2023/24

Please note the year of validity of the module catalogue.

FACULTY OF MANAGEMENT, ECONOMICS AND SOCIAL SCIENCES

UNIVERSITY OF COLOGNE

VICE DEAN OF STUDIES DEPARTMENT

valid for students of the Examination Regulations 2021

(enrolment from winter semester 2021/22)

MODULE CATALOGUE

INFORMATION SYSTEMS

BACHELOR OF SCIENCE

IN ACCORDANCE WITH THE EXAMINATION REGULATIONS FOR THE SINGLE MAJOR BACHELOR PROGRAMME IN INFORMATION SYSTEMS

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List of abbreviations

AM	Advanced module	PR	Project
AS	Assignment	PRES	Presentation
C	Course	SI	Studium Integrale
CC	Compulsory course	SM	Specialisation module
CM	Core module	SPM	Supplementary module
CH	Contact hours (= time spent in class)	SPW	Semester period per week
ECTS	Credit Points	SSt	Self-study
CS	Case study	TP	Term paper
EC	Elective course	TPF	Time required for preparation and follow-up
OE	Oral Examination	TR	Credit points transferred from another university
PRP	Project report	WL	Workload
PCR	Practical component report	WT	Written Test
PO	Portfolio		

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1 Information Systems

Information Systems is an independent, interdisciplinary field, which has its roots in informatics and economics, especially business administration.

The Cologne Institute of Information Systems (CIIS) is responsible for teaching Information Systems at the University of Cologne. In addition, the range of courses is supplemented by teaching assignments and practical contributions. There are extra-curricular workshops on current topics (for example App development, Big Data, Soft-Skills) held at irregular intervals, which are mostly financially supported by companies and are sometimes even hosted by them.

1.1 Content and objectives of the programme

Graduates have competences at level 6 of the German Qualification Framework or the Bachelor level of the German Qualification Framework for Higher Education Qualifications. Intended learning outcomes are shown in the table below. On the one hand, the intended learning outcomes comprise the overarching *learning goals* that the programme envisions for the graduates. On the other hand, they include *learning objectives*, which refer to concrete activities of the students during their studies.

	Graduates act…
Professional and analytical skills	**with a deep understanding of business issues to support organisations in digitalisation and in the development of IT capabilities.**
	Students develop criteria for business decisions in relation to application and information systems.
	Students analyse different concepts for management support and their use for different challenges in companies and other organisations.
	...with a sound specialist knowledge at the interface between business organisation and information technology in order to improve business processes effectively and sustainably.
	Students apply logical and theoretical foundations of computer science and information systems.
	Students independently write an academic paper on a practical information systems problem based on systematised literature/data.
	...as innovative software programmers to find creative software-based solutions to problems.
	Students use a programming language in a solution-oriented manner by independently creating application programs.
	Students develop practical solutions for different areas with digital technologies, taking into account situational environmental factors.
Communicative and cooperative skills	**...as information systems managers in a global and diverse world to address professional issues in information systems.**
	Students defend their independently developed position or solutions to problems.
	Students discuss subject-specific problems in German or English.
	Students work on problems in a goal-oriented and cooperative manner in diverse teams.
Personal skills	**...as responsible employees in order to face the social challenges of the future.**
	Students develop an understanding of the impact of technological decisions, taking into account ecological, social and/or ethical criteria.
	Students design their learning and working processes independently.
	Students evaluate their own action process in self- and external reflection.

The subject of information systems deals with the conception, development and application of information systems in economics, management and increasingly in our private life. The subject unites theoretical knowledge of several disciplines with application-oriented focus towards system solutions for operational challenges. In many contexts of work and living environment, it provides solutions to product and (business) process designing under economic framework conditions, with its innovative capacity. Information systems are indispensable in almost all conceivable economic, political and social contexts like resource management, energy, security, health and care, traffic, environment, production, finance, education, production as well as media. Information systems contribute towards decision-making, coordination, steering and control of value added processes as well as their automation, integration and virtualisation. Information systems can affect product, process and business model innovations. Therefore, a degree course in business informatics opens up a wide operational spectrum for the interface of business management and informatics, especially in planning, development, introduction and operation of information systems. In the labour market, the frequently sought-after dual qualification in the areas of business administration and informatics can be applied in a wide spectrum of various business areas and industries. Here, IT business engineers adopt a translation function between business administration related world of ideas and voice on one hand and of a technically entrenched system world on the other. IT business engineers can accordingly perceive coordinating functions between IT specialists and subject specialists on the application side, whereby consultancy services and project management are paramount. Over and above that, IT business engineers are experts in structuring and modelling information systems and understand how to make a difference in IT non-expert domains, like healthcare. From an industry-related perspective, not only companies related to information technology like IT service providers or consultancies are considered employers, but in connection with corresponding specialisations like employers from the trade, logistics/transport, media, telecommunication or banking and insurance sectors also.

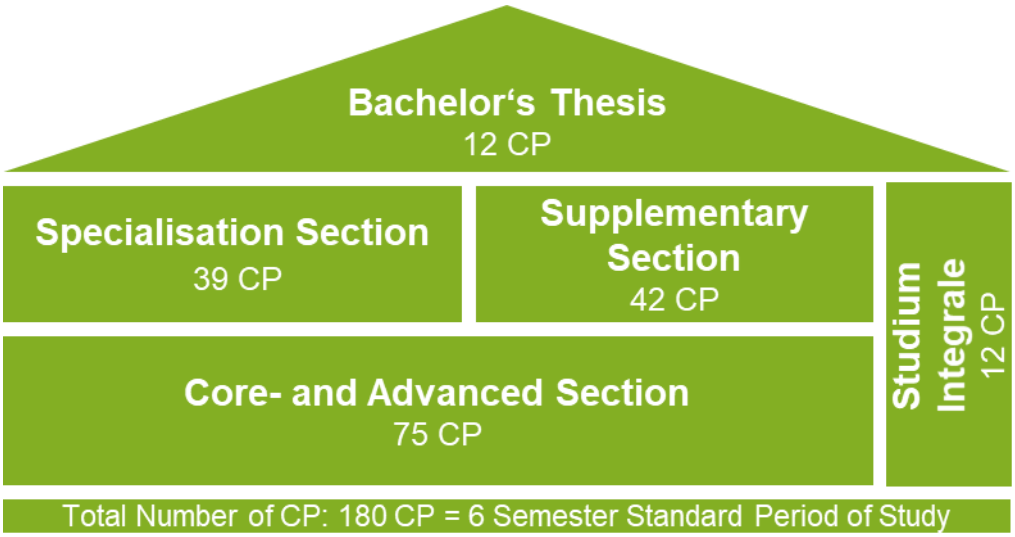
1.2 Requirements

Students must bring along the following professional, methodical and personal strengths and inclinations for a successful bachelor's degree:

- Good mathematical and analytical skills
- Abstract and conceptual thinking
- Good linguistic expressiveness in German and English
- Independent, target and result-oriented work
- Marked interest in economic and information technology issues

1.3 Programme structure and sequence

The degree course comprises overall 180 CP and includes a Core and Advanced Section (75 CP), a Supplementary Section (42 CP), as well as a Specialisation Section (39 CP). The Core and Advanced Section is again divided into a WiSo Core Section, Mathematics, Informatics and Business Informatics Section. It only includes Fundamental, or rather, Compulsory Modules and should be completed first for this specific reason. The Supplementary Section offers students the chance to obtain knowledge in the areas of Business Administration, Business Informatics or Informatics. Moreover, 12 CP from the wider range of Studium Integrale must be completed. Finally, in the Specialisation Section, additional knowledge from Informatics as well as Business Informatics must be deepened and applied. The degree course ends with a bachelor's thesis (12 P).



1.4 Study Abroad Option

The WiSo Faculty offers a broad range of study abroad options within an excellent network of prestigious partner universities worldwide. The so-called Study Abroad Programme (STAP) includes ERASMUS exchanges and provides an opportunity for a single-term stay at one of the WiSo Faculty's partner universities. Successful STAP applicants benefit from direct contact and organisational support at the partner university as well as support in the organisation of the semester abroad by the International Relations Center (ZIB WiSo). Additionally, they are exempt from paying tuition fees there. The range of universities available depends on the bachelor course on which the student is enrolled – the possible options are listed in the WiSo Exchange (WEX) (access through the student's UoC account only), along with detailed information on each university.

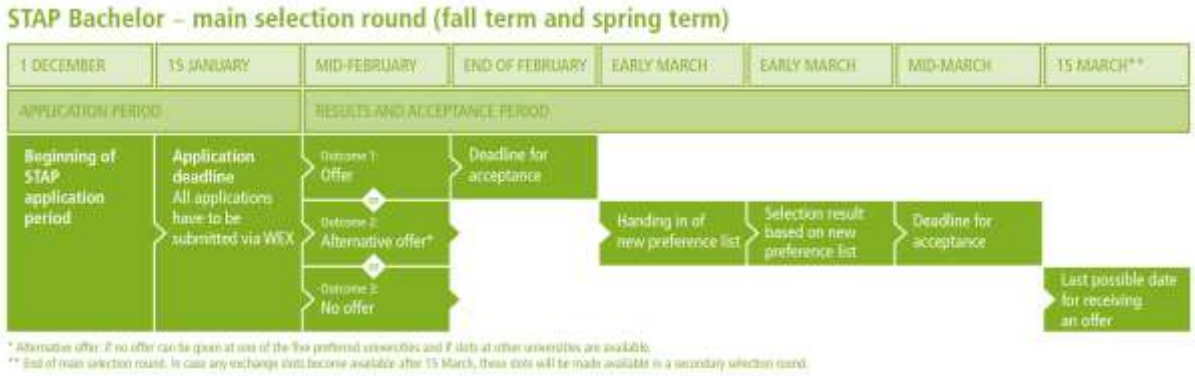
Every year, in addition to the STAP programme, the WiSo Faculty organises an exclusive short-term study option WiSo@NYC which takes place in New York City.

In addition to these options offered by the Faculty, bachelor students can also apply for a non-WiSo exchange, offered by Dezernat 9 – Internationales (Central International Office of the University of Cologne) within the 'fakultätsübergreifende Partnerschaften' framework. Further possibilities are going abroad as a freemover (i.e. as a student who organises his or her stay abroad individually) or participating in short courses or summer schools offered under separate terms and conditions.

1.4.1 The Faculty's Study Abroad Programme (STAP)

Bachelor students should plan their application for a term abroad at the beginning of their bachelor studies. The STAP main selection round takes place once a year with application period between December and January 15th, it allows for an application either for the fall term or the spring term of the following academic year. Detailed information on the selection criteria and the best preparation for a STAP application can be found online in the STAP Bachelor Application Manual.

If there are still places available after the main selection round has been completed, another small secondary selection round will be offered between April and June 1st. In this round, students can only apply for the following spring term.



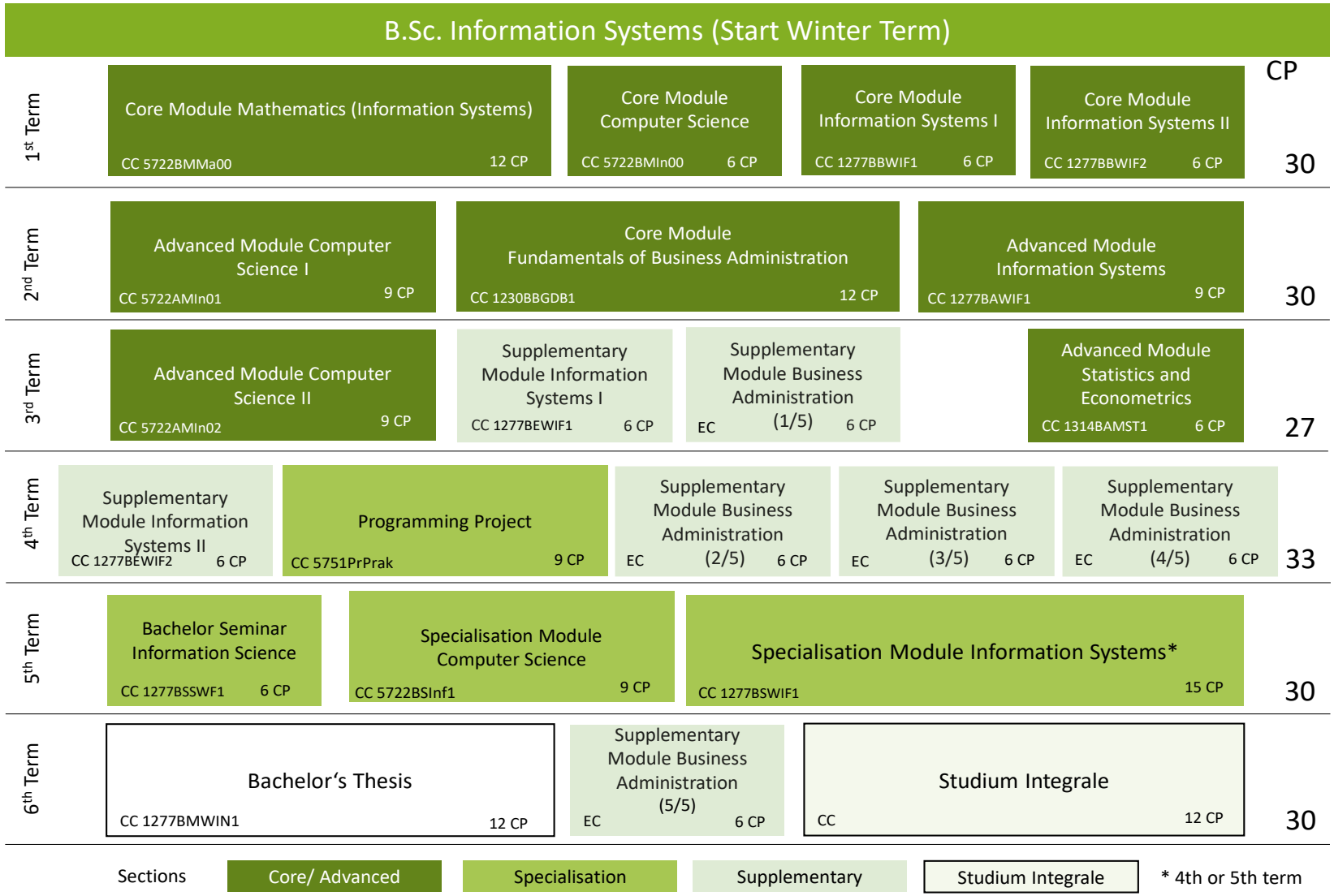
1.4.2 Credit transfer options from studies abroad

The WiSo Faculty has put a lot of emphasis on internationalisation in the design of its bachelor programmes, offering broad credit transfer options for all kinds of study abroad options. Each bachelor course includes at least one "Studies Abroad" module, with a broad range of courses suitable for credit transfer. In addition, a single course-to-course credit transfer can be considered. Moreover, students have the option of crediting courses from the semester abroad as part of their Studium Integrale.

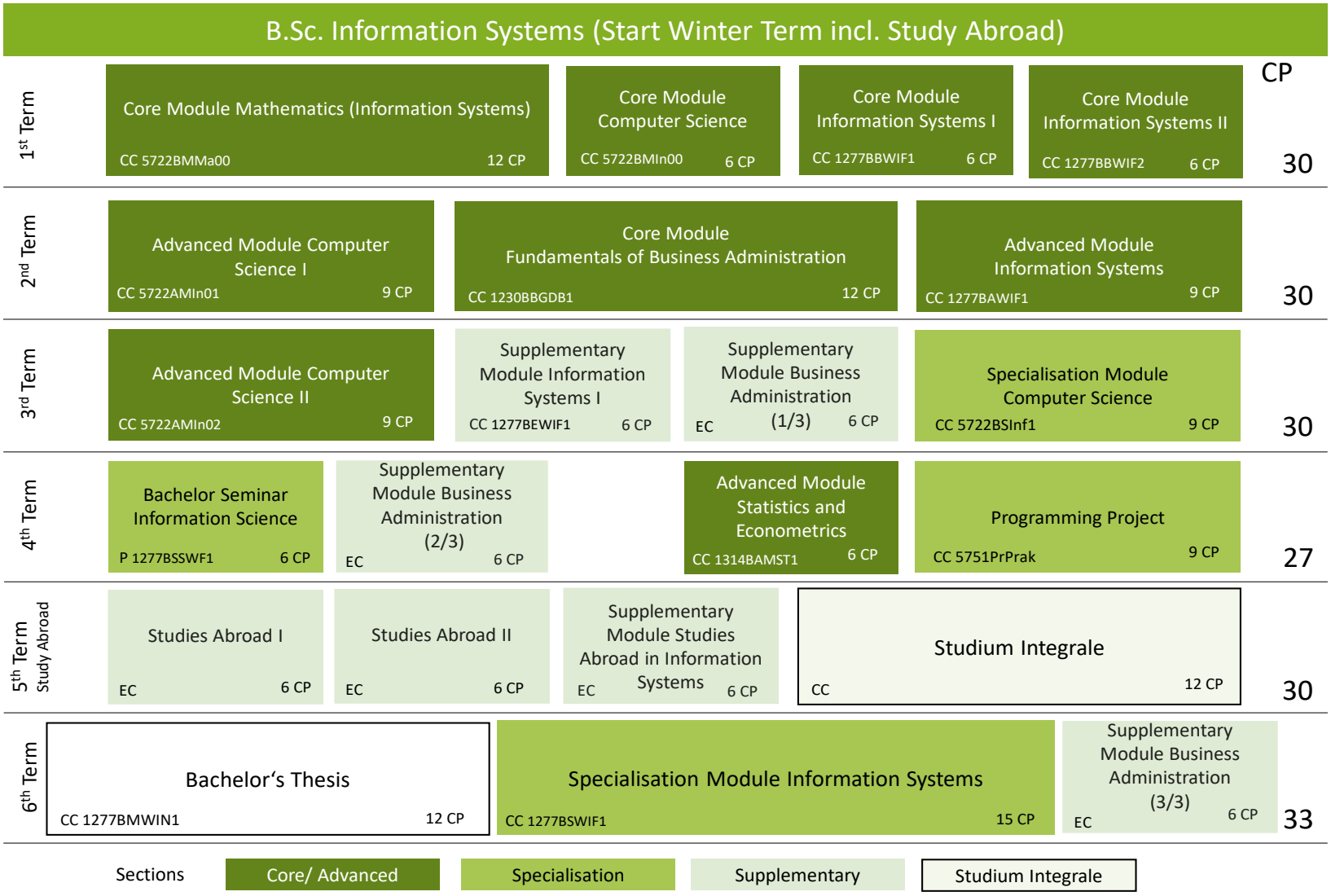
For any questions regarding credit transfer, students can contact the ZIB WiSo or the WiSo Credit Transfer Center.

1.5 Module study plan sequences

Due to several factors you need to plan your studies more and more individually. This is caused for example by the fact that some Modules are solely offered in the winter or summer term. Thus, the following sequences are only recommendations, from which you can or have to diverge depending on your individual study plan.



Note: For the Supplementary Modules in Business Administration, it is possible that the modules include mid-term examinations. Further information regarding mid-terms can be found in section 1.6 Modules with mid-term Examinations.



Note: For the Supplementary Modules in Business Administration, it is possible that the modules include mid-term examinations. Further information regarding mid-terms can be found in section 1.6 Modules with mid-term Examinations.

Study plans including a semester abroad

a) Adaption

The fifth semester is mostly suitable for studying abroad.
In view of the model study plan sequence and the credit transfer options in the Supplementary Section (18 CP) as well as in the Studium Integrale (12 CP), the Studium Integrale and three Supplementary Modules, including the module Studies Abroad in Information Systems, should be positioned in the fifth semester in the case of an **exemplary** stay abroad. The Specialisation Module Computer Science II can be positioned in the third semester, the Bachelor Seminar in the fourth semester and the Specialisation Module Information Systems in the sixth semester.

b) General remarks

For questions about studying abroad the ZIB WiSo is at your disposal.
Additionally, it is always possible not to request a semester on leave (*Urlaubssemester*) if you spend a semester abroad such that examinations can be taken upon return to the University of Cologne (if it is individually feasible).

1.6 Modules with mid-term examinations

Some modules have courses that only run for half a term and usually with twice the normal number of classes. For these modules, the term is divided into two roughly equal halves. In fall, the mid-term usually ends at the beginning of December; in spring, it is usually in the middle or at the end of May. Often, the examinations for these courses are held mid-term, enabling students to reduce their examination load at the end of term.
The information in the campus management system (KLIPS) regarding the dates of courses and examinations is relevant in this context.

1.7 Calculation of the overall mark

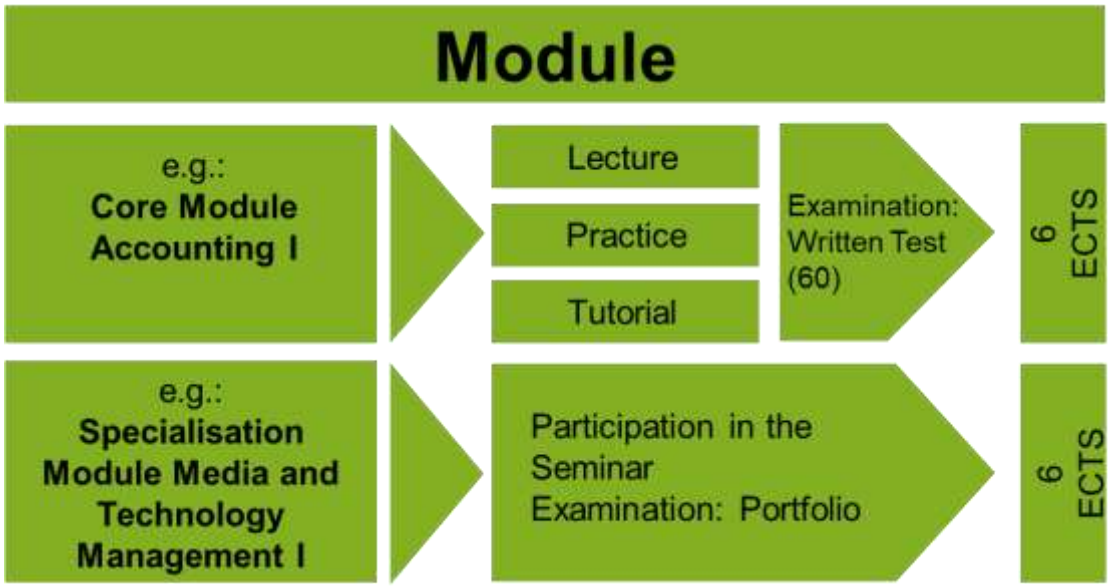
The overall mark for the bachelor degree combines the marks for the various sub-categories, Core and Advanced Section, Supplementary Section and Specialisation Section, weighted based on the respective number of credit points attainable and each sub-category's contribution towards the overall mark for the examinations for which marks are given. The marks for the sub-categories are calculated as the mean of the examination results in line with the weighting for each examination in terms of the credit points it contributes to the overall mark for the examinations in the respective category for which marks are given. If the result of a module examination is calculated based on several components, the mark is calculated based on a weighting given in the module description. For means, only the first decimal place after the decimal point is taken into account; all other decimal places are deleted without rounding.

1.8 Modularity

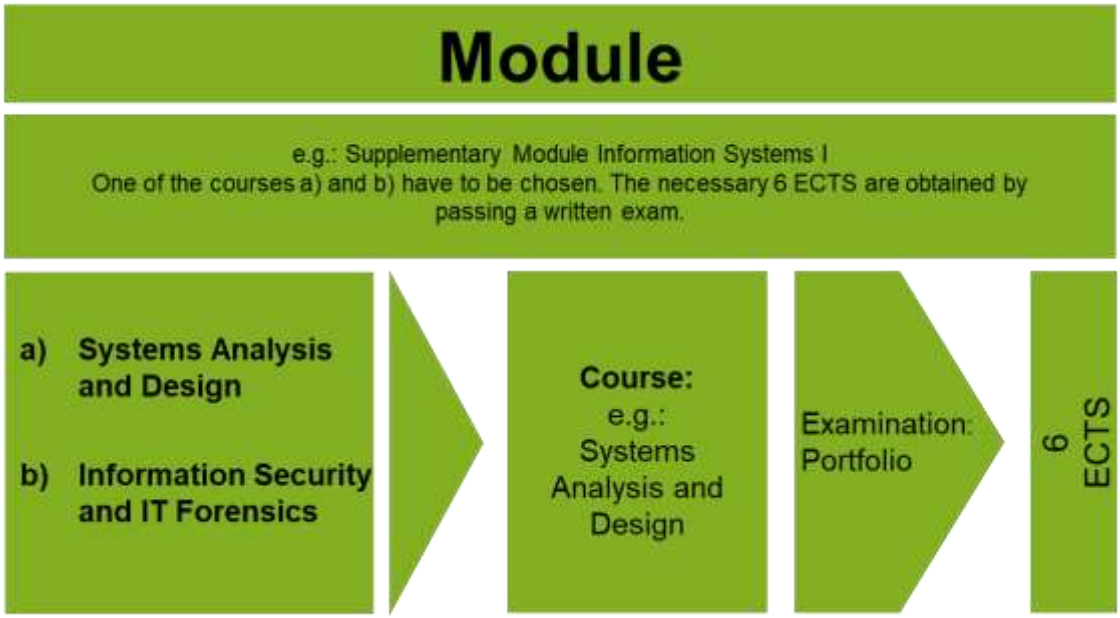
The subject categories on the bachelor programmes are divided into modules, the contents of which are presented in the module descriptions. The bachelor module catalogue can be viewed in the download section of the WiSo faculty website. Students who pass the necessary examinations are awarded credit points as proof of their successful participation in a module. The module examinations are taken at regular intervals during the programme. Each module consists of various parts and can usually be completed in one or two terms. You will find this information in the "Duration" section of the module description. A module can consist of lectures, exercises and/or tutorials on the same subject. There are also modules that only comprise one type of class, e.g. a seminar. In some cases, modules offer students a choice between various courses and they are required to take one or more of them. In these cases, the examination can refer to the content of one or of several courses.

When planning your studies, please remember that not every module is offered every term. To find out whether a module is being offered, refer to the "Module availability" section of the module description.

The following examples are to be understood exclusively as illustrations of the individual scenarios; they do not necessarily include modules of the present study programme.



Scenario 1: The module can consist of one teaching and learning method or several complementary teaching and learning methods on the same topic.



Scenario 2: One of the two courses must be chosen and the exam must be passed.

1.9 Rules for failed attempts

Students may retake module examinations that they have failed. The number of attempts is limited to three per module.

In addition, additional three resit attempts can be granted to students at any point of the programme. Students who have accumulated at least 140 credit points are granted a further additional attempt. If a student fails an examination in the three additional attempts and the extra attempt for students with 140 points or more, they are deemed to have failed the programme at the final attempt. However, students may only be eligible for additional attempts beyond the initial three attempts if none of the first three examination attempts were failed due to cheating or to an offence. If the candidate fails a module examination three times, he or she will receive a written notification informing him or her of the options available. We recommend all students who fail the initial three attempts to seek advice from WiSo Student Service Point before embarking upon an additional attempt.

Where a module examination consists of several components, the candidate must obtain a “bestanden” (pass) mark, or at least an “ausreichend (4,0)“ (sufficient) mark, in all of the examination components. All components marked “mangelhaft (5,0)” or “nicht bestanden” (fail) must be retaken.

It is not possible to retake module examinations that have already been passed.

A failed bachelor’s thesis can be retaken once, with a new topic. Students must register for their second attempt within six months of the result of their first attempt being announced.

2 Support for students

2.1 Course registration in KLIPS 2.0

KLIPS 2.0 is the central campus management system of the University of Cologne. At the WiSo faculty, KLIPS 2.0 serves as a student organization tool. Students should use it as an online course catalogue, for registration and deregistration of courses and examinations, as well as an overview of the complete study programme and calendar. Information on current dates and deadlines of the WiSo faculty, as well as video tutorials and FAQs about KLIPS can be found on the homepage of WiSo-KLIPS-Support. If you have further questions, feel free to contact WiSo-KLIPS-Support via e-mail (klips-wiso@uni-koeln.de). For account questions, contact the central KLIPS support.

2.2 Exam registration in KLIPS 2.0

Examinations on the various programmes are always managed via KLIPS 2.0. Students must register for them within specified deadlines. Please note that registration for courses without restriction on participation via KLIPS and registration for the corresponding module examinations are two completely separate processes. In the case of courses which are subject to a restriction on participation, an examination registration is generally only possible if a registration for the course has been submitted beforehand. Most examinations in written test form are offered twice per term. Often, this will be to “space out” the dates, i.e. students can choose the date that best fits their examination schedule. In some cases, however, the second examination may be a genuine repetition of the first, depending on the department/institute concerned.

All WiSo Faculty examination candidates are entitled to see their examination papers after they have been marked. For more information, please visit the WiSo Examination Office website.

2.3 Subject-specific and examination advice

General advice for students, especially regarding study options and programme requirements, is available from WiSo-Student Service Point (WiSSPo) for all programmes at the WiSo Faculty. The WiSSPo also offers subject-specific recommendations for students' study plans for the first semester plus information on how the individual programmes are structured. It issues transcripts of records in German and English as well as ranking certificates. The WiSSPo is also the first contact point students should refer to if they have any other questions or problems concerning their studies. The centre can be contacted by telephone, in person or by email. The opening hours and contact data can be found on the corresponding webpage.

Subject-specific advice is provided during the designated times by the University's faculty members and associated teaching staff ("akademische Mitarbeiterinnen und Mitarbeiter") involved in the teaching on the programme. The designated times are announced by means of notices in the institutes and on the departments'/institutes' websites.

Legally binding information concerning examinations and examination procedures is provided by the WiSo Faculty Examination Office. It also issues letters of assignment to the appropriate term of the programme. All the necessary information, contact details and opening hours can be found on the corresponding webpage.

2.4 Academic Working

To support the academic writing of term and final papers, the University of Cologne offers various courses to practice the process of academic writing by students. These include:

a) Writing advice/consultation

The Kompetenzzentrum Schreiben, the Professional Center, the Kölner Studierendenwerk and the programme SchreibArt offer advice as well as courses related to the issues that arise when writing an academic paper.

b) Literature research

The university library offers various courses especially for researching literature.

c) Text processing and literature administration

The Regionales Rechenzentrum provides courses regarding text processing and literature administration.

Students can register for the courses of the Professional Center and the SchreibArt programme in the **Studium Integrale** under „Kompetenzen für das Studium" (competencies for studies). There are even more offers made by the WiSo-faculty that can be elected in the Studium Integrale. Hence, these courses can be credited for your studies.

2.5 Other sources of information and advice

International students who study at the WiSo Faculty for part of their programme can turn to the International Relations Centre ("Zentrum für Internationale Beziehungen" or "ZIB") for help with any questions they have. Cologne University students preparing to study abroad can also contact the ZIB for support. The Centre also runs a variety of summer schools, short programmes and Business English courses. The services, courses and people to contact can be found on the corresponding webpage.

The Faculty's Credit Transfer Centre ("Zentrum für die Anrechnung auswärtiger Leistungen") is responsible for recognising credits accumulated in other institutions. This applies both to credits students have gained at other higher education institutions in Germany or abroad prior to studying at the WiSo Faculty, and to (advance) transfer of credits that students plan to accumulate abroad or have already accumulated abroad as part of a WiSo Faculty programme. This system eliminates the need to make individual inquiries to departments/institutes and examination offices. Students can find out everything they need to know about the transfer process on the corresponding webpage.

The WiSo Career Service offers advice and support for students from the WiSo Faculty looking for an internship or profession that is right for them. It also helps them as they plan their career and apply for jobs. In addition, the WiSo Career Service organises seminars, presentations and special events in cooperation with employers and external and internal experts. It also works with other partners in the Faculty and the University to support and guide students as they decide on a career path.

The WiSo IT Service runs regular courses dealing with standard software and field-specific programs.
In case of study-related or personal difficulties, the psychosocial counselling ("Psycho-Soziale Beratung") of the Kölner Studierendenwerk can be called upon. In addition to psychological and social counselling, it also offers writing and learning counselling and support for pregnant women and students with children.

As a further offer, there is Nightline Cologne, the listening and information telephone of students for students. It is available to all students at Cologne universities and colleges.

The WiSo student council represents the interests of all students from the WiSo faculty. In addition to advice from fellow students it also provides a variety of useful services for studying at the WiSo faculty. Any information can be found at wiso-buero.uni-koeln.de or by directly writing an email to wiso-buero@uni-koeln.de.

3 Module tables and descriptions

3.1 Core and Advanced Section

In accordance with Section 32(1), No. 1 of the Examination Regulations, students must accumulate 75 CPs in the Core and Advanced Section.

Group	Module	CP	CC/EC	Reqd. CP
Core and Advanced Section	CM Computer Science	6	CC	75
	AM Computer Science I	9	CC	
	AM Computer Science II	9	CC	
	CM Information Systems I	6	CC	
	CM Information Systems II	6	CC	
	AM Information Systems	9	CC	
	CM Mathematics (Information Systems)[1]	12	CC	
	CM Fundamentals of Business Administration	12	CC	
	AM Statistics and Econometrics	6	CC	

[1] This module will be offered for the last time in 2024/2025 in accordance with the planned schedule. It will be replaced by the modules BM Mathematics I and BM Mathematics II.

3.2 Supplementary Section

In accordance with Section 32(1), No. 2 of the Examination Regulations, students must accumulate 42 CPs in the supplementary section.

Group	Module	CP	CC/EC	Reqd. CP
Management	CM Accounting I	6	EC	30
	CM Corporate Development I	6	EC	
	CM Finance I	6	EC	
	CM Marketing I	6	EC	
	CM Supply Chain Management I	6	EC	
	CM Corporate and Business Ethics	6	EC	
	CM Decision Analysis	6	EC	
	SpM Media and Technology Management I	6	EC	
	SpM Media and Technology Management II	6	EC	
	SuM Entrepreneurship	6	EC	
	Studies Abroad I (Winfo)	6	EC	
	Studies Abroad II (Winfo)	6	EC	
Information Systems	SuM Information Systems I	6	EC	12
	SuM Information Systems II	6	EC	
	Studies Abroad in Information Systems	6	EC	

3.3 Specialisation Section

In accordance with Section 32(1), No. 3 of the Examination Regulations, students must accumulate 39 CPs in the specialisation section.

Group	Module	CP	CC/EC	Reqd. CP
Specialisation modules	Programming Project	9	CC	33
	SpM Computer Science	9	CC	
	SpM Information Systems	15	CC	
Seminar	Bachelor Seminar Information Science	6	CC	6

3.4 Studium Integrale

All of the Faculty's bachelor programmes include an interdisciplinary component, known as the Studium Integrale, in which students accumulate 12 credit points. The Studium Integrale is a university-wide and interdisciplinary component of the courses of study in which academic and professional competences are imparted. The Studium Integrale has both theoretical and practical content, enabling students to focus on more academic aspects or topics related to their future careers enhancing their employability. It aims to teach and develop skills that go beyond subject-specific knowledge or that are related to basic academic and personal traits: scientific curiosity, systematic and analytical thinking, and ability to deal with complexity, a solution-minded outlook plus other abilities such as teamwork and foreign language skills.

The Studium Integrale courses are run jointly by the faculties and the University's Professional Centre. They enable students to pursue their own interests in more depth, gain an insight into other subjects and departments, attend courses dealing with issues of relevance to society, acquire skills relevant to their future careers and attend language classes. The "Universitas" segment offers formats especially designed for the Studium Integrale, such as lecture series on societal issues with related workshops. In addition, the Studium Integrale offers students assistance with their learning and studying, helping them with such questions as how to write an academic paper or how to conduct literature reviews. Periods of training abroad and work experience can also be credited in the Studium Integrale. The Studium Integrale carries 12 credit points in total and formally counts as a module. There is no restriction on the number of attempts possible for Studium Integrale examinations.

Any credit points attained in the Studium Integrale over and above the 12 credit points specified in the study structure are shown on the transcript of records.

3.5 Bachelor's Thesis

The bachelor's thesis carries 12 CPs and is written at the end of the programme. Its aim is to illustrate that the candidate is capable of working and reflecting independently on a specific problem related to the subject matter covered on the programme, using the necessary methods and within a specified period. The topic of the bachelor's thesis must reflect one of the sub-categories: Core and Advanced Section, Supplementary Section or Specialisation Section.

To be allowed to register for the bachelor's thesis component, candidates must have acquired at least 100 credit points. In line with the number of credit points it carries, the workload allotted for the thesis is 360 hours, i.e. 12 weeks. Bachelor's theses should not be more than 40 pages long. Candidates who have earned all of the necessary credit points, except for the bachelor's thesis, must register within a period of one year to write their bachelor's thesis. Further and more detailed information concerning bachelor's theses can be found in the examination regulations.

Please note that the Cologne Institute for Information Systems (CIIS) offers Bachelor's theses in every semester. Each semester you can start working on your bachelor's thesis at **one fixed starting time** (in November in winter semesters and in May in summer semesters).

3.6 Module Descriptions

3.6.1 Core and Advanced Section

CM Computer Science					
Module Code 5722BMIn00	**Workload** 180h	**ECTS Credits** 6	**Module Language** German	**Module Availability** every 2nd term - winter term	**Duration** 1 Term
1	**Courses** Programming Course		**Contact Hours** 30h	**Self-Studies** 150h	**Course Language** German
2	**Module Content** The event starts with a general introduction to development tools and environments as well as the Java programming language. The core of the course is the teaching of basic programming skills in the areas of "data types, instructions and control structures", "classes and objects", "object-oriented design and implementation", "Java language class libraries" and "problem analysis and resolution" as well as the design and development of small programs.				
3	**Learning Objectives** Students... ... know and understand the relevant methods and theories for the points mentioned above under „Module content“. ... create, analyse and apply simple Java programs. ... analyse given problems and implement them as Java programs. ... independently explore and use class libraries.				
4	**Teaching and Learning Methods** lecture practice				
5	**Module Entry Requirements** none				
6	**Mode of End-Of-Module Examination** Written Test: WT e (90)				
7	**Prerequisites for Awarding of Credit Points** Passing the written test. If prior notice is given, regular participation in the exercises and successful completion of exercises and/or projects can be used as a prerequisite for admission to the examination and included in the examination performance on a pro rata basis.				
8	**Other Programmes that Use the Module** Bachelor of Science Wirtschaftsinformatik: Core Section Information Systems				
9	**Module Manager** Geschäftsführende*r Direktor*in Institut für Informatik Mathematisch-Naturwissenschaftliche Fakultät				
10	**Miscellaneous** Programming cannot be learned exclusively by theoretical observation, therefore the participation in the exercises and the independent processing of implementation tasks is indispensable. Registration is required to take part in the final exam. One retest per cycle is offered. A repeated participation in				

	the lecture and the exercises to prepare for a repetition of the final exam is possible. The module will be graded. The exam will be an e-exam.

AM Computer Science I						
Module Code 5722AMIn01		**Workload** 270h	**ECTS Credits** 9	**Module Language** German	**Module Availability** every 2nd term - summer term	**Duration** 1 Term
1	**Courses** Computer Science I			**Contact Hours** 90h	**Self-Studies** 180h	**Course Language** German
2	**Module Content** After an introduction to the terminology and definition of computer science and the structure and functionality of computers, the lecture deals with basic contents of algorithms and data structures. The general design and analysis of algorithms are performed using examples from the fields of sorting and search methods as well as elementary graph algorithms. Furthermore, elementary graph algorithms can be treated. The presented elementary data structures include trees, graphs and Union-Find data structures.					
3	**Learning Objectives** Students... ... know and understand the relevant methods and theories for the points mentioned above under „Module content“. ... design and implement basic algorithms and analyse algorithms with regard to correctness and their runtime behaviour depending on the data structures used.					
4	**Teaching and Learning Methods** lecture practice					
5	**Module Entry Requirements** Recommendation: CM Computer Science					
6	**Mode of End-Of-Module Examination** Written test: WT (180)					
7	**Prerequisites for Awarding of Credit Points** Passing the written test. The examination takes the form of a two-hour exam and may include both a theoretical part and a programming part, which must be passed equally. If prior notice is given, regular participation in the exercises and successful completion of exercises can be used as prerequisites for admission to the examination and can be included in the examination performance on a pro rata basis. Registration is required to take part in the final examination. One retest per cycle is offered. A repeated participation in the lecture and the exercises to prepare for a repetition of the final examination is possible. The module will be graded.					
8	**Other Programmes that Use the Module** Bachelor of Science Wirtschaftsinformatik: Core Section Information Systems					
9	**Module Manager** Geschäftsführende*r Direktor*in Institut für Informatik Mathematisch-Naturwissenschaftliche Fakultät					
10	**Miscellaneous** The contents of the lecture cannot be learned exclusively by theoretical observation, therefore participation in the exercises and independent processing of the tasks are indispensable.					

AM Computer Science II

Module Code	Workload	ECTS Credits	Module Language	Module Availability	Duration
5722AMIn02	270h	9	German	every 2nd term - winter term	1 Term

1	**Courses** Software Engineering	**Contact Hours** 90h	**Self-Studies** 180h	**Course Language** German

2 Module Content

The development of good and successful software requires more than just programming skills. Software Engineering deals with the systematic use of principles, methods and tools for specialised, engineering-based development and the extensive use of software systems.

Topics include:

- Requirements
- Software architecture und Software design
- Programming techniques and guidelines
- Maintenance and development
- Quality assurance
- Testing
- Development processes

3 Learning Objectives

Students…

… have an awareness of the importance, difficulties and opportunities of software engineering.

… have relevant knowledge of software, software development, software quality and project management.

… know that successful software engineering requires careful planning, a systematic approach and discipline.

… know that a thorough and systematic requirements engineering as well as careful rough and fine designs are indispensable for the success of a software project and know the appropriate techniques.

… know the most important quality assurance measures and are able to sensibly plan and implement the standard quality assurance measures.

… know the essential aspects of project management and the techniques to resolve the tasks involved.

… know which non-technical difficulties (e.g. time management, communication and coordination problems, difficulties working in cooperation with others) can occur within the area of software creation and how one successfully works around these.

4 Teaching and Learning Methods

lecture
practice

5 Module Entry Requirements

Recommendation: CM Mathematics, BM Computer Science, AM Computer Science I

6 Mode of End-Of-Module Examination

Written test: WT (180)

7 Prerequisites for Awarding of Credit Points

Passing the written test. If prior notice is given, regular participation in the exercises and successful completion of exercises and/or projects can be used as a prerequisite for admission to the examination.

8	**Other Programmes that Use the Module** Bachelor of Science Wirtschaftsinformatik: Core Section Information Systems
9	**Module Manager** Geschäftsführende*r Direktor*in Institut für Informatik Mathematisch-Naturwissenschaftliche Fakultät
10	**Miscellaneous** The contents of the lecture cannot be learned exclusively through theoretical observation, therefore participation in the exercises and independent work on the tasks is indispensable.

CM Information Systems I						
Module Code 1277BBWIF1		**Workload** 180h	**ECTS Credits** 6	**Module Language** German	**Module Availability** every 2nd term - winter term	**Duration** 1 Term
1	**Courses** Information Systems Management			**Contact Hours** 60h	**Self-Studies** 120h	**Course Language** German
2	**Module Content** • Information systems as a science • Strategic role of information systems • Internal and inter-company business process integration • Electronic commerce and electronic business • Computer supported collaborative work • IT security • Ethical, social and political aspects • Information assets • Business process reengineering • Internet of things					
3	**Learning Objectives** Students... ... know and understand the relevant methods and theories for the points mentioned above under „Module content“. ... know and understand basic theories in the field of information management. ... apply theories in the field of analysis and structuring concepts in pre-structured contexts (e.g. case studies) in a solution-oriented way. ... use methods in pre-structured contexts in a solution-oriented way in the field of analysis and structuring concepts. ... analyse (current) questions and challenges within the framework of pre-structured contexts. ... communicate continuously and purposefully within teaching and learning groups. ... establish and evaluate independently developed positions. ... develop an understanding of the impact of decisions that take into account environmental, economic, social or ethical criteria. ... question and critically reflect on current social developments.					
4	**Teaching and Learning Methods** lecture practice					
5	**Module Entry Requirements** none					
6	**Mode of End-Of-Module Examination** Written test: WT (60)					
7	**Prerequisites for Awarding of Credit Points** Passing the module examination					
8	**Other Programmes that Use the Module** Bachelor of Arts Medienwissenschaft: Media and Technology Management Bachelor of Science Wirtschaftsinformatik: Core Section Information Systems Bachelor of Science Betriebswirtschaftslehre: Supplementary Section Business Administration					

9	**Module Manager** Univ.-Prof. Dr. Detlef Schoder
10	**Miscellaneous** Mandatory accompanying reading: Laudon, K.; Laudon, J.; Schoder, D.: Wirtschaftsinformatik – eine Einführung, Pearson Verlag, 2015.

CM Information Systems II					
Module Code 1277BBWIF2	**Workload** 180h	**ECTS Credits** 6	**Module Language** German	**Module Availability** every 2nd term - winter term	**Duration** 1 Term
1	**Courses** Database Systems		**Contact Hours** 90h	**Self-Studies** 90h	**Course Language** German
2	**Module Content** • Relational model and relational algebra • Relational query languages (SQL) • Conceptual data modelling (e.g., Entity Relationship Model) • Relational database design • Normalization (1.-3. normal form, BCNF) • Development process of database systems • Data organization, data management, data protection and privacy • Transactions, Concurrency Control, Indices				
3	**Learning Objectives** Students... ... know and understand the relevant methods and theories for the points mentioned above under „Module content“. ... know and understand basic theories in the field of relational databases and data management. ... apply theories in the field of relational databases and data management in pre-structured contexts (e.g. case studies) in a solution-oriented way. ... use methods in the field of relational databases and data management in pre-structured contexts in a solution-oriented way. ... develop an understanding of the impact of decisions that take into account environmental, economic, social or ethical criteria.				
4	**Teaching and Learning Methods** lecture tutorial				
5	**Module Entry Requirements** none				
6	**Mode of End-Of-Module Examination** Written test: WT (90)				
7	**Prerequisites for Awarding of Credit Points** Passing the module examination				
8	**Other Programmes that Use the Module** Master of Science Gesundheitsökonomie: Specialisation Section Health Economics Bachelor of Arts Medienwissenschaft: Media and Technology Management Bachelor of Science Wirtschaftsinformatik: Core Section Information Systems Bachelor of Science Betriebswirtschaftslehre: Supplementary Section Business Administration				
9	**Module Manager** Univ.-Prof. Dr. Christoph Rosenkranz				
10	**Miscellaneous** Mandatory reading is announced every semester. The written test may be in the form of an e-examination. Tutorials will be offered instead of exercise classes. The lecture will be conducted				

	using a flipped classroom concept (videos and documents will be provided for self-study; repetition, discussion and consolidation will take place face-to-face in class).

AM Information Systems

Module Code	Workload	ECTS Credits	Module Language	Module Availability	Duration
1277BAWIF1	270h	9	German	every 2nd term - summer term	1 Term

1	**Courses** Integrated Information Systems	**Contact Hours** 90h	**Self-Studies** 180h	**Course Language** German

2 Module Content

- Integrated information processing
- Business Process Management
- Business Process Modelling
- Intra-organizational application systems (Enterprise Resource Planning (ERP) and Enterprise Systems)
- Inter-organisational application systems (Supply Chain Management (SCM) and Customer Relationship Management (CRM))
- Service-oriented architectures (SOA), Cloud Computing and Micro-Services
- Enterprise Application Integration (EAI)

3 Learning Objectives

Students...
... know and understand the relevant methods and theories for the points mentioned above under „Module content“.
... know and understand basic theories in the field of integrated information systems and business process management.
... apply theories in the field of integrated information systems and business process management in pre-structured contexts (e.g. case studies) in a solution-oriented way.
... know and understand common methods in the field of integrated information systems and business process management.
... use methods in the field of integrated information systems and business process management in pre-structured contexts in a solution-oriented way.
... develop an understanding of the impact of decisions that take into account environmental, economic, social and/or ethical criteria.

4 Teaching and Learning Methods

lecture
tutorial

5 Module Entry Requirements

Recommendation: CM Information Systems I, CM Information Systems II

6 Mode of End-Of-Module Examination

Written test: WT (90)

7 Prerequisites for Awarding of Credit Points

Passing the module examination

8 Other Programmes that Use the Module

Bachelor of Science Wirtschaftsinformatik:
Core Section Information Systems

9 Module Manager

Univ.-Prof. Dr. Christoph Rosenkranz

10	**Miscellaneous** Mandatory texts can be indicated, which must be read before the lecture. The degree of preparation is checked in the lectures and exercises. Case studies and exercises can be prepared in group work, which must be presented in the plenum by students. The solutions presented will be analysed and discussed. Mandatory reading will be announced each semester. The exam may take the form of an e-examination. Tutorials will be offered instead of practices.

CM Mathematics (Information Systems)						
Module Code 5722BMMa00		**Workload** 360h	**ECTS Credits** 12	**Module Language** German	**Module Availability** every 2nd term - winter term	**Duration** 1 Term
1	**Courses** Mathematik			**Contact Hours** 120h	**Self-Studies** 240h	**Course Language** German
2	**Module Content** • real and complex numbers • introduction to structures and functions, sequences, series, limit values • basics of differential and integral calculus, sets and representations, groups, bodies, vector spaces • linear spaces and linear representations • bases and dimensions					
3	**Learning Objectives** Students... ... know and understand the relevant methods and theories for the points mentioned above under „Module content“. ... know and understand basic concepts and methods of mathematics, familiarity with the associated techniques and knowledge of the applications. ... gain a deep insight into the methods of abstract mathematical argumentation independent of the substance. ... translate facts into the abstract language of mathematics and explain abstract terms. ... can recognize the connections and similarities of the different mathematical areas. ... independently solve mathematical problems and present the solutions in an understandable way for fellow students.					
4	**Teaching and Learning Methods** lecture practice					
5	**Module Entry Requirements** none					
6	**Mode of End-Of-Module Examination** Written test: WT (180)					
7	**Prerequisites for Awarding of Credit Points** Passing the module examination					
8	**Other Programmes that Use the Module** Bachelor of Science Wirtschaftsinformatik: Core Section Information Systems					
9	**Module Manager** Mathematisches Institut Mathematisch-Naturwissenschaftliche Fakultät					
10	**Miscellaneous** Mandatory reading is announced every semester.					

CM Fundamentals of Business Administration						
Module Code 1230BBGDB1		**Workload** 360h	**ECTS Credits** 12	**Module Language** German	**Module Availability** every term	**Duration** 1 Term
1	**Courses** Fundamentals of Business Administration			**Contact Hours** 120h	**Self-Studies** 240h	**Course Language** German
2	**Module Content** • Management structures and models • Strategy and target systems of companies • Corporate functions and processes and their interrelationships • Analysis and design of service provision, in particular the deployment of personnel • Main features of the operational cost and performance accounting • Main features of the annual accounts • Main features of operational investment and financing decisions					
3	**Learning Objectives** Students... ... know and understand the relevant methods and theories for the points mentioned above under „Module content“. ... analyse market and environment conditions for entrepreneurial action and their influence on corporate decisions. ... reflect and justify basic positions and basic standards (competition, freedom, social justice) of companies in a social market economy. ... structure corporate actions according to different process categories and differentiate between management, business and support processes. ... design individual management processes with the help of procedures and instruments (values, strategy and corporate goals, coordination and motivation, information and control system). ... make decisions for the design and optimization of business processes (customer attraction, customer loyalty, brand management, service delivery, service innovation) and use them to shape relationships with sales and procurement markets. ... select adequate financial management procedures for various business decisions and apply them in extracts (external accounting, internal controlling, investment and financial accounting). ... assess the success of corporate decisions with the help of key performance indicator systems and draw conclusions from them.					
4	**Teaching and Learning Methods** lecture tutorial					
5	**Module Entry Requirements** none					
6	**Mode of End-Of-Module Examination** Written test: WT (90)					
7	**Prerequisites for Awarding of Credit Points** Passing the module examination					
8	**Other Programmes that Use the Module** Bachelor of Arts Lehramt: Bachelor Education WiSo Bachelor of Science Mathematik: Nebenfach WiWi Bachelor of Science Wirtschaftsmathematik: Nebenfach WiWi Bachelor of Science Geographie:					

	Nebenfach BWL Bachelor of Arts Regionalstudien China - Betriebswirtschaftslehre: Ergänzungsbereich BWL Bachelor of Science Gesundheitsökonomie: Core and Advanced Section Health Economics Bachelor of Arts Medienwissenschaft: Media and Technology Management Bachelor of Science Wirtschaftsinformatik: Core Section Information Systems
9	**Module Manager** Geschäftsführende*r Direktor*in des Instituts für Berufs-, Wirtschafts- und Sozialpädagogik
10	**Miscellaneous**

AM Statistics and Econometrics						
Module Code 1314BAMST1		**Workload** 180h	**ECTS Credits** 6	**Module Language** German	**Module Availability** every term	**Duration** 1 Term
1	**Courses** Statistical Inference and Econometrics			**Contact Hours** 120h	**Self-Studies** 60h	**Course Language** German
2	**Module Content** • Continuation of probability theory from the Core Module • Fundamentals of statistical inference • Fundamentals of econometrics					
3	**Learning Objectives** Students... ... know and understand the relevant methods and theories for the points mentioned above under „Module content“. ... use methods in the area of statistics and econometrics in pre-structured contexts in a solution-oriented way. ... systematize and synthesize data. ... communicate continuously and purposefully within teaching and learning groups. ... design their learning and working processes independently.					
4	**Teaching and Learning Methods** lecture practice tutorial					
5	**Module Entry Requirements** Recommendation: CM Statistics or CM Mathematics (Information Systems)					
6	**Mode of End-Of-Module Examination** Written test: WT (90)					
7	**Prerequisites for Awarding of Credit Points** Passing the module examination					
8	**Other Programmes that Use the Module** Bachelor of Science Mathematik: Nebenfach WiWi Bachelor of Science Wirtschaftsmathematik: Nebenfach WiWi Bachelor of Science Mathematik: Nebenfach VWL Bachelor of Science Wirtschaftsmathematik: Nebenfach VWL Bachelor of Arts Regionalstudien China - Volkswirtschaftslehre: Ergänzungsbereich VWL Bachelor of Science Volkswirtschaftslehre: Core and Advanced Section Economics Bachelor of Arts Regionalstudien Lateinamerika - Volkswirtschaft: Ergänzungsbereich VWL Bachelor of Arts Regionalstudien Ost- und Mitteleuropa - Volkswirtschaftslehre: Ergänzungsbereich VWL Bachelor of Science Wirtschaftsinformatik: Core Section Information Systems Bachelor of Science Betriebswirtschaftslehre: Core and Advanced Section Business Administration					

9	**Module Manager** Prof. Dr. Rainer Dyckerhoff Dr. Bastian Gribisch
10	**Miscellaneous** In the self-study phase, tutorials are offered.

3.6.2 Supplementary Section

CM Accounting I					
Module Code 1016BBMAT1	**Workload** 180h	**ECTS Credits** 6	**Module Language** German	**Module Availability** every term	**Duration** 1 Term
1	**Courses** Accounting I		**Contact Hours** 90h	**Self-Studies** 90h	**Course Language** German
2	**Module Content** • Introduction to Accounting • Fundamentals in Financial Accounting • Fundamentals in Managerial Accounting • Book Keeping • Case Studies				
3	**Learning Objectives** Students... ... know and understand the relevant methods and theories for the points mentioned above under „Module content“. ... know and understand basic theories. ... apply theories in pre-structured contexts (e.g. case studies) in a solution-oriented way. ... know and understand common methods. ... use methods in pre-structured contexts in a solution-oriented way. ... analyse (current) questions and challenges within the framework of pre-structured contexts.				
4	**Teaching and Learning Methods** lecture practice tutorial				
5	**Module Entry Requirements** none				
6	**Mode of End-Of-Module Examination** Written test: WT (60)				
7	**Prerequisites for Awarding of Credit Points** Passing the module examination				
8	**Other Programmes that Use the Module** Bachelor of Arts Lehramt: Bachelor Education WiSo Bachelor of Arts Regionalstudien China - Betriebswirtschaftslehre: Ergänzungsbereich BWL Bachelor of Science Gesundheitsökonomie: Supplementary Section Health Economics Bachelor of Science Volkswirtschaftslehre: Specialisation Section Track Economics Specialisation Section Track Business Administration Specialisation Section Track Social Sciences Bachelor of Science Sozialwissenschaften: Supplementary Section Social Sciences Bachelor of Arts Medienwissenschaft: Media and Technology Management Bachelor of Science Wirtschaftsinformatik: Supplementary Section Information Systems				

	Bachelor of Science Betriebswirtschaftslehre: Core and Advanced Section Business Administration
9	**Module Manager** Area Accounting and Taxation
10	**Miscellaneous** Courses take place in first part of the semester (1. midterm).

CM Corporate Development I						
Module Code 1253BBMCD1		**Workload** 180h	**ECTS Credits** 6	**Module Language** German	**Module Availability** every term	**Duration** 1 Term
1	**Courses** Corporate Development I (2. Midterm)			**Contact Hours** 90h	**Self-Studies** 90h	**Course Language** German
2	**Module Content** This course first introduces foundations of Corporate Governance and Corporate Strategy. Building on this, concepts of Organizational Design and Instruments of Human Resource Management are presented and analysed.					
3	**Learning Objectives** Students... ... know and understand the relevant methods and theories for the points mentioned above under „Module content“. ... know and understand basic theories in the area of corporate governance, business strategy, organizational design and HR-management. ... apply theories in pre-structured contexts (e.g. case studies) in a solution-oriented way. ... know and understand common methods. ... analyse (current) questions and challenges within the framework of pre-structured contexts. ... establish and evaluate independently developed positions. ... develop an understanding of the impact of decisions that take into account environmental, economic, social and/or ethical criteria.					
4	**Teaching and Learning Methods** lecture tutorial					
5	**Module Entry Requirements** none					
6	**Mode of End-Of-Module Examination** Written test: WT (60)					
7	**Prerequisites for Awarding of Credit Points** Passing the module examination					
8	**Other Programmes that Use the Module** Bachelor of Arts Lehramt: Bachelor Education WiSo Bachelor of Arts Regionalstudien China - Betriebswirtschaftslehre: Ergänzungsbereich BWL Bachelor of Science Gesundheitsökonomie: Supplementary Section Health Economics Bachelor of Science Volkswirtschaftslehre: Specialisation Section Track Business Administration Bachelor of Science Sozialwissenschaften: Supplementary Section Social Sciences Bachelor of Arts Medienwissenschaft: Media and Technology Management Bachelor of Science Wirtschaftsinformatik: Supplementary Section Information Systems Bachelor of Science Betriebswirtschaftslehre: Core and Advanced Section Business Administration					
9	**Module Manager** Univ.-Prof. Dr.‘ Anne Burmeister					

	Univ.-Prof. Dr. Matthias Heinz Univ.-Prof. Dr. Bernd Irlenbusch Univ.-Prof. Dr. Dirk Sliwka
10	**Miscellaneous**

CM Finance I						
Module Code 1259BBMFI1		**Workload** 180h	**ECTS Credits** 6	**Module Language** German	**Module Availability** every term	**Duration** 1 Term
1	**Courses** Finance			**Contact Hours** 60h	**Self-Studies** 120h	**Course Language** German
2	**Module Content** Fundamentals of capital budgeting • Fundamental questions related to terminology and decision theory • Capital budgeting under certainty • Prospects of capital budgeting under uncertainty Fundamentals of financing • Internal financing • External financing					
3	**Learning Objectives** Students... ... know and understand the relevant methods and theories for the points mentioned above under „Module content“. ... know and understand basic theories in the area of finance. ... apply theories in the area of finance in pre-structured contexts (e.g. case studies) in a solution-oriented way. ... know and understand common methods in the area of finance. ... use methods in the area of finance in pre-structured contexts in a solution-oriented way. ... design their learning and working processes independently.					
4	**Teaching and Learning Methods** lecture practice					
5	**Module Entry Requirements** none					
6	**Mode of End-Of-Module Examination** Written test: WT (60)					
7	**Prerequisites for Awarding of Credit Points** Passing the module examination					
8	**Other Programmes that Use the Module** Bachelor of Arts Lehramt: Bachelor Education WiSo Bachelor of Arts Regionalstudien China - Betriebswirtschaftslehre: Ergänzungsbereich BWL Bachelor of Science Gesundheitsökonomie: Supplementary Section Health Economics Bachelor of Science Volkswirtschaftslehre: Specialisation Section Track Business Administration Bachelor of Science Sozialwissenschaften: Supplementary Section Social Sciences Bachelor of Arts Medienwissenschaft: Media and Technology Management Bachelor of Science Wirtschaftsinformatik: Supplementary Section Information Systems					

	Bachelor of Science Betriebswirtschaftslehre: Core and Advanced Section Business Administration
9	**Module Manager** Univ.-Prof. Dr. Alexander Kempf Dr. Alexander Pütz Univ.-Prof. Dr. Heinrich R. Schradin
10	**Miscellaneous**

CM Marketing I						
Module Code 1266BBMMA1		**Workload** 180h	**ECTS Credits** 6	**Module Language** German	**Module Availability** every term	**Duration** 1 Term
1	**Courses** Introduction to Marketing (1. midterm)			**Contact Hours** 60h	**Self-Studies** 120h	**Course Language** German
2	**Module Content** The module covers theories and methods to analyse key marketing decision problems and to develop sound recommendations how to solve these decision problems. To this end, it looks at (i) consumers' responses to marketing activities and the underlying psychological mechanisms (consumer behaviour), (ii) the collection and analysis of data about markets and key stakeholders (e.g., consumers) which serves as the empirical basis for decision-making (market research), (iii) the marketing planning process (strategic marketing decisions), and (iv) marketing mix decisions (e.g., brand/product, price, etc.).					
3	**Learning Objectives** Students... ... know and understand the relevant methods and theories for the points mentioned above under „Module content“. ... know and understand basic theories of a market-oriented management of businesses. ... know and understand common marketing planning methods, including strategic marketing decisions and marketing mix decisions.					
4	**Teaching and Learning Methods** lecture practice					
5	**Module Entry Requirements** none					
6	**Mode of End-Of-Module Examination** Written test: WT (60)					
7	**Prerequisites for Awarding of Credit Points** Passing the module examination					
8	**Other Programmes that Use the Module** Bachelor of Arts Lehramt: Bachelor Education WiSo Bachelor of Arts Regionalstudien China - Betriebswirtschaftslehre: Ergänzungsbereich BWL Bachelor of Science Gesundheitsökonomie: Supplementary Section Health Economics Bachelor of Science Volkswirtschaftslehre: Specialisation Section Track Business Administration Bachelor of Science Sozialwissenschaften: Supplementary Section Social Sciences Bachelor of Arts Medienwissenschaft: Media and Technology Management Bachelor of Science Wirtschaftsinformatik: Supplementary Section Information Systems Bachelor of Science Betriebswirtschaftslehre: Core and Advanced Section Business Administration					
9	**Module Manager** Univ.-Prof. Dr. Werner Reinartz Univ.-Prof. Dr.‘ Franziska Völckner					

10	**Miscellaneous**

CM Supply Chain Management I						
Module Code 1271BBMSC1		**Workload** 180h	**ECTS Credits** 6	**Module Language** German	**Module Availability** every term	**Duration** 1 Term
1	**Courses** Operations Management			**Contact Hours** 75h	**Self-Studies** 105h	**Course Language** German
2	**Module Content** • Fundamentals of Operations Management • Demand Forecasting • Inventory Management • Production Planning • Supply Chain Management • Location Planning • Process Design					
3	**Learning Objectives** Students... ... know and understand the relevant methods and theories for the points mentioned above under „Module content“. ... know and understand basic theories in the area of supply chain management. ... know and understand common methods in the area of supply chain management. ... use methods in the area of supply chain management in pre-structured contexts in a solution-oriented way. ... analyse (current) questions and challenges within the framework of pre-structured contexts. ... present and/or discuss results with teaching staff and other students. ... develop an understanding of the impact of decisions that take into account environmental, economic, social and/or ethical criteria.					
4	**Teaching and Learning Methods** lecture practice tutorial					
5	**Module Entry Requirements** none					
6	**Mode of End-Of-Module Examination** Written test: WT (60)					
7	**Prerequisites for Awarding of Credit Points** Passing the module examination					
8	**Other Programmes that Use the Module** Bachelor of Arts Lehramt: Bachelor Education WiSo Bachelor of Arts Regionalstudien China - Betriebswirtschaftslehre: Ergänzungsbereich BWL Bachelor of Science Gesundheitsökonomie: Supplementary Section Health Economics Bachelor of Science Volkswirtschaftslehre: Specialisation Section Track Business Administration Bachelor of Science Sozialwissenschaften: Supplementary Section Social Sciences Bachelor of Arts Medienwissenschaft: Media and Technology Management Bachelor of Science Wirtschaftsinformatik:					

	Supplementary Section Information Systems Bachelor of Science Betriebswirtschaftslehre: Core and Advanced Section Business Administration
9	**Module Manager** Area Supply Chain Management Univ.-Prof. Dr. Ulrich W. Thonemann
10	**Miscellaneous**

CM Corporate and Business Ethics						
Module Code 1253BBMUW1		**Workload** 180h	**ECTS Credits** 6	**Module Language** German	**Module Availability** every term	**Duration** 1 Term
1	**Courses** Corporate and Business Ethics			**Contact Hours** 60h	**Self-Studies** 120h	**Course Language** German
2	**Module Content** • Normative approaches to moral decision-making (teleology, deontology, virtue ethics) • Moral decision making from a psychological perspective (e.g. determinants of moral behaviour, bounded ethical behaviour, moral disengagement) • Ethics of economics (e.g. moral criteria of markets, competition and corruption) • Moral decision making within a company (e.g. discrimination, fairness and justice, lying and cheating, whistleblowing) • Application to examples from compliance management, accounting, corporate development, finance, marketing, supply chain management					
3	**Learning Objectives** Students... ... know and understand the relevant methods and theories for the points mentioned above under „Module content“. ... know and understand basic theories in the area of normative and descriptive ethics. ... apply theories in pre-structured contexts (e.g. case studies) in a solution-oriented way. ... establish and evaluate independently developed positions. ... develop an understanding of the impact of decisions that take into account environmental, economic, social and/or ethical criteria.					
4	**Teaching and Learning Methods** lecture practice					
5	**Module Entry Requirements** none					
6	**Mode of End-Of-Module Examination** Written test: WT (60)					
7	**Prerequisites for Awarding of Credit Points** Passing the module examination					
8	**Other Programmes that Use the Module** Bachelor of Arts Lehramt: Bachelor Education WiSo Bachelor of Science Gesundheitsökonomie: Supplementary Section Health Economics Bachelor of Science Volkswirtschaftslehre: Specialisation Section Track Economics Specialisation Section Track Business Administration Specialisation Section Track Social Sciences Bachelor of Science Wirtschaftsinformatik: Supplementary Section Information Systems Bachelor of Science Betriebswirtschaftslehre: Core and Advanced Section Business Administration Bachelor of Science Sozialwissenschaften: Supplementary Section Social Sciences					

9	**Module Manager** Univ.-Prof. Dr.‘ Anne Burmeister Univ.-Prof. Dr. Matthias Heinz Univ.-Prof. Dr. Bernd Irlenbusch Univ.-Prof. Dr. Dirk Sliwka
10	**Miscellaneous**

CM Decision Analysis						
Module Code 1282BBEDT1		**Workload** 180h	**ECTS Credits** 6	**Module Language** German	**Module Availability** every term	**Duration** 1 Term
1	**Courses** Decision theory			**Contact Hours** 60h	**Self-Studies** 120h	**Course Language** German
2	**Module Content** • Fundamentals of rational decision-making • Structuring and differentiation of complex decision situations with regard to different characteristics • Description of theoretical prerequisites for the application of decision theoretical methods • Application of methods to practical examples • Determination and justification of optimal alternatives using formal procedures					
3	**Learning Objectives** Students... ... know and understand the relevant methods and theories for the points mentioned above under „Module content“. ... know and understand basic theories. ... know and understand common methods. ... use methods in pre-structured contexts in a solution-oriented way. ... communicate continuously and purposefully within teaching and learning groups.					
4	**Teaching and Learning Methods** lecture practice					
5	**Module Entry Requirements** none					
6	**Mode of End-Of-Module Examination** Written test: WT (60)					
7	**Prerequisites for Awarding of Credit Points** Passing the module examination					
8	**Other Programmes that Use the Module** Bachelor of Arts Regionalstudien China - Betriebswirtschaftslehre: Ergänzungsbereich BWL Bachelor of Science Gesundheitsökonomie: Core and Advanced Section Health Economics Bachelor of Science Wirtschaftsinformatik: Supplementary Section Information Systems Bachelor of Science Betriebswirtschaftslehre: Supplementary Section Business Administration					
9	**Module Manager** Univ.-Prof. Dr. Ludwig Kuntz					
10	**Miscellaneous** The event is offered in the second term. An exam is offered both after the second term and during the semester break.					

SpM Media and Technology Management I						
Module Code 1284BSMTM1		**Workload** 180h	**ECTS Credits** 6	**Module Language** German and English	**Module Availability** every 2nd term - summer term	**Duration** 1 Term
1	**Courses** Media and Technology Management I			**Contact Hours** 30h	**Self-Studies** 150h	**Course Language** German and English
2	**Module Content** • Introduction to the management of digital and hybrid media and technology goods and services • Corporate strategies of various media genres in the fields of journalism and entertainment and their significance in a social context					
3	**Learning Objectives** Students... ... know and understand the relevant methods and theories for the points mentioned above under „Module content“. ... know and understand basic theories. ... use methods in pre-structured contexts in a solution-oriented way. ... analyse (current) questions and challenges within the framework of pre-structured contexts. ... establish and evaluate independently developed positions. ... design their learning and working processes independently.					
4	**Teaching and Learning Methods** seminar					
5	**Module Entry Requirements** none					
6	**Mode of End-Of-Module Examination** Written test: PO					
7	**Prerequisites for Awarding of Credit Points** Passing the module examination					
8	**Other Programmes that Use the Module** Bachelor of Science Management, Economics and Social Sciences: Specialisation Section Management, Economics and Social Sciences Bachelor of Science Volkswirtschaftslehre: Specialisation Section Track Business Administration Bachelor of Science Sozialwissenschaften: Supplementary Section Social Sciences Bachelor of Arts Medienwissenschaft: Media and Technology Management Bachelor of Science Wirtschaftsinformatik: Supplementary Section Information Systems Bachelor of Science Betriebswirtschaftslehre: Specialisation Section Business Administration					
9	**Module Manager** Univ.-Prof. Dr.‘ Claudia Loebbecke, M.B.A.					
10	**Miscellaneous**					

SpM Media and Technology Management II						
Module Code 1284BSMTM2		**Workload** 180h	**ECTS Credits** 6	**Module Language** German and English	**Module Availability** every 2nd term - summer term	**Duration** 1 Term
1	**Courses** Media and Technology Management II			**Contact Hours** 30h	**Self-Studies** 150h	**Course Language** German and English
2	**Module Content** • In-depth development of topics related to the management of digital and hybrid media and technology goods and services based on changing, industry-specific project content and case studies					
3	**Learning Objectives** Students... ... know and understand the relevant methods and theories for the points mentioned above under „Module content“. ... know and understand basic theories. ... apply theories in pre-structured contexts (e.g. case studies) in a solution-oriented way. ... analyse (current) questions and challenges within the framework of pre-structured contexts. ... communicate continuously and purposefully within teaching and learning groups. ... establish and evaluate independently developed positions. ... present and/or discuss results with teaching staff and other students. ... design their learning and working processes independently.					
4	**Teaching and Learning Methods** seminar					
5	**Module Entry Requirements**					
6	**Mode of End-Of-Module Examination** Written test: PO					
7	**Prerequisites for Awarding of Credit Points** Passing the module examination					
8	**Other Programmes that Use the Module** Bachelor of Science Management, Economics and Social Sciences: Specialisation Section Management, Economics and Social Sciences Bachelor of Science Volkswirtschaftslehre: Specialisation Section Track Business Administration Bachelor of Science Sozialwissenschaften: Supplementary Section Social Sciences Bachelor of Arts Medienwissenschaft: Media and Technology Management Bachelor of Science Wirtschaftsinformatik: Supplementary Section Information Systems Bachelor of Science Betriebswirtschaftslehre: Specialisation Section Business Administration					
9	**Module Manager** Univ.-Prof. Dr.‘ Claudia Loebbecke, M.B.A.					

10	**Miscellaneous**

EM Entrepreneurship						
Module Code 1253BEEnt1		**Workload** 180h	**ECTS Credits** 6	**Module Language** German and English	**Module Availability** every 2nd term - winter term	**Duration** 1 Term
1	**Courses** Entrepreneurship			**Contact Hours** 60h	**Self-Studies** 120h	**Course Language** English
2	**Module Content** • Strategies on Market Entry, Products, Markets and Value Creation • Entrepreneurial Behaviour					
3	**Learning Objectives** Students... ... know and understand the relevant methods and theories for the points mentioned above under „Module content“. ... know and understand basic theories. ... apply theories in pre-structured contexts (e.g. case studies) in a solution-oriented way. ... analyse (current) questions and challenges within the framework of pre-structured contexts. ... present and/or discuss results with teaching staff and other students. ... develop an understanding of the impact of decisions that take into account environmental, ... economic, social and/or ethical criteria.					
4	**Teaching and Learning Methods** lecture practice					
5	**Module Entry Requirements** Recommended: CM Corporate Development I					
6	**Mode of End-Of-Module Examination** Written test: WT (60)					
7	**Prerequisites for Awarding of Credit Points** Passing of the module examination					
8	**Other Programmes that Use the Module** Bachelor of Science Betriebswirtschaftslehre: Supplementary Section Business Administration Bachelor of Science Volkswirtschaftslehre: Specialisation Section Track Economics Specialisation Section Track Business Administration Specialisation Section Track Social Sciences Bachelor of Science Sozialwissenschaften: Supplementary Section Social Sciences Bachelor of Science Gesundheitsökonomie: Supplementary Section Health Economics Bachelor of Science Wirtschaftsinformatik: Supplementary Section Information Systems					
9	**Module Manager** Univ.-Prof. Dr. Christian Schwens					
10	**Miscellaneous**					

Studies Abroad I (Winfo)

Module Code	Workload	ECTS Credits	Module Language	Module Availability	Duration
1277BESAb1	180h	6	selected language	every term	1 Term

	Courses	Contact Hours	Self-Studies	Course Language
1				

2 Module Content

Topics from the subjects: Business Administration, Economics, Social Sciences or Information Systems.

3 Learning Objectives

Students...

... know and understand the relevant methods and theories for the points mentioned above under „Module content".

… acquire the knowledge and skills from the areas named in the module content which extend beyond the curriculum of the relevant bachelor programme and impart additional foundation knowledge (from subjects outside the relevant programme's curriculum); deepen attained knowledge and skills which contribute towards the specialisation or content-specific individualisation of studies.

Through completing examinations at a university abroad, students widen their knowledge and skills within the subject areas named above that go beyond the module structure of the curriculum of their study programme. Content studied within a module abroad can only be credited once within one of the Studies Abroad modules.

4 Teaching and Learning Methods

depending on course choice

5 Module Entry Requirements

None

6 Mode of End-Of-Module Examination

depending on course selection

7 Prerequisites for Awarding of Credit Points

depending on course selection

8 Other Programmes that Use the Module

Bachelor of Science Wirtschaftsinformatik:

Supplementary Section Information Systems

9 Module Manager

Programmdirektor:in

10 Miscellaneous

If required, students can apply for credit transfer using the standardised procedure.
Information about recognition of courses (deadlines and procedure) is provided by the WiSo Credit Transfer Centre (WiSo Anrechnungszentrum: https://www.anrechnungwiso.uni-koeln.de/). This module can also be used for crediting Summer Schools organised by the WiSo-faculty. In this case, registration for the exams should be carried out in advance according to the regulations of the WiSo-faculty.

Studies Abraod II (Winfo)					
Module Code 1277BESAb2	**Workload** 180h	**ECTS Credits** 6	**Module Language** selected language	**Module Availability** every term	**Duration** 1 Term
1	**Courses**		**Contact Hours**	**Self-Studies**	**Course Language**
2	**Module Content** Topics from the subjects: Business Administration, Economics, Social Sciences or Information Systems.				
3	**Learning Objectives** Students... ... know and understand the relevant methods and theories for the points mentioned above under „Module content“. … acquire the knowledge and skills from the areas named in the module content which extend beyond the curriculum of the relevant bachelor programme and impart additional foundation knowledge (from subjects outside the relevant programme’s curriculum); deepen attained knowledge and skills which contribute towards the specialisation or content-specific individualisation of studies. Through completing examinations at a university abroad, students widen their knowledge and skills within the subject areas named above that go beyond the module structure of the curriculum of their study programme. Content studied within a module abroad can only be credited once within one of the Studies Abroad modules.				
4	**Teaching and Learning Methods** depending on course choice				
5	**Module Entry Requirements** None				
6	**Mode of End-Of-Module Examination** depending on course selection				
7	**Prerequisites for Awarding of Credit Points** depending on course selection				
8	**Other Programmes that Use the Module** Bachelor of Science Wirtschaftsinformatik: Supplementary Section Information Systems				
9	**Module Manager** Programmdirektor:in				
10	**Miscellaneous** If required, students can apply for credit transfer using the standardised procedure. Information about recognition of courses (deadlines and procedure) is provided by the WiSo Credit Transfer Centre (WiSo Anrechnungszentrum: https://www.anrechnungwiso.uni-koeln.de/). This module can also be used for crediting Summer Schools organised by the WiSo-faculty. In this case, registration for the exams should be carried out in advance according to the regulations of the WiSo-faculty.				

SuM Information Systems I						
Module Code 1277BEWIF1		**Workload** 180h	**ECTS Credits** 6	**Module Language** German and English	**Module Availability** every 2nd term - winter term	**Duration** 1 Term
1	**Courses** a) Systems Analysis and Design b) Information Security and IT Forensics			**Contact Hours** a) 60h b) 40h	**Self-Studies** a) 120h b) 140h	**Course Language** a) German b) German
2	**Module Content** a) Systems Analysis and Design • Requirements analysis and survey • System modelling • Project planning • Prototyping • Unified Modeling Language (UML) • Human-computer interaction b) Information Security and IT Forensics • Terms, protection goals, threat classifications • Historical Case Studies and Conclusions for Future Situations • Presentation of concrete attack techniques and threats • Design of secure systems (consideration in the development process, frameworks, ISO/IEC 27001, risk analysis) • Recognized frameworks (BSI Basic Protection, ISO 27001, Business Continuity Management, ...) • Security models • Fundamentals of cryptographic procedures • Authentication procedures and identity management • Mobile Security • Incident Response and IT-Forensics • Legal framework					
3	**Learning Objectives** Students... ... know and understand the relevant methods and theories for the points mentioned above under „Module content“. ... know and understand common methods in the field of a) analysis and design of information systems; b) cryptographic procedures and protection requirements of information systems. ... communicate continuously and purposefully within teaching and learning groups. ... develop an understanding of the impact of decisions that take into account environmental, economic, social or ethical criteria. ... design their learning and working processes independently.					
4	**Teaching and Learning Methods** lecture practice					
5	**Module Entry Requirements** none					
6	**Mode of End-Of-Module Examination** Written test: PO					
7	**Prerequisites for Awarding of Credit Points** Passing the module examination of course a) or b)					

8	**Other Programmes that Use the Module** Bachelor of Science Wirtschaftsinformatik: Supplementary Section Information Systems
9	**Module Manager** Sprecher des Fachbereichs Wirtschaftsinformatik
10	**Miscellaneous** a) Systems Analysis and Design: In some sessions case studies and exercises are prepared in group work and presented and discussed in the plenum by the students. Mandatory reading will be announced during the respective semester. b) Information security and IT forensics: The course is usually offered by a lecturer and is offered as a block course in the first or second half of the semester. Please note the course dates given in KLIPS. Within the scope of the exercise, practical work with IT security gaps within a laboratory environment (hacking and subsequent security) will take place. Previous knowledge of Linux is useful, but not necessary.

SuM Information Systems II						
Module Code 1277BEWIF2		**Workload** 180h	**ECTS Credits** 6	**Module Language** German and English	**Module Availability** every 2nd term - summer term	**Duration** 1 Term
1	**Courses** a) Information Systems Development b) Introduction to Data Science and Machine Learning			**Contact Hours** a) 60h b) 30h	**Self-Studies** a) 120h b) 150h	**Course Language** a) German b) English
2	**Module Content** a) Information Systems Development • Processes and important challenges in the development of IS • Alternatives for the realization of IS ("Make or Buy", Outsourcing, Software as a Service, etc.) • Procedures for the development of IS (waterfall model, evolutionary development, agile software development) • Concept and forms of project management for IS development • Project control and evaluation methods • Communication and leadership • Time, team and project management • Ethics in the development of IS b) Introduction to Data Science and Machine Learning • The value of data from a business perspective • Data quality and data cleansing • Design of a data analysis process • Explanation vs. forecast • Data visualization • Use of data to support entrepreneurial activity • Introduction to machine learning • Programming language: Python					
3	**Learning Objectives** Students... ... know and understand the relevant methods and theories for the points mentioned above under „Module content“. ... know and understand common methods in the areas of (a Information Systems Development and (b Data Science and Machine Learning. ... use methods in the areas of (a Information Systems Development and (b Data Science and Machine Learning in pre-structured contexts in a solution-oriented way. ... communicate continuously and purposefully within teaching and learning groups. ... present and/or discuss results with teaching staff and other students. ... develop an understanding of the impact of decisions that take into account environmental, economic, social or ethical criteria. ... design their learning and working processes independently.					
4	**Teaching and Learning Methods** lecture practice					
5	**Module Entry Requirements** none					
6	**Mode of End-Of-Module Examination** Written test: PO					

7	**Prerequisites for Awarding of Credit Points** Passing the module examination of course a) or b)
8	**Other Programmes that Use the Module** Bachelor of Science Wirtschaftsinformatik: Supplementary Section Information Systems
9	**Module Manager** Geschäftsführende*r Direktor*in Kölner Institut für Wirtschaftsinformatik
10	**Miscellaneous** Mandatory reading will be announced in the respective semester of the course. b) Python is used in the course.

Studies Abroad in Information Systems						
Module Code 1014BESAI1		**Workload** 180h	**ECTS Credits** 6	**Module Language** selected language	**Module Availability** every term	**Duration** 1 Term
1	**Courses**			**Contact Hours**	**Self-Studies**	**Course Language**
2	**Module Content** Topics from the subject Information Systems.					
3	**Learning Objectives** Students... ... know and understand the relevant methods and theories for the points mentioned above under „Module content“. … acquire the knowledge and skills from the areas named in the module content which extend beyond the curriculum of the relevant bachelor programme and impart additional foundation knowledge (from subjects outside the relevant programme’s curriculum); deepen attained knowledge and skills which contribute towards the specialisation or content-specific individualisation of studies. Through completing examinations at a university abroad, students widen their knowledge and skills within the subject areas named above that go beyond the module structure of the curriculum of their study programme. Content studied within a module abroad can only be credited once within one of the Studies Abroad modules.					
4	**Teaching and Learning Methods** depending on course choice					
5	**Module Entry Requirements** None					
6	**Mode of End-Of-Module Examination** depending on course selection					
7	**Prerequisites for Awarding of Credit Points** depending on course choice					
8	**Other Programmes that Use the Module** Bachelor of Science Wirtschaftsinformatik: Supplementary Section Information Systems					
9	**Module Manager** Programmdirektor:in					
10	**Miscellaneous** If required, students can apply for credit transfer using the standardised procedure. Information about recognition of courses (deadlines and procedure) is provided by the WiSo Credit Transfer Centre (WiSo Anrechnungszentrum: https://www.anrechnungwiso.uni-koeln.de/). This module can also be used for crediting Summer Schools organised by the WiSo-faculty. In this case, registration for the exams should be carried out in advance according to the regulations of the WiSo-faculty.					

3.6.3 Specialisation Section

Programming Project					
Module Code 5751PrPrak	**Workload** 270h	**ECTS Credits** 9	**Module Language** German	**Module Availability** every 2nd term - summer term	**Duration** 1 Term
1	**Courses** Programming project		**Contact Hours** 30h	**Self-Studies** 240h	**Course Language** German
2	**Module Content** • Software development in teamwork • Conceptual software design, division of the task into subtasks, interface definition between program components • Implementation of the components and integration to an executable program • Software testing and troubleshooting • Preparation of a complete documentation and a project report				
3	**Learning Objectives** Students... ... know and understand the relevant methods and theories for the points mentioned above under „Module content“. ... are able to analyse a given problem in self-organised and self-responsible group work, to break it down into subtasks, to design a software solution, to implement it in Java and to present the results. ... communicate continuously and purposefully within teaching and learning groups. ... establish and evaluate independently developed positions. ... present and/or discuss results with teaching staff and other students. ... design their learning and working processes independently. ... use under guidance techniques of scientific work and good scientific practice.				
4	**Teaching and Learning Methods** project				
5	**Module Entry Requirements** Recommendation: CM Computer Science, AM Computer Science I				
6	**Mode of End-Of-Module Examination** Combined examination: WT (60), PO				
7	**Prerequisites for Awarding of Credit Points** Passing the module examination				
8	**Other Programmes that Use the Module** Bachelor of Science Wirtschaftsinformatik: Specialisation Section Information Systems				
9	**Module Manager** Geschäftsführende*r Direktor*in Institut für Informatik Mathematisch-Naturwissenschaftliche Fakultät				
10	**Miscellaneous** During the first weeks, the tasks to be processed are presented by the internship supervisor. In this phase, the group divisions also take place. Subsequently, specifications and modularization of the individual tasks and interface definitions are carried out. The supervisor supervises this phase in an advisory or corrective way. The individual groups meet at least once a week to discuss the status				

	quo. At the end of the semester, the complete programme is presented in the presence of the supervisor. The examination consists of the Java software, the documentation, the proof of authorship and the presentations at the milestone presentations as well as the final acceptance of the project. In addition, a 15 to 45-minute examination can take place. A graded certificate of achievement is issued.

SpM Computer Science						
Module Code 5722BSInf1		**Workload** 270h	**ECTS Credits** 9	**Module Language** German	**Module Availability** every 2nd term - winter term	**Duration** 1 Term
1	**Courses** Visualization			**Contact Hours** 90h	**Self-Studies** 180h	**Course Language** German
2	**Module Content** The lecture focuses on the visual representation of data. Interactive visualisation is the communication of data in visual form. In the lecture, the fundamentals of visualisation are introduced. This includes selected topics from the areas of: the visualisation process, interaction, human perception, colour space, data types, data structure, transformation and processing, visual depiction of data such as 2D, 3D or multivariate data, time-specific data, space-orientated data, graphs. The foundation methods and their practical usages and purposes in current research areas will be introduced. Visual analysis can be used for exploration, analysis and communication in reports, presentations or online. Usage of visual analysis can be found in the areas of finance, economics, geo-sciences, meteorology, medicine, biology, transport or sport. In the exercise classes, the material from the lectures will be further discussed. Exercises will be discussed under the guidance of a tutor. The exercises serve to both expand technical knowledge and to develop communication and presentation skills.					
3	**Learning Objectives** Students… … understand continuing, specialised theories and methods in the field of visualisation. ... analyse (current) questions and challenges in the area of visualisation. …defend their independently developed position or solutions to problems.					
4	**Teaching and Learning Methods** lecture practice					
5	**Module Entry Requirements** Recommendation: CM Computer Science, AM Computer Science I, AM Computer Science II, AM Programming Project, CM Mathematics					
6	**Mode of End-Of-Module Examination** Written test: WT (180)					
7	**Prerequisites for Awarding of Credit Points** Passing of the examination. If prior notice is given, regular participation in the exercises and successful completion of exercises and/or projects can be used as a prerequisite for admission to the examination.					
8	**Other Programmes that Use the Module** Bachelor of Science Wirtschaftsinformatik: Specialisation Section Information Systems					
9	**Module Manager** Geschäftsführende*r Direktor*in Institut für Informatik Mathematisch-Naturwissenschaftliche Fakultät					

10	**Miscellaneous** The contents of the lecture cannot be learned exclusively through theoretical observation, therefore participation in the exercises and independent work on the tasks is indispensable.

SpM Information Systems						
Module Code 1277BSWIF1		**Workload** 450h	**ECTS Credits** 15	**Module Language** German and English	**Module Availability** every term	**Duration** 1 Term
1	**Courses** Capstone Project Information Systems			**Contact Hours** 90h	**Self-Studies** 360h	**Course Language** German
2	**Module Content** • Independent and autonomous development of an information system in a team in a project • Project and team management • Requirements analysis • Draft • Implementation • Testing • Customer communication and management					
3	**Learning Objectives** Students... ... know and understand the relevant methods and theories for the points mentioned above under „Module content“. ... communicate continuously and purposefully within teaching and learning groups. ... establish and evaluate independently developed positions. ... present and/or discuss results with teaching staff and other students. ... develop an understanding of the impact of decisions that take into account environmental, economic, social or ethical criteria. ... design their learning and working processes independently. ... reflect their own performance and implement feedback constructively.					
4	**Teaching and Learning Methods** Research project					
5	**Module Entry Requirements** Recommendation: CM Information Systems I, CM Information Systems II, AM Information Systems, SuM Information Systems I, SuM Information Systems II; CM Computer Science, AM Computer Science I, AM Computer Science II; Programming Project					
6	**Mode of End-Of-Module Examination** Combined examination: PRES, PO					
7	**Prerequisites for Awarding of Credit Points** Passing the module examination					
8	**Other Programmes that Use the Module** Bachelor of Science Wirtschaftsinformatik: Specialisation Section Information Systems					
9	**Module Manager** Univ.-Prof. Dr. Christoph Rosenkranz					
10	**Miscellaneous** Important note: this course starts in the lecture-free period during which components of the portfolio are completed. Basic knowledge of programming, databases, modelling, architectures, data structures and algorithms as well as project management is required. The students work self-organized in teams. On fixed dates the teams have to present fixed milestones (e.g. requirement specification, requirement specification, sprint meeting, backlogs, intermediate presentation, final presentation, finished product incl. program code). The work results are compared and, if necessary,					

	corrected so that all teams are able to complete their development assignment. If necessary, the students receive training in the tools and methods to be used as part of a preliminary course.

Bachelor Seminar Information Science						
Module Code 1277BSSWF1		**Workload** 180h	**ECTS Credits** 6	**Module Language** German and English	**Module Availability** every term	**Duration** 1 Term
1	**Courses** a) Bachelorseminar Information Systems for Sustainable Society (Prof. Ketter) b) Bachelorseminar Information Systems and Digital Technology (N.N.) c) Bachelorseminar Integrated Information Systems (Prof. Rosenkranz) d) Bachelorseminar Information Management (Prof. Schoder)			**Contact Hours** a) 30h b) 30h c) 30h d) 30h	**Self-Studies** a) 150h b) 150h c) 150h d) 150h	**Course Language** a) German and English b) German and English c) German and English d) German and English
2	**Module Content** • Project planning in the context of scientific work • Structure and argumentation in scientific works: problem, objective, terminology system, outline • Dealing with scientific literature: literature research, literature administration, literature evaluation, referencing and citation in scientific work • Scientific Writing • Formal requirements • Writing, presenting and defending one's own scientific work Seminar work topics are taken from the following areas, among others: a) Business Intelligence, Analytics, Machine Learning and Learning Agents research in the domains of Energy Markets, Smart Sustainable Mobility, Energy Storage and Transactive Energy & Blockchain b) Conceptual Modeling, Business Process Management, Information Systems Development, Systems Analysis and Design, Digital Innovation, Digital Entrepreneurship, Green IS, Environmental Sustainability c) IT Outsourcing, IT Strategy, Information Systems Development & IT Project Management, Open Source Software Development, Agile Development, Business Process Management, Digital Transformation d) Media Mass Customisation, Electronic Commerce, Social Media & Social Network Analysis, Openness, Management of information spheres and IT platforms, Decision Support Systems, artificial intelligence					
3	**Learning Objectives** Students... ... know and understand the relevant methods and theories for the points mentioned above under „Module content“. ... know and understand basic theories from the above mentioned areas. ... collect, systematize and synthesize literature and data material for a scientific work on a selected topic. ... present and/or discuss results with teaching staff and other students. ... reflect their own performance and implement feedback constructively. ... use under guidance techniques of scientific work and good scientific practice.					
4	**Teaching and Learning Methods** seminar					
5	**Module Entry Requirements** none					
6	**Mode of End-Of-Module Examination** Combined examination: PRES, TP					

7	**Prerequisites for Awarding of Credit Points** Passing the module examination of one of the courses a) to d)
8	**Other Programmes that Use the Module** Bachelor of Science Wirtschaftsinformatik: Specialisation Section Information Systems
9	**Module Manager** Geschäftsführende*r Direktor*in Kölner Institut für Wirtschaftsinformatik
10	**Miscellaneous** In the first step, the Bachelor's seminar module is taken by students via KLIPS. This allocation takes place in the 1st allocation phase through the submission of prioritised allocation requests. When enrolling via KLIPS, priority enrolment requests must be submitted for the Bachelor's seminars offered by the various examiners. As a rule, there will be no booking in the 2nd occupancy phase or in the allocation of remaining places. Subsequently, each student is allocated a place in a Bachelor's seminar, taking into account the available capacities. After the allocation to the Bachelor seminars, the students give preferences for concrete seminar work topics. This is usually done at the beginning of the semester via a survey in ILIAS. Part of the Bachelor's seminar is the participation in the block course "Scientific Work", which is offered at the beginning of the semester. Further information on the allocation procedure and the block course can be found in the course descriptions in KLIPS or on the website of the Cologne Institute for Information Systems. The seminar paper can be written in German or English. It is strongly recommended to complete the Bachelor's seminar before the Bachelor's thesis, as the Bachelor's seminar teaches basic competences for scientific work and especially for writing a scientific paper.

3.6.4 Bachelor's Thesis

Bachelor's Thesis Information Systems					
Module Code 1277BMWIN1	**Workload** 360h	**ECTS Credits** 12	**Module Language** German and English	**Module Availability** every term	**Duration** 1 Term
1	**Courses** a) Bachelor Thesis with Prof. Dr. Ketter b) Bachelor Thesis with N.N. c) Bachelor Thesis with Prof. Dr. Schoder d) Bachelor Thesis with Prof. Dr. Schoder		**Contact Hours** a) 0h b) 0h c) 0h d) 0h	**Self-Studies** a) 360h b) 360h c) 360h d) 360h	**Course Language** a) German and English b) German and English c) German and English d) German and English
2	**Module Content** Preparation of a scientific thesis. Bachelor's thesis topics are taken from the following areas, among others: a) Business Intelligence, Analytics, Machine Learning and Learning Agents research in the domains of Energy Markets, Smart Sustainable Mobility, Energy Storage and Transactive Energy & Blockchain b) Conceptual Modeling, Business Process Management, Information Systems Development, Systems Analysis and Design, Digital Innovation, Digital Entrepreneurship, Green IS, Environmental Sustainability c) IT Outsourcing, IT Strategy, Information Systems Development & IT Project Management, Software Development, Open Source Software, Agile Development, Business Process Management, Digital Transformation d) Media Mass Customisation, Electronic Commerce, Social Media & Social Network Analysis, Openness, Management of information spheres and IT platforms, Decision Support Systems, artificial intelligence				
3	**Learning Objectives** Students... ... know and understand the relevant methods and theories for the points mentioned above under „Module content". ... analyse current questions and challenges within the framework of prepared cases. ... collect, systematize and synthesize literature and data material for a scientific work on a selected topic. ... establish and evaluate independently developed positions. ... design their learning and working processes independently. ... use techniques of scientific work and good scientific practice.				
4	**Teaching and Learning Methods** Bachelor's Thesis				
5	**Module Entry Requirements** 100 CP successfully passed; Recommendation: Bachelor Seminar				
6	**Mode of End-Of-Module Examination** Written test 12 weeks				
7	**Prerequisites for Awarding of Credit Points** Passing the module examination				

8	**Other Programmes that Use the Module** Bachelor of Science Wirtschaftsinformatik: Bachelor Thesis Information Systems
9	**Module Manager** Geschäftsführende*r Direktor*in Kölner Institut für Wirtschaftsinformatik
10	**Miscellaneous** Bachelor's theses at the Cologne Institute for Information Systems are assigned in a central assigning procedure. In the first step, the Bachelor's thesis module is assigned to students via KLIPS. This allocation takes place in the 1st allocation phase through the submission of prioritised allocation requests. In the case of KLIPS, prioritized requests for the Bachelor's thesis modules offered by the various examiners must be submitted. As a rule, there will be no enrolment in the 2nd phase or in the allocation of remaining places. Subsequently, each student is allocated a place for a Bachelor's thesis, taking into account the available capacities. After the allocation to the examiners, the students give preferences for concrete Bachelor's thesis topics. This is usually done about three weeks before the respective start date via a survey in ILIAS. Further information on the assigning procedure can be found in the course descriptions in KLIPS or on the website of the Cologne Institute for Information Systems. The Bachelor's thesis can be written in German or English. It is strongly recommended that you complete the Bachelor seminar before writing your Bachelor's thesis, as the Bachelor seminar teaches basic skills for scientific work and especially for writing a scientific paper. Please note that the Cologne Institute for Information Systems (CIIS) offers Bachelor's theses in every semester. Each semester you can start working on your bachelor's thesis at a fixed starting time (in November in winter semesters and in May in summer semesters).