Cologne University of Applied Sciences

Faculty of Information and Communication Sciences

Bachelor's Degree Course "Applied Information Science" (Bachelor of Science)

Module Handbook

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The Bachelor study programme in "Applied Information Science" focuses on the handling of information content in enterprises, associations, public bodies and other organizations. Both technical and information science-related facets as well as economic aspects are examined. In the first three semesters students learn essential basic skills, which can then be put into practice and tested in the fourth semester (practical semester) in an enterprise or other type of organization. This is followed by more in-depth study and specialization in the next two semesters, which are completed with a large-scale project and the Bachelor thesis.

The first semester concentrates on various specialist fields with the different information content and sources used in enterprises and other organizations, as well as the technical possibilities which can be used to disseminate and process such information content.

The retrieval of information from primarily electronic documents and the aggregation of information from data and its storage in database systems are the focal point of the second semester.

The third semester deals with seeking and finding information content as well as its provision and dissemination, whereby economic and legal aspects are also taken into consideration here in addition to technical issues.

After the practical semester, the fifth and six semesters are dedicated to the creation of information products, whereby either a stronger technical perspective or a stronger economic focus is possible.

If two examination methods are listed in the following module descriptions, then the examination methods written in bold are the general rule and the examination methods which do not appear in bold are only offered as an exception. This can, for example, be the case with examinations which run parallel to the course in those semesters in which the course does not take place.

Module name	**IT1 Information Processing / Information Systems (TC)**
Teaching personnel	Module Leaders: Prof. Dr. Galliat, Prof. Dr. Groß Other teaching personnel: Dipl.-Ing. Isabella Nagy

Formal description	Credits	Workload	Grading	Contact hours	Semester	Duration in semesters
	12	360 h	Graded	120 h (8 h/wk)	1st semester	1

Content description	*Sub-module IT1.1 Information Processing* *(Contact hours: 60 h; Private study: 120 h)* In this sub-module, processes and tools for information processing are presented and their everyday application practiced. Apart from the automated transformation of data by means of regular expressions into various (exchange) formats (e.g. CSV, XML, JSON) with the aid of text editors (e.g. TextPad, Notepad++, Jedit) and stream editors, the focus here lies on the processing and analysis of information in table form and its visualization by means of static and dynamic graphics. The extensive possibilities of table calculation programmes (e.g. MS Excel) for information aggregation (via formula and data tools), visualization and processing automation (via macros and / or branch and looping commands) are examined in detail. In addition to the theoretical principles of information visualization, experimental as well as methods and tools already in professional use (e.g. Xcelsius, Treemap, Attribute Explorer, Hyperbolic Browser) are presented and evaluated in the framework of practical examples. *Sub-module IT1.2: Information Systems (Telecommunication)* *(Contact hours: 60 h; Private study: 120 h)* In order to build on a homogeneous knowledge base in the advanced courses, the basic terminology used in information processing is taught. The topics of coding, computer architecture and operating systems are discussed as well as technical data formats, local networks, standard protocols and elementary Internet technologies.
Learning outcomes (content and didactics)	*Sub-module IT1.1 Information Processing* The objective of the sub-module is to enable students to process information which is available in electronic form for the specific application context in a way which is as automated as possible, in order thus to simplify its analysis and utilization or even to make it possible at all. To this purpose, students learn about central problems: Not only must they be familiar with transformation, aggregation and visualization in theory, but must also develop solutions for various questions and then put these into practice with the aid of the tools available. *Sub-module IT1.2 Information Systems (Telecommunication)* The objective of this module is the teaching of basic know-how on which advanced modules can build. In addition to a sound understanding of basic IT terms, this means both confident handling of basic tools as well as utilization of the collaborative software used in the Department.
Examination method	There are separate examinations for the two sub-modules. The module has been passed when both sub-module examinations

	have been passed. The grade for the overall module is calculated on the basis of 50 % each from the grades from the sub-module examinations. Participants are informed at the beginning of the course about specific examination requirements and examination modalities (total number of points to be achieved in the sub-modules, minimum number of points required to pass the sub-module examinations). The sub-module examinations take place as specified by the lecturer by **collecting points in the framework of exercise work (IT1.1) and a written test (IT1.2)** or as an oral / practical examination.
Conditions for the award of credits	A pass in the module examination (minimum grade: "Sufficient")
Weighting of module grade for final grade	On a percentage basis corresponding to the number of credits: 7/100
Admission conditions	None
Teaching method	Lecture, seminar-based tuition, practical laboratory work
Literature	- Few, Stephen: Show Me the Numbers, Burlingame 2004 - Spence, Robert: Information Visualization, Harlow 2007 - Yau, Nathan: Visualize This, Indianapolis 2011 - Hansen, Robert et al.: Wirtschaftsinformatik I. Stuttgart 2009 - Laudon, Kenneth C. et al., Wirtschaftsinformatik, Munich 2010

Module name	**IR1 Information Resources I (Economics, Natural Sciences / Medicine, Public Services)**					
Teaching personnel	Module Leader: Prof. Seidler-de Alwis Other teaching personnel: Prof. Dr. Georgy; assistant lecturers					
Formal description	Credits	Workload	Grading	Contact hours	Semester	Duration in semesters
	6	180 h	Graded	60 h (4 h/wk)	1st semester	1
Content description	General: Industry-specific knowledge is taught in the course, combined with information sources from different fields and industries, as well as corresponding expertise in specific sources. *Sub-module IR1.1 Economics (Contact hours: 30h; Private study: 60h)* Introduction to the information industry as an economic sector and corporate information including information resource management. Focus lies on the systematic and structured teaching of national and international information sources for the entire field of economics in relation to enterprises, products and services, and people, including general macroeconomic data and financial data. An introduction is also given to all important database hosts (economics) and economic science databases. Knowledge of national and international information resources is consolidated through practical examples and exercises. *Sub-module IR1.2: Natural Sciences / Medicine* *(Contact hours: 15 h; Private study: 30 h)* Industry-specific knowledge in the area of natural sciences (in particular chemistry) and medicine. As qualified data search is only possible to a limited extent without relevant specialist know-how in these fields, the course concentrates on the presentation of content from the various sources as well as search possibilities (Registry Number, Chemical Structure Search, MeSH etc.). In addition, institutions are presented which offer relevant information, e.g. DIMDI, ZB MED, Chemical Abstracts Service. In the area of business information, relevant sources for these sectors are presented. *Sub-module IR1.3: Public Services* *(Contact hours: 15 h; Private study: 30 h)* Information from and about the public sector is a core element of the course, which addresses both the citizen's perspective as well as that of commerce and administration in interaction with the public sector. The course centres on the analysis of processes at the interface between business and administration. Structures and processes in modern and efficient administration are investigated in the sense of modern eGovernment. The use of information and communication technologies (ICT) plays a particular role here as these, in conjunction with organizational changes, open up new opportunities to improve public administration work as well as citizen participation.
Learning outcomes (content and didactics)	Students acquire knowledge of sources in the fields of business information, natural sciences and medicine and public services and are able to estimate the search possibilities in these areas. A broad spectrum of information resources in the area of economics, public services and natural sciences / medicine can be selected, evaluated

	and applied under consideration of a wide variety of aspects. Through practical search work in the various fields, the specific requirements of the different industries become clear.
Examination method	Participants are informed at the beginning of the course about specific examination requirements and examination modalities (number of points to be achieved, minimum number of points required to pass the examination). The examination takes the shape of a **written test** or an oral examination.
Conditions for the award of credits	A pass in the module examination (minimum grade: "Sufficient")
Weighting of module grade for final grade	On a percentage basis corresponding to the number of credits: 7/200
Admission conditions	None
Teaching method	E.g. seminar-based tuition
Literature	-Goemann-Singer; Graschi; Weissenberger: Recherchehandbuch Wirtschaftsinformationen; 2nd ed., Berlin, 2004 -Lanza, S.: International Business Information on the Web; Medford New Jersey, 2001 -(Training) material from Genios, Lexis Nexis, Pro Quest and Bureau van Dijk -Poetzsch, E., Naturwissenschaftliche-technische Information; 2nd ed., Berlin, 2005 -(Training) material from the Chemical Abstracts Service, the DIMDI, the ZB MED as well as the STN host - Klein, Manfred: eGovernment Aktionsplan 2011. www.egovernment-computing.de - Nanz, Patrizia; Fritsche, Miriam: Handbuch Bürgerbeteiligung. Verfahren und Akteure, Chancen und Grenzen. Bonn, 2012. - Schwabe, Gerhard: Bürgerservices. Grundlagen – Ausprägungen – Gestaltung – Potenziale. 2011. - Walz, Susanne: Handbuch zur Partizipation. Berlin, 2011.

Module name	**IB1 Business Management Information**					
Teaching personnel	Module Leader: Prof. Dr. Linde Other teaching personnel: Prof. Dr. Fank; assistant lecturers					
Formal description	Credits	Workload	Grading	Contact hours	Semester	Duration in semesters
	6	180 h	Graded	60 h (4 h/wk)	1st semester	1
Content description	Various functional areas interact in an enterprise to generate its joint performance. Their concrete characteristics vary depending on whether manufacturing, service or public enterprises are concerned. On the basis of the distribution of labour in the functional areas, the information processes taking place in and between them are examined more closely. A special focus here lies on information in the field of corporate cost accounting, which forms the basis for many entrepreneurial decisions.					
Learning outcomes	• Students can explain core tasks in corporate functional areas and their interaction in a value chain. • They can compare typical information requirements in the functional areas with each other and assess alternative forms of information procurement in terms of their cost and benefit. • They can explain what contribution information makes to corporate success. • They can explain fundamental correlations and how cost and performance accounting works. • They can carry out simple assessments on the basis of balance sheets and / or profit and loss statements.					
Examination method	Participants are informed at the beginning of the course about specific examination requirements and examination modalities (number of points to be achieved, minimum number of points required to pass the examination). The examination takes place throughout the course as specified by the lecturer and in the framework of a written test.					
Conditions for the award of credits	A pass in the module examination (minimum grade: "Sufficient")					
Weighting of module grade for final grade	On a percentage basis corresponding to the number of credits: 7/200					
Admission conditions	None					
Teaching method	Seminar-based tuition, practical laboratory work					
Literature	- Spitta, T., Bick, M., Informationswirtschaft. Eine Einführung, 2nd ed., Berlin, Heidelberg 2008. - Herget, J., Informationsmanagement, in: Kuhlen, R., Seeger, T., Strauch, D. (Publ.): Grundlagen der praktischen Information und Dokumentation, 5th ed., Volume 1, Munich 2004, p. 245 – 255. - Standard literature on business management is available in the library					

Module name	**IM1 Methods of Empirical Research / Statistics I**					
Teaching personnel	Module Leader: Prof. Dr. Fühles-Ubach Other teaching personnel: N.N.					
Formal description	Credits	Workload	Grading	Contact hours	Semester	Duration in semesters
	4	120 h	Graded	60 h (4 h/wk)	1st semester	1
Content description	*Sub-module IM1.1: Methods of Empirical Research* *(Contact hours: 30 h; Private study: 60 h)* The basis of customer research is the different methods of empirical social research, which are used to varying extent in enterprises. On the basis of the overall process, the various phases of customer analysis are presented - from definition of the problem under investigation to design of the study and data collection to data analysis and presentation. The methodical focus here lies in the area of written and oral surveys (offline / online) which are the most frequently used tools with regard to customer satisfaction, impact and user analyses. The theory of quantitative empirical methods is presented and their application in everyday corporate practice explained. *Sub-module IM1.2: (Business Management) Statistics I* *(Contact hours: 30 h; Private study: 60 h)* Familiarization with fundamental statistical processes as the basis of business management and technical decision-making processes as well as their application in a corporate context. Topics handled are mean and variance values, concentration calculation, ratios, price indices, time series as well as correlation and regression.					
Learning outcomes	*Sub-module IM1.1: Methods of Empirical Research* Students are familiarized with the range of methods needed to investigate a market and which are frequently the prerequisite for subsequent targeted marketing measures. They learn about the concrete structure of research studies and can differentiate between the advantages and disadvantages of alternative methods as well as between their prerequisites in terms of technical features and content, as well as being able to adapt them specifically to various types of enterprise and customer. Students are able to structure and outline surveys. Various interrogative forms and scale types are used in a differentiated manner and set up and / or operationalized for data analysis. Evaluation and presentation aspects are recognized as critical success factors in customer research and can be applied accordingly. *Sub-module IM1.2: (Business Management) Statistics I* Students become familiar with statistical processes and their applicability in a corporate context. They acquire the following skills which enable them to: • Plan statistical surveys • Systematically collect, record and present data using graphics software • Evaluate own data in the shape of tables and graphical presentations • Interpret data using relevant indicators • Select and establish suitable empirical procedures for the collection of statistics					
Examination method	**Written test** or exercises					

Conditions for the award of credits	A pass in the module examination (minimum grade: "Sufficient"), passes in the exercises, successful seminar paper / presentation
Weighting of module grade for final grade	On a percentage basis corresponding to the number of credits: 7/300
Admission conditions	None
Teaching method	Lectures, exercises, project work, group work
Literature	- Bourier, Günther: Beschreibende Statistik : praxisorientierte Einführung. Mit Aufgaben und Lösungen. – 12. Aufl. – Gabler, 2014. - Kromrey, Helmut: Empirische Sozialforschung: Modelle und Methoden der standardisierten Datenerhebung und Datenausweitung. - 12. Aufl. - UTB, 2009. - Bortz, Jürgen; Döring, Nicola: Forschungsmethoden und Evaluation für Human- und Sozialwissenschaftler. - 4. Aufl. - Springer, 2006 (new edition in 2015)

Module name	**IPT Exploring Career Opportunities for Information Professional**					
Teaching personnel	Module Leader: Prof. Seidler-de Alwis, MBA Other teaching personnel: Silke Beck, M.A., M.L.I.S.					
Formal description	Credits	Workload	Grading	Contact hours	Semester	Duration in semesters
	2	60 h	Ungraded	15 h (1 h/wk)	1st semester	Core week ProfiL[2]
Content description	Initial familiarization with various areas of activity and professional fields for information professionals through visits to corresponding workplaces in enterprises. This takes place through prior research and an on-site visit to the enterprise including an interview in the firm. Results are compiled and reported in the shape of a lecture and media-supported presentation (e.g. PPT).					
Learning outcomes	First familiarization with the daily routine and tasks of an Information Professional, both as preparation for a successful practical phase and to acquire presentation skills.					
Examination method	Presentation					
Conditions for the award of credits	Conducting of a presentation					
Weighting of module grade for final grade	Ungraded module					
Admission conditions	None					
Teaching method	Lectures, exercises, project work, group work					
Literature						

Module name	**IT2 Database Systems**					
Teaching personnel	Module Leader: Prof. Dr. Galliat Other teaching personnel: Prof. Dr. Groß					
Formal description	Credits	Workload	Grading	Contact hours	Semester	Duration in semesters
	6	180 h	Graded	60 h (4 h/wk)	2nd semester	1
Content description	The module provides an introduction to the use of relational database systems. In addition to database design (e.g. with the aid of an Entity-Relationship Model), the focus lies on the transformation into a relational scheme, the implementation in systems used professionally (e.g. MS SQL Server, MySQL) and queries via SQL. Peripheral topics are data integrity, transaction administration, multi-user synchronization and security. *Sub-module IT2.1 Database Systems – Theory* *(Contact hours: 30 h; Private study: 60 h)* Theoretical principles are taught in this sub-module. *Sub-module IT2.2 Database Systems – Practice* *(Contact hours: 30 h; Private study: 60 h)* In this sub-module, various problems in the use of database systems – from modelling to implementation to query building – are tackled in the framework of practical exercises.					
Learning outcomes (content and didactics)	The objective of this module is to familiarize students with the use of relational database systems. The focus lies on learning the SQL query language, which is supported by regular exercise work and the practical use of database systems.					
Examination method	There are separate examinations for the two sub-modules. The module has been passed when both sub-module examinations have been passed. The grade for the overall module is calculated on the basis of 50 % each from the grades from the sub-module examinations. Participants are informed at the beginning of the course about specific examination requirements and examination modalities (total number of points to be achieved in the sub-modules, minimum number of points required to pass the sub-module examinations). The sub-module examinations take place as specified by the lecturer by **collecting points in the framework of exercise work (IT2.2) and a written test (IT2.1)** or as an oral / practical examination.					
Conditions for the award of credits	A pass in the module examination (minimum grade: "Sufficient")					
Weighting of module grade for final grade	On a percentage basis corresponding to the number of credits: 7/200					
Admission conditions	None					
Teaching method	Lecture, practical laboratory work					
Literature	- Kemper, Alfons et al., Datenbanksysteme, Munich 2011 - Elmasri, Ramez et al., Database Systems, Boston 2011					

Module name	**IR2 Information Resources II (Economics, Technology and Patents, Media)**					
Teaching personnel	Module Leader: Prof. Seidler-de Alwis Other teaching personnel: Prof. Dr. Georgy; assistant lecturers					
Formal description	Credits	Workload	Grading	Contact hours	Semester	Duration in semesters
	6	180 h	Graded	60 h (4 h/wk)	2nd semester	1
Content description	Students must complete all three sub-modules. General: Sector-specific knowledge (industrial know-how) is taught in the course, combined with information sources from different fields and industries, as well as corresponding expertise in specific sources. *Sub-module IR2.1 Economics II (Contact hours: 30h; Private study: 60h)* Knowledge of national and international information resources in the area of economics is consolidated through practical examples and exercises. In-depth study of the broad field of economics through reference to specific industries, such as consumer goods / trade, combined with specific information sources including associations, publications, databases, important institutions and market research agencies etc., which concentrate on this sector. These application-oriented searches train and deepen students' search skills. *Sub-module IR2.2 Technology and Patents (Contact hours: 15 h; Private study: 30 h)* Sector-specific knowledge in the field of technology, norms and patents. Important information providers and sources are presented. Promising strategies for the solution of research tasks are demonstrated and explained by means of selected examples. The strengths and weaknesses of important databases in this context are discussed, e.g. the free-of-charge databases of the patent offices versus the databases of the STN host which are subject to a charge. The aim is to give students the opportunity to undertake independent research on current topics. *Sub-module IR2.3 Media (Contact hours: 15 h; Private study: 30 h)* Sector-specific knowledge in the field of media. Important information providers and sources are presented. Promising strategies for the solution of research tasks are demonstrated and explained by means of selected examples.					
Learning outcomes (content and didactics)	Students acquire knowledge of sources in the fields of technology and patents, and media, as well as more in-depth knowledge in the field of economics. A broad spectrum of information resources in the areas of economics, media, and technology and patents can be selected, evaluated and applied under consideration of a wide variety of aspects, i.e. classified and categorized. Students are able to estimate the search possibilities in these areas and expand their search expertise. A further aim is to enable them to establish contacts with the right people and institutions when they are confronted with corresponding enquiries within the framework of their later profession. Through practical research in commercial					

	databases as well as via search engines above all in the area of economics, specific requirements in different fields become clear.
Examination method	Participants are informed at the beginning of the course about specific examination requirements and examination modalities (number of points to be achieved, minimum number of points required to pass the examination). The examination takes the shape of a **written test** or an oral examination.
Conditions for the award of credits	A pass in the module examination (minimum grade: "Sufficient")
Weighting of module grade for final grade	On a percentage basis corresponding to the number of credits: 7/200
Admission conditions	Successful completion of Module IR1
Teaching method	E.g. seminar-based tuition
Literature	-Goemann-Singer; Graschi; Weissenberger: Recherchehandbuch Wirtschaftsinformationen; 2nd ed., Berlin, 2004 -Badke, W.: Research Strategies. New York (u.a.):iUniverse, 2008 -Lanza, S.: International Business Information on the Web; Medford New Jersey, 2001 -(Training) material from Genios, Lexis Nexis, Pro Quest and Bureau van Dijk -Czech-Winkelman, Susanne: Der neue Weg zum Kunden: Vom Trade Marketing zum Shopper Marketing – Grundlagen – Konzepte – Instrumente. -Deutscher Fachverlag, 2011 -Poetzsch, E., Naturwissenschaftliche-technische Information; 2nd ed., Berlin 2005 -Adams, St., Information Sources in Patents; Munich 2011 -Gassmann, O.; Bader M.A., Patentmanagement - Innovationen erfolgreich nutzen und schützen, 3rd ed., Berlin / Heidelberg 2010 -(Training) material of the STN host, the German and the European Patent Office and the Perinorm database (international standards database)

Module name	**IR3 Indexing and Knowledge Organization**					
Teaching personnel	Module Leader: Prof. Dr. Lepsky Other teaching personnel: Prof. Gödert					
Formal description	Credits	Workload	Grading	Contact hours	Semester	Duration in semesters
	12	360 h	Graded	120 h (8 h/wk)	2nd semester	1
Content description	*Sub-module IR3.1: Principles of Information Retrieval and Knowledge Organization* *(Contact hours: 30 h; Private study: 60 h)* The lecture teaches specialist expertise in methods, forms and techniques of document indexing. This includes, in particular, techniques for the analysis of document content, principles for the representation of the content in classification systems or verbal indexing languages, as well as questions about the suitability of a specific indexing language for information retrieval processes. The focus lies on the theory of indexing languages (classification systems, thesauri, keywords), presentation by way of example of indexing languages, as well as the development of criteria for the qualitative classification of retrieval techniques. *Sub-module IR3.2: Creation and Development of an Image Database* *(Contact hours: 30 h; Private study: 60 h)* In this practical laboratory exercise, a structured database for the recording and indexing of images is set up. The images are formally recorded within the framework of an indexing concept, represented by means of datasets in a database environment and indexed with regard to their content by means of aspect-differentiated thesauri. Students learn the principles for the development of indexing concepts, conceptual structuring and design of indexing languages. The approach of intellectual indexing through content analysis and assignment of standardized vocabulary on the basis of indexing principles is treated both in theory as well as in the framework of concrete examples. The indexed data are made searchable within a retrieval environment. Sample searches illustrate the possibilities of the indexing methods applied. Software used: Midos 6, Midos Thesaurus *Sub-module IR3.3: Creation and Development of a Bibliographical Database (Contact hours: 30 h; Private study: 60 h)* In this practical laboratory exercise, students work with a database which contains bibliographical datasets for dependently and independently published documents. In this way, the situation of a heterogeneous document collection is simulated, for which a homogeneous indexing and search environment is established. The type of formal indexing and content indexing takes into consideration the specific characteristics of bibliographical data within an indexing concept and continues the approach already known from working with image documents, i.e. aspect orientation and use of terminology-controlled vocabulary. The document

	collection is expanded by importing datasets from other sources. The manipulations necessary for the data to be imported are treated in depth and implemented with the help of a text editor. A retrieval environment is built up and a bibliography compiled.
	Software used: Midos 6, Midos Thesaurus, Notepad++
	Sub-module IR3.4: Bibliographical Data Models and Information Retrieval *(Contact hours: 30 h; Private study 60 h)*
	Bibliographical data can also be processed in relational databases. In addition to the linear data organization in *Midos,* the relational organization of bibliographical data as a normalization and modelling process are handled in this practical laboratory exercise and the consequences for information retrieval are identified. The relational organization of bibliographical data is practiced on the basis of an example for the realization of a simple database design in a relational database management system. The second part of the practical laboratory exercise centres on the criteria for determining the efficiency of retrieval processes and systems. Retrieval tests are developed and implemented on the basis of own document collections.
	Software used: Midos 6, MS SQL Server, MySql
Learning outcomes (content and didactics)	The module teaches skills in knowledge organization and representation and the processes and techniques handled in the module are tested on concrete document collections.
Examination method	Participants are informed at the beginning of the course about specific examination requirements and examination modalities (number of points to be achieved, minimum number of points required to pass the examination). The examination takes place throughout the course as specified by the lecturer through the compilation of a **term paper** or alternatively in the framework of a written test.
Conditions for the award of credits	A pass in the module examination (minimum grade: "Sufficient")
Weighting of module grade for final grade	On a percentage basis corresponding to the number of credits: 7/100
Admission conditions	None
Teaching method	Lecture, practical laboratory work
Literature	Gödert, Winfried; Lepsky, Klaus; Nagelschmidt, Matthias: Informationserschließung und Automatisches Indexieren: ein Lehr- und Arbeitsbuch. Berlin, 2012.

Module name	**IM2 Online Surveys / SPSS / Statistics II**					
Teaching personnel	Module Leader: Prof. Dr. Fühles-Ubach Other teaching personnel: N.N.					
Formal description	Credits	Workload	Grading	Contact hours	Semester	Duration in semesters
	4	120 h	Graded	60 h (4 h/wk)	2nd semester	1
Content description	*Sub-module IM2.1: Online Surveys / SPSS* *(Contact hours: 30 h; Private study: 60 h)* Criteria for online surveys – also in comparison to offline surveys – are developed and analyzed under consideration of various factors (e.g. representativeness, self-selection, data protection aspects). Functions and applications of various software programmes for the compilation of online questionnaires are demonstrated on the basis of concrete examples from the commercial field, but also by introducing open source models, and students are taught how to apply them in everyday corporate practice. Further focal areas are parametric and non-parametric test procedures, which are used to test hypotheses in statistical procedures. *Sub-module IM2.2: Statistics II* *(Contact hours: 30 h; Private study: 60 h)* Inductive statistics processes are discussed on the basis of the principles of probability calculation. A special emphasis is put on random samples and processes for hypothesis testing." Theoretical teaching is supplemented and consolidated with practical exercises with statistics programmes (SPSS, SAS).					
Learning outcomes (content and didactics)	*Sub-module IM2.1: Online Surveys / SPSS* How a questionnaire can be implemented and / or programmed with the help of online software is taught. Criteria are developed for the different software solutions required for various projects for the planning, implementation and evaluation of an online survey. Students learn to identify the requirements of various projects and to select and apply the software accordingly. They practice the use of statistics programmes for the implementation of statistics tests and their evaluation / analysis. If possible, one objective of the course is for the students to conduct their own small survey with subsequent evaluation, in order to illustrate practical problems in addition to theoretical questions. Evaluation and analysis of the results are also included in the planning. *Sub-module IM2.2: Statistics II* Students learn about inductive statistics processes and their applicability in a corporate context. This includes: • Implementing and justifying data analyses • Determining probabilities • Verifying / falsifying hypotheses • Implementing and evaluating test procedures • Selecting and developing suitable empirical procedures for the collection of statistics					
Examination method	Participants are informed at the beginning of the course about specific examination requirements and examination modalities (number of points to be achieved, minimum number of points					

	required to pass the examination). The examination takes place throughout the course as specified by the lecturer by **collecting points in the framework of exercise work on statistics** or alternatively as a written test.
Conditions for the award of credits	A pass in the module examination (minimum grade: "Sufficient"); exercises parallel to the course.
Weighting of module grade for final grade	On a percentage basis corresponding to the number of credits: 7/300
Admission conditions	Successful completion of Module IM1
Teaching method	Lectures, exercises, project work, group work
Literature	- Bourier, Günther: Wahrscheinlichkeitsrechnung und schließende Statistik : praxisorientierte Einführung. Mit Aufgaben und Lösungen. – 8. Aufl. – Gabler, 2013. - Mayer, Hans Otto: Interview und schriftliche Befragung: Grundlagen und Methoden empirischer Sozialforschung. - 6. Aufl. - Oldenbourg, 2012. - Raab-Steiner, Elisabeth; Benesch, Michael: Der Fragebogen. Von der Forschungsidee zur SPSS-Auswertung. - 3. Aufl. - UTB, 2012

Module name	**IPX Project Management**					
Teaching personnel	Module Leader: Prof. Dr. Fühles-Ubach Other teaching personnel: Dipl.-Bibl. Miriam Lorenz					
Formal description	Credits	Workload	Grading	Contact hours	Semester	Duration in semesters
	2	60 h	Ungraded	15 h (1 h/wk)	2nd semester	Core week ProfiL[2]
Content description	In order for students to be able to undertake projects independently and professionally, they are taught the principles of project management. In addition to various definitions of project management and different phase models, concrete project planning (initialization, preliminary studies, concept, application) and project organization (leadership, team, milestones, time schedule) and measurement of their success are taught. Topics related to the implementation phase include cross-cutting aspects such as communication and reporting. Special consideration is given to small projects.					
Learning outcomes	Students learn to distinguish projects from other special tasks and to develop a concrete project plan on the basis of a project example. In this context, they learn about project structure plans with concrete work tasks and time conditions. In addition, instruments such as Gantt diagrams and overviews of communication structures as well as risk plans are compiled within group work. Project launch and project end are accompanied by special activities (kick-off and final meetings). Within this framework, students learn how to lead an enterprise in a market-oriented manner by making their own independent decisions about which important steering variables to use. Students learn to define projects and to utilize project management techniques in a targeted way. Students learn to work in groups and make decisions together.					
Examination method	Planning and organization of a model project					
Conditions for the award of credits	Planning and organization of a model project					
Weighting of module grade for final grade	Ungraded module					
Admission conditions	None					
Teaching method	Project					
Literature						

Module name	**IT3 Search Engine Technology**					
Teaching personnel	Module Leader: Prof. Gödert's successor Other teaching personnel: Assistant lecturers					
Formal description	Credits	Workload	Grading	Contact hours	Semester	Duration in semesters
	6	180 h	Graded	60 h (4 h/wk)	3rd semester	1
Content description	The special features of web-based retrieval by means of search engines are identified through practical work. This includes the differences between document-related retrieval and retrieval from heterogeneous web resources as well as the handling of multi-lingual and multi-medial collections. Students learn the functions of index compilation, ranking algorithms and processes for search engine optimization by setting up their own search engine environment.					
Learning outcomes (content and didactics)	The module teaches know-how regarding methods for compiling indexes for search engines as well as ranking algorithms (content vs. popularity score). The aim is to enable students to undertake an analysis and assessment of processes for the optimization of websites so that these are correctly indexed by search engines and reach as high a score as possible. The processes and techniques handled are tested on concrete document collections.					
Examination method	Participants are informed at the beginning of the course about specific examination requirements and examination modalities (number of points to be achieved, minimum number of points required to pass the examination). The examination takes place throughout the course as specified by the lecturer by **collecting points in the framework of exercise work** or alternatively as a written test.					
Conditions for the award of credits	A pass in the module examination (minimum grade: "Sufficient")					
Weighting of module grade for final grade	On a percentage basis corresponding to the number of credits: 7/200					
Admission conditions	None					
Teaching method	Lecture, practical laboratory work					
Literature	Erlhofer, S.: Suchmaschinenoptimierung. 2011. Langville, A.N., Meyer, C.D.: Google's PageRank and Beyond: The Science of Search Engine Rankings, Princeton, 2006 Büttcher, S., Clarke, C., Cormack, G.: Information Retrieval: Implementing and Evaluating Search Engines. Cambridge 2010.					

Module name	**IR4 Information Retrieval**					
Teaching personnel	Module Leader: Prof. Gödert's successor Other teaching personnel: Prof. Gödert, Prof. Dr. Lepsky					
Formal description	Credits	Workload	Grading	Contact hours	Semester	Duration in semesters
	6	180 h	Graded	60 h (4 h/wk)	3rd. semester	1
Content description	*Sub-module IR4.1: Information Retrieval – Theory* *(Contact hours: 30 h; Private study: 60 h)* The lecture teaches the history, methods and techniques of information retrieval and search engine technology. This includes the theoretical principles of information retrieval, the functioning of retrieval systems and of the instruments they use, as well as test procedures to measure retrieval effectiveness. The principles of index structure (inverted list) and term weighting as fundamental techniques for the models of Boolean retrieval, vector space model and probabilistic information retrieval are examined. A comparison is drawn between the principles of web retrieval with search engines, the functioning of ranking algorithms and relevance feedback techniques as opposed to classic retrieval models. *Sub-module IR4.2: Information Retrieval – Practice* *(Contact hours: 30 h; Private study: 60 h)* In practical laboratory exercises, students learn to master fundamental search strategies and techniques within various information retrieval systems. Evaluation and comparison criteria for retrieval systems are developed on the basis of concrete examples. Key elements of data preparation of documents, index structure and formulation of search queries are taught using a model example of an information retrieval system on the basis of a pre-determined document collection. Software used: Midos 6, Lucene, Solr (or comparable systems).					
Learning outcomes (content and didactics)	The module teaches the theory and method of information retrieval. The introductory lecture is supplemented with laboratory exercises in which classic retrieval procedures are taught in the framework of practical work.					
Examination method	Participants are informed at the beginning of the course about specific examination requirements and examination modalities (number of points to be achieved, minimum number of points required to pass the examination). The examination takes place throughout the course as specified by the lecturer by **collecting points in the framework of exercise work** or alternatively as a written test.					
Conditions for the award of credits	A pass in the module examination (minimum grade: "Sufficient")					
Weighting of module grade for final grade	On a percentage basis corresponding to the number of credits: 7/200					
Admission conditions	None					
Teaching method	Lecture, practical laboratory work					
Literature	Manning, C., Raghavan, P., Schütze, H.: Introduction to Information Retrieval. Cambridge 2008.					

	Büttcher, S., Clarke, C., Cormack, G.: Information Retrieval: Implementing and Evaluating Search Engines. Cambridge 2010.

Module name	**IB2 Information Marketing / Corporate Communication**					
Teaching personnel	Module Leader: Prof. Dr. Georgy Other teaching personnel: Prof. Dr. Fühles-Ubach					
Formal description	Credits	Workload	Grading	Contact hours	Semester	Duration in semesters
	6	180 h	Graded	60 h (4 h/wk)	3rd semester	1
Content description	*Sub-module IB2.1: Information Marketing* *(Contact hours: 30 h; Private study: 60 h)* In the Information Marketing course, the special characteristics of service marketing are discussed, taking into consideration input, output and process-oriented components as well as various service typologies. Reference is made to information infrastructures in enterprises (Module I3) as well as to the specific features of services and in particular of information services. As the service sector is overall very broad, the objective here is to reflect on generally accepted statements with respect to specific sectors – in this case the information sector – and to examine them with regard to their transferability. *Sub-module IB2.2: Corporate Communication* *(Contact hours: 30 h; Private study: 60 h)* Internal communication refers, amongst others, to leadership approach, which supports and steers organizational tasks with the aid of communication and behaviour management. The focus lies on the presentation of communication instruments (criticism, feedback, staff appraisals, facilitation), which take place at operative level in the area of personal communication as formal communication along organizational structures. External communication as part of strategic marketing looks at measures undertaken by enterprises via which offers and corporate information are mediated to various target groups in the marketplace as well as in-house to personnel. Special focus is placed here on enterprises' external communication instruments.					

Learning outcomes (content and didactics)	Students are able to:
	 - Describe and apply the special components of service marketing, especially information marketing.
	 - Describe and take into consideration in practice the differences between product and service marketing.
	 - Develop marketing concepts for an information provider or department under consideration of marketing objectives, strategies and measures.
	
	 Students learn:
	 - The significance of communication in a business context and the many possibilities and forms of internal and external corporate communication.
	 - On the basis of various communication models, behavioural structures and their use in the area of personnel management are examined in depth using practical examples and applications in a business context:
	    o To prepare and hold difficult discussions (role play)
	    o To exercise constructive criticism (case studies, exercises)
	    o To give and receive feedback
	    o To prepare and hold staff appraisals

Examination method	Participants are informed at the beginning of the course about specific examination requirements and examination modalities (number of points to be achieved, minimum number of points required to pass the examination). Course IB2.2 in Corporate Communication takes place as a block module at the beginning of the semester. It is ungraded and mandatory for admission to the examination in the IB2.1 Information Marketing course.
Conditions for the award of credits	A pass in the module examination (minimum grade: "Sufficient")
Weighting of module grade for final grade	On a percentage basis corresponding to the number of credits: 7/200
Admission conditions	None
Teaching method	E.g. seminar-based tuition, project work
Literature	

Module name	**IM3 Information and Media Law**					
Teaching personnel	Module Leader: Prof. Peters Other teaching personnel: Assistant lecturers					
Formal description	Credits	Workload	Grading	Contact hours	Semester	Duration in semesters
	4	120 h	Graded	60 h (4 h/wk)	3rd semester	1
Content description	Corporate action within the new economy demands a fundamental knowledge of the legal system. Information professionals are confronted with numerous legal problems in their daily work, in particular with questions of online or Internet legislation, which is increasingly evolving into an independent branch of law. Specific topics covered in the course are: • Introduction to the Legal System, German Civil Code and Public Law • Copyright, Trademark and Design Protection Law • Liability Law • Advertising Law • Domain Name Law • Law on eCommerce • Contract Law (in particular eContracting) • Youth Protection Law • Main Features of Intellectual Property Rights • Law on Communication Networks and Services • Public Procurement of Information Technology Services					
Learning outcomes (content and didactics)	Students master the principles of information law. They are familiar with important legal problems in their profession, as well as relevant court rulings and key scientific arguments. They are able to develop independently answers to simpler legal questions from everyday practice.					
Examination method	Participants are informed at the beginning of the course about specific examination requirements and examination modalities. The examination takes place as specified by the lecturer as a term paper.					
Conditions for the award of credits	A pass in the module examination (minimum grade: "Sufficient")					
Weighting of module grade for final grade	On a percentage basis corresponding to the number of credits: 7/300					
Admission conditions	None					
Teaching method	Seminar-based tuition, lecture					
Literature	- Gloy, Wolfgang (Publ.): Handbuch des Wettbewerbsrechts. Munich 2005 - Hoeren, Thomas (Publ.): Handbuch Multimedia-Recht. Munich 2007 - Hoeren, Thomas: Internetrecht. Münster 2011. - (http://www.uni-muenster.de/Jura.itm/hoeren/materialien/-Skript/Skript_Internetrecht_Oktober_2011.pdf) - Stöckel, Maximiliane (Publ.): Handbuch Marken- und Designrecht. Berlin 2006.					

Module name	**IT4 Programming and Software Development**				
Teaching personnel	Module Leader: Prof. Dr. Strahringer Other teaching personnel: N.N.				
Formal description	Credits	Workload	Grading	Contact hours	Semester	Duration in semesters
	6	180 h	Graded	60 h (4 h/wk)	3rd semester	1
Content description	This module gives an introduction to programming. In addition to object-based concepts, it also includes basic concepts of imperative programming: • Basic programming terminology, such as instructions, variables, data types and operators • Form evaluation • Control structures • Arrays • Objects and methods • Programming libraries Students apply the concepts presented in practical laboratory exercises, using integrated programming environments to solve tasks.				
Learning outcomes (content and didactics)	Students acquire the skills to solve basic practical programming tasks either on their own or in groups and with the aid of suitable tools. They can analyze practical tasks and divide them into appropriate sub-tasks. Through accompanying exercises, students gain practice in programming and are able to develop their own solutions and approaches.				
Examination method	Written test				
Conditions for the award of credits	A pass in the module examination (minimum grade: "Sufficient")				
Weighting of module grade for final grade	On a percentage basis corresponding to the number of credits: 7/200				
Admission conditions	None				
Teaching method	Lecture, practical laboratory work				
Literature					

Module name	**IQM Quality Management**					
Teaching personnel	Module Leader: Prof. Dr. Georgy Other teaching personnel: N.N.					
Formal description	Credits	Workload	Grading	Contact hours	Semester	Duration in semesters
	2	60 h	Ungraded	15 h (1 h/wk)	3rd semester	Core week ProfiL[2]
Content description	Objective (TQM, ISO certification) and subjective quality are discussed against the background of customer satisfaction and loyalty. Service offer, direct service quality, personnel quality, contact as well as process quality are considered. The basis for considering quality techniques is the gap model. Amongst the quality techniques presented are feedback management, blueprint, FMEA, Ishikava and ServQual. The individual techniques are examined in greater depth in the project phase and applied in relation to various situations in organizations which supply information services.					
Learning outcomes	Students learn to understand quality management as a component of or interface to marketing (customer loyalty, customer satisfaction) and innovation management. The aim is to enable them to select and link different techniques for individual quality requirements.					
Examination method	Presentation					
Conditions for the award of credits	Conducting of a presentation					
Weighting of module grade for final grade	Ungraded module					
Admission conditions	Students should attend the IB2 course in the 3rd semester (this is a recommendation and not a mandatory requirement)					
Teaching method	Project					
Literature						

Module name	**IPM Practice Module**					
Teaching personnel	Module Leader: Prof. Seidler-de Alwis Support of the Module Leader in the practice phase: Silke Beck, M.A., M.L.I.S.					
Formal description	Credits	Workload	Grading	Contact hours	Start	Duration in semesters
	30	900 h	Graded	60 h (2 h/wk)	3rd semester	2 semesters
Content description	*Sub-module IPM.1 Planning & Organization* Covers the planning period prior to the practice phase. In preparatory courses, students are given guidance in their choice of internships (abroad too) with a focus on the project to be undertaken in the practice phase. The various possibilities for organizing a practical semester are explained. The possibilities and particularities of a practical semester abroad are specified in detail with regard to intercultural, profession-related and language skills. Former interns from the practice phase in the previous year present their experience. In addition, external partners from enterprises and other organizations are invited to present practical semester placements in various fields. *Sub-module IPM.2 Practice Phase* Students put into practice the theoretical knowledge acquired in the first semesters. Through the mostly autonomous planning, organization, implementation and evaluation of a larger scale project, students test their ability for independent work under real conditions in the individual enterprises / organizations. Students gain an insight into the working environment and daily professional life as information experts with various possibilities for specialization. Students are supervised by their professors during the practice phase. *Sub-module IPM.3 Presentation & Practice Report* Students must compile a concluding final report on the practice phase which in particular reflects the project undertaken. The report should also reflect the competencies students have acquired at various levels, in addition to having a scientific angle and a project description. Following completion of the practice phase, a colloquium is held, the purpose of which is to exchange experience and to consolidate as well as secure students' acquired know-how. In this colloquium, students report on the experience and knowledge they have gained in their internships – for example in the form of a (poster) presentation and an insight into the practice phase – to the next generation of interns.					
Learning outcomes	*Sub-module IPM.1 Planning & Organization* Students are aware of and understand both the personal requirements and the requirements of the study programme for admission to the practice phase as well as for selecting an internship appropriate to their own individual objectives. Students are familiar with the formal requirements and the requirements in terms of content which an organization must fulfil so that the practice phase may be undertaken there. They know the closing dates for scholarships abroad and the general conditions for applying for an internship as well as the criteria for the project to be					

	undertaken during the practice phase and are able to apply as far as possible independently for a practical semester placement which is suitable for them. They are aware of the expectations placed on the practical report, in particular on the scientific part, but also on the critical examination of the competencies they have gained.
	Sub-module IPM.2 Practice Phase Students are familiarized early on with as broad a spectrum as possible of information science activities in practice. The insight thus gained into the highly diversified working world of information science and daily professional life facilitates students' decisions when choosing an area of specialization in the later course of their studies. Theoretical know-how acquired in the first semesters is put into practice, evaluated and critically examined.
	Sub-module IPM.3 Presentation & Practice Report Students are able to categorize the practical tasks they have performed, in particular in the framework of the project undertaken, in an overall scientific context. In addition, they are able to reproduce the know-how acquired within the Project Management course and thus create a synthesis between conceptualization and own experience in an articulate way. The know-how and competencies acquired in the practice phase are formulated in the shape of a report as well as being summarized and highlighted in a presentation. They are also presented to students in lower years in the framework of a colloquium.
Examination method	Graded module on the basis of the presentation and the report and compulsory participation in IPM 1. The assessment from the enterprise / organization which provided the placement is taken into account in the grading.
Conditions for the award of credits	Successfully completed practical semester
Weighting of module grade for final grade	The grade achieved in this module counts as 10 % of the overall grade achieved in the study programme.
Admission conditions	Passes in five module examinations of which at least three from the first semester
Teaching method	Seminar-based tuition, presentations, lectures
Literature	

Module name	**IT5 Web Applications and Web Services**					
Teaching personnel	Module Leader: Prof. Dr. Groß Other teaching personnel: Prof. Dr. Strahringer					
Formal description	Credits	Workload	Grading	Contact hours	Semester	Duration in semesters
	12	360	Graded	120 h (8 h/wk)	5th semester	1
Content description	*Sub-module IT5.1 Technical Information Products* Topics of this module are the functioning of web applications (Request-Response-Model, CGI) as well as the integration of databases via standardized interfaces. In addition, SOAP and alternatives (XML-RPC, REST) are presented as the basis for the use of web services. Aspects treated are interface description, (e.g. WSDL) and methods for their automatic use. Popular web service interfaces (e.g. Google, Amazon, eBay) are also examined. The aim is for students to gather practical experience in dealing with web servers, e.g. Apache or IIS, to become familiar with various data interchange formats such as XML or JSON and to experience their use in various contexts. *Sub-module IT5.2 Mobile Apps* The course covers both native apps as well as web apps and hybrid apps. The objective is for students to develop an app in the framework of projects lasting several weeks. Students work together in small groups, whereby each group develops either a native app or a web app. Students independently plan each project phase up to implementation. Design guidelines are also addressed, as well as the question of which advantages they might offer.					
Learning outcomes	The objective of the module is to teach know-how about the latest web architectures as well as the practical development of smaller web applications and mobile apps, and at the same time to deepen students' understanding of object-oriented scripting languages. Students learn the differences between native apps, web apps and hybrid apps and are able to judge when which of the technologies can be used most appropriately. They are able to analyze application problems to such a degree that they can compare critically various alternative solutions. Usability aspects are also taken into consideration. Students' ability to work autonomously and tackle new topics independently is encouraged.					
Examination method	Examination parallel to the course					
Conditions for the award of credits	A pass in the module examination (minimum grade: "Sufficient")					
Weighting of module grade for final grade	On a percentage basis corresponding to the number of credits: 7/100					
Admission conditions	None					
Teaching method	Lecture, practical laboratory work, project work					
Literature						

Module name	**IR5 Web Data Mining**					
Teaching personnel	Module Leader: Prof. Dr. Galliat Other teaching personnel: Prof. Gödert's successor					
Formal description	Credits	Workload	Grading	Contact hours	Semester	Duration in semesters
	6	180 h	Graded	60 h (4 h/wk)	5th semester	1
Content description	Different methods are presented for the automatic extraction and aggregation of information from data and text collections (in particular from the web). Potential solutions and approaches are not only presented in theory, but also illustrated through the use of database systems and data-mining workbenches (e.g. IBM SPSS Modeler, RapidMiner) on the basis of examples.					
Learning outcomes (content and didactics)	On the basis of practical examples, students become familiar with the possibilities of web mining and apply what they have learnt to questions from everyday practice.					
Examination method	Participants are informed at the beginning of the course about specific examination requirements and examination modalities (number of points to be achieved, minimum number of points required to pass the examination). The examination takes place throughout the course as specified by the lecturer by **collecting points in the framework of regular exercise work** or alternatively as a written test.					
Conditions for the award of credits	A pass in the module examination (minimum grade: "Sufficient")					
Weighting of module grade for final grade	On a percentage basis corresponding to the number of credits: 7/200					
Admission conditions	None					
Teaching method	Seminar-based tuition, practical laboratory work					
Literature	- Bing Liu, Web Data Mining, Heidelberg, 2011					

Module name	**IB3 Strategic Information Management**					
Teaching personnel	Module Leader: Prof. Dr. Linde Other teaching personnel: Prof. Dr. Fank; assistant lecturers					
Formal description	Credits	Workload	Grading	Contact hours	Start	Duration in semesters
	6	180 h	Graded	60 h (4 h/wk)	5th semester	1
Content description	Subject of the module is the strategic handling of information in an enterprise and in market positioning as information provider. One of the focal points is the examination of information freely available on the Internet, i.e. what is known as User Generated Content (UGC) on social media platforms. Various UGC approaches – from definition of objectives to strategy development to financial control – are tackled. This is based on an understanding of an enterprise as well as its functions and business processes.					
Learning outcomes	• Students are able to analyze the market positioning of enterprises in information markets and make simple conceptual recommendations. • They are able to apply social media indicators and evaluate social media strategies on the basis of business processes in an enterprise.					
Examination method	Group work parallel to the course					
Conditions for the award of credits	A pass in the module examination (minimum grade: "Sufficient")					
Weighting of module grade for final grade	On a percentage basis corresponding to the number of credits: 7/200					
Admission conditions	IB1, IB2, IM3 or 90 credits					
Teaching method	Seminar-based tuition					
Literature	- Linde, F., Stock, W.G., Informationsmarkt. Informationen im I-Commerce anbieten und nachfragen, Munich, 2011 - Poynter, R., The Handbook of Online and Social Media Research, New York, 2010 - Sen, E., Social Media Monitoring für Unternehmen, Cologne, 2011 - Shapiro, C., Varian, H.R., Information Rules, Boston, 1999; German edition: Online zum Erfolg, Munich, 1999					

Module name	**IPRa eBusiness Project (compulsory elective module)**					
Teaching personnel	Module Leader: Prof. Dr. Groß Other teaching personnel: Prof. Dr. Galliat, Dipl.-Bibl. Simon Brenner, M.L.I.S.					
Formal description	Credits	Workload	Grading	Contact hours	Start	Duration in semesters
	12	360 h	Graded	120 h (8 h/wk)	5th sem.	1 or 2 semesters

Content description	The course aims to answer the following questions concerning the topic of eBusiness with a focus on eCommerce, CMS and DMS:
	  1. What is fundamentally understood by eBusiness, eCommerce, CMS, DMS, etc.?
	  2. Do business models change – both internally and externally – as a result of the Internet?
	  3. How has eBusiness changed trade and transactions between and within enterprises?
	  4. Characteristics of Internet-based eCommerce?
	  5. Where do digital products differ from tangible goods and how are these goods processed?
	  6. What are network effects and what market phenomena result from them?
	  7. What reasons exist for the use of intermediaries or for disintermediation? What new opportunities does e-Business open up?
	  8. What new business models can be put into practice through eBusiness?
	  9. How do standard payment systems function in eBusiness?
	  10. What role does mobile commerce play? What important mCommerce applications are there?
	  11. Which technologies are mostly used to support eBusiness?
	  12. What challenges does eBusiness pose for management and organization?					

Learning outcomes	The skills acquired and procedures learnt in the technical and economics modules are brought together and consolidated in this specialization module on the basis of a larger scale practical task in the field of eBusiness. The aim is to train how to link the skills acquired with corresponding knowledge transfer in new contexts.					
Examination method	Participants are informed at the beginning of the course about specific examination requirements and examination modalities (number of points to be achieved, minimum number of points required to pass the examination). The examination takes place as specified by the lecturer in the shape of project work as well as an individual or group oral / practical examination.					
Conditions for the award of credits	A pass in the group examination; "Business Plan" presentation; "Online Shop" presentation (each with the grade of at least: "Sufficient")					
Weighting of module grade for final grade	On a percentage basis corresponding to the number of credits: 7/100					
Admission conditions	Completion of the practice phase (certified by the organization which provided the internship); all modules from the 1st and 2nd semesters					
Teaching method	Lecture, seminar-based tuition, practical laboratory work					
Literature						

Module name	**IPRb Market and Competitive Analysis / Business Intelligence (compulsory elective module)**					
Teaching personnel	Module Leader: Prof. Seidler-de Alwis Other teaching personnel: Prof. Dr. Georgy, Prof. Dr. Linde, Jüngling's successor; assistant lecturers					
Formal description	Credits	Workload	Grading	Contact hours	Start	Duration in semesters
	12	360 h	Graded	120 h (8 h/wk)	5th sem.	1 or 2 semesters
Content description	The project work brings together in the framework of a complex practical task the knowledge in the field of information science acquired during the study programme. This can, for example, be the production of a (technical) application, the planning and development of a special information product or the analysis of specific markets and enterprises or the evaluation of existing products and projects, as well as the analysis of an enterprise's external communication instruments. In this project work, objectives and tasks involved in market and competition analysis are taught. This includes both complex research as well as strategies, approaches and methods and tools of market and competition analysis, so that students are able to conceptualize and undertake market and competition analysis by using market, sectoral, statistical and corporate data. Enterprises are compared with their competitors, above all with regard to their external communication instruments. Statistical patent analysis is a special feature of market and competition analysis. It makes it possible to recognize technological trends at an early stage, to assess competitors and their competitiveness, to recognize enterprises' patent strategies and the development of their technologies as well as to estimate and assess the innovation potential of markets and market players in combination with information from the data mentioned above.					
Learning outcomes	Students learn in a practice-oriented environment how to select and apply the required know-how from what they have learnt during their studies, in order to assess and solve an information science-related task with a focus on market and competition analysis or business intelligence. They are able to familiarize themselves mostly independently with the topics under consideration and to judge them, to plan their projects in terms of content and time schedule and to apply the specialist expertise, project management methods as well as the key skills they have acquired so far in the course of their studies to the task set. In addition to uniting and consolidating their specialist know-how and abilities, students' problem-solving skills and their social and communicative competencies are strengthened. Students are able to collect data and information systematically and to examine these from market and competition perspectives (including analysis and interpretation of data and facts) and to apply market and competition analysis methods and tools. This includes undertaking complex information research in practice as well as an estimation of the role of patents in the area of competition analysis. Students are able to undertake simple patent analyses on their own in the framework of a project. In the area of business intelligence, students are able to apply by					

	themselves the knowledge they have acquired in the lectures, in order in this way to expand further their competencies in this field.
Examination method	Participants are informed at the beginning of the course about specific examination requirements and examination modalities (number of points to be achieved, minimum number of points required to pass the examination). The examination takes place as specified by the lecturer in the shape of project work as well as an individual or group oral / practical examination.
Conditions for the award of credits	A pass in the module examination (minimum grade: "Sufficient")
Weighting of module grade for final grade	On a percentage basis corresponding to the number of credits: 7/100
Admission conditions	Completion of the practice phase (certified by the organization which provided the internship); all modules from the 1st and 2nd semesters
Teaching method	Supervised project work
Literature	Fritz, M.: Markt- und Wettbewerbsbeobachtung für Unternehmensnetzwerke: neue Potenziale durch das Internet – Wiesbaden: Deutscher Univerl., 2005 -Cassell, K.; Hiremath, U.: Reference and Information Services in the 21st Century – New York: Neal-Schumann Publ., 2009 -Ensthaler, J.; Strübbe, K: Patentbewertung: Ein Praxisleitfaden zum Patentmanagement, Berlin / Heidelberg, 2006 -Twarok, S.F.: Patentbewertung und die Rolle von Patenten in der Technologiefrühaufklärung, Hamburg, 2012 -Bruhn, M.: Kommunikationspolitik, 6th ed., Munich, 2010

Module name	**IIP Interdisciplinary Project**					
Teaching personnel	Module Leader: Prof. Dr. Fühles-Ubach Other teaching personnel: All lecturers in the department					
Formal description	Credits	Workload	Grading	Contact hours	Start	Duration in semesters
	4	120 h	Ungraded	30 h (1 h/wk)	5th semester	2 ProfiL[2] core weeks (5th and 6th sem.)
Content description	Scientific research is characterized by work-sharing processes and thus many study programmes work and specialize in their own specific field, although scientific topics in the area of research are often many and complex. In order to be able to work on projects which go beyond the boundaries of one's own discipline as well and permit an insight into other specialist fields, partnerships with other faculties are desirable. Numerous sciences adjacent to the Applied Information Science study programme can be listed here, including, amongst others, economics, informatics, media technology and design.					
Learning outcomes	Essential for interdisciplinary cooperation is that a process of understanding takes place beyond the limits of their own subjects for all students, i.e. a joint language is found with which to describe and solve problems, but also criteria shared, for example to evaluate the quality of scientific performance.					
Examination method	**Project report** or presentation					
Conditions for the award of credits	Conducting of a presentation					
Weighting of module grade for final grade	Ungraded module					
Admission conditions	None					
Teaching method	Project					
Literature						

Module name	**IST Activity and Social Credits (ASC)**					
Teaching personnel	Module Leader: Prof. Dr. Linde Other lecturers: All lecturers in the department					
Formal description	Credits	Workload	Grading	Contact hours	Semester	Duration in semesters
	2	60 h	Ungraded	About 15 h (1 h/wk)	$2^{nd} - 6^{th}$ semester	1

Content description	In the framework of this module, students have the opportunity to further develop their generic skills and shape them to their future professions in a targeted way. On the basis of an analysis of the generic skills specific to individual professions (target profile) and the compilation of a current personal profile (e.g. by using the Competence Check available to all students at Cologne University of Applied Sciences (http://studtest.wi.fh-koeln.de/kompass/), students identify areas of expertise where they see a need for further development. They then seek suitable learning fields where they can acquire these targeted skills. Possible learning fields can include:
	   1. Deployment as a tutor in the framework of Induction Week or in courses.
	   2. Involvement in committees / student organizations in the Department (Faculty Council, Examining Board, Departmental Committee etc.). Students are elected in accordance with the rules of the individual committee / organization and participate actively in its operations.
	   3. Contribution to departmental events and projects, e.g. mentoring activities, Girls / Boys Day, study information days, fairs / exhibitions / conferences, excursions, graduate parties, alumni activities, departmental publications.
	   4. Own suggestions for activities, e.g. in the framework of service learning.
	The module is supervised by a mentor or mentors. The module can be taken between the second and the sixth semester.					

Learning outcomes	Students can determine their own requirements with regard to skills' development, select suitable measures for this and check their level of success.					
Examination method	Active participation in the mentoring activities and compilation of a learning portfolio which reflects the entire process of skills' acquisition. Allocation of CPs is dependent on the learning field chosen: 1. Allocation of CPs takes place on the basis of the learning portfolio submitted, in which the hours completed are listed and confirmed by the lecturer responsible for the course. 2. Allocation of CPs takes place on the basis of the learning portfolio submitted, in which the hours completed are listed and through suitable evidence from the committee on which the student has worked. 3. Allocation of CPs takes place on the basis of the learning portfolio submitted, in which the hours completed are listed and confirmed by the project leader responsible. 4. Allocation of CPs takes place on the basis of the learning portfolio submitted, in which the hours completed are listed and confirmed by the contact person responsible.					
Conditions for the award of credits	None					

Weighting of module grade for final grade	Ungraded
Admission conditions	None
Teaching method	Project
Literature	- http://studtest.wi.fh-koeln.de/kompass/ - http://www.stangl-taller.at/

Module name	**IBA Bachelor Thesis**					
Teaching personnel	Module Leader: Prof. Seidler-de Alwis Other lecturers: All lecturers in the department					
Formal description	Credits	Workload	Grading	Contact hours	Semester	Duration in semesters
	12	360 h	Graded		6th semester	1
Content description	The Bachelor thesis shows students' ability to work independently on a task from a specialist area within a prescribed time period both in terms of its individual subject-related specifics as well as in an interdisciplinary context in accordance with scientific and practical methods and such methods as result from the requirements of the study programme. The Bachelor thesis is an independent examination of an information science topic. It should include an analysis of the question under consideration and a presentation of the solution to the problem, as well as justifying the choice of methods and aids used.					
Learning outcomes (content and didactics)	Students acquire the ability to apply in the framework of mostly independent work the specialist and methodical knowledge and skills gained during their studies to a larger scale, practice-oriented task with a clearly delimited time schedule.					
Examination method	Written thesis					
Conditions for the award of credits	A pass in the Bachelor thesis (minimum grade: "Sufficient")					
Weighting of module grade for final grade	The grade achieved in this module counts as 20 % of the overall grade achieved in the study programme.					
Admission conditions	136 credits					
Teaching method						
Literature						

Module name	**IBS Bachelor Thesis - Supplementary Seminar**					
Teaching personnel	Module Leader: Prof. Seidler-de Alwis Other lecturers: All lecturers in the department					
Formal description	Credits	Workload	Grading	Contact hours	Semester	Duration in semesters
	6	180 h	Ungraded	60 h (4 h/wk)	6th semester	1
Content description	The purpose of this module is both to prepare and accompany students' Bachelor theses. Students should develop proposals for their Bachelor thesis which are discussed and critically examined by fellow students and lecturers. During the time period dedicated to writing the Bachelor thesis, the seminar provides an opportunity for exchange between the candidates and for dealing with any problems which might arise. In addition, students should present the solutions chosen in the individual projects and justify the approach.					
Learning outcomes (content and didactics)	The aim of this supplementary seminar is for students to learn how to justify their ideas and working approaches and to "champion" them in the team in a kind of simulation of real professional practice. At the same time, students should practice how to deal with constructive criticism and objections.					
Examination method	Participation					
Conditions for the award of credits	Participation in the seminar and holding of a short presentation					
Weighting of module grade for final grade	Ungraded module					
Admission conditions	118 credits					
Teaching methods	Seminar, seminar-based tuition					
Literature						