastic Partial Differential Equations I	(Only German)	Müller- Gronbach; Yaroslavtseva	4	No
5996	Markov-Ketten	(Only German)	Müller- Gronbach; Gilch	7	No
5998	Numerical Methods for Stochastic Partial Differential Equations II	(Only German)	Müller- Gronbach; Yaroslavtseva	4	No
5753	Distributionentheorie	(Only German)	Forster- Heinlein	9	Yes / Forster-Heinlein
	Forschungsseminar im Schwerpunkt Algorithmik und Mathematische Modellierung	Research Seminar for the Algorithmics and Mathematical Modelling focus	Lecturer from focus	5	Yes / Lecturer from focus

Modules for the Programming and Software Systems focus

Course number	Course title	Alternative English course title	Course convenor	ECTS	WS 18/19 / Lecturer
5614	Abhängigkeitsanalyse	(Only German)	Griebel; Lengauer	6	No
5616	Schleifenparallelisierung	(Only German)	Griebel; Lengauer	6	No
5791	Funktionale Programmierung	Functional Programming	Lengauer	6	No
5792	Typen und Programmiersprachen	(Only German)	Apel	6	No
5795	Virtuelle Maschinen und Laufzeitsysteme	(Only German)	Größlinger; Apel	6	Yes / Größlinger
5796	Domänenspezifische Sprachen	(Only German)	Größlinger; Lengauer	6	No
5853	Empirische Methoden für Informatiker	Empirical Methods for Computer Scientists	Apel; Siegmond	6	No
	Forschungsseminar im Schwerpunkt Programmierung und Softwaresysteme	Research Seminar for the Programming and Software Systems focus	Lecturer from focus	5	Yes / Lecturer from focus

Modules “General Area”

Course number	Course title	Alternative English course title	Course convenor	ECTS	WS 18/19 / Lecturer
5720	Modellierung und Beherrschung komplexer Systeme	Modeling and Control of Complex Systems	de Meer	7	No
5722	Funktionale Sicherheit	Functional Security	de Meer	6	Yes / Reiser, Abid, Basmadjian
5753	Signalanalyse	Signal Analysis	Forster-Heinlein	6	No
5756	Funktionalanalysis	Functional Analysis	Forster-Heinlein	9	No
5750	Gewöhnliche Differenzialgleichungen	(Only German)	Forster-Heinlein; Wirth	9	No
5810	Statistische Datenanalyse	Statistical Data Analysis	Müller-Gronbach	9	No
5871	Mathematische Grundlagen des CAGD	(Only German)	Sauer; Zimmermann	3	No
5875	IT-Sicherheitsrecht aus öffentlich-rechtlicher Perspektive	(Only German)	Heckmann	5	Yes / Hartl
5876	IT-Sicherheitsrecht aus zivilrechtlicher Perspektive	(Only German)	Heckmann	5	No
5891	Software-Projektmanagement	(Only German)	Palm	7	No
5908	Wavelet-basierte Methoden in der Bildverarbeitung	(Only German)	Forster-Heinlein; Nagler	6	No
	Praktikum	Internship	Programme convenor	4	Yes / Lecturer from programme

Examples of Individual Curricula

Sample Curriculum 1	Sample Curriculum 2
<p>Specialisation: focus area Information and Communication Systems</p> <ul style="list-style-type: none"> 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) <p>Total: 40 (≥40) credits</p>	<p>Specialisation: focus area IT Security and Reliability</p> <ul style="list-style-type: none"> System Security (5 credits) Security Insider Lab I (12 credits, limitation of participants) Wireless Security (5 credits) Cloud Security (6 credits) Dependable Distributed Systems (6 credits) Security Insider Lab II (12 credits, limitation of participants) Advanced IT Security (6 credits) <p>Total: 52 (≥40) credits</p>
<p>Outside your specialisation</p> <p>Algorithmics and Mathematical Modelling</p> <ul style="list-style-type: none"> Logics for Computer Scientists (7 credits) Computer Algebra (9 credits) <p>Intelligent Technical Systems</p> <ul style="list-style-type: none"> Embedded Systems Programming (7 credits) <p>IT Security and Reliability</p> <ul style="list-style-type: none"> Cloud Security (6 credits) Dependable Distributed Systems (6 credits) Advanced IT Security (6 credits) <p>General Area</p> <ul style="list-style-type: none"> Internship (4 credits) <p>Total: 45 (≥30) credits</p>	<p>Outside your specialisation</p> <p>Information and Communication Systems</p> <ul style="list-style-type: none"> Web of Things and Services (5 credits) Foundations of Energy Systems (6 credits) Network Science/Social and User Centered Aspects of Web-based Information Systems (5 credits) Advanced Topics in Data Science (5 credits) Multimedia Databases (7 credits) Computer Networking and Energy Systems (6 credits) <p>Total: 34 (≥30) credits</p>
<p>Master seminar: 5 credits</p>	<p>Master seminar: 5 credits</p>
<p>Thesis: 30 credits</p>	<p>Thesis: 30 credits</p>
<p>Overall Total: 120 (≥120) credits</p>	<p>Overall Total: 121 (≥120) credits</p>

Master's Programme Mobile and Embedded Systems



- 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

Link for further information:

www.fim.uni-passau.de/en/study/acceptability-for-credit-transfers/ or

Uni Passau→Faculty→Faculty of Computer Science and Mathematics→Study→Acceptability for credit transfers:

“list of English-taught courses”

Three Focus Areas:

1. Human-Computer Interaction
2. Systems Engineering
3. Data Processing, Signals and Systems

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)
Look for potential topics for theses on the pages of the chairs and professorships: www.fim.uni-passau.de/en/study/thesis/
- a **minimum of 30 credits from your specialisation** modules (chosen focus area)
- a **minimum of 15 credits from each of the other two non-specialisation** module groups (not from “General Area”)
- One **seminar** (5 credits, typically in the field of your specialisation)
 - typically not in the first semester
 - presentation of all the offered seminars for next semester at the end of the preceding semester
- For the remaining 25 credits, you are **completely free** in your choice of courses (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)

Modules for the Human-Computer Interaction focus

Course number	Course title	Alternative English course title	Course convenor	ECTS	WS 18/19 / Lecturer
NEW	Mobile Human-Computer Interaction		Kranz	8	No
5800	Mixed Reality		Kranz	5	No
5802	Spatial Augmented Reality		Kranz	5	No
5807	Programming Applications for Mobile Interaction		Kranz	7	No
6002	Industrial Innovation Lab		Kranz	15	Yes / Kranz
6001	Ideation & Prototyping for Industrial Innovation		Kranz	5	Yes / Kranz
6000	Innovative Industrial Software		Kranz	5	Yes / Kranz
6003	Science and Technology Project in Physical Making, Prototyping & Testing		Kranz	8	Yes / Kranz
5853	Empirical Methods for Computer Scientists		Apel; Siegmund	6	No
5742	Semantic Technologies		Freitag	7	Yes / Freitag
5721	Foundations of Energy Systems		de Meer	6	Yes / de Meer
5942	Network Science/Social and User Centered Aspects of Web-based Information Systems		Granitzer	5	No
5946	Visual Analytics		Granitzer	5	No
45341	Psychologie der Mensch-Maschine Interaktion für Master MES	(Only German)	Mayr	6	No
45350	Einführung in die Medienpsychologie	(Only German)	Mayr	5	No
	Research Internship in HCI		all	8	Yes / Lecturer from focus

Modules for the Systems Engineering focus

Course number	Course title	Alternative English course title	Course convenor	ECTS	WS 18/19 / Lecturer
NEW	Embedded Systems Programming		Kranz	7	No
5722	Funktionale Sicherheit	Functional Safety	de Meer	6	Yes / Reiser, Abid, Basmadjian
5727	Energy Informatics		de Meer	6	No
	Research Internship in SE		all	8	Yes / Lecturer from focus

More modules are to be expected after refilling of the chair of *Computer Engineering*.

Modules for the Data Processing, Signals and Systems focus

Course number	Course title	Alternative English course title	Course convenor	ECTS	WS 18/19 / Lecturer
NEW	Vernetzte Dynamische Systeme	Networked Control Systems	Wirth	6	No
5757	Fourier- und Laplace-Transformation	Fourier and Laplace Transforms	Forster-Heinlein	9	No
5803	Context Recognition Architectures		Kranz	5	No
5963	Mathematische Systemtheorie	Mathematical Systems Theory	Wirth	9	Yes / Wirth
5968	Regelung und Robotik	Control and Robotics	Wirth	7	No
NEW	Sensor Data Fusion		Baum	9	Yes / Baum
5981	Text Mining		Lst. Dig. Libraries	7	No
5945	Advanced Topics in Data Science		Granitzer	5	Yes / Granitzer, Jurgovsky
5951	Organic Computing		Tomforde	6	No
5956	Autonomous Learning		Tomforde	6	Yes / Tomforde
	Research Internship in DPSS		all	8	Yes / Lecturer from focus

Modules “General Area”

Course number	Course title	Alternative English course title	Course convenor	ECTS	WS 18/19 / Lecturer
5804	Scientific Methods and Technical Writing		Kranz	5	Yes / Kranz
6002	Industrial Innovation Lab		Kranz	15	Yes / Kranz
6001	Ideation & Prototyping for Industrial Innovation		Kranz	5	Yes / Kranz
6000	Innovative Industrial Software		Kranz	5	Yes / Kranz
5721	Foundations of Energy Systems		de Meer	6	Yes / de Meer
5742	Semantische Technologien	Semantic Technologies	Freitag	7	Yes / Freitag
5811	Stochastische Prozesse	Stochastic Processes	Müller-Gronbach	9	No
5821	Wireless Security		Posegga	5	No
5996	Markov-Ketten	(Only German)	Müller-Gronbach	7	No

Examples of Individual Curricula

Sample Curriculum 1	Sample Curriculum 2
<p>Specialisation: focus area Human-Computer Interaction</p> <ul style="list-style-type: none"> • Mobile Human-Computer Interaction (8 credits) • Visual Analytics (5 credits) • Social and User Centered Aspects of Web-based Information Systems (5 credits) • Programming Applications for Mobile Interaction (7 credits) • Research Internship in Human-Computer Interaction (8 credits) <p>Total: 33 (≥30) credits</p>	<p>Specialisation: focus area Data Processing, Signals and Systems</p> <ul style="list-style-type: none"> • Networked Control Systems (6 credits) • Organic Computing (6 credits) • Autonomous Learning (6 credits) • Advanced Topics in Data Science (5 credits) • Research Internship in Data Processing, Signals and Systems (8 credits) <p>Total: 31 (≥30) credits</p>
<p>Outside your specialisation</p> <p>Data Processing, Signals and Systems focus</p> <ul style="list-style-type: none"> • Advanced Topics in Data Science (5 credits) • Organic Computing (6 credits) • Autonomous Learning (6 credits) <p>Total: 17 (≥15) credits</p>	<p>Outside your specialisation</p> <p>Systems Engineering focus</p> <ul style="list-style-type: none"> • Energy Informatics (6 credits) • Embedded Systems Programming (7 credits) • Software Product-Line Engineering (6 credits) <p>Total: 19 (≥15) credits</p>
<p>Systems Engineering focus</p> <ul style="list-style-type: none"> • Functional Safety (6 credits) • Embedded Systems Programming (7 credits) • Energy Informatics (6 credits) <p>Total: 19 (≥15) credits</p>	<p>Human-Computer Interaction</p> <ul style="list-style-type: none"> • Industrial Innovation Lab (15 credits) • Ideation & Prototyping for Industrial Innovation (5 credits) • Innovative Industrial Software (5 credits) <p>Total: 25 (≥15) credits</p>
<p>General Area</p> <ul style="list-style-type: none"> • Scientific Methods and Technical Writing (5 credits) • Computer Networking and Energy Systems (6 credits) • Wireless Security (5 credits) 	<p>General Area</p> <ul style="list-style-type: none"> • Scientific Methods and Technical Writing (5 credits) • Computer Networking and Energy Systems (6 credits)
<p>Master seminar: 5 credits</p>	<p>Master seminar: 5 credits</p>
<p>Thesis: 30 credits</p>	<p>Thesis: 30 credits</p>
<p>Overall Total: 120 (≥120) credits</p>	<p>Overall Total: 121 (≥120) credits</p>

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)
Look for potential topics for theses on the pages of the chairs and professorships: www.fim.uni-passau.de/en/study/thesis/
- 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)
 - typically not in the first semester
 - presentation of all the offered seminars for next semester at 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)

Modules for the Algebra, Geometry and Cryptography focus

Course number	Course title	Alternative English course title	Course convenor	ECTS	WS 18/19 / Lecturer
5782	Cryptography		Kreuzer; Zumbrägel; Sauer	9	No
NEW	Cryptanalysis		Zumbrägel	9	Yes / Zumbrägel
NEW	Real Algebra		Kaiser	9	No
5780	Computer Algebra		Kreuzer	9	Yes / Kreuzer
NEW	Real Algebraic Geometry		Kaiser	9	No
5781	Algorithmische Algebraische Geometrie	Computational Algebraic Geometry	Kreuzer	9	No
	Seminar in AGC		all	5	Yes / Lecturer from focus

Modules for the Mathematical Logic and Discrete Math. focus

Course number	Course title	Alternative English course title	Course convenor	ECTS	WS 18/19 / Lecturer
5784	Coding Theory		Kreuzer	7	No
NEW	Model Theory		Kaiser	9	No
NEW	Recursion Theory		Kaiser	6	No
NEW	Proof Theory		Kaiser	6	No
5861	Mathematical Logic		Kaiser	9	Yes / Kaiser
5710	Algorithmische Graphentheorie und perfekte Graphen	Algorithmic Graph Theory and Perfect Graphs	Rutter	5	No
5712	Algorithmen zur Visualisierung von Graphen	(Only German)	Rutter	5	Yes / Rutter
	Seminar in MLDM		all	5	Yes / Lecturer from focus

Modules for the Analysis, Numerics & Approximation Theory focus

Course number	Course title	Alternative English course title	Course convenor	ECTS	WS 18/19 / Lecturer
5754	Constructive Approximation		Sauer	9	No
5734	Learning Theory		Sauer	9	No
5736	Continued Fractions		Sauer	6	Yes / Sauer
NEW	Approximation Theory		Forster-Heinlein	6	No
5757	Fourier and Laplace Transforms		Forster-Heinlein	9	No
5753	Distributionentheorie	(Only German)	Forster-Heinlein	9	Yes / Forster-Heinlein
NEW	Geometric Modeling		Sauer	9	No
5873	Operator Theory		Forster-Heinlein	4	No
	Seminar in ANAT		all	5	Yes / Lecturer from focus

Modules for the Dynamical Systems and Optimisation focus

Course number	Course title	Alternative English course title	Course convenor	ECTS	WS 18/19 / Lecturer
NEW	Networked Control Systems		Wirth	6	No
5963	Mathematical Systems Theory		Wirth	9	Yes / Wirth
5965	Partial Differential Equations		Wirth	6	Yes / Wirth
5961	Semigroup Theory		Wirth	7	No
5730	Optimisation		Sauer	9	No
	Seminar in DSO		all	5	Yes / Lecturer from focus

Modules for the Stochastics, Statistics focus

Course number	Course title	Alternative English course title	Course convenor	ECTS	WS 18/19 / Lecturer
5992	Stochastic Partial Differential Equations		Müller-Gronbach	7	No
5815	Computational Stochastic Processes		Müller-Gronbach	6	No
35610	Paneldatenanalyse	(Only German)	Haupt	5	No
35777	Methoden der Ökonometrie I	(Only German)	Haupt	5	Yes / Fritsch
35800	Methoden der Ökonometrie II	(Only German)	Haupt	5	Yes / Fritsch
35550	Topics in Applied Econometrics		Haupt	5	No
5818	Stochastic Analysis		Müller-Gronbach	4	Yes / Müller-Gronbach
5816	Stochastic Differential Equations		Müller-Gronbach	4	No
5993	Numerical Methods for Stochastic Partial Differential Equations I		Müller-Gronbach	4	No
5998	Numerical Methods for Stochastic Partial Differential Equations II		Müller-Gronbach	4	No
35621	Computational Statistics – Regression in R		Haupt	3	Yes / Schnurbus
35622	Computational Statistics – Statistical Learning in R		Haupt	3	Yes / Schnurbus
	Seminar in SS		all	5	Yes / Lecturer from focus

Modules for the Data Analysis, Data Man. & Programming focus

Course number	Course title	Alternative English course title	Course convenor	ECTS	WS 18/19 / Lecturer
5771	Multimedia Databases		Kosch	7	No
5942	Network Science		Granitzer	5	No
5946	Visual Analytics		Granitzer	5	No
5956	Autonomous Learning		Tomforde	6	Yes / Tomforde
5981	Text Mining		N.N.	7	No
NEW	Advanced Topics in Data Science		Granitzer	5	Yes / Granitzer
5944	Data Science Lab		Granitzer	6	No
5773	Implementierung von Datenbanksystemen	(Only German)	Kosch	7	No
5312	Information Retrieval and Natural Language Processing		N.N.	5	No
5363	Complex Systems Engineering		Chair of (Complex &) Intelligent Systems	7	No

Modules for the Applications focus

Course number	Course title	Alternative English course title	Course convenor	ECTS	WS 18/19 / Lecturer
39608	Computational Economics		Krämer	5	No
30902	Quantitative Methoden in Finance	(Only German)	Entrop	5	No
30900	Financial Engineering and Structured Finance	(Only German)	Entrop	5	Yes / Entrop
33860	Marktforschung	(Only German)	Totzek	5	No

Modules for the Key Competencies and Language Training focus

Course number	Course title	Alternative English course title	Course convenor	ECTS	WS 18/19 / Lecturer
5804	Scientific Methods and Technical Writing		Kranz	5	Yes / Kranz
90596	FFA Aufbaustufenmodul 1	English Course 1	Language Center	3	Yes
90597	FFA Aufbaustufenmodul 2	English Course 2	Language Center	3	Yes
	Weitere anrechenbare Schlüsselqualifikationen	All Key Competencies for Mathematics/Comp. Science		1-3	Yes
	Occupational Internship			4	Yes

Examples of Individual Curricula



Sample Curriculum

AGC, MLMD

- Cryptanalysis (9 credits)
- Cryptography (9 credits)
- Mathematical Logic (9 credits)

Total (AGC, MLMD): 27 (≥15) credits

ANAT, DSO, SS

- Continued Fractions (6 credits)
- Operator Theory (9 credits)
- Mathematical Logic (9 credits)
- Learning Theory (9 credits)

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

In total (AGC, MLMD, ANAT, DSO, SS): 60 (≥50) 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 1: 5 credits

Master seminar 2: 5 credits

Thesis: 30 credits

Overall Total: 120 (≥120) credits

iStudi Coach

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

iStudi Pass

- Attend at least one training activity in each of these six modules to get your certificate:
 - Application skills
 - Company networking
 - Intercultural skills
 - Degree success
 - Social network
 - German language skills

Find all recommended events online:

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



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>
3. Document your participation in your pass
4. Receive a certificate to support your application



Upcoming events

- Presentation of student associations: Oct 17, 2 to 5 p.m. in front of the refectory
- Working in Germany – Your Successful Application (introduction):
October 23, 6 to 8 p.m. JUR lecture hall 14 or
October 24, 6 to 8 p.m. JUR lecture hall 14
no registration needed (Stud.IP 63101/63101B)

Registration for workshops organised by the Centre for Careers and Competencies before October 21, e.g.:

- Your Application for Germany,
November 2-3 (Stud.IP 63102)
- Intercultural Competence: Germany (Stud.IP 61093), December 8-9.



ZIM/FIM Technical Support

ZIM IT Support: Room 119 IM, 8 am – 5 pm; for questions concerning your general university account, StudIP, HISQIS and connecting your own devices to the university Wifi network via eduroam:

FIM IT Support:

- **Room 014 IM**, 12 am – 2 pm; for questions concerning FIM specific IT services (FIM account, software requests in FIM labs, using licensed software for free on your own device, special environments for projects, bachelor and master theses)
- **by Phone:** In each FIM computer lab there is a phone. Dial 3013 or 3012
- **by Mail:** support@fim.uni-passau.de.
- **for English speaking students: On-site IT-assistance in the FIM computer labs:** Tuesday and Thursday, 2 pm – 4 pm in the FIM lab K08b IM. On Oct 16th and 18th you will find the English speaking support exceptionally in the ZIM PC-Pool 044 IM where you will get help creating your FIM account.

International Coordinator

Wolfgang Mages

Office Hours: **Monday – Friday, 9:00–17:00**

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)

Time/Day	Monday	Tuesday	Wednesday	Thursday	Friday
	15.10.2018	16.10.2018	17.10.2018	18.10.2018	19.10.2018
10:00 - 12:00			Ashish		Ashish
12:00 - 14:00			Nora		Sara/Sonja

Time/Day	Monday	Tuesday	Wednesday	Thursday	Friday
	22.10.2018	23.10.2018	24.10.2018	25.10.2018	26.10.2018
10:00 - 12:00			Wissal		Wissal
12:00 - 14:00			Nora		Sara/Sonja



**Thank You for Your Attention!
Any Questions?**