

Master's degree program

International Information Systems

Module handbook — winter semester 2021/2022

Advanced
knowledge



Bitte beachten Sie (English below):

Rückkehr in die Präsenzlehre

Die FAU WiSo plant für das Wintersemester 2021/2022 die weitgehende Rückkehr zur Präsenzlehre, vor Ort auf dem Nürnberger City-Campus. Daher werden, solange es möglich ist und die entsprechenden Vorschriften es erlauben, alle Veranstaltungen in Präsenz abgehalten (nur für internationale Studierende wird es ein passendes digitales Angebot geben). Sollte es im laufenden Semester Phasen geben, in denen ein Präsenzbetrieb nicht zulässig oder nur eingeschränkt möglich ist, werden wir selbstverständlich die dann erforderlichen Lehrformate zur Verfügung stellen.

Die FAU hat eine Corona-Satzung aufgrund von Einschränkungen im Lehr- und Prüfungsbetrieb durch das Corona-Virus SARS-CoV-2 veröffentlicht, die auch für das Wintersemester 2021/2022 Gültigkeit hat. Das Modulhandbuch in der vorliegenden Fassung enthält Corona-bedingte Änderungen an der Prüfungsform, die in den jeweiligen Modulbeschreibungen gekennzeichnet sind.

Folgende Szenarien sind auf der Grundlage der Corona-Satzung möglich:

- **Prüfungsformate unverändert**
Das ursprünglich vorgesehene Prüfungsformat, z. B. eine Klausur bleibt bestehen. In diesen Modulbeschreibungen wurde keine Änderung vorgenommen.
- **Einmaliger Wechsel der Prüfungsform**
Der Wechsel der Prüfungsformate ist möglich, wenn die ursprünglich geplante Prüfungsform auf Grund des Corona-Virus nicht umsetzbar ist. Diese Änderungen finden Sie in den Modulbeschreibungen angeführt. Die ursprüngliche Prüfungsform wird bei dieser Variante durchgestrichen, die neue Prüfungsform ist in oranger Schriftfarbe angegeben.
- **Alternative Prüfungsformen verankern und später darüber entscheiden**
Die Satzung sieht eine weitere Option vor. Es können zwei Alternativen festgelegt werden. Die Entscheidung für die eine oder die andere Alternative trifft der Modulverantwortliche und ist den Studierenden spätestens vier Wochen vor der Prüfung bekannt zu geben. Hier bleibt die ursprüngliche Prüfungsform zunächst bestehen, darunter finden Sie die alternative Prüfungsform eingefügt, ebenfalls in oranger Schriftfarbe. Vier Wochen vor der Prüfung wird die finale Prüfungsform durch den Modulverantwortlichen bekannt gegeben.

Im Informationssystem UnivIS finden Sie unter www.univis.fau.de für alle Veranstaltungen Angaben, in welchem Format (Präsenz, Online oder hybrid Online/Präsenz) die Lehrveranstaltungen abgehalten werden sowie Detailinformationen zum jeweiligen Online-Format bzw. Informationen zu Zeit und Ort.

Ausführlichere Informationen zu den Modulen finden Sie auch in den jeweiligen Kursen auf StudOn. Treten Sie daher unbedingt den Kursen bei, die Sie dieses Semester besuchen möchten.

Weitere aktuelle Informationen entnehmen Sie bitte den Webseiten der Lehrstühle.

Please note

Return to in-person teaching

For the winter term 2021/22, FAU WiSo is planning to return to our City Campus in Nürnberg for in-person teaching. Therefore, all lectures will take place in person as far as the circumstances and regulations will allow (there will only be a suitable digital offer for international students). In case there are timeframes where regular teaching is not allowed or only possible to a limited extent, we will of course provide the respectively necessary teaching formats.

Due to the restrictions in our teaching and examination activities caused by the corona virus SARS CoV-2, FAU has published a set of corona regulations. The module handbook in its present version contains changes in the examination method induced by corona, which are marked in the respective module description.

Based on the corona regulations, the following scenarios are possible:

- **Examination method unchanged**
The originally intended examination method, e.g., an exam, persists. There are no changes to this module.
- **One-time change of the examination method**
Changes in the examination method are possible if the originally intended examination method is not realizable due to the corona virus. These changes can be found in the module description of the respective module. The original examination method is crossed out in this case, the new examination method is marked in orange font color.
- **Anchor alternative examination method and decide later**
The corona regulations allow for a third alternative. It is possible to set two alternative examination methods. The decision on one of the two alternatives is made by the respective responsible person for the module and must be communicated to the students at least four weeks before the examination takes place. In this case, the originally intended examination method remains in place and you will find the alternative examination method written below in orange font color. Four weeks before the examination, the final examination method will be announced by the responsible examiner.

You can find detailed information on all lectures' format (online, on-site, or hybrid), as well as date, time, and place on the information system UnivIS, available at www.univis.fau.de.

More extensive information on the modules offered this term can also be found on StudOn. It is essential to join the courses you would like to attend on StudOn.

Further current information can be found on each department's websites.

Imprint

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Legal notice

All information is without guarantee.
In case of doubt, the Master's Examination Regulations apply.
If you have any questions, please contact
the responsible person in charge of the module.

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List of abbreviations

ECTS	European Credit Transfer System
EK	Introduction course / Einführungskurs
Co	Courses
h	Hours / Stunden
HS	Hauptseminar
Lect.	Lecture
MC-Test	Multiple-Choice-Test
min	Minutes
P	Presentation / Präsentation
ProS	Proseminar
S	Seminar
SS	Summer Term / Sommersemester
SWS	Time a module will be held per week. One SWS is 45 min / Semesterwochenstunden
Ü	Exercise / Übung
V	Lecture / Vorlesung
WS	Winter Term / Wintersemester

Notes on the type and scope of examination performances

The type of examinations valid at the School of Business and Economics is defined in §16 Types of Examinations of the Master's Framework Examination Regulations (MPO). In addition, examination scopes are regulated in §§17, 18 MPO. The examination regulations can be viewed under the following link:

<https://www.zuv.fau.de/universitaet/organisation/recht/studiensatzungen/rw.shtml#Wirtschaft>

As far as the individual module descriptions do not define anything more specific, the following forms of examination with the corresponding examination scopes are valid for the Master's degree programs at the department:

Prüfungsart (<i>Englische Übersetzung</i>)	Scope
1. written examination:	
a. Klausur (<i>Written examination</i>)	60/90/120 minutes
b. Hausarbeit (<i>Written assignment</i>)	approx. 15 pages
c. Seminararbeit (<i>Seminar paper</i>)	approx. 15 pages
2. oral examination	approx. 20 minutes
3. special forms, in particular:	
a. Projektarbeit /-bericht (<i>Research project/Project report</i>)	approx. 20 pages
b. Praktikumsbericht (<i>Placement report</i>)	approx. 15 pages
c. Thesenpapier (<i>Handout</i>)	approx. 2 pages
d. Protokoll (<i>Report</i>)	approx 10 pages
e. Kurztest (<i>Short test</i>)	approx. 15 minutes
f. Referat (<i>Presentation</i>)	approx. 25 minutes
g. Präsentation/Präsentationspapier (<i>Presentation/Presentation paper</i>)	approx. 20 minutes /ca. 20 pages
h. Diskussionspapier (<i>Discussion paper</i>)	approx. 10 pages
i. Moderation (<i>Moderation</i>)	approx. 20 minutes
j. Lehrprobe (<i>Demonstration lesson</i>)	approx. 45 minutes
k. Fallstudie (<i>Case study</i>)	approx. 25 minutes and/or 10 pages
l. Diskussionsbeitrag, ehemals: Diskussionsbeteiligung/Mitarbeit (<i>Class participation</i>)	approx. 10 minutes
m. Portfolioprüfung (<i>Portfolio</i>)	k.A.
n. Elektronische Prüfung (<i>Electronic examination</i>)	approx. 90 minutes
o. Antwort-Wahl-Verfahren (<i>Multiple-choice test</i>)	approx. 40 minutes
p. Versuchspersonenstunde (<i>Research participation</i>)	approx. 60 minutes
q. Reflexion (<i>Reflection paper</i>)	approx. 10 minutes or 10 pages
r. Strategiekonzept (<i>Strategic concept</i>)	approx. 6 pages

Module overview

Students with study start from winter term 2018/19

International Information Systems (M. Sc.) / Internationale Wirtschaftsinformatik (M. Sc.)		Semester			
		1	2	3	4
	ECTS	ECTS	ECTS	ECTS	ECTS
Customized Introduction to IIS	20				
Management I and Management II <u>or</u> Informatics I and Informatics II	20 20	20			
Foreign Language Skills	5				
Foreign Language Skills	5	5			
Information Systems	30				
Core Courses*	15				
Module area: Data & Knowledge	5	5			
Module area: Digital Business	5		5		
Module area: Architectures & Development	5			5	
Electives**	15				
Module area: Data & Knowledge	0-15		0-15	0-15	
Module area: Digital Business	0-15		0-15	0-15	
Module area: Architectures & Development	0-15		0-15	0-15	
Module area: Extension Courses	0-15		0-15	0-15	
Module area: Study Abroad Courses	0-15			0-15	
Informatics	30				
Core Courses*	15				
Module area: Data & Knowledge	5			5	
Module area: Digital Business	5		5		
Module area: Architectures & Development	5		5		
Electives**	15				
Module area: Data & Knowledge	0-15		0-15	0-15	
Module area: Digital Business	0-15		0-15	0-15	
Module area: Architectures & Development	0-15		0-15	0-15	
Module area: Extension Courses	0-15		0-15	0-15	
Module area: Study Abroad Courses	0-15			0-15	
Seminar	5				
Seminar International Information Systems	5			5	
Master Thesis	30				
Master Thesis	30				30
ECTS	120	30	30	30	30

* Within the compulsory elective area ("Core Courses"), modules amounting to 5 ECTS credits per module area must be completed on a compulsory basis. The type and scope of the course(s) and the examination depend on the specific didactic character of the module selected in each case and can be found in the module handbook. When selecting modules, § 4 para. 3 sentence 3 MPOWISO must be observed.

** Selection of modules in the amount of 15 ECTS credits according to §6 and module handbook. The type and scope of the course(s) and the examination depend on the specific didactic character of the module selected in each case and can be taken from the module handbook. When choosing a module, § 4 para. 3 sentence 3 MPOWISO must be observed.

Without guarantee. Subject to change without notice. The current overview is part of the examination regulations, which can be found here: www.wiso.fau.de/pruefungsordnung

Students with study start from winter term 2021/22

International Information Systems (M. Sc.) / Internationale Wirtschaftsinformatik (M. Sc.)		Semester			
		1	2	3	4
	ECTS	ECTS	ECTS	ECTS	ECTS
Customized Introduction to IIS*	15				
Management I	10				
Foundations of International Management I	5	5			
Foundations of International Management II	5	5			
Management II	5				
Business Strategy	0-5	0-5			
Global Operations Strategy	0-5	0-5			
Global Retail Logistics	0-5	0-5			
Informatics I	10				
Introduction to Computer Science	10	10			
Informatics II	5				
Konzeptionelle Modellierung	5	5			
Information Systems**	30				
Module area: Data & Knowledge	5-20	5	0-15		
Module area: Digital Business	5-20	5	0-15		
Module area: Architectures & Development	5-20		5	0-15	
Module area: Extension Courses	0-10		0-10		
Module area: Study Abroad Courses	0-10			0-10	
Informatics**	30				
Module area: Data & Knowledge	5-20	5	0-15		
Module area: Digital Business	5-20		5	0-15	
Module area: Architectures & Development	5-20		5	0-15	
Module area: Extension Courses	0-10		0-10		
Module area: Study Abroad Courses	0-10			0-10	
Interdisciplinary Qualifications***	15				
Foreign Language Skills	0-5		0-5		
Studium Generale	0-5		0-5		
IIS Research Seminar	0-5			0-5	
IIS Project Seminar	0-10			0-10	
Master Thesis	30				
Master Thesis	30				30
ECTS	120	30	30	30	30

* Students take modules from either the "Management I" and "Management II" groups or the "Informatics I" and "Informatics II" groups according to their expertise from previous studies. Within the group "Management II" the students choose one of the offered modules in the amount of 5 ECTS.

** Within the compulsory elective area, modules amounting to 5 ECTS credits per module area must be completed. When selecting modules, § 4 para. 3 sentence 3 MPOWISO must be observed.

*** Selection of modules amounting to 15 ECTS credits according to § 6 FPOIIS. When selecting modules, § 4 para. 3 sentence 3 MPOWISO must be observed.

Without guarantee. Subject to change without notice. The current overview is part of the examination regulations, which can be found here: www.wiso.fau.de/pruefungsordnung

Guide to timetable design

Students can compile their own timetable in the univis electronic course catalog. Here, all courses are stored according to specific topics or individual chairs and the respective lecturers can be viewed. The path <https://univis.fau.de/> >> Vorlesungsverzeichnis >> Rechts- und Wirtschaftswissenschaftliche Fakultät (RW) >> Fachbereich Wirtschaftswissenschaften will take you to the courses at the School of Business, Economics and Society. At this point it is now possible to select Bachelor or Master courses.

A help for creating the timetable can be found here: www.wiso.fau.de/stundenplan

Obligation to study abroad

According to section 3 subsection 4 of the examination regulations of the study program M. Sc. International Information Systems as amended on 05.06.2014 students are required to spend at least one semester abroad. Students can go on an exchange semester to a foreign university, do their master's thesis in cooperation with a foreign university or with a company located outside of Germany.

Elective areas of the study program

Students with study start from winter term 2018/19

Information Systems (30 ECTS) (only valid for students with study start from winter term 18/19 and before winter term 21/22)	
Responsible	Professors of the Institute of Information Systems

Students take exactly one "Core Course" worth 5 ECTS in each of the following module areas and also any number of "Electives" worth up to 15 ECTS:

- Data & Knowledge
- Digital Business
- Architectures & Development

In addition, students can take modules from the following module areas:

- Study Abroad Modules (0-15 ECTS).

In total, students must achieve 30 ECTS in this way.

Data & Knowledge (5-20 ECTS)				
Core Courses (5 ECTS)				
Module number	Module name	ECTS	WS/SS	Module responsible
57043	Business Intelligence	5	SS	Prof. Bodendorf
57465	Data Analytics for Information Systems	5	WS	Prof. Tiefenbeck
57045	Development of deep vision systems	5	Each semester	Prof. Zschech
57290	Enterprise knowledge management	5	WS	Prof. Laumer
57320	Foundations of linked data	5	SS	Prof. Harth
57110	Platform strategies	5	WS	Prof. Möslin
53300	Social and web intelligence	5	WS	Prof. Bodendorf
Electives (0-15 ECTS)				
all Core Courses from this area as well as the following additional modules:				
57387	AI & Data in Business and Management	5	Each semester	Prof. Dr. Voigt
57385	Business Analytics: Case Studies	5	Each semester	Prof. Zschech

57386	Natural Language Processing for Business Analytics	5	WS	Prof. Kraus
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Digital Business (5-20 ECTS)

Core Courses (5 ECTS)

Module number	Module name	ECTS	WS/SS	Module responsible
57381	Create your FinTech start-up	5	SS	Prof. Haag
56210	Digital change management	5	SS	Prof. Laumer
57171	Digital transformation project	5	SS	Prof. Möselein
57086	Electronic human resources management	5	Each semester	Prof. Laumer
57053	Innovation and leadership	5	WS	Prof. Möselein
56216	Judgment in decision making and evidence-based management	5	SS	Prof. Tiefenbeck
57060	Managing global projects and managing information technology	5	WS	Prof. Amberg
56421	Organizing for digital transformation	5	SS	Prof. Möselein
57172	Patenting for innovation	5	WS	Prof. Möselein
57241	Service innovation	5	SS	Prof. Roth, Prof. Möselein

Electives (0-15 ECTS)

all Core Courses from this area as well as the following additional modules:

52581	Praxisseminar: Innovative Versicherungsprodukte	5	Each semester	Prof. Gatzert
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Architectures & Development (5-20 ECTS)

Core Courses (5 ECTS)

Module number	Module name	ECTS	WS/SS	Module responsible
57046	Designing gamified systems	5	SS	Prof. Morschheuser
57073	Designing technology	5	WS	Prof. Möselein

57030	Managing enterprise-wide IT architectures	5	SS	Prof. Amberg
54760	Process Analytics	5	WS	Prof. Matzner
57451	User experience in a business context	5	WS	Prof. Haag
Electives (0-15 ECTS)				
all Core Courses from this area as well as the following additional modules:				
47681	Exergames	5	WS	Prof. Roth, Prof. Morschheuser

Study Abroad Module (0-15 ECTS)

Modules in the amount of 0-15 ECTS, which are completed at a foreign university and for which an appropriate Learning Agreement of the the School of Business, Economics and Society is presented.

Informatics (30 ECTS)**(only valid for students with study start from winter term 18/19 and before winter term 21/22)**

Responsible

Professors of the Institute of Computer Science

Students take exactly one "Core Course" worth 5 ECTS in each of the following module areas and also any number of "Electives" worth up to 15 ECTS:

- Data & Knowledge
- Digital Business
- Architectures & Development

In addition, students can take modules from the following module areas:

- Extension Courses (0-10 ECTS)
- Study Abroad Modules (0-15 ECTS).

In total, students must achieve 30 ECTS in this way.

Data & Knowledge (5-20 ECTS)**Core Courses (5 ECTS)**

Module number	Module name	ECTS	WS/SS	Module responsible
43721	Applied Visualization	5	SS	Dr. Grosso
901895	Deep Learning	5	Each semester	Prof. Maier
299892	Informationsvisualisierung	5	SS	Dr. Grosso
65718	Introduction to Machine Learning	5	WS	Prof. Maier
869538	Knowledge Discovery in Databases and Transaction Systems	5	SS	Prof. Lenz
44120	Pattern Analysis	5	SS	Prof. Maier
44130	Pattern Recognition	5	WS	Prof. Maier
97090	Simulation and Modeling I	5	WS	Prof. German
502170	Simulation and Modeling II	5	SS	Prof. German
93146	Software-Anwendungen mit KI	5	SS	Prof. Riehle
31751	Visualization	5	WS	Prof. Günther

Electives (0-15 ECTS)**all Core Courses from this area as well as the following additional modules:**

Module number	Module name	ECTS	WS/SS	Module responsible
535405	Künstliche Intelligenz I	7,5	WS	Prof. Kohlhase
532733	Künstliche Intelligenz II	7,5	SS	Prof. Kohlhase
44585	Middleware-Cloud Computing	5	WS	Dr. Distler
480491	Nailing your Thesis (VUE 5-ECTS)	5	WS	Prof. Riehle
580491	Nailing your Thesis (PROJ 5-ECTS)	5	WS	Prof. Riehle

Digital Business (5-20 ECTS)**Core Courses (5 ECTS)**

Module number	Module name	ECTS	WS/SS	Module responsible
93184	Commercial Open Source Startups	5	WS	Prof. Riehle
566245	Cryptocurrencies	5	SS	Prof. Schröder
829281	Datenschutz, Compliance und Elektronische Signaturen	5	SS (2,5 ECTS) + WS (2,5 ECTS)	Prof. Tielemann
44631	Einführung in die IT-Sicherheit	5	WS	Prof. Freiling
792501	Forensische Informatik	5	SS	Prof. Freiling
213437	Foundations of Cryptocurrencies	5	SS	Prof. Freiling
645618	Human Computer Interaction	5	SS	Prof. Eskofier
658644	Human Factors in Security and Privacy	5	SS	Dr. Benenson
716516	IT-Modernisierung	5	SS	PD Wilke

Electives (0-15 ECTS)**all Core Courses from this area as well as the following additional modules:**

Module number	Module name	ECTS	WS/SS	Module responsible
615628	Innovationslabor für Wearable and Ubiquitous Computing	10	Each semester	Prof. Eskofier
71921	The AMOS project (PO-Role)	5	irregular	Prof. Riehle

Architectures & Development (5-20 ECTS)				
Core Courses (5 ECTS)				
Module number	Module name	ECTS	WS/SS	Module responsible
97008	Advanced Design and Programming	5	WS	Prof. Riehle
510375	Analyse und Design objektorientierter Softwaresysteme mit der Unified Modeling Language (UML)	5	SS	Prof. Kips
47636	Coaching Agile Methods Teams	5	irregular	Prof. Riehle
71302	Constructive phases of software engineering	5	SS	Prof. Saglietti
710850	eBusiness technologies und evolutionäre Informationssysteme	5	WS	Prof. Lenz
869140	Fehlertolerierende Softwarearchitekturen	5	WS	Prof. Saglietti
675090	Process-oriented information systems	5	SS	Prof. Lenz
386409	Software Architecture	5	irregular	Prof. Riehle
312443	Software Projektmanagement	5	WS	Prof. Hindel
357823	Software reliability	5	SS	Prof. Saglietti
93160	Software-Entwicklung in Großprojekten	5	WS	Prof. Saglietti
43200	Test and Analysis Techniques for Software Verification and Validation	5	WS	Prof. Saglietti
189989	Testen von Softwaresystemen	5	SS	Dr. Oster
Electives (0-15 ECTS)				
all Core Courses from this area as well as the following additional modules:				
Module number	Module name	ECTS	WS/SS	Module responsible
93141	Applied Software Engineering Master-Projekt	10	Each semester	Prof. Riehle
113545	Foundations of software engineering and Design patterns and anti-patterns	10	SS	Prof. Saglietti
234129	Foundations of software engineering and Software engineering in practice	10	SS (7,5 ECTS) + Each semester (2,5 ECTS)	Prof. Saglietti

71931	The AMOS project (SD-Role)	10	irregular	Prof. Riehle
93186	Seminar Applied Software Engineering	5	SS	Prof. Riehle

Extension Courses (0-10 ECTS)

Module number	Module name	ECTS	WS/SS	Module responsible
472330	Dienstgüte von Kommunikationssystemen	5	SS	Prof. German
716033	Fahrzeugkommunikation	5	SS	Prof. Hielscher
43950	Kommunikationssysteme	5	WS	Prof. German
858896	Modellierung, Optimierung und Simulation von Energiesystemen	5	WS	Prof. Pruckner
93150	Rechnerkommunikation	5	SS	Prof. German
623734	Smart Grids und Elektromobilität	5	SS	Prof. Pruckner
649073	Verteilte Systeme	5	SS	Dr. Distler

Study Abroad Module (0-15 ECTS)

Modules in the amount of 0-15 ECTS, which are completed at a foreign university and for which an appropriate Learning Agreement of the Department of Computer Science is presented

Note: The module descriptions for the modules from this elective area are administered by the Department of Computer Science and can be found on UnivIS.

Students with study start from winter term 2021/22

Information Systems (30 ECTS) (only valid for students with study start from winter term 21/22)	
Responsible	Professors of the Institute of Information Systems

Students take modules of 5-20 ECTS in each of the following module areas:

- Data & Knowledge
- Digital Business
- Architectures & Development

In addition, students can take modules of up to 10 ECTS from each of the following module areas:

- Extension Courses
- Study Abroad Modules

In total, students must achieve 30 ECTS in this way.

Data & Knowledge (5-20 ECTS)				
Module number	Module name	ECTS	WS/SS	Module responsible
57385	Business Analytics: Case Studies	5	Each semester	Prof. Zschech
57043	Business Intelligence	5	SS	Prof. Bodendorf
57465	Data Analytics for Information Systems	5	WS	Prof. Tiefenbeck
57045	Development of deep vision systems	5	Each semester	Prof. Zschech
57290	Enterprise knowledge management	5	WS	Prof. Laumer
57320	Foundations of linked data	5	SS	Prof. Harth
57386	Natural Language Processing for Business Analytics	5	WS	Prof. Kraus
57110	Platform strategies	5	WS	Prof. Möslin
53305	Social and web intelligence	5	WS	Prof. Bodendorf

Digital Business (5-20 ECTS)				
Module number	Module name	ECTS	WS/SS	Module responsible
57381	Create your FinTech start-up	5	SS	Prof. Haag
56210	Digital change management	5	SS	Prof. Laumer
57171	Digital transformation project	5	SS	Prof. Möslein
57086	Electronic human resources management	5	Each semester	Prof. Laumer
57053	Innovation and leadership	5	WS	Prof. Möslein
56216	Judgment in decision making and evidence-based management	5	SS	Prof. Tiefenbeck
57060	Managing global projects and managing information technology	5	WS	Prof. Amberg
56421	Organizing for digital transformation	5	SS	Prof. Möslein
57172	Patenting for innovation	5	WS	Prof. Möslein
57241	Service innovation	5	SS	Prof. Roth, Prof. Möslein

Architectures & Development (5-20 ECTS)				
Module number	Module name	ECTS	WS/SS	Module responsible
57046	Designing gamified systems	5	SS	Prof. Morschheuser
57073	Designing technology	5	WS	Prof. Möslein
47681	Exergames	5	WS	Prof. Roth, Prof. Morschheuser
57030	Managing enterprise-wide IT architectures	5	SS	Prof. Amberg
54760	Process Analytics	5	WS	Prof. Matzner
57451	User experience in a business context	5	WS	Prof. Haag

Extension Courses (0-10 ECTS)				
Module number	Module name	ECTS	WS/SS	Module responsible
57387	AI & Data in Business and Management	5	Each semester	Prof. Dr. Voigt
53410	Business strategy	5	WS	Prof. Junge, Prof. Hungenberg
53650/53651	Global operations strategy	5	WS	Prof. Voigt
55291	Global retail logistics	5	Each semester	Prof. Hartmann
52581	Praxisseminar: Innovative Versicherungsprodukte	5	Each semester	Prof. Gatzert

Study Abroad Module (0-10 ECTS)
<i>Modules in the amount of 0-10 ECTS, which are completed at a foreign university and for which an appropriate Learning Agreement of the School of Business, Economics and Society is presented.</i>

Informatics (30 ECTS)**(only valid for students with study start from winter term 21/22)**

Responsible

Professors of the Institute of Computer Science

Students take modules of 5-20 ECTS in each of the following module areas:

- Data & Knowledge
- Digital Business
- Architectures & Development

In addition, students can take modules of up to 10 ECTS from each of the following module areas:

- Extension Courses
- Study Abroad Modules

In total, students must achieve 30 ECTS in this way.

Data & Knowledge (5-20 ECTS)

Module number	Module name	ECTS	WS/SS	Module responsible
43721	Applied Visualization	5	SS	Dr. Grosso
901895	Deep Learning	5	Each semester	Prof. Maier
299892	Informationsvisualisierung	5	SS	Dr. Grosso
65718	Introduction to Machine Learning	5	WS	Prof. Maier
869538	Knowledge Discovery in Databases and Transaction Systems	5	SS	Prof. Lenz
535405	Künstliche Intelligenz I	7,5	WS	Prof. Kohlhase
532733	Künstliche Intelligenz II	7,5	SS	Prof. Kohlhase
44120	Pattern Analysis	5	SS	Prof. Maier
44130	Pattern Recognition	5	WS	Prof. Maier
97090	Simulation and Modeling I	5	WS	Prof. German
502170	Simulation and Modeling II	5	SS	Prof. German
93146	Software-Anwendungen mit KI	5	SS	Prof. Riehle
31751	Visualization	5	WS	Prof. Günther

Digital Business (5-20 ECTS)				
Module number	Module name	ECTS	WS/SS	Module responsible
93184	Commercial Open Source Startups	5	WS	Prof. Riehle
566245	Cryptocurrencies	5	SS	Prof. Schröder
829281	Datenschutz, Compliance und Elektronische Signaturen	5	SS (2,5 ECTS) + WS (2,5 ECTS)	Prof. Tielemann
44631	Einführung in die IT-Sicherheit	5	WS	Prof. Freiling
792501	Forensische Informatik	5	SS	Prof. Freiling
213437	Foundations of Cryptocurrencies	5	SS	Prof. Freiling
645618	Human Computer Interaction	5	SS	Prof. Eskofier
658644	Human Factors in Security and Privacy	5	SS	Dr. Benenson
716516	IT-Modernisierung	5	SS	PD Wilke

Architectures & Development (5-20 ECTS)				
Module number	Module name	ECTS	WS/SS	Module responsible
97008	Advanced Design and Programming	5	WS	Prof. Riehle
510375	Analyse und Design objektorientierter Softwaresysteme mit der Unified Modeling Language (UML)	5	SS	Prof. Kips
93141	Applied Software Engineering Master-Projekt	10	Each semester	Prof. Riehle
47636	Coaching Agile Methods Teams	5	irregular	Prof. Riehle
71302	Constructive phases of software engineering	5	SS	Prof. Saglietti
710850	eBusiness technologies und evolutionäre Informationssysteme	5	WS	Prof. Lenz
869140	Fehlertolerierende Softwarearchitekturen	5	WS	Prof. Saglietti
113545	Foundations of software engineering and Design patterns and anti-patterns	10	SS	Prof. Saglietti

234129	Foundations of software engineering and Software engineering in practice	10	SS (7,5 ECTS) + Each semester (2,5 ECTS)	Prof. Saglietti
70241	Praktische Softwaretechnik	5	WS	Prof. Riehle
675090	Process-oriented information systems	5	SS	Prof. Lenz
386409	Software Architecture	5	irregular	Prof. Riehle
312443	Software Projektmanagement	5	WS	Prof. Hindel
357823	Software reliability	5	SS	Prof. Saglietti
93160	Software-Entwicklung in Großprojekten	5	WS	Prof. Saglietti
43200	Test and Analysis Techniques for Software Verification and Validation	5	WS	Prof. Saglietti
189989	Testen von Softwaresystemen	5	SS	Dr. Oster

Extension Courses (0-10 ECTS)				
Module number	Module name	ECTS	WS/SS	Module responsible
472330	Dienstgüte von Kommunikationssystemen	5	SS	Prof. German
716033	Fahrzeugkommunikation	5	SS	Prof. Hielscher
615628	Innovationslabor für Wearable and Ubiquitous Computing	10	Each semester	Prof. Eskofier
43950	Kommunikationssysteme	5	WS	Prof. German
44585	Middleware-Cloud Computing	5	WS	Dr. Distler
858896	Modellierung, Optimierung und Simulation von Energiesystemen	5	WS	Prof. Pruckner
580491	Nailing your Thesis (PROJ 5-ECTS)	5	WS	Prof. Riehle
480491	Nailing your Thesis (VUE 5-ECTS)	5	WS	Prof. Riehle
93150	Rechnerkommunikation	5	SS	Prof. German
93186	Seminar Applied Software Engineering	5	SS	Prof. Riehle

623734	Smart Grids und Elektromobilität	5	SS	Prof. Pruckner
71921	The AMOS project (PO-Role)	5	irregular	Prof. Riehle
71931	The AMOS project (SD-Role)	10	irregular	Prof. Riehle
649073	Verteilte Systeme	5	SS	Dr. Distler

Study Abroad Module (0-10 ECTS)

Modules in the amount of 0-10 ECTS, which are completed at a foreign university and for which an appropriate Learning Agreement of the Department of Computer Science is presented

Note: The module descriptions for the modules from this elective area are administered by the Department of Computer Science and can be found on UnivIS.

Specializations

Students starting from the **winter term 2016/17** can choose to study specializations. Specializations are combinations of related modules in which a specified minimum number of ECTS are to be completed. The details depend on the year of the study start and can be found below.

Students with study start from winter term 2018/19

Students **starting from winter term 2018/19 but before winter term 2021/22** can study up to two specializations by achieving a minimum number of 20 ECTS for each specialization. If a module is allocated to more than one specialization, students may decide themselves which specialization it is to be allocated to. Within a specialization, at least one module (5 ECTS) from the area Information Systems and one module (5 ECTS) from the area Informatics has to be chosen. Upon request, students may receive written confirmation of up to two specializations that they have studied. The five available specializations and their respective modules are the following:

Specialization		Business Analytics
Module number	Module name	Study area
57385	Business Analytics: Case Studies	Information Systems
57043	Business Intelligence	Information Systems
57465	Data Analytics for Information Systems	Information Systems
57045	Development of deep vision systems	Information Systems
57290	Enterprise knowledge management	Information Systems
57320	Foundations of linked data	Information Systems
57386	Natural Language Processing for Business Analytics	Information Systems
57110	Platform strategies	Information Systems
54760	Process analytics	Information Systems
53305	Social and web intelligence	Information Systems
43721	Applied visualization	Informatics

743223	Data Warehousing + Knowledge Discovery in Databases	Informatics
901895	Deep Learning	Informatics
299892	Informationsvisualisierung	Informatics
65718	Introduction to Machine Learning	Informatics
869538	Knowledge Discovery in Databases and Transaction Systems	Informatics
535405	Künstliche Intelligenz I	Informatics
532733	Künstliche Intelligenz II	Informatics
44120	Pattern Analysis	Informatics
44130	Pattern Recognition	Informatics
97090	Simulation and Modeling I	Informatics
502170	Simulation and Modeling II	Informatics
93146	Software-Anwendungen mit KI	Informatics
31751	Visualization	Informatics

Specialization		Networked Business
Module number	Module name	Study area
57060	Managing global projects + managing information technologies	Information Systems
57110	Platform strategies	Information Systems
472330	Dienstgüte von Kommunikationssystemen	Informatics
43950	Kommunikationssysteme	Informatics
93150	Rechnerkommunikation	Informatics
649073	Verteilte Systeme	Informatics

Specialization		Enterprise Architecture
Module number	Module name	Study area
57046	Designing gamified systems	Information Systems
57073	Designing technology	Information Systems
47681	Exergames	Information Systems
57030	Managing enterprise-wide IT architectures	Information Systems
54760	Process Analytics	Information Systems
57451	User experience in a business context	Information Systems
97008	Advanced Design and Programming	Informatics
510375	Analyse und Design objektorientierter Softwaresysteme mit der Unified Modeling Language (UML)	Informatics
93141	Applied Software Engineering Master-Projekt	Informatics
47636	Coaching Agile Methods Teams	Informatics
71302	Constructive phases of software engineering	Informatics
710850	E-Business Technologies + Evolutionäre Informationssysteme	Informatics
710850	eBusiness technologies und evolutionäre Informationssysteme	Informatics
869140	Fehlertolerierende Softwarearchitekturen	Informatics
113545	Foundations of software engineering and Design patterns and anti-patterns	Informatics
234129	Foundations of software engineering and Software engineering in practice	Informatics
70241	Praktische Softwaretechnik	Informatics
675090	Process-oriented information systems	Informatics
386409	Software Architecture	Informatics
312443	Software Projektmanagement	Informatics
357823	Software reliability	Informatics

93160	Software-Entwicklung in Großprojekten	Informatics
43200	Test and Analysis Techniques for Software Verification and Validation	Informatics
189989	Testen von Softwaresystemen	Informatics

Specialization		Digital Transformation
Module number	Module name	Study area
57381	Create your FinTech start-up	Information Systems
56210	Digital change management	Information Systems
57171	Digital transformation project	Information Systems
57086	Electronic human resources management	Information Systems
57053	Innovation and leadership	Information Systems
56216	Judgment in decision making and evidence-based management	Information Systems
57060	Managing global projects and managing information technology	Information Systems
56421	Organizing for digital transformation	Information Systems
57172	Patenting for innovation	Information Systems
57241	Service innovation	Information Systems
93184	Commercial Open Source Startups	Informatics
566245	Cryptocurrencies	Informatics
829281	Datenschutz, Compliance und Elektronische Signaturen	Informatics
710850	E-Business Technologies + Evolutionäre Informationssysteme	Informatics
44631	Einführung in die IT-Sicherheit	Informatics
792501	Forensische Informatik	Informatics
213437	Foundations of Cryptocurrencies	Informatics

645618	Human Computer Interaction	Informatics
658644	Human Factors in Security and Privacy	Informatics
716516	IT-Modernisierung	Informatics

Specialization		Software Product Management
Module number	Module name	Study area
93184	Commercial Open Source Startups / Product Management (VUE)	Informatics
70241	Praktische Softwaretechnik	Informatics
312443	Software project management (PSWT-SPM)	Informatics
71921 + 71931	The AMOS project (PSWT-AMOS)	Informatics

Students with study start from winter term 2021/22

Students **starting from winter term 2021/22** can study up to one out of three specializations by achieving a minimum number of 25 ECTS for the respective specialization. Upon request, students may receive written confirmation of the specialization that they have studied. The three available specializations and their respective modules correspond to the three module areas “**Data & Knowledge**”, “**Digital Business**”, and “**Architectures & Development**” for both Information Systems and Informatics as specified in the respective tables above. This means that all modules available in each module area are also part of the respective specialization. If at least 25 ECTS are achieved in two specializations, the one with the better average grade is considered, unless the student requests otherwise.

Overview of module descriptions

IMPORTANT NOTICE:

Each module can only be taken once!

Customized Introduction to IIS

Management I

1	Module name MIBS-53710	Foundations of International Management I	5 ECTS
2	Courses/lectures	Lect 1/S 1: Foundations of international management I (3 SWS)	5 ECTS
3	Lecturers	Prof. Holtbrügge and assistants	

4	Module coordinator	Prof. Holtbrügge
5	Contents	<ol style="list-style-type: none"> 1. Environment of International Management: History and Major Trends 2. Theoretical and Conceptual Foundations of International Management 3. Theories of Internationalization 4. Strategic management in International Corporations
6	Learning objectives and skills	The participants understand and analyze typical management problems of international firms. The participants will get to know modern theories and methods of international management and will be able to apply these to practical problems. They get a detailed overview of the current state of international management research and are able to evaluate theoretical and empirical studies in this area critically.
7	Recommended prerequisites	English language proficiency (C1)
8	Integration in curriculum	Semester 1, 3
9	Module compatibility	<p>Master in International Information Systems: Module in the section Customized Introduction to IIS (Management) (ab 2016/17 + 2018/19 + 2021/22)</p> <p>Master IBS: core course (Pflichtbereich)</p> <p>Master Marketing: Wahlpflichtbereich der Modulgruppe „Management“</p> <p>Master Sozialökonomik: freier Vertiefungsbereich sowie im Pflichtbereich „Spezielle BWL“</p> <p>Master Arbeitsmarkt und Personal: Wahlbereich</p> <p>Master Economics: Wahlbereich</p> <p>Master Management: Vertiefungsbereich</p>
10	Method of examination	<p>Lect: Report (6 pages) (Diskussionspapier (6 Seiten))</p> <p>S: Presentation (Präsentation)</p>
11	Grading procedure	Report (Lect.) (80%), Presentation (S) (20%); Exam language: English (Note des Diskussionspapiers 80% und Präsentation 20%)
12	Module frequency	Each winter term
13	Workload	<p>Contact hours: 45 h</p> <p>Independent study: 105 h</p>
14	Module duration	1 semester
15	Teaching and examination language	English
16	(Recommended) reading	<p>Holtbrügge, D. & Welge, M.K. (2020). International Management. Mimeo, Nürnberg (chapters 1-4).</p> <p>Holtbrügge, D. & Haussmann, H. (eds.) (2017). Internationalization Strategies of Firms. Case Studies from the Nürnberg Metropolitan Region. 2nd edition. Augsburg-München: Hampp.</p>

1	Module name MIBS-53720	Foundations of International Management II	5 ECTS
2	Courses/lectures	Lect/S: Foundations of international management II (3 SWS)	5 ECTS
3	Lecturers	Prof. Holtbrügge and assistants	

4	Module coordinator	Prof. Holtbrügge
5	Contents	Foundations of International Management II: 1. Organization of International Corporations 2. Human Resources Management in International Corporations 3. Public Affairs Management in International Corporations
6	Learning objectives and skills	The participants understand and analyze typical management problems of international firms. The participants will get to know modern theories and methods of international management and will be able to apply these to practical problems. They get a detailed overview of the current state of international management research and are able to evaluate theoretical and empirical studies in this area critically.
7	Recommended prerequisites	Successful attendance of Foundations of International Management I English language proficiency (C1)
8	Integration in curriculum	Semester 1, 3
9	Module compatibility	Master in International Information Systems: Module in the section Customized Introduction to IIS (Management) (ab 2016/17 + 2018/19 + 2021/22) Master IBS: core course (Pflichtbereich) Master Management: Vertiefungsbereich Master Marketing: Wahlpflichtbereich der Modulgruppe „Management“ Master Sozialökonomik: freier Vertiefungsbereich oder im Pflichtbereich „Spezielle BWL“ Master Arbeitsmarkt und Personal: Wahlbereich Master Economics: Wahlbereich
10	Method of examination	Lect: Report (6 pages). (Diskussionspapier (6 Seiten)) S: Presentation (Präsentation)
11	Grading procedure	Report (Lect.) (80%), Presentation (S) (20%); Exam language: English (Note des Diskussionspapiers 80% und Präsentation 20%)
12	Module frequency	Each winter term
13	Workload	Contact hours: 45 h Independent study: 105 h
14	Module duration	1 semester
15	Teaching and examination language	English
16	(Recommended) reading	Holtbrügge, D. & Welge, M.K. (2020): International Management. Mimeo, Nürnberg (chapters 5, 6 & 8). Holtbrügge, D. & Haussmann, H. (eds.) (2017). Internationalization Strategies of Firms. Case Studies from the Nürnberg Metropolitan Region. 2 nd edition. Augsburg-München: Hampp.

Management II

1	Module name MIM-53410	Business Strategy	5 ECTS
2	Courses/lectures	L/P: Business strategy (3 SWS)	5 ECTS
3	Lecturers	Prof. Junge and assistants	

4	Module coordinator	Prof. Junge / Prof. Hungenberg
5	Contents	<p>This course focuses on selected theories, concepts and tools of strategic management. It is concerned with formulation and implementation of strategies, focusing on the business level of strategy. At business level, customer value and competitive advantage are the central issues. In this context, the digital transformation triggers digital business models, such as platform strategies or other related disruptive innovations. Therefore, the digital transformation is a central focus of this course.</p> <p>The course uses a combination of lectures, discussions and case studies in order to provide the analytic and conceptual foundations for making strategic decisions at business level.</p>
6	Learning objectives and skills	By the end of the course, students can appreciate the need for a comprehensive approach to strategy making and they are aware of top management's role in setting the direction of a company. Students develop knowledge of theories, concepts and tools of business strategy and they develop an understanding of the application of concepts and tools to real life cases.
7	Recommended prerequisites	None
8	Integration in curriculum	First semester
9	Module compatibility	<p>Master IBS: core course (Pflichtbereich)</p> <p>Master in International Information Systems (ab 2018/19): Module in the section Customized Introduction to IIS (Management II)</p> <p>Master Management: Pflichtbereich I</p> <p>Master Wirtschaftspädagogik, Studienrichtung I: fachwissenschaftlicher Pflichtbereich; Studienrichtung II: fachwissenschaftlicher Wahlbereich</p> <p>Master International Production Engineering and Management: Interdisziplinäre IEM</p> <p>Master Wirtschaftsingenieurwesen: Wahlbereich</p>
10	Method of examination	Written examination (60 min.)
11	Grading procedure	Written examination result (100%)
12	Module frequency	Winter term
13	Workload	<p>Attendance: 45 h</p> <p>Self-study: 105 h</p>
14	Module duration	1 semester
15	Teaching and examination language	English
16	(Recommended) reading	<p>Hungenberg, H.: Strategisches Management in Unternehmen, 8th Ed., Wiesbaden 2014</p> <p>Dess, G., McNamara, G., Eisner, A.: Strategic management, 10th Ed., Maidenhead 2020</p>

1	Module name MIM-55291	Global Retail Logistics	5 ECTS
2	Courses/lectures	L/E: Global retail logistics (2 SWS)	5 ECTS
3	Lecturers	Prof. Hartmann and assistants	

4	Module coordinator	Prof. Hartmann
5	Contents	<p>This e-learning course offers specific insights on the logistic processes in the global retail industry. Upon completion of the course, the students should understand the peculiarities of logistics for fast moving consumer goods.</p> <p>Every module consists of an interactive lecture and script. Additional material and exercises enhance the presented topics further. As the entire lecture, the readings, the additional material and the exam is in English, proficiency in German is not necessary.</p> <p>The course is supposed to provide the students with the following content concerning the global retail industry:</p> <ul style="list-style-type: none"> • Module 1: Overview of global retail logistics • Module 2: Characteristics & Basics • Module 3: Trends & Challenges • Module 4: PoS Logistics • Module 5: Interfaces • Module 6: Load units & transport logistics • Module 7: Cross docking • Module 8: Warehousing & distribution • Module 9: Food Supply Chain Module 10: Sustainability in the Supply Chain
6	Learning objectives and skills	<p>The following learning objectives are anticipated:</p> <p>You will be able to define the topic of retail logistics and describe its specific requirements.</p> <p>You will be able to report the retail industry specific peculiarities relating to the usage of logistics processes.</p> <p>You will be able to use the relevant methods of planning, controlling and monitoring of logistics processes in the retail industry.</p> <p>You will be able to analyse various retail-specific characteristics in the use of logistics processes and assess their application in a practical context.</p> <p>You will be able to apply the most important principles of global retail logistics, to manage logistic processes while solving the questions of supply, distribution, transport and storage of goods.</p> <p>You will be able to work creatively, generate new ideas, and solve problems regarding retail logistics in an international context, international interaction and cooperation, while accepting social and ethical responsibility.</p> <p>You will be able to manage, Transfer and discipline yourself, and plan your time independently.</p> <p>You will be able to demonstrate the ability to engage in critical thinking by analysing complex situations thus concluding and selecting viable solutions to solve problems.</p>
7	Recommended prerequisites	<p>English language proficiency (C1)</p> <p>Produktions- und Supply Chain Management</p> <p>Registration via vhb (www.vhb.org) is necessary in order to gain access to the StudOn e-learning platform.</p>

8	Integration in curriculum	First semester
9	Module compatibility	Master in International Information Systems (ab 2018/19): Module in the section Customized Introduction to IIS (Management II) Master Management: Vertiefungsbereich Master Economics: Wahlbereich Master Wirtschaftsingenieurwesen: Wahlpflichtbereich
10	Method of examination	Written examination (60 min., partly with single choice)
11	Grading procedure	Written examination (100%)
12	Module frequency	Every semester
13	Workload	Presence hours: 1 h Self-study: 149 h
14	Module duration	1 Semester
15	Teaching and examination language	English
16	(Recommended) reading	Will be announced during the course

1	Module name MIM-53650/53651	Global Operations Strategy	ECTS
2	Courses/lectures	S: Global operations strategy (4 SWS)	5 ECTS
3	Lecturers	Prof. Voigt and research assistants	

4	Module coordinator	Prof. Voigt
5	Contents	<p>During the past decades, operations have become increasingly international or even global in nature. Drivers of the globalization include increased competitiveness through offshore manufacturing and global sourcing.</p> <p>During this module, the increasing complexity and the challenges of operations on a global scale will be discussed together with the participants. The theory modules at the beginning structure the options of a general operations strategy and illustrate its implementation in the organization.</p> <p>The subject specific modules, elaborated by the participants, enable a profound understanding of single activity areas of global operations and their relation to the global operations strategy. Therewith the students will get insights in the importance of an integrated global operations strategy and will become familiar with the main strategic options in this field.</p>
6	Learning objectives and skills	<p>Participation in the first seminar session is mandatory, as the topics for the teamwork are chosen during this session by the participants.</p> <p>In the following weeks, based on own research using scientific sources, key topics are elaborated in teams. Following predefined learning targets, the students need to structure the elaborated content in an academic presentation and present their results in class. Thereby, the teams are responsible for developing a didactic concept in order to support the understanding of the discussed topics. Furthermore, the participants are required to document their research method as well as their results. After the course, the participants are able to discuss the functions and impact of operations management in an international context.</p>
7	Recommended prerequisites	None
8	Integration in curriculum	First semester
9	Module compatibility	<p>Master IBS: core course (Pflichtbereich)</p> <p>Master Management: Vertiefungsbereich</p> <p>Master Marketing: Wahlpflichtbereich der Modulgruppe „Management“</p> <p>Master Sozialökonomik: freier Vertiefungsbereich oder im Pflichtbereich „Spezielle BWL“</p> <p>Master Arbeitsmarkt und Personal: Wahlbereich</p> <p>Master Economics: Wahlbereich</p> <p>Master in International Information Systems (ab 2018/19): Module in the section Customized Introduction to IIS (Management II)</p>
10	Method of examination	<p>Written examination 60 min. (Klausur, 60 Min.); Presentation (group presentation) (around three to five minutes per participant)</p> <p><i>Change of examination due to Corona:</i> <i>Presentation (digital group presentation)</i></p>
11	Grading procedure	<p>Written examination (50%), Presentation (50%)</p> <p><i>Change of examination due to Corona:</i> <i>Digital presentation (100%)</i></p>
12	Module frequency	<p>Winter Term (WS)</p> <p>All participants have to register in advance on StudOn! The registration for GOS on StudOn starts mid-September. The number of participants is limited to 60.</p>

13	Workload	Attendance: 30 h Self-study: 120 h
14	Module duration	1 term
15	Teaching and examination language	English
16	(Recommended) reading	Abele, E. et al. (2008): Global Production. A Handbook for Strategy and Implementation. Berlin: Springer. Reid, R. D. & Sanders N. R. (newest ed.): Operations Management. Hoboken: Wiley & Sons. Slack, N. & Lewis, M. (newest ed.): Operations Strategy. Harlow : PrenticeHall.

Informatics I

1	Module name IIS57019	Introduction to Computer Science	10 ECTS
2	Courses/lectures	L: Introduction to Computer Science (4 SWS)	5 ECTS 5 ECTS
3	Lecturers	Prof. Andreas Harth, Prof. Martin Matzner and assistants	

4	Module coordinator	Prof. Martin Matzner	
5	Contents	<ul style="list-style-type: none"> • Concepts like: abstraction & encapsulation • Foundations of programming • Programming in languages C and Python • Web programming with HTML, CSS, SQL and JavaScript Basics of algorithms & data structures	
6	Learning objectives and skills	The students understand... ... the foundations of programming ... the functional principle of programs ... to abstract and solve problems algorithmically ... the basics of web programming	
7	Recommended prerequisites	None	
8	Integration in curriculum	First semester	
9	Module compatibility	Master in International Information Systems: Module in the section Customized Introduction to IIS (Informatics)	
10	Method of examination	120-minute written examination (Klausur (120 min))	
11	Grading procedure	100% of module score (Lect.: 100 % der Modulnote)	
12	Module frequency	Each WS	
13	Workload	Contact hours: 60 h Independent study: 240 h	
14	Module duration	1 semester	
15	Teaching and examination language	English	
16	(Recommended) reading	Perry G., Miller D: C Programming Absolute Beginner's Guide, 3. Ed, 2014 White, R.: How Computers Work, 10. Ed., 2014 Kochan S.G.: Programming in C, 4 Ed.	

Informatics II

1	Modulbezeichnung IIS57026	Informatics II (Teil 1)	5 ECTS
2	Lehrveranstaltungen IIS31301	V: Konzeptionelle Modellierung (2 SWS) Ü: Konzeptionelle Modellierung (2 SWS)	2,5 ECTS 2,5 ECTS
3	Lehrende	Prof. Lenz	

4	Modulverantwortliche/r	Prof. Lenz
5	Inhalt	Die Vorlesung behandelt die folgenden Themen: 1. Grundlagen der Modellierung 2. Datenmodellierung am Beispiel Entity-Relationship-Modell 3. Modellierung objektorientierter Systeme am Beispiel UML 4. Relationale Datenmodellierung und Abfragemöglichkeiten 5. Grundlagen der Metamodellierung 6. XML 7. Multidimensionale Datenmodellierung Domänenmodellierung und Ontologien
6	Lernziele und Kompetenzen	Die Studierenden: <ul style="list-style-type: none"> definieren grundlegende Begriffe aus der Datenbankfachliteratur erklären die Vorteile von Datenbanksystemen erklären die verschiedenen Phasen des Datenbankentwurfs benutzen das Entity-Relationship Modell und das erweiterte Entity-Relationship Modell zur semantischen Datenmodellierung unterscheiden verschiedene Notationen für ER-Diagramme erläutern die grundlegenden Konzepte des relationalen Datenmodells bilden ein gegebenes EER-Diagramm auf ein relationales Datenbankschema ab erklären die Normalformen 1NF, 2NF, 3NF, BCNF und 4NF definieren die Operationen der Relationenalgebra erstellen Datenbanktabellen mit Hilfe von SQL lösen Aufgaben zur Datenselektion und Datenmanipulation mit Hilfe von SQL erklären die grundlegenden Konzepte der XML erstellen DTDs für XML-Dokumente benutzen XPATH zur Formulierung von Anfragen an XML-Dokumente definieren die grundlegenden Strukturelemente und Operatoren des multidimensionalen Datenmodells erklären Star- und Snowflake-Schema benutzen einfache UML Use-Case Diagramme benutzen einfache UML-Aktivitätsdiagramme erstellen UML-Sequenzdiagramme erstellen einfache UML-Klassendiagramme erklären den Begriff Meta-Modellierung definieren den Begriff der Ontologie in der Informatik definieren die Begriffe RDF und OWL
7	Empfohlene Voraussetzungen für die Teilnahme	Gewünscht „Algorithmen und Datenstrukturen“ und „Grundlagen der Logik und Logikprogrammierung“
8	Einpassung in Musterstudienplan	1. Semester
9	Verwendbarkeit des Moduls	Bachelor Wirtschaftsinformatik Bachelor Informatik Bachelor IuK

		Master International Information Systems: Teilmodul zu Informatics im Bereich Customized Introduction to IIS (ab 2016/17 + 2018/19 + 2021/22)
10	Studien- und Prüfungsleistungen	Klausur (tw. Mit MC Aufgaben) 90 Minuten
11	Berechnung Modulnote	100% der Klausurnote
12	Turnus des Angebots	Jedes Wintersemester
13	Arbeitsaufwand	Präsenzzeit: 60 h Eigenstudium: 90 h
14	Dauer des Moduls	1 Semester
15	Unterrichts- und Prüfungssprache	Deutsch
16	(Vorbereitende) Literatur	<p>Alfons Kemper, Andre Eickler: <i>Datenbanksysteme : Eine Einführung</i>. 6., aktualis. U. erw. Aufl. Oldenbourg, März 2006. – ISBN-10: 3486576909 (Kapitel 2 bis 4 und Abschnitt 17.2)</p> <p>Bernd Oestereich: <i>Analyse und Design mit UML 2.1</i>. 8. Aufl. Oldenbourg, Januar 2006. – ISBN-10: 3486579266</p> <p>Ian Sommerville: <i>Software Engineering</i>. 8., aktualis. Aufl. Pearson Studium, Mai 2007. – ISBN-10: 3827372577</p> <p>Horst A. Neumann: <i>Objektorientierte Softwareentwicklung mit der Unified Modeling Language. (UML)</i>. Hanser Fachbuch, März 2002. – ISBN-10: 3446188797</p> <p>Rainer Eckstein, Silke Eckstein: <i>XML und Datenmodellierung</i>. Dpunkt Verlag, November 2003. – ISBN-10: 3898642224</p>

1	Modulbezeichnung IIS57027	Informatics II (Teil 2: Option 1)	5 ECTS
2	Lehrveranstaltungen IIS70241	V: PSWT (Praktische Softwaretechnik – 4 SWS)	5 ECTS
3	Lehrende	Prof. Hindel, Dr.-Ing. Jung, Prof. Kips, Dr.-Ing. Oster, Prof. Riehle	

4	Modulverantwortliche/r	Prof. Dr. Riehle
5	Inhalt	<p>Software ist überall und Software ist komplex. Nicht triviale Software wird von Teams entwickelt. Oft müssen bei der Entwicklung von Softwaresystemen eine Vielzahl von funktionalen und nicht funktionalen Anforderungen berücksichtigt werden. Hierfür ist eine disziplinierte und ingenieurmäßige Vorgehensweise notwendig. Die Vorlesung „Praktische Softwaretechnik“ soll ...</p> <ul style="list-style-type: none"> • ein Bewusstsein für die typischen Problemstellungen schaffen, die bei der Durchführung umfangreicher Softwareentwicklungsprojekte auftreten, • ein breites Basiswissen über die Konzepte, Methoden, Notationen und Werkzeuge der modernen Softwaretechnik vermitteln und • die Möglichkeiten und Grenzen ihres Einsatzes im Kontext realistischer Projektumgebungen anhand praktischer Beispiele demonstrieren und bewerten. <p>Die Vorlesung adressiert inhaltlich alle wesentlichen Bereiche der Softwaretechnik. Vorgestellt werden unter anderem</p> <ul style="list-style-type: none"> • traditionelle sowie agile Methoden der Softwareentwicklung, • Methoden der Anforderungsanalyse und des Systementwurfs, • Konzepte der Softwarearchitektur, -implementierung und Dokumentation und • Testen und Qualitätssicherung sowie Prozessverbesserung. <p>Weitere Materialien und Informationen sind hier zu finden:</p> <ul style="list-style-type: none"> • Zeitplan: http://goo.gl/Ofy1T • Materialien: Auf StudOn über den Zeitplan • Die Teilnahme ist begrenzt. Bitte registrieren Sie sich zeitig für den Kurs auf StudOn, um sicherzustellen, dass Sie einen Platz erhalten.
6	Lernziele und Kompetenzen	<p>Die Studierenden</p> <ul style="list-style-type: none"> • verstehen den Unterschied zwischen „Programmieren im Kleinen“ und „Programmieren im Großen“ (Softwaretechnik) zu verstehen • wenden grundlegende Methoden der Softwaretechnik über den gesamten Projekt- und Produktlebenszyklus zu verstehen und anwenden zu können <p>kennen die Rolle und Zuständigkeiten der Berufsbilder „Projektleiter“, „Anforderungsermittler“, „Softwareentwickler“ und „Qualitätssicherer“ zu verstehen.</p>
7	Empfohlene Voraussetzungen für die Teilnahme	Keine
8	Einpassung in Musterstudienplan	<p>Informatik-Bachelor und Wirtschaftsinformatik-Bachelor: Während oder nach dem 4ten Semester Informatik-Master: Jederzeit Master International Information Systems: 1. Semester</p>

		PSWT-PSWT steht weiteren Studiengängen offen, je nach Studienplan und -ordnung
9	Verwendbarkeit des Moduls	5 ECTS Vorlesung, je nach Studiengang als Pflicht oder Wahlpflichtveranstaltung Master International Information Systems: Teilmodul zu Informatics im Bereich Customized Introduction to IIS (ab 2016/17 + 2018/19) Master International Information Systems (from 2021/22): Module in the section Informatics – Architectures and Development
10	Studien- und Prüfungsleistungen	90min. Klausur
11	Berechnung Modulnote	100% Klausurnote
12	Turnus des Angebots	Alle zwei Semester
13	Arbeitsaufwand	60h (4 SWS) Unterricht 90h Hausaufgaben sowie Vor- und Nachbereitung
14	Dauer des Moduls	1 Semester
15	Unterrichts- und Prüfungssprache	Deutsch oder Englisch
16	(Vorbereitende) Literatur	http://goo.gl/JSoUbV

1	Module name IIS57028	Informatics II (Teil 2: Option 2)	5 ECTS
2	Courses/lectures IIS31601	Software development in large projects (SoSy3) (lectures + exercises, 4 SWS)	5 ECTS
3	Lecturers	Prof. Saglietti	

4	Module coordinator	Prof. Saglietti
5	Contents	<ul style="list-style-type: none"> • Introduction to the single phases of software development: requirements analysis, specification, design, implementation, test, maintenance • Exemplifying application of selected, representative techniques supporting the developments phases mentioned above • Ergonomic principles for usage interfaces • Object-oriented analysis and design with UML • Design patterns as constructive, re-usable solutions to whole classes of problems • Automatic support for code implementation from UML diagrams • Testing strategies <p>Re-factoring techniques supporting the maintenance phase</p>
6	Learning objectives and skills	<p>On the basis of programming skills already acquired the students will</p> <ul style="list-style-type: none"> • learn systematic and structured approaches to deal with the complexity of “developing in the large”, • gain the capability of expressing complex problems in a well-defined way by means of appropriate specification languages, of analyzing such problems, as well as of deriving appropriate designs for their solution, • get experience in the application of UML diagrams for the purpose of object-oriented analysis and design activities, • get proficiency in re-using general design solutions by specialization of established design patterns, • get acquainted with principles of the testing process, <p>get familiar with re-factoring strategies aimed at increasing systematically software modifiability.</p>
7	Recommended prerequisites	None
8	Integration in curriculum	First semester
9	Module compatibility	Master in International Information Systems: Module in the section Customized Introduction to IIS (Informatics) (ab 2016/17 + 2018/19) Master International Information Systems (from 2018/19 + 2021/22): Module in the section Informatics – Architectures and Development
10	Method of examination	90-minute written examination (Klausur (90 min))
11	Grading procedure	Lect.: 100% of module score (Lect.: 100 % der Modulnote)
12	Module frequency	Each WS
13	Workload	Contact hours: 60 h Independent study: 90 h
14	Module duration	1 semester
15	Teaching and examination language	German or English
16	(Recommended) reading	Lehrbuch der Softwaretechnik (Band 1), Helmut Balzert, 2000

Information Systems

Data & Knowledge

1	Module name IIS-57385	Business analytics: Case studies	5 ECTS
2	Courses/lectures	Lecture (1,5 SWS): Business analytics: Case studies Project seminar (2,5 SWS): Business analytics: Case studies	5 ECTS
3	Lecturers	Prof. Dr. Patrick Zschech; Prof. Dr. Mathias Kraus; and assistants	

4	Module coordinator	Prof. Dr. Patrick Zschech
5	Contents	<p>Business Analytics (BA) is a systematic approach that applies qualitative, quantitative, and statistical computational tools and methods to analyze data, gain insights, inform, and support decision-making. In this respect, methods from the field of machine learning (ML) have gained particular attention as they give computers the ability to perform tasks without being explicitly programmed to do so. Advances in ML enable the development of intelligent systems with human-like cognitive capacity that penetrate our business and personal life in every conceivable way. This is demonstrated by many diverse examples, such as fraud detection, predictive maintenance, credit scoring, next-best offer analysis, speech and image recognition, or natural language processing.</p> <p>This course offers students, who already have a fundamental understanding of BA and ML, the opportunity to deepen their knowledge by developing data-driven processing pipelines and applying modern learning algorithms to solve real-world problems from research and practice. Students can either bring their own interesting BA/ML cases or are provided with exciting challenges from a predefined selection. Depending on the availability of open topics, there is also the chance to work on current cases from our collaboration partners.</p> <p>The course has a strong practical focus and requires a high degree of self-initiative and dedication by the participants. At the beginning of the semester, some conceptual basics are repeated as a refresher. However, the in-depth investigation of relevant methods, procedures and principles required by the circumstances of the individual cases is done independently by the students in self-study. Students are encouraged to work (in groups) on the chosen projects to solve upcoming challenges in cooperation. To monitor the learning progress during the course, open consultation meetings are offered on a continuous basis, in which the applied approaches and procedures can be reflected in a participatory manner. The final results are presented and discussed at the end of the semester.</p>
6	Learning objectives and skills	<p>The students</p> <ul style="list-style-type: none"> • can translate domain-specific circumstances from real-world cases into well-defined problems that can be addressed with data-driven algorithmic approaches • have a deep understanding of data-driven processing pipelines • can implement modern methods and algorithms to solve real-world problems from research and practice • can compare and assess different algorithmic approaches and methodical procedures to evaluate their suitability, • can document the achieved results in a scientific manner, • work in groups and present their results together, • develop skills in collaborative interaction with peers.

7	Recommended prerequisites	Profound knowledge in data analysis techniques, predictive modelling principles, statistics, and machine learning as taught, for example, in the Bachelor course "Business Analytics: Technologien, Methoden und Konzepte". Profound programming skills, preferably in Python. The number of participants is limited. Please see website for details on the application process.
8	Integration in curriculum	First to fourth semester
9	Module compatibility	Master International Information Systems (from 2021/22): Module in the section Information Systems – Data & Knowledge Master International Information Systems (from 2018/19): Module in the section Information Systems – Data & Knowledge (Elective) Master International Information Systems (from 2016/17): Module in the section Information Systems – Extension Courses (Elective)
10	Method of examination	Project report and presentations, partly in groups (Projektarbeit und Präsentationen, z.T. in Gruppenarbeit)
11	Grading procedure	Project report (80%) and presentations (20%) (Projektarbeit (80%) und Präsentationen (20%))
12	Module frequency	Each semester
13	Workload	Contact hours: 60 h Independent study: 90 h
14	Module duration	1 semester
15	Teaching and examination language	English
16	(Recommended) reading	All relevant material will be provided during the lecture.

1	Module name IIS57043	Business intelligence	5 ECTS
2	Courses/lectures IIS70415	Lecture: Business intelligence Exercise: Business intelligence	5 ECTS
3	Lecturers	Prof. Bodendorf and colleagues	

4	Module coordinator	Prof. Bodendorf
5	Contents	<p>Lect/Ex:</p> <p>The interest in data analytics has increased tremendously in the last few years, and it is part of almost every business or organization we can think of. There has been a tremendous development in the field since we all heard the term Big Data for the first time close to a decade ago. The demand for skilled practitioners has also increased significantly and is projected to keep increasing in the next years. At the same time, a qualified data scientist or data analyst is expected to have knowledge in different areas like statistics, data mining, data visualization or programming, to name a few. It is often challenging to decide where to start if one has interest in this career path.</p> <p>In this lecture, we introduce a variety of topics which will give you a kick start in the field of data science and will help you to continue the learning path in other, more advanced courses. We teach the whole data science process (based on the industry-wide accepted CRISP model) from the business and data understanding to the deployment and management steps. Students get familiar with terms like data science, machine learning and artificial intelligence, as well as available tools and technologies. You will learn what is behind the technology that powers everything from your shopping suggestions on Amazon to automatic systems like chatbots and self-driving cars. We teach you the most used machine learning algorithms right now: decision trees, neural networks, support vector machines, association rules (Apriori and FP Growth), clustering algorithms (k-Means, DBSCAN).</p> <p>In the end of the lecture, you will know the difference between machine learning and artificial intelligence, understand how the most popular algorithms work, and how they can be applied in practice.</p> <p>The lecture is intended for students with no prior knowledge in data analytics. After familiarizing with the relevant theory, students also have the chance to apply their knowledge on a given data set. This will be done with a data science tool that does not require any programming skills.</p>
6	Learning objectives and skills	<p>The students</p> <ul style="list-style-type: none"> • Can describe important business intelligence and data science concepts, tools, and algorithms • Learn how to structure a data science project • Work on a practical exercise and apply the learned algorithms on a real-world dataset <p>Are able to evaluate a machine learning model and decide on its goodness of fit</p>
7	Recommended prerequisites	None
8	Integration in curriculum	Second semester
9	Module compatibility	<p>Master International Information Systems (from 2021/22): Module in the section Information Systems – Data & Knowledge</p> <p>Master in International Information Systems (from 2018/19): Module in the section Information Systems– Data & Knowledge (Core Course or Elective)</p> <p>Master in International Information Systems (from 2016/17): Module in the section Information Systems– Services, processes, and intelligence I or II (Core Course or Elective)</p>

		Master Arbeitsmarkt und Personal: Wahlbereich Master FACT: Vertiefungsbereich (Modulgruppe Interdisziplinäre Module) Master Marketing: Wahlpflichtbereich der Modulgruppe „Management“ bzw. „Data Science“ (MARK-54081) Master Wirtschaftsmathematik: Wahlbereich Master Wirtschaftsingenieurswesen: Informatik Nebenfach Betriebswirtschaftslehre Master Management: Vertiefungsbereich
10	Method of examination	Written examination, 90 minutes (Klausur, 90 Minuten)
11	Grading procedure	100% of exam score (100% der Klausurnote)
12	Module frequency	Each summer term
13	Workload	Contact hours: 60 h Independent study: 90 h
14	Module duration	1 semester
15	Teaching and examination language	English
16	(Recommended) reading	All relevant material will be provided during the lecture.

1	Module name IIS-57465	Data Analytics for Information Systems	5 ECTS
2	Courses/lectures	V: Data Analytics for Information Systems Ü: Data Analytics for Information Systems	5 ECTS
3	Lecturers	Prof. Dr. Verena Tiefenbeck; Prakhar Mehta Leonard Michels, M.Sc.	

4	Module coordinator	Prof. Dr. Verena Tiefenbeck
5	Contents	<p>This course provides a hands-on introduction to master the essentials of data analytics and machine learning using R.</p> <p>The growing ubiquity of information systems both in organizational and private consumer contexts increasingly makes large data streams available in various domains. As part of the digital transformation, knowing how to handle these data sets, how to analyze and to interpret them, becomes a more and more important skillset in companies, policymaking and in academic research.</p> <p>The course builds on real-world data sets from information systems in the realm of consumer behavior, in particular in the resource consumption context. Based on hands-on examples and practical challenges, we cover fundamental data analytics methods using the software environment R.</p> <p>The course starts with basic concepts from descriptive and inferential statistics that will be needed in the following course units, followed by an introduction to the statistics software R and R Studio. Students will be introduced to experimental design to distinguish between correlation and causation and to critically evaluate the validity and reliability of results. In the following, a large share of the course is dedicated to regression analysis, clustering, and different classification techniques. Students will apply these methods to data sets from concrete real-world challenges. The course closes with a discussion of relevant privacy regulations and also highlights social concerns and ethical aspects.</p> <p>In the second half of the semester, students have the possibility to earn bonus points in a course project (self-study), by applying the skills and methods covered in the lecture and exercise sessions in the analysis a large real-world dataset.</p>
6	Learning objectives and skills	<p>course, students will acquire</p> <ul style="list-style-type: none"> – an introduction (or refresher) to fundamental concepts in statistics needed for various quantitative methods in data analytics – skills to design and use information systems to collect behavioral data – skills to formulate hypotheses and to perform and explain the corresponding statistical tests – skills to formulate, solve, and interpret linear and logistic regression analyses – skills to conduct clustering analyses – skills to set up, train, and evaluate machine learning algorithms, including K-means, regression, and support vector machines – programming skills in the statistics software R that allow you to efficiently perform the related tasks <p>a solid understanding of the ethical issues when dealing with personal data and of the privacy regulations to follow</p>
7	Recommended prerequisites	An introductory part that covers essential concepts from statistics and an introduction to R is part of the course. However, a basic level of familiarity with some programming languages prior to the course is strongly recommended.
8	Integration in curriculum	1st or 3rd semester

9	Module compatibility	Master International Information Systems (from 2021/22): Module in the section Information Systems – Data & Knowledge Master International Information Systems (from 2018/19): Module in the section Information Systems – Data & Knowledge (Core Course or Elective) Master Wirtschaftsingenieurwesen: allgemeines Wahlmodul (Elective) Master Marketing: Wahlpflichtbereich der Modulgruppe „Data Science“
10	Method of examination	Written examination (90 minutes)
11	Grading procedure	Written examination (100 %) – bonus points can be acquired in a project in the second half of the semester. Students who pass the exam may increase their exam grade by up to 0.7 with the project.
12	Module frequency	Each winter term
13	Workload	Lecture and exercise sessions: 50h Self-study: 100h
14	Module duration	In WS 2020, the module will be taught in blocked sessions mainly in the first half of the semester.
15	Teaching and examination language	English
16	(Recommended) reading	Will be announced in class

1	Module name IIS-57045	Development of deep vision systems	5 ECTS
2	Courses/lectures	Lecture (2,5 SWS): Development of deep vision systems Exercise (2,5 SWS): Development of deep vision systems	2,5 ECTS 2,5 ECTS
3	Lecturers	Prof. Dr. Patrick Zschech, Prof. Dr. Mathias Kraus, and assistants	

4	Module coordinator	Prof. Dr. Patrick Zschech
5	Contents	<p>Computer vision systems try to mimic human capabilities of visual perception to support time-consuming and labor-intensive tasks like the recognition, localization, and tracking of critical objects. Nowadays, such systems increasingly rely on methods and tools from the field of machine learning to automatically extract useful information from images that can be utilized for decision support and business automation purposes.</p> <p>This course provides the necessary fundamentals for the development of modern vision systems based on machine learning. The particular focus is on deep neural networks and their capabilities of automated feature learning. More specifically, we consider different types of network architectures, look at the steps of image labelling and data preparation, discuss crucial hyperparameters and evaluation criteria, and review other related aspects, such as 3D vision, hybrid intelligence, and explainable artificial intelligence.</p> <p>The course has a strong practical focus. At the beginning of the semester, all fundamentals are provided in lecture sessions and hands-on exercises. Afterwards, students are encouraged to work (in groups) on real projects to apply the methods and concepts learned during the teaching sessions. The results are presented and discussed at the end of the semester.</p>
6	Learning objectives and skills	<p>The students</p> <ul style="list-style-type: none"> • understand the challenges for developing vision-based systems, • understand the basic principles of machine learning and deep neural networks in the realm of image processing, • explain the general pipeline of computer vision systems based on deep neural networks, • know about state-of-the art techniques at the intersection of computer vision and machine learning, • apply technologies for automated image processing in a practical setting, • compare and evaluate different system configurations, • work in groups and present their results together, • develop skills in collaborative interaction with peers.
7	Recommended prerequisites	<p>Basic knowledge in data analysis techniques, predictive modeling principles, statistics, and machine learning as taught, for example, in the Bachelor course "Business Analytics: Technologien, Methoden und Konzepte." Basic programming skills, preferably in Python.</p> <p>The number of participants is limited. Please see website for details on the application process.</p>
8	Integration in curriculum	Second or third semester
9	Module compatibility	<p>Master International Information Systems (from 2021/22): Module in the section Information Systems – Data & Knowledge</p> <p>Master International Information Systems (from 2018/19): Module in the section Information Systems – Data & Knowledge (Core Course or Elective)</p> <p>Master International Information Systems (from 2016/17): Module in the section Information Systems – Extension Courses (Elective)</p>

		Master in Marketing (start before WS17/18): Wahlpflichtbereich Modulgruppe "Methoden" Master in Marketing (start since WS17/18): Wahlpflichtbereich Modulgruppe "Data Science"
10	Method of examination	Project report and presentations, partly in groups (Projektarbeit und Präsentation, z.T. in Gruppenarbeit)
11	Grading procedure	Project report (80%) and presentation (20%) (Projektarbeit (80%) und Präsentation (20%))
12	Module frequency	Each semester (without guarantee)
13	Workload	Contact hours: 75 h Independent study: 75 h
14	Module duration	1 semester
15	Teaching and examination language	English
16	(Recommended) reading	All relevant material will be provided during the course.

1	Module name IIS-57290	Enterprise knowledge management	5 ECTS
2	Courses/lectures	Lecture: Enterprise knowledge management Tutorial: Enterprise knowledge management	5 ECTS
3	Lecturers	Prof. Dr. Sven Laumer	

4	Module coordinator	Prof. Dr. Sven Laumer
5	Contents	<p>Lecture on demand: This module uses the “Flipped Classroom” method and provides an advanced perspective on enterprise knowledge management. It focuses on knowledge management strategy and processes, knowledge management governance, knowledge modelling and visualization as well as concepts like crowdsourcing, open innovation and crowdfunding in a knowledge management context. From a theoretical perspective, the module introduces social networks and social network analysis as base for enterprise knowledge management.</p> <p>Tutorial: The contents of the lecture on demand are further discussed by means of exercises and case studies. Practical exercises are conducted using common social network analysis or knowledge management software.</p>
6	Learning objectives and skills	Students can analyze, visualize, design and discuss enterprise knowledge management approaches.
7	Recommended prerequisites	None
8	Integration in curriculum	First or third semester
9	Module compatibility	<p>Master International Information Systems (from 2021/22): Module in the section Information Systems – Data & Knowledge</p> <p>Master International Information Systems (from 2018/19): Module in the section Information Systems – Data & Knowledge (Core Course or Elective)</p> <p>Master International Information Systems (from 2016/17): Module in the section Information Systems – Extension Courses</p> <p>Master Wirtschaftspädagogik, Studienrichtung II: Modul im Zweifach Wirtschaftsinformatik</p> <p>Erweiterungsprüfung Berufliche Schulen/Studienfach Wirtschaftspädagogik</p>
10	Method of examination	Lecture on demand and tutorial: Research project
11	Grading procedure	Lecture on demand and tutorial: 100% of module score
12	Module frequency	Each winter term
13	Workload	<p>Lecture: 40h</p> <p>Tutorial: 40h</p> <p>Self-study: 70h</p>
14	Module duration	1 semester
15	Teaching and examination language	English
16	(Recommended) reading	TBA

1	Module name IIS-57320	Foundations of linked data	5 ECTS
2	Courses/lectures IIS-73201	Lecture: Foundations of linked data (2 SWS) Exercise: Foundations of linked data (2 SWS)	5 ECTS
3	Lecturers	Prof. Harth (mostly lectures) and colleagues (mostly exercises)	

4	Module coordinator	Prof. Dr. Andreas Harth
5	Contents	<p>The Linked Data principles provide a unified interface to data and software systems based on web architecture. Linked Data is increasingly popular in scenarios where data and systems from multiple providers have to be integrated, both in an enterprise setting and on open data from the web.</p> <p>The module covers foundational techniques to access, process and integrate data, both from a theoretical and a practical perspective, and provides a coherent treatment of protocols and languages specified by the World Wide Web Consortium. The module combines techniques from different areas, such as databases and artificial intelligence, adapted for use in a decentralised setting on the web.</p> <p>The overarching topic is to facilitate data integration on the basis of resource-oriented modelling, knowledge representation, hyperlinks and state transfer between user agents and servers.</p> <p>The module sets out with a history of hypertext systems, followed from an introduction to web architecture and knowledge representation, including algorithms for query evaluation and deductive reasoning. The module closes with a user agents for querying integrated data from sources attainable through the web.</p>
6	Learning objectives and skills	<p>You will learn how to describe data in a way that facilitates integrated access.</p> <p>You will be able to write queries that access large amounts of data within a unified logical framework.</p> <p>You will be able to apply the technologies and techniques around Linked Data to support data integration in an enterprise setting and on the web, and therefore have the necessary skills for a broad variety of data science applications.</p>
7	Recommended prerequisites	Students should have a basic understanding of how the internet and the web work. Some knowledge of relational databases is beneficial.
8	Integration in curriculum	Second semester
9	Module compatibility	<p>Master International Information Systems (from 2021/22): Module in the section Information Systems – Data & Knowledge</p> <p>Master International Information Systems (from 2018/19): Module in the section Information Systems – Data & Knowledge (Core Course or Elective)</p> <p>Master International Information Systems (from 2016/17): Module in the section Information Systems – Extension courses</p> <p>Master in Marketing (start before WS17/18): Wahlpflichtbereich Modulgruppe "Methoden"</p> <p>Master in Marketing (start since WS17/18): Wahlpflichtbereich Modulgruppe "Data Science"</p> <p>Master Wirtschaftsingenieurswesen</p>
10	Method of examination	<p>Written examination (60 minutes) (Klausur: 60 Minuten)</p> <p>Successful completion of all tasks in the practical exercises can lead to a grade improvement of maximum 0.4 points</p>
11	Grading procedure	100% of exam score
12	Module frequency	Each summer term
13	Workload	<p>Contact hours: 60 h</p> <p>Independent study: 90 h</p>
14	Module duration	1 semester

15	Teaching and examination language	English
16	(Recommended) reading	<p>All relevant material will be provided during the lecture.</p> <p>The following books give an overview of the topics of the lecture:</p> <p>Tim Berners-Lee. Weaving the Web. Harper, 1999</p> <p>Tom Heath, Christian Bizer. Linked Data: Evolving the Web into a Global Data Space. Morgan & Claypool, 2011.</p> <p>Dean Allemang. Semantic Web for the Working Ontologist: Effective Modeling in RDFS and OWL. Morgan Kaufmann, 2008.</p> <p>For a brief motivation read tyfair.com/news/2018/07/the-man-who-created-the-world-wide-web-has-some-regrets</p>

1	Module name IIS-57386	Natural language processing for business analytics	5 ECTS
2	Courses/lectures	Lecture (2,5 SWS): Natural language processing for business analytics Exercise (2,5 SWS): Natural language processing for business analytics	2,5 ECTS 2,5 ECTS
3	Lecturers	Prof. Dr. Mathias Kraus; Prof. Dr. Patrick Zschech; Nicolas Webersinke, M.Sc.; and assistants	

4	Module coordinator	Prof. Dr. Mathias Kraus
5	Contents	<p>Over the last few years, natural language processing (NLP) has been one of the most revolutionary fields of artificial intelligence (AI). NLP gives machines the ability to extract meaning from human languages and make decisions based on this data. In other words, NLP helps computers communicate with humans in their own language.</p> <p>This course provides the necessary fundamentals for the development of modern NLP systems based on machine learning. We cover a wide range of feature extraction and modeling techniques including recent innovations in the field of deep neural networks and their capabilities of automated feature learning. Additionally, we also look at further aspects such as ethical issues and the use of explainable artificial intelligence methods to gain insights about the functioning of learned models.</p> <p>The course has a strong practical focus. At the beginning of the semester, all fundamentals are provided and students with less knowledge in programming have the opportunity to catch up in a bootcamp introductory session before learning the fundamentals in hands-on exercises. Afterwards, students are encouraged to work (in groups) on real projects to apply the methods and concepts learned during the teaching sessions. The results are presented and discussed at the end of the semester.</p>
6	Learning objectives and skills	<p>The students</p> <ul style="list-style-type: none"> • understand the challenges for developing NLP-based systems, • understand the basic techniques that have paved the way for nowadays performance of language processing systems, • explain the general pipeline of NLP based on deep neural networks, • compare and evaluate different system configurations, • discuss ethical issues that have arisen with black-box models such as neural networks, • work in groups and present their results together, • develop skills in collaborative interaction with peers.
7	Recommended prerequisites	<p>Basic knowledge in data analysis techniques, predictive modelling principles, statistics, and machine learning as taught, for example, in the Bachelor course "Business Analytics: Technologien, Methoden und Konzepte". Basic programming skills, preferably in Python.</p> <p>The number of participants is limited. Please see website for details on the application process.</p>
8	Integration in curriculum	First or third semester
9	Module compatibility	<p>Master International Information Systems (from 2021/22): Module in the section Information Systems – Data & Knowledge</p> <p>Master International Information Systems (from 2018/19): Module in the section Information Systems – Data & Knowledge (Elective)</p> <p>Master International Information Systems (from 2016/17): Module in the section Information Systems – Extension Courses (Elective)</p>

10	Method of examination	Project report and presentation, partly in groups (Projektarbeit und Präsentation, z.T. in Gruppenarbeit)
11	Grading procedure	Project report (80%) and presentation (20%) (Projektarbeit (80%) und Präsentation (20%))
12	Module frequency	Each winter term
13	Workload	Contact hours: 75 h Independent study: 75 h
14	Module duration	1 semester
15	Teaching and examination language	English
16	(Recommended) reading	All relevant material will be provided during the course.

1	Module name IIS57110	Platform strategies	5 ECTS
2	Courses/lectures IIS-71102 IIS-71103	Platform strategies	5 ECTS
3	Lecturers	Prof. Möslin and colleagues Prof. Srinivasan, guest lecturer from IIMB, India	

4	Module coordinator	Prof. Möslin
5	Contents	<p>The course builds on the platform and network aspects in core strategy and aims to highlight the specific strategies for firms operating in multi-sided-markets. The course will cover most relevant concepts around platforms such as network effects, and how network effects impact/create new business models. Core issues around platform-mediated network firms, such as standards, pricing, envelopment, and competition dynamics will be discussed.</p> <p>The course will be taught through a set of cases that ensures that participants appreciate the multi-dimensional nature of managing in network businesses.</p>
6	Learning objectives and skills	<p>The students</p> <ul style="list-style-type: none"> ○ can identify and unravel the business problem in a case study and actively take part in class discussions ○ can describe platform intermediation in two sided markets, platform dominance and Winner-takes-all dynamics <p>can develop strategies for creating platform mediated networks and understand pricing in these businesses</p>
7	Recommended prerequisites	None
8	Integration in curriculum	Third semester
9	Module compatibility	<p>Master International Information Systems (from 2021/22): Module in the section Information Systems – Data & Knowledge</p> <p>Master International Information Systems (from 2018/19): Module in the section Information Systems – Data & Knowledge (Core Course or Elective)</p> <p>Master International Information Systems (from 2016/17): Module in the section Information Systems – Innovation and Value Creation II (Elective)</p> <p>Master Marketing: Wahlpflichtbereich der Modulgruppe „Management“</p>
10	Method of examination	<p>Project report: Students develop a business plan about a platform business idea</p> <p>Handout: Students develop an essay about a platform of their choice, discuss key concepts encountered during the lectures and apply them to the chosen platform.</p>
11	Grading procedure	-Project report (50%) and Handout (50%)
12	Module frequency	Each WS
13	Workload	<p>Attendance: 30 h</p> <p>Independent study: 120 h</p>
14	Module duration	1 semester
15	Teaching and examination language	English
16	(Recommended) reading	<ul style="list-style-type: none"> • Klemperer, P. 2005. Network effects and switching costs. In Durlauf, S.N. & Blume, L.E. (Eds.), The new palgrave dictionary of Economics, Palgrave Macmillan. • Eisenmann T., Parker, G., & Van Alstyne, M. 2006. Strategies for two-sided markets. Harvard Business Review Oct. 2006.

		<ul style="list-style-type: none"> • Hidding, G.J., Williams, J. & Sviokla, J.J. 2011. How platform leaders win, Journal of Business Strategy, 32, 2, 29-37. • Suarez, F.F. & Kirtley, J. 2012. Dethroning an established platform, MIT Sloan Management Review, Summer 2012. <p>The following books are suggested for the advanced reader on the basics on network economics.</p> <ul style="list-style-type: none"> • Shy O. 2001. The Economics of Network Industries, Cambridge University Press: Cambridge, England. • Gawer A, Cusumano M. 2002. Platform Leadership: How Intel, Microsoft, and Cisco Drive Industry Innovation. Harvard Business School Press: Boston, MA. • Evans D, Hagiu, A, Schmalensee, R. 2006. Invisible Engines: How Software Platforms Drive Innovation and Transform Industries, MIT Press, Boston, MA. <p>* The cases for each lecture are to be decided.</p>
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1	Module name IIS-53305	Social and web intelligence	5 ECTS
2	Courses/lectures IIS-33004	Social and web intelligence (4 SWS)	5 ECTS
3	Lecturers	Dr. Pavlina Kröckel	

4	Module coordinator	Prof. Bodendorf
5	Contents	<p>Social media became an inseparable part of today's companies. The vast amount of user-generated data online gives huge advantages to companies primarily by providing them with easy access to customer data free of charge. With every action online, users leave a trace behind which companies can use for a wide variety of decisions – product development and improvement, more targeted advertising, customer support. The user data come in various forms: text, images, and videos.</p> <p>In this seminar, we put special focus on text and network data. We first teach the theory behind text and network mining and then apply this knowledge on given datasets.</p>
6	Learning objectives and skills	<p>The students</p> <ul style="list-style-type: none"> will gain theoretical knowledge and understanding behind social media, text mining, network theory and network metrics will learn how to analyze and summarize data from a variety of web sources (e.g., Facebook, Twitter, blogs and forums) will learn how to apply the skills in a few chosen application areas e.g., role analysis, sentiment and behaviour analysis. <p>The lecture videos will be available via StudOn. Presence is required for two mid-term presentations (not graded) and the final presentation (graded).</p>
7	Recommended prerequisites	<ul style="list-style-type: none"> Students should have a basic familiarity with data mining and data analytics methods and tools. The Business Intelligence lecture offered by the Information Systems II Chair each SS (or similar introductory lecture in Data Analytics) is a prerequisite to attend the course. <p>One of the tools which will be used in the seminar is RapidMiner (also installed on the computers in the PC Labs at Wiso)</p>
8	Integration in curriculum	<p>Third semester</p> <p>Registration is mandatory. Places are limited. Please inform yourselves about the registration process on the homepage of the Chair of Information Systems II.</p>
9	Module compatibility	<p>Master International Information Systems (from 2021/22): Module in the section Information Systems – Data & Knowledge</p> <p>Master International Information Systems (from 2018/19): Module in the section Information Systems Data & Knowledge (Core Course or Elective)</p> <p>Master International Information Systems (from 2016/17): Module in the section Information Systems – Services, Processes, and Intelligence II (Electives)</p> <p>Master Marketing: Wahlpflichtbereich der Modulgruppe „Management“</p> <p>Master FACT: Vertiefungsbereich (Modulgruppe Interdisziplinäre Module)</p> <p>Master IBS: Wahlbereich</p>
10	Method of examination	Project work and presentation (Projektarbeit und Präsentation)
11	Grading procedure	<p>Project work (50%) and presentation (50%) (Projektarbeit (50%) und Präsentation (50%))</p> <p>The project work (mid-term tasks/open questions) are individual work while the final project presentation is evaluated as a group.</p>
12	Module frequency	Each WS
13	Workload	<p>Lecture: 30 h</p> <p>Exercise: 50 h</p>

		Self-study: 70 h
14	Module duration	1 semester
15	Teaching and examination language	English
16	(Recommended) reading	All relevant material will be provided during the seminar. For students that want to gain deeper understanding of social intelligence, recommendations will be given by the lecturers.

Digital Business & Processes

1	Module name MIM-57381	Create your fintech startup	5 ECTS
2	Courses/lectures	Lecture and case studies (2 SWS): Create your fintech startup Practice session (2 SWS): Create your fintech startup	5 ECTS
3	Lecturers	Prof. Dr. Steffi Haag	

4	Module coordinator	Prof. Dr. Steffi Haag
5	Contents	Students explore the entrepreneurial process using a learning by doing methodology in the fintech industry. The lecture and case studies sessions provide and discuss tools and methods of creating, visualizing, and analyzing digital business models (e.g., business model canvas, lean startup, design thinking). In a group project, students transfer and apply those tools to the fintech industry by creating, planning, and pitching their own fin-/insurtech startup ideas.
6	Learning objectives and skills	Students <ul style="list-style-type: none"> • can model, analyze, and discuss digital business models and its components • can assess the specific opportunities for and challenges of fin-/insurtech businesses • can create, plan, and implement novel fintech startups • can pitch their fintech idea in front of peers and experts • can present, assess, and give feedback to novel fintech business models can collaborate with peers of different competences.
7	Recommended prerequisites	None. The number of participants is limited. Please see website for details on the application process!
8	Integration in curriculum	2nd or 4th semester
9	Module compatibility	Master International Information Systems (from 2021/22): Module in the section Information Systems – Digital Business Master International Information Systems (from 2018/19): Module in the section Information Systems – Digital Business (Core Course or Elective) Master International Information Systems (from 2016/17): Module in the section Information Systems – Extension Courses (Elective) Master FACT: Vertiefungsbereich (Modulgruppe Interdisziplinäre Module) Master International Business Studies: Elective course – Free specialization module (Area studies: Europe) Master Management: Vertiefungsbereich Master in Economics: free elective modules Master in Marketing: Wahlmodul in der Modulgruppe „Management“ Master Wirtschaftsingenieurwesen Master Arbeitsmarkt und Personal: Wahlbereich Master Wirtschaftspädagogik, Studienrichtung I: fachwissenschaftlicher Pflichtbereich; Studienrichtung II: fachwissenschaftlicher Wahlbereich Master Sozialökonomik: freier Vertiefungsbereich
10	Method of examination	Businessplan and presentations in groups
11	Grading procedure	Businessplan (40%), online presentations (50%), class participation (10%)
12	Module frequency	Each SS
13	Workload	Contact hours: 60 h Independent study: 90 h
14	Module duration	1 Semester, in blocked sessions

15	Teaching and examination language	English
16	(Recommended) reading	<p>Al-Debei, M. M.; Avison, D. (2010): Developing a unified framework of the business model concept. <i>European Journal of Information Systems</i>, 19, 359-376.</p> <p>Blank, S.; Dorf, B. (2012): <i>The Startup Owner's Manual: The Step-By-Step Guide for Building a Great Company</i>, K & S Ranch</p> <p>Dorfleitner, G., Hornuf, L., Schmitt, M., Weber, M. (2017): Definition of fintech and Description of the fintech Industry, in G. Dorfleitner et al., <i>fintech in Germany</i>, Springer International Publishing, DOI 10.1007/978-3-319-54666-7_2</p> <p>Osterwalder, A; Pigneur, Y. (2010): <i>Business Model Generation: A Handbook for Visionaries, Game Changers, and Challengers</i>, John Wiley & Sons</p> <p>Osterwalder, A; Pigneur, Y.; Bernarda, G; Smith, A. (2014): <i>Value Proposition Design: How to Create Products and Services Customers Want</i>, John Wiley & Sons</p> <p>Ries, E. (2011): <i>The Lean Startup: How Constant Innovation Creates Radically Successful Businesses</i>, Portfolio Penguin, London.</p> <p>Further literature is provided in the course sessions.</p>

1	Module name IIS-56210	Digital change management	5 ECTS
2	Courses/lectures	Lecture (2 SWS) : Digital change management Excercise (2 SWS) : Digital change management	2,5 ECTS 2,5 ECTS
3	Lecturers	Prof. Dr. Sven Laumer	

4	Module coordinator	Prof. Dr. Sven Laumer
5	Contents	<p>Lecture: This module provides an organizational and social perspective of the digital transformation. It introduces theories and methods to analyze, visualize, and discuss challenges of the acceptance of the digital transformation.</p> <p>Case study: Using research methods (interviews, surveys) students should investigate a digital transformation project and analyze its design and acceptance. The results should be presented as an own case study (case study paper, presentation). The case study is conducted as group work.</p>
6	Learning objectives and skills	Students can analyze, visualize and discuss consequences of the digital transformation for individuals and organizations as well as its implementation challenges. Students are able to design an implementation project to focus especially on end-users.
7	Recommended prerequisites	None
8	Integration in curriculum	Second or forth semester
9	Module compatibility	<p>Master International Information Systems (from 2021/22): Module in the section Information Systems – Digital Business</p> <p>Master International Information Systems (from 2018/19): Module in the section Information Systems – Digital Business (Core Course or Elective)</p> <p>Master International Information Systems (from 2016/17): Module in the section Information Systems – Extension Courses (Elective)</p> <p>Master Management: Vertiefungsbereich</p> <p>Master Wirtschaftspädagogik, Studienrichtung II: Modul im Zweifach</p> <p>Wirtschaftsinformatik</p> <p>Erweiterungsprüfung Berufliche Schulen/Studienfach</p> <p>Wirtschaftspädagogik</p>
10	Method of examination	<p>Lecture: written examination (60 Minutes)</p> <p>Exercise: case study, the case study is done as a group</p>
11	Grading procedure	<p>Lecture: 50% of module score</p> <p>Excercise: 50% of module score, evaluated as a group</p>
12	Module frequency	Sommersemester
13	Workload	Lecture: 40h, Excercise:40h, Self-study: 70h
14	Module duration	1 Semester
15	Teaching and examination language	<p>Teaching: English</p> <p>Examination: English</p>
16	(Recommended) reading	<p>Alter, S. (2013). Work System Theory: Overview of Core Concepts, Extensions, and Challenges for the Future. Journal of the Association for Information Systems, 14 (2), 72-121</p> <p>Kotter, J.P. (2005). Out Iceberg is Melting. St.Martin's Press,</p> <p>Kotter, J.P. (2010). Leading Change, Harvard Business Press</p> <p>Venkatesh, V., Morris, M., Davis, G., and Davis, F. D. 2003. "User acceptance of information technology: toward a unified view," MIS Q (27:3), pp. 425–478.</p>

1	Module name IIS-57171	Digital transformation project	5 ECTS
2	Courses/lectures IIS71711 IIS71712	Digital transformation project (2+2 SWS)	5 ECTS
3	Lecturers	Prof. Dr. Roth, Prof. Dr. Möslin, and colleagues	

4	Module coordinator	Prof. Möslin
5	Contents	In this module, students will focus on developing and evaluating solutions for organizational challenges in the context of digital transformation. In doing so, they work together with organizations from various industries and gain in-depth experience in solving organizational problems using a systematic design science research process. Moreover, they will get familiar with empirical research methods and improve their presentation as well as writing skills.
6	Learning objectives and skills	<p>The students</p> <ul style="list-style-type: none"> • possess comprehensive, detailed, and specialized problem solving skills in the context of digital transformation • can independently plan and carry out design science research processes • can situationally identify, collect and analyze relevant organizational data <p>are familiar with the topic of digital transformation and its effects on organizational stakeholders</p>
7	Recommended prerequisites	None
8	Integration in curriculum	First semester
9	Module compatibility	<p>Master International Information Systems (from 2021/22): Module in the section Information Systems – Digital Business</p> <p>Master International Information Systems (from 2018/19): Module in the section Information Systems – Digital Business (Core Course or Elective)</p> <p>Master International Information Systems (from 2016/17): Module in the section Customized Introduction to IIS (Management)</p> <p>Master in Management: Vertiefungsbereich</p> <p>Master Marketing: Wahlpflichtbereich der Modulgruppe „Management“</p>
10	Method of examination	Seminar paper and presentation (Seminararbeit und Präsentation)
11	Grading procedure	Seminar Paper (partly group work) (70%) and presentation (partly group work) (30%)
12	Module frequency	Each SS
13	Workload	Attendance: 60 h Self-study: 90 h
14	Module duration	1 semester
15	Teaching and examination language	English
16	(Recommended) reading	Presented in class

1	Module name IIS- 57086	Electronic human resources management	5 ECTS
2	Courses/lectures	Electronic human resources management (E-HRM)	5 ECTS
3	Lecturer	Prof. Dr. Sven Laumer	

4	Module coordinator	Prof. Dr. Sven Laumer
5	Contents	<p>This course focuses on the use and development of digital technologies for the management of human resources in an organizational context. The lecture and the content provided will address theories, methods and digital technologies and provide students with the necessary knowledge for the identification ("discovery"), design ("development"), diffusion ("diffusion") and evaluation ("impact") of digital innovations in human resource management. This phase of knowledge transfer uses an e-learning module, which combines different media. In the context of the application of the knowledge transferred, students are instructed to lead discussions on exercises or case studies. For this purpose, problems from the practice of human resources work are described and students should discuss them with the theories and methods presented or develop suggestions for the use of digital technologies. In the context of knowledge implementation, students are accompanied by a case study analysis to apply the theories and methods. In the virtual design, the case study of the FAUBank will be used in the course for this purpose.</p> <p>Agenda:</p> <ul style="list-style-type: none"> – Part A: Technical basics of E-HRM – Part B: Social Media in HRM – Part C: Data-driven approaches and their use with HR Part D: Challenges and opportunities of E-HRM
6	Learning objectives and skills	The general learning and qualification objective of the module is to enable students to gain knowledge about the use and development of digital technologies in human resources management, to explain the effects of digital technologies on human resources management (HRM) and to design digital innovations for HRM.
7	Recommended prerequisites	Registration via the vhb (www.vhb.org) is necessary to gain access to the StudOn course.
8	Integration in curriculum	First or third term
9	Module compatibility	<p>Master International Information Systems (from 2021/22): Module in the section Information Systems – Digital Business</p> <p>Master International Information Systems (from 2018/19): Module in the section Information Systems – Digital Business (Core Course or Elective)</p> <p>Master in International Information Systems (from 2016/17): Module in the section Information Systems – IT Management II (Elective)</p> <p>Master Arbeitsmarkt und Personal: Elective</p> <p>Master Wirtschaftspädagogik, Studienrichtung I: Elective</p> <p>Master Wirtschaftspädagogik, Studienrichtung II: Zweitfach</p> <p>Wirtschaftsinformatik</p> <p>Erweiterungsprüfung Berufliche Schulen/Studienfach</p> <p>Wirtschaftspädagogik</p>
10	Method of examination	Lec/Ex : Written examination 90 minutes
11	Grading procedure	Lec/Ex: 100% of exam score
12	Module frequency	Summer and winter term (Start in winter term 2020/2021!)
13	Workload	<p>Lecture: 40h</p> <p>Excercise: 40h</p> <p>Independent study: 70h</p>

14	Module duration	1 Semester
15	Teaching and examination language	German and English
16	(Recommended) reading	References are provided during the lectures

1	Module name IIS-57053	Innovation and leadership	5 ECTS
2	Courses/lectures IIS70508 IIS70509	Innovation and leadership (4 SWS)	5 ECTS
3	Lecturers	Prof. Möslin and colleagues	

4	Module coordinator	Prof. Möslin
5	Contents	<p>The lecture focuses on the challenges of leading and communicating innovation and change in IT enabled companies and networked organizations. Based upon that, creating a sustainable innovative environment is a leadership task. In order to succeed at this task, leaders must develop innovative abilities to deal with the challenges inherent in a business environment characterized by fluid, unstructured and changing information. The aim of this course is thereby twofold.</p> <p>First, the course delineates and describes different yet emerging innovation tools, organizing them into a coherent set of classes. Each class of tools is described using a set of up-to-date business cases that depict the current status of the information systems.</p> <p>The second aim of this course is to get an overview of how to structure leadership systems towards innovation, how leaders can motivate to foster innovative thinking and what new forms of innovation (e.g. open innovation) mean for the definition of leadership.</p> <p>In doing so, this lecture represents an Idea Transformation Class as students are encouraged not only to merely develop, but to actively deploy specifically developed concepts.</p>
6	Learning objectives and skills	<p>The students</p> <ul style="list-style-type: none"> • will understand and explore the theories and practicalities of leadership in open innovation contexts. • will gain knowledge on leading and communicating innovation and translate it in leadership behavior in real case contexts. <p>Will learn to assess, reflect and feedback the impact of practical leadership for innovation</p>
7	Recommended prerequisites	<ul style="list-style-type: none"> - Basic understanding of innovation management - Basic understanding of management processes - First experience in team projects
8	Integration in curriculum	First semester
9	Module compatibility	<p>Master International Information Systems (from 2021/22): Module in the section Information Systems – Digital Business</p> <p>Master International Information Systems (from 2018/19): Module in the section Information Systems – Digital Business (Core Course or Elective)</p> <p>Master International Information Systems (from 2016/17): Module in the section Information Systems – Innovation and Value Creation I (Core Course)</p> <p>Master Marketing: Wahlpflichtbereich der Modulgruppe „Management“</p> <p>Master Management: Vertiefungsbereich</p>
10	Method of examination	Lect/Ex: Research project (tw. In Gruppenarbeit) and Presentation (Vorlesung/Übung: Projektarbeit (tw. In Gruppenarbeit) und Präsentation)
11	Grading procedure	Lect/Ex: Research project (tw. In Gruppenarbeit) (100%) and Presentation (passed) (Vorlesung/Übung: Projektarbeit (tw. In Gruppenarbeit) (100%) und Präsentation (bestanden))
12	Module frequency	Each WS
13	Workload	Attendance: 45 h Self-study: 105 h
14	Module duration	1 semester
15	Teaching and examination language	English

16	(Recommended) reading	<i>Huff, Möslin & Reichwald: Leading Open Innovation</i> ; 2013 MIT Press, ISBN-13: 978-0262018494
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1	Module name IIS- 56216	Judgment in decision making and evidence-based management	5 ECTS
2	Courses/lectures	Lecture (2 SWS): Judgment in decision making and evidence-based management	5 ECTS
3	Lecturers	Prof. Dr. Verena Tiefenbeck	

4	Module coordinator	Prof. Dr. Verena Tiefenbeck
5	Contents	While today's companies and individuals have access to more and more data, most decisions are taken on limited and imperfect information. Consequently, various fields require their practitioners to have an in-depth understanding of judgment and decision-making. Examples include the development of user interfaces and marketing strategies, hiring decisions, crisis intervention, as well as policy-making in education, healthcare, or social services. This course examines how people make choices, judge situations, probabilities, and decision options. The focus is on the contrast between rational decision-making, and the psychological principles that guide decision behavior. The course reviews common heuristics, cognitive errors and systematic biases that help us to make reasonable and accurate decisions in some areas, but may crucially misguide us in others. We will develop tools to detect and mitigate systematic cognitive biases and we will identify strategies that tap into these insights for improved decision-making in diverse real-world contexts, both in simple everyday-life situations and complex managerial decision environments.
6	Learning objectives and skills	<p>Student are able to</p> <ul style="list-style-type: none"> • describe key psychological processes involved in judgment and decision making. • explain when and why those processes lead to (more or less) accurate and inaccurate judgments. • identify and describe common judgment and decision heuristics and biases. • apply the acquired knowledge to examples and problems from business and public policy. • explain the methodology (experiments and field studies) used to study judgment and decision making and apply it to new real-world applications. • critically reflect upon the way how they and others take common decisions in daily life. • work together in international small work groups, summarize key takeaways from behavioral studies, and present their results in English.
7	Recommended prerequisites	None
8	Integration in curriculum	Second or forth semester
9	Module compatibility	<p>Master International Information Systems (from 2021/22): Module in the section Information Systems – Digital Business</p> <p>Master International Information Systems (from 2018/19 + 2016/17): Core Course or Elective in the section Digital Business</p> <p>Master Wirtschaftsingenieurwesen: Allgemeines Wahlmodul</p>
10	Method of examination	<i>Change due to Corona situation:</i> Written exam and project (creating a short educational video clip)
11	Grading procedure	<i>Change due to Corona situation:</i> Written exam (60%), project (40%)
12	Module frequency	Each summer term
13	Workload	Contact hours: 30 h Independent study: 120 h
14	Module duration	1 semester

15	Teaching and examination language	English
16	(Recommended) reading	All relevant material will be provided during the seminar.

1	Module name IIS57060	Managing global projects and information technology	5 ECTS
2	Courses/lectures IIS70603 IIS70604	Lect1/Ex1: Managing information technology (2 SWS) Lect2/Ex2: Managing global projects (2 SWS)	2,5 ECTS 2,5 ECTS
3	Lecturers	Prof. Amberg and colleagues	

4	Module coordinator	Prof. Amberg
5	Contents	<p>Lect1/Ex1: The traditional role of the Chief Information Officer (CIO) as gatekeeper of technology and protector of corporate information asset activities is changing. Next to the daily duties to keep the IT operations and projects running – often facing shrinking budget constraints – an enterprise IT manager becomes an important business partner in supporting the transformation of the traditional business to the digital age. The course has a strong focus on the role of IT within different types of enterprises and highlights IT from two different angles: IT as organizational function and IT as driver of organizational transformation. The lecture is divided into two parts (1) IT Management in enterprises (2) IT-driven business models</p> <p>Lect2/Ex2: Increasing globalization of business operations and the high importance of project structures for global operations force companies worldwide to develop and strengthen their capabilities for managing global projects. Therefore, future professionals capable of successfully coordinating projects across multiple countries and cultures will have excellent career prospects. To prepare students for the task of managing global projects, the course will focus on the following topics:</p> <ul style="list-style-type: none"> • Characteristics and organization of global projects • Cultural influences (effects and remedies) • Controlling of globally distributed projects • Challenges of IS outsourcing/offshoring projects <p>For each of these topics, students will be given an introduction to the topic (knowledge transfer) and then work on real-world examples to gain deeper insights into the topic (knowledge application). In addition, students will work in teams on a project during the semester.</p>
6	Learning objectives and skills	<p>Lect1/Ex1: The students</p> <ul style="list-style-type: none"> • describe and explain key IT Management models • explain and evaluate design options of an IT organization and challenges of the CIO • explain main organizational IT cost categories and tasks of managing IT costs • describe components of a (digital) business model • evaluate (digital) business models • understand the impact of new technologies, such as Big Data Technologies, on value creation <p>Lect2/Ex2: The main goal of the course is to familiarize students with the foundations of successful management in global IT-projects. The students will:</p> <ul style="list-style-type: none"> • describe the project life cycle • evaluate challenges caused by distance in globally distributed projects and learn about the approaches of dealing with them • evaluate IT archetypes and decision domains <p>evaluate PMOs in (IT) organization analyze different collaboration tools</p>

7	Recommended prerequisites	Lect1/Ex1: None Lect2/Ex2: Basic knowledge on project management principles and techniques
8	Integration in curriculum	Third semester
9	Module compatibility	Master International Information Systems (from 2021/22): Module in the section Information Systems – Digital Business Master International Information Systems (from 2018/19): Module in the section Information Systems – Digital Business (Core Course or Elective) Master in International Information Systems (from 2016/17): Module in the section Information Systems – IT Management I or II (Core Course or Elective)
10	Method of examination	Lect1/Ex1: Written assignment (100%) (Vorlesung 1/ Übung 1: Hausarbeit (100%)) Lect2/Ex2: Presentation (33,33%), class participation (33,33%) and discussion paper (33,33%) (Vorlesung 2/ Übung 2: Diskussionspapier (2 mal 1 Seite – 33,33%), Diskussionsbeitrag (33,33%), Präsentation (2x15 Minuten – 33,33%))
11	Grading procedure	Lect1/Ex1: 50% of module score (Vorlesung 1/ Übung 1: 50 % der Modulnote) Lect2/Ex2: 50% of module score (Vorlesung 2/ Übung 2: 50 % der Modulnote)
12	Module frequency	Each WS
13	Workload	Contact hours: 60 h Independent study: 90 h
14	Module duration	1 semester
15	Teaching and examination language	English
16	(Recommended) reading	Lect1/Ex1: Carr, N. G. (2003): IT doesn't matter. Harvard Business Review, 81(5), 41–9, 128. Christensen, C. M., & Overdorf, M. (2000). Meeting the Challenge of Disruptive Change. Harvard Business Review, 78(2), 66–76. Lect2/Ex2: Binder J.: Global Project Management: Communication, Collaboration and Management Across Borders. Gower Publishing Ltd, ISBN: 0566087065.

1	Module name IIS56421	Organizing for digital transformation	5 ECTS
2	Courses/lectures IIS64211 IIS64212	Organizing for digital transformation (4 SWS)	5 ECTS
3	Lecturers	Prof. Möslin and colleagues	

4	Module coordinator	Prof. Möslin
5	Contents	<p>The course focusses on dynamics in organizational transformation driven through information technology (IT) and consists of two parts.</p> <p>The first part introduces the topic from an industrial perspective and explores the re-organization of value streams in the course of the digital transformation. Teaching in this part includes contributions from a German automotive company. Students will work in a project-oriented mode for half the lecture and then present their results.</p> <p>The second part takes the perspective of academic research on the organization of the digital transformation. It introduces different theoretical frameworks to gain a deeper understanding of the phenomenon and explores its implications for global business structures. Students write a short essay to show what they have learned.</p> <p>Together, the lecture allows the students to gain theoretical knowledge on the digital transformation and acquire practical problem-solving skills as well to work effectively on innovative projects in the field.</p>
6	Learning objectives and skills	<p>The students</p> <ul style="list-style-type: none"> • are familiar with different theories of works systems and service systems and their practical application • know more about the contribution of information technology in managing complex innovation activities • have an improved understanding of the global IT Industry and various strategies that are used <p>can identify and unravel the business problem in a case study and actively take part in class discussions</p>
7	Recommended prerequisites	<ul style="list-style-type: none"> - general knowledge of digital technology and their economic applications - basic understanding of simple software applications - first experience with team projects
8	Integration in curriculum	Second or fourth semester
9	Module compatibility	<p>Master International Information Systems (from 2021/22): Module in the section Information Systems – Digital Business</p> <p>Master International Information Systems (from 2018/19): Module in the section Information Systems – Digital Business (Core Course or Elective)</p> <p>Master in International Information Systems (from 2016/17): Module in the section Information Systems – Innovation and Value Creation II (Elective)</p> <p>Master IBS: elective courses (Wahlbereich)</p> <p>Master in Management: Vertiefungsbereich</p>
10	Method of examination	Presentation and seminar paper (Präsentation und Seminararbeit)
11	Grading procedure	Presentation (30%) and seminar paper (70%) (Präsentation (30%) und Seminararbeit (70%))
12	Module frequency	Each SS, starting in SS 2022
13	Workload	Attendance: 60 h + Independent study: 90 h
14	Module duration	1 semester
15	Teaching and examination language	English
16	(Recommended) reading	None

1	Module name IIS-57172	Patenting for innovation	5 ECTS
2	Courses/lectures	Patenting for innovation	5 ECTS
3	Lecturers	Dr. Grill, Prof. Möslin and colleagues	

4	Module coordinator	Prof. Möslin
5	Contents	<p>Intellectual Properties (Ips) in general and especially patents play an important role in innovation in any Hightech society. This topic is multi-faceted and can be accessed from different viewpoints: business, politics, legal framework, organization, etc. In this course, we will focus on:</p> <ul style="list-style-type: none"> - the introduction to Ips and patents in general, - the role of Ips and patents in research, development and (open) innovation, - the patent exploitation through licensing contracts and patent pools, <p>the patent policies in the European Union, China and USA.</p>
6	Learning objectives and skills	<p>The students:</p> <ul style="list-style-type: none"> • learn to understand the role of patenting in the innovation process, • gain deeper insights into the roles of IP in various types of businesses, <p>study the role of IP and patents in different regions and contexts (Asia, United States, Europe).</p>
7	Recommended prerequisites	None
8	Integration in curriculum	Third semester
9	Module compatibility	<p>Master International Information Systems (from 2021/22): Module in the section Information Systems – Digital Business</p> <p>Master International Information Systems (from 2018/19): Module in the section Information Systems – Digital Business (Core Course or Elective)</p> <p>Master in International Information Systems (from 2016/17): Module in the section Information Systems – Innovation and Value Creation II (Elective)</p> <p>Master International Business Studies: elective course</p> <p>Master Management: Vertiefungsbereich</p>
10	Method of examination	Seminar paper (Seminararbeit)
11	Grading procedure	Seminar paper (100%) (Seminararbeit)
12	Module frequency	Each WS
13	Workload	<p>Contact hours: 30 h</p> <p>Independent study: 120 h</p>
14	Module duration	1 semester
15	Teaching and examination language	English
16	(Recommended) reading	Literature will be announced and distributed in the first sessions.

1	Module name IIS-57241	Service innovation	5 ECTS
2	Courses/lectures IIS72411 IIS72412	Service innovation	5 ECTS
3	Lecturers	Prof. Dr. Roth, Prof. Dr. Möslin, and colleagues	

4	Module coordinator	Prof. Dr. Roth, Prof. Dr. Möslin	
5	Contents	Services now account for over 80% of all transactions in developed economies, but typically receive much less R&D attention than products. Developing service innovations demands a clear strategy from businesses with four interlocking core elements: search, selection, implementation and evaluation of innovative concepts. If even one of these phases is not been clearly thought through, the entire innovation process is likely to collapse. This course focuses on successful approaches, methods, tools and efforts to develop service innovations. Further information can be found on www.wi1.fau.de .	
6	Learning objectives and skills	<p>The students can:</p> <ul style="list-style-type: none"> • learn about items, notions, characteristics and special features in innovation management for services, service design methods and cases. • learn to judge and discuss innovation management tasks and alternative solutions with respect to the specialties of services. • experience methods of service design by themselves in interactive lectures, gain a feeling for suitable methods and learn to reflect different effects. • apply their knowledge and competences in solving cases and thereby analyze selected issues of managing, developing and innovating services. • work together in international small work groups, present their results in English, give feedback to other students' work and discuss different solution approaches. 	
7	Recommended prerequisites	<ul style="list-style-type: none"> - Basic understanding of product and service business processes - General knowledge on management and strategy - Openness to work interactively and in interdisciplinary and international teams 	
8	Integration in curriculum	Second semester	
9	Module compatibility	<p>Master International Information Systems (from 2021/22): Module in the section Information Systems – Digital Business</p> <p>Master International Information Systems (from 2018/19): Module in the section Information Systems – Digital Business (Core Course or Elective)</p> <p>Master in International Information Systems (from 2016/17): Module in the section Information Systems – Innovation and Value Creation II (Elective)</p> <p>Master Management: Vertiefungsbereich</p> <p>Master Wirtschaftspädagogik, Studienrichtung I: Wahlbereich</p> <p>Master Sozialökonomik: Vertiefungsbereich</p> <p>Master Arbeitsmarkt und Personal: Wahlbereich</p> <p>Master Economics: Wahlbereich</p> <p>Master IBS: core course (Pflichtbereich)</p>	
10	Method of examination	Seminar paper and presentation (Seminararbeit und Präsentation)	
11	Grading procedure	Seminar paper (partly group work) (70%) and presentation (partly group work) (30%)	
12	Module frequency	SS	
13	Workload	<p>Contact hours: 30 h</p> <p>Independent study: 120 h</p>	
14	Module duration	1 semester	

15	Teaching and examination language	English
16	(Recommended) reading	Specific literature will be listed in the course

Architectures & Development

1	Module name IIS-57046	Designing gamified systems (@EELISA)	5 ECTS
2	Courses/lectures	Lecture + Capstone Project (4 SWS)	5 ETCS
3	Lecturers	Prof. Dr. Benedikt Morschheuser, industry partners (e.g. from Mercedes-Benz AG, adidas AG)	

4	Module coordinator	Prof. Dr. Benedikt Morschheuser
5	Contents	<p>Driven by the rising popularity of (video) games, technology, business, and society are increasingly influenced and penetrated by games and trends of the gaming industry. One of the probably most important phenomena of this multi-faceted development is “gamification”, which addresses the use of design principles and features from games in information systems, process or service design.</p> <p>Gamification’s popularity stems from the notion that games are a pinnacle form of hedonic information systems and thus are particularly effective in invoking intrinsic motivation and experiences such as autonomy, mastery, flow, immersion, relatedness and overall enjoyment. Across industries, marketers, designers and developers are thus using gamification as a design approach when engineering digital products and services with the purpose of inducing gameful experiences, influencing human motivation and even change behavior in various contexts.</p> <p>This course</p> <ul style="list-style-type: none"> • teaches the key concepts, design patterns, and approaches of motivational, hedonic (i.e. games and video games), social and gamified information systems. • offers deep insights into advanced concepts and theoretical foundations of game design, motivational psychology, and information system design. • introduces methods and frameworks for designing gamified systems and managing gamification projects. • Discusses latest research findings and the potential impact of gamification on society, economy, and everyday life. <p>Capstone Project:</p> <p>The course is complemented with a practical design project, where students in a team select and apply design methods & techniques in order to create a prototype of a gamified / hedonic information system. Within this project, the students can apply knowledge and skills acquired in this lecture and their studies in a challenging context. The results are presented towards peers and/or experts from research and/or industry.</p> <p>@EELISA:</p> <p>In the winter semester, this course is offered as part of the European Engineering Learning Innovation and Science Alliance (EELISA - https://eelisa.eu). Thus, we have reserved seats for EELISA students. The EELISA cooperation will give the lecture an even more international setting and allow FAU students to collaborate in their projects with interdisciplinary students from all over Europe. Further, the course will have an adapted scope, focusing on engineering and the gamification of fields, such as mobility, production, cities, logistics, and technologies.</p>
6	Learning objectives and skills	The students gain knowledge in understanding the underlying design principles of gamified and hedonic information systems and are able to analyze and discuss such systems. The students learn state-of-the-art

		methods, techniques, and tools for successfully conducting gamification projects and are able to select and apply them. The students train their creativity and prototyping skills. Further they can improve their collaboration and presentation skills.
7	Recommended prerequisites	<p>Motivation to work in an international and interdisciplinary group on a challenging topic. Creativity, prototyping skills, or development experiences can be helpful.</p> <p>The number of participants is limited. Please see website for details on the application process!</p>
8	Integration in curriculum	1st, 2nd, 3rd, 4th
9	Module compatibility	<p>Master International Information Systems (from 2021/22): Module in the section Information Systems – Architectures & Development</p> <p>Master International Information Systems (from 2018/19): Module in the section Information Systems – Architectures & Development (Core Course or Elective)</p> <p>Master International Information Systems (from 2016/17): Module in the section Information Systems – Extension Courses (Elective)</p> <p>Master Wirtschaftsingenieurwesen (Elective)</p> <p>Master Elektrotechnik-Elektronik-Informationstechnik (Elective)</p> <p>Master Information and Communication Technology (Elective)</p> <p>EELISA students please contact: julia.rosenbusch@fau.de</p>
10	Method of examination	Project report that needs to be presented: The students create a project report (max. 20 pages, partly group work), which describes the developed prototype of a gamified or hedonic information system (e.g. a gamified app, information system or a game). The report is presented together with the developed prototype in a presentation.
11	Grading procedure	<p>Project report: 40% of module score (partly group work)</p> <p>Presentation of the project report: 60% of module score (partly group work)</p>
12	Module frequency	Winter semester
13	Workload	<p>Contact hours: 60 h</p> <p>Independent study: 90 h</p>
14	Module duration	1 semester
15	Teaching and examination language	English
16	(Recommended) reading	<p>Koivisto, J & Hamari, J. (2019). The rise of motivational information systems: A review of gamification research. International Journal of Information Management, 45. pp. 191-210.</p> <p>Morschheuser, B., Hassan, L., Werder, K., Hamari, J. (2018). How to design gamification? A method for engineering gamified software. Information & Software Technology, 95. pp. 219-237.</p> <p>Radoff, J. (2011). Game On: Energize Your Business with Social Media Games. Wiley, USA.</p> <p>Salen, K. (2004). Rules of play: game design fundamentals. MIT Press, Cambridge, USA.</p> <p>...further literature will be made available in the lecture.</p>

1	Module name IIS-57073	Designing technology	5 ECTS
2	Courses/lectures IIS70732 IIS70733	Designing technology	5 ECTS
3	Lecturers	Prof. Möslin and colleagues	

4	Module coordinator	Prof. Möslin
5	Contents	<p>This course aims to teach students on how to design innovative artifacts to extend human and organizational capabilities, following the design science paradigm. Understanding the design science paradigm and its application will enable students to develop knowledge on the management and use of information technology for managerial purposes and effectively communicate this knowledge.</p> <p>Students will also be introduced to innovation technologies in the context of artificial intelligence and augmented reality that can link and enable different types of innovation technologies across the boundaries of socio-technical systems. They will also be introduced to social and technological theories and literature such as systems theory, communication theory and basics of open innovation and user innovation. Students will use this knowledge on current technologies and theory to work on a (design science) project that solves human or organizational problems.</p> <p>The course requires analytical thinking, where students can identify and clearly articulate problems that they would like to solve and the process of solution finding. While existing technical knowledge from students is welcome, it is not a prerequisite for the course. Students can also contribute by conducting theoretical/empirical research, along with developing IT artifacts. To conclude, the course offers a balance between creativity and scientific thinking, which can be of immense help to students seeking to learn either skill or both.</p>
6	Learning objectives and skills	<p>The students:</p> <ul style="list-style-type: none"> • can develop knowledge on the management and use of information technology for managerial purposes • can differentiate between and assess the most important developments on the Web. • develop a research design for a design science project. <p>discuss theories, as well as the design and the progress of their project.</p>
7	Recommended prerequisites	<p>Basic knowledge of web technologies (i.e. basic html or understanding of web technology in general) or knowledge of empirical methods to evaluate designed artifacts</p>
8	Integration in curriculum	Third semester
9	Module compatibility	<p>Master International Information Systems (from 2021/22): Module in the section Information Systems – Architectures & Development</p> <p>Master International Information Systems (from 2018/19): Module in the section Information Systems – Architectures & Development (Core Course or Elective)</p> <p>Master in International Information Systems (from 2016/17): Module in the section Information Systems – Innovation and Value Creation II (Elective)</p>
10	Method of examination	Lect/Ex: Research project (70%) and written assignments (30%) (Vorlesung/ Übung: Projektarbeit (70%) und Hausarbeit (30%))
11	Grading procedure	Lect/Ex: Research project (70%) and written assignments (30%) (Vorlesung/ Übung: Projektarbeit (70%) und Hausarbeit (30%))
12	Module frequency	Each WS
13	Workload	Contact hours: 30 h Independent study: 120 h
14	Module duration	1 semester

15	Teaching and examination language	English
16	(Recommended) reading	<p>Baldwin, C. Y., & Clark, K. B. (2004). Modularity in the Design of Complex Engineering Systems. In <i>Complex Engineered Systems Understanding Complex Systems</i>, 175–205.</p> <p>Kroes, P. (2010). Engineering and the dual nature of technical artefacts. <i>Cambridge Journal of Economics</i>, 34 (1), 51–62.</p> <p>Hevner, A. R., March, S. T., Park, J. & Ram, S. (2004). Design Science in Information Systems Research. <i>MIS Quarterly: Management Information Systems</i>, 28 (1), 75–106.</p> <p>Fichman, R., Dos Santos, B., & Zheng, Z. (2014). Digital Innovation as a Fundamental and Powerful Concept in the Information Systems Curriculum. <i>MIS Quarterly: Management Information Systems</i>, 38, 329–353.</p> <p>Hevner, A.R., 2007. A Three Cycle View of Design Science Research. <i>Scand. J. Inf. Syst.</i> © <i>Scand. J. Inf. Syst.</i> 19, 87–92.</p> <p>Peppers, K., Tuunanen, T., Rothenberger, M.A., Chatterjee, S., 2007. A Design Science Research Methodology for Information Systems Research. <i>J. Manag. Inf. Syst.</i> 24, 45–78.</p>

1	Module name IIS-47681	Exergames	5 ECTS
2	Courses/lectures	WS: 2021 (4 SWS: 2 SWS lecture + 2 SWS open lab session)	5 ECTS
3	Lecturers	Prof. Dr. Daniel Roth Prof. Dr. Benedikt Morschheuser	

4	Module coordinator	Prof. Dr. Daniel Roth/Prof. Dr. Benedikt Morschheuser	
5	Contents	<p>This course deals with the theory, design, and development of exergames. Students will be provided with theoretical game-design and gamification foundations and work in small groups to realize working exergame prototypes.</p> <p>Sample topics of the theoretical discussions may include:</p> <ul style="list-style-type: none"> - Cyber Rehabilitation - Gamification - Game Design <p>Exemplary project themes could be:</p> <ul style="list-style-type: none"> - Location-based exergames that combine AR technologies with sports and POIs in real world - Designing exergames for patients with Mild Cognitive Impairment - Designing gamified nature-based therapy approaches - VR supported rehabilitation procedures for patients with motor impairments <p>The course is designed in an interactive format. Based on initial discussions, students research, design, develop and evaluate solutions in the form of projects and studies in small groups following user-centered design and agile software engineering principles. Intermediate presentations of the project group members take place at regular intervals.</p>	
6	Learning objectives and skills	<p>By participating in the course, students will expand their knowledge in the field of Serious Games and Exergames in the context of health and well-being. Students learn to understand the technical and theoretical foundations of exergames at the interdisciplinary interface between game design and health. They are able to apply this basic knowledge to conceptualize methodical solutions and empirical studies with various tools. Further, the course teaches to interpret empirical findings from the literature and transfer these findings on practical challenges. Based on what they have learned, students will be able to apply game technologies for use cases in health, create applications, and collect empirical data based on learned methods. The students are prepared for the implementation of software development projects in practice-oriented contexts, while applying fundamental project management principles, organizing themselves in groups, working toward specific goals and considering relevant stakeholder needs.</p>	
7	Recommended prerequisites	Subjects in medicine, computer graphics or human-computer interaction, knowledge of neuroscience may be helpful but not mandatory.	
8	Integration in curriculum	From Master semester 1 onwards	
9	Module compatibility	Master International Information Systems (from 2021/22): Module in the section Information Systems – Architectures & Development M. Sc. Medizintechnik (Medical Engineering) M.Sc. Informatik (Computer Science) M. Sc. Artificial Intelligence	
10	Method of examination	Project presentation (30 minutes) and written report (8-10 pages).	
11	Grading procedure	Project presentation 50%, written report 50%. Presentations are held partly as a group, but graded individually.	
12	Module frequency	Each WS	
13	Workload	Contact hours: 30 h (contact hours in SWS x 15 per semester) Independent study: 120 h (ECTS credits x 30 - contact hours)	

14	Module duration	1 semester
15	Teaching and examination language	English
16	(Recommended) reading	Literature will be announced in the first lecture.

1	Module name IIS-57030	Managing enterprise-wide IT architectures	5 ECTS
2	Courses/lectures IIS70303 and IIS70302	Lecture.: Fundamentals of enterprise-wide IT architecture management (2 SWS) Exercise: Case study seminar (2 SWS)	2,5 ECTS 2,5 ECTS
3	Lecturers	Prof. Amberg and colleagues	

4	Module coordinator	Prof. Amberg
5	Contents	<p>Lecture: Fundamentals of Enterprise-Wide IT Architecture Management The lecture “Fundamentals of Enterprise-Wide IT Architecture Management” provides the fundamentals of business process management and the underlying IT architecture. The course has a strong focus on concepts of business-IT-alignment e.g., service oriented architectures, cloud computing, and enterprise-wide IT systems as well as important paradigms to (re-) design enterprise IT architectures.</p> <p>Case Study Seminar Managers and business leaders in the field of information technology must make decisions with limited information and a swirl of business activities going on around them. They are required to evaluate options, make choices, and find solutions to the challenges they face every day. In this seminar, students will take on the perspective of a decision-maker by analyzing and discussing complex management challenges illustrated in different case studies from leading business schools.</p>
6	Learning objectives and skills	<p>Lecture: Fundamentals of Enterprise-Wide IT Architecture Management Students...</p> <ul style="list-style-type: none"> • know about the major differences of process and workflow management, • know about the main models of IT Service Management and Business-IT Alignment, • can understand the impact of Big Data Technologies on Value Creation, can assess and implement different types of Big Data Systems, • can explain the major differences of automated communication concepts like EDI, XML and EDIFCAT, • can assess process standardization in different environments. <p>Case Study Seminar Students should...</p> <ul style="list-style-type: none"> • know about real-world challenges in the area of IT management, as well as methods for analyzing case studies, • be able to apply the vocabulary, theory, and methods they have learned in the lecture, • be able to develop solutions to business problems, as well as defend their solutions and discuss them critically in a group setting <p>be able to present solutions to case study problems in English.</p>
7	Recommended prerequisites	None
8	Integration in curriculum	Second semester
9	Module compatibility	<p>Master International Information Systems (from 2021/22): Module in the section Information Systems – Architectures & Development</p> <p>Master International Information Systems (from 2018/19): Module in the section Information Systems – Architectures & Development (Core Course or Elective)</p> <p>Master in International Information Systems (from 2016/17): Module in the section Information Systems – IT Management I or II (Core Course or Elective)</p>
10	Method of examination	Lecture: written examination 60 minutes (100%) (Vorlesung: Klausur, 60 Minuten)

		Case Study Seminar: Presentation (33,33%), class participation (33,33%) and discussion paper (33,33%) (Präsentation (2 x 15 Minuten – 33,33%), Diskussionsbeitrag (2 x 90 Minuten – 33,33%), Diskussionspapier (2 x 1 Seite – 33,33%))
11	Grading procedure	Lecture: 50% of module score (Vorlesung: 50% der Modulnote) Case Study Seminar: 50% of module score (Seminar: 50% der Modulnote)
12	Module frequency	Each SS
13	Workload	Contact hours: 60 h Independent study: 90 h
14	Module duration	1 semester
15	Teaching and examination language	English
16	(Recommended) reading	Lecture: Rood, M. A. Enterprise architecture: Definition, content, and utility, in Proceedings of the Third Workshop on: Enabling Technologies: Infrastructure for Collaborative Enterprises, 1994, pp. 106-111. Case Study Seminar: Ellet, W. <i>The Case Study Handbook: How to Read, Discuss, and Write Persuasively About Cases</i> . Harvard Business Review Press, 2007.

1	Module name IIS-54760	Process analytics (PA)	5 ECTS
2	Courses/lectures	Process analytics (4 SWS)	5 ETCS
3	Lecturers	Sandra Zilker, Willi Trang, Prof. Dr. Martin Matzner	

4	Module coordinator	Prof. Dr. Martin Matzner
5	Contents	<p>The course deals with data-driven analysis of business processes. Therefore, different technical, organizational and business aspects of process improvement are discussed with Process Mining being at the center of attention.</p> <p>The module has a strong practical focus and encourages students to apply methods and concepts learned during the lecture.</p> <p>In the group project the students will apply their knowledge using state-of-the-art process mining tools (e.g., Celonis).</p>
6	Learning objectives and skills	<p>The students</p> <ul style="list-style-type: none"> capture the concepts around process improvement and recognize the potentials for organizations understand technical aspects of data-driven process analysis know about state-of-the art technologies for process mining apply technologies for data extraction and analysis in a practical setting analyze a business process and develop a business case for process improvements <p>work in groups and present their results together</p>
7	Recommended prerequisites	<p>Beneficial:</p> <ul style="list-style-type: none"> Basic understanding of business processes and process notations / modelling
8	Integration in curriculum	First or third semester
9	Module compatibility	<p>Master International Information Systems (from 2021/22): Module in the section Information Systems – Architectures & Development</p> <p>Master International Information Systems (from 2018/19): Module in the section Information Systems – Architectures & Development (Core Course or Elective)</p> <p>Master International Information Systems (from 2016/17): Module in the section Information Systems – Extension Courses (Elective)</p> <p>Master FACT: Vertiefungsbereich (Modulgruppe Interdisziplinäre Module)</p>
10	Method of examination	written examination (60 minutes) and group presentations
11	Grading procedure	Written examination (30%) and group presentation (70%)
12	Module frequency	Each WS
13	Workload	<p>Contact hours: 60 h</p> <p>Independent study: 90 h</p>
14	Module duration	1 semester
15	Teaching and examination language	English
16	(Recommended) reading	None

1	Module name IIS-57451	User experience (UX) in a business context	5 ECTS
2	Courses/lectures	Lecture (2 SWS): UX in a business context Practice session (2 SWS): UX in a business context	5 ECTS
3	Lecturers	Prof. Dr. Steffi Haag	

4	Module coordinator	Prof. Dr. Steffi Haag
5	Contents	<p>Organizations have started to realize that designing and maintaining great user experience (UX) is the best way to build trust, retention, and loyalty of staff and customers alike.</p> <p>The lecture</p> <ul style="list-style-type: none"> • teaches the key concepts, methods, and approaches that help design, measure, and manage total UX across the organization and drive value propositions of digital business models. • discusses established and new methods of UX research for (further) developing digital technologies. • introduces frameworks to build and lead teams of UX researchers, designers, engineers, product managers. • employs case studies to transfer and discuss the application of UX design, research, and management in practice. <p>In the practice sessions, (groups of) students practically apply UX research methods and tools (e.g., user journeys) to investigate users' experiences in interaction with state-of-the-art digital technology prototypes, and to deduce implications for product and organizational strategy, development, and design. The results are presented towards peers and/or experts from research and industry.</p>
6	Learning objectives and skills	<p>Students can define, discuss, and apply the concepts, methods, and tools of analyzing and managing the experiences users perceive in interaction with new digital technologies of organizations.</p> <p>Students are able to measure and analyze user experiences of novel technologies and infer recommendations for technology and policy design and development.</p> <p>Students can present user research results towards peers.</p> <p>Students develop skills in collaborative interaction with peers.</p>
7	Recommended prerequisites	<p>None.</p> <p>The number of participants is limited. Please see website for details on the application process!</p>
8	Integration in curriculum	1st or 3rd semester
9	Module compatibility	<p>Master International Information Systems (from 2021/22): Module in the section Information Systems – Architectures & Development</p> <p>Master International Information Systems (from 2018/19): Module in the section Information Systems – Architectures & Development (Core Course or Elective)</p> <p>Master International Information Systems (from 2016/17): Module in the section Information Systems – Extension Courses (Elective)</p> <p>Master FACT: Vertiefungsbereich (Modulgruppe Interdisziplinäre Module)</p> <p>Master International Business Studies: Elective course - Free specialization module (Area studies: Europe)</p> <p>Master Management: Vertiefungsbereich</p> <p>Master Marketing: Wahlmodul in der Modulgruppe "Management"</p> <p>Master Wirtschaftsingenieurwesen</p>
10	Method of examination	Project report and presentations, partly in groups
11	Grading procedure	Project report (30%), online presentations (70%)
12	Module frequency	Each WS
13	Workload	<p>Contact hours: 60 h</p> <p>Independent study: 90 h</p>
14	Module duration	1 Semester

15	Teaching and examination language	English
16	(Recommended) reading	Relevant literature is provided during the course.

Extension Courses

The modules “53410 Business Strategy”, “53650/53651 Global operations strategy” and “55291 Global retail logistics” listed in section Customized Introduction to IIS – Management II can be chosen as extension courses only if they have not been taken as part of the customized introduction.

1	Module name IIS-57387	AI & Data in Business and Management	5 ECTS
2	Courses/lectures	S: AI & Data in Business and Management	5 ECTS
3	Lecturers	Prof. Dr. Voigt and Dr. Lydia Mammen	

4	Module coordinator	Prof. Dr. Voigt and Dr. Lydia Mammen
5	Contents	In the seminar, which is supervised by Dr. Lydia Mammen (Vice President Data Analytics at adidas), the students work in groups on seminar papers on changing questions in the context of artificial intelligence, digital technologies, and data in business and management. The results are then presented, defended, and discussed at a final event.
6	Learning objectives and skills	The students work in groups largely self-directed and autonomous. They analyze complex business issues in the context of the management of artificial intelligence, digital technologies and data in organizations. For this purpose, the students collect empirical data and review existing (scientific) literature, if necessary, and decide largely independently on the methods of analysis to be used. The goal is the development, structuring and presentation of detailed and specialized knowledge based on the current state of knowledge on the respective topic. The developed results are then jointly presented by the group in the seminar and defended in front of Dr. Mammen and Prof. Dr. Voigt.
7	Recommended prerequisites	None.
8	Integration in curriculum	2nd or 3rd semester
9	Module compatibility	Master Management: Vertiefungsbereich Master Sozialökonomik: freier Vertiefungsbereich Master WING: Wirtschaftswissenschaftlicher Bereich Master International Information Systems (from 2018/19): Module in the section Information Systems – Data & Knowledge (Elective) Master International Information Systems (from 2021/22): Module in the section Information Systems – Extension Courses Master MIBS: Wahlbereich Master WiPäd, Studienrichtung I: Wahlbereich Block 2
10	Method of examination	Project report and presentations, partly in groups
11	Grading procedure	Project report (30%), online presentations (70%)
12	Module frequency	Each WS
13	Workload	Contact hours: 60 h Independent study: 90 h
14	Module duration	1 Semester

1	Modulbezeichnung FACT-52581	Praxisseminar: Entwicklung und Vermarktung innovativer Versicherungsprodukte (Seminar: Development and marketing of innovative insurance products)	5 ECTS
2	Lehrveranstaltungen	S (4 SWS): Praxisseminar: Entwicklung und Vermarktung innovativer Versicherungsprodukte (Development and marketing of innovative insurance products)	
3	Lehrende	Prof. Dr. Gatzert und Mitarbeiter/innen Prof. Dr. Steul-Fischer und Mitarbeiter/innen	

4	Modulverantwortliche/r	Prof. Dr. Gatzert / Prof. Dr. Steul-Fischer	
5	Inhalt	Das interdisziplinäre Praxisseminar wird von dem Lehrstuhl für Versicherungswirtschaft und Risikomanagement und dem Lehrstuhl für BWL, insb. Versicherungsmarketing sowie einem Praxispartner veranstaltet und vermittelt den Studierenden praxisnahe Kenntnisse zu (Produkt-) Entwicklungen und der Vermarktung von innovativen Versicherungsprodukten in Versicherungsunternehmen.	
6	Lernziele und Kompetenzen	Studierende können: - eigenständig innovative Versicherungsprodukte konzipieren - Risiken identifizieren und die Risikosituation bewerten - innovative Vermarktungskonzepte entwickeln - anhand einer Abschlusspräsentation wesentliche Inhalte vorstellen	
7	Empfohlene Voraussetzungen für die Teilnahme	Grundlegende Kenntnisse der Versicherungswirtschaft sind hilfreich, aber nicht erforderlich. Die Anmeldung erfolgt per E-Mail an wiso-vwrm@fau.de (beschränkte Teilnehmerzahl- Auswahl auf Basis der Studienleistungen und des Lebenslaufs)	
8	Einpassung in Musterstudienplan	1. Semester	
9	Verwendbarkeit des Moduls	Master FACT: Vertiefungsbereich (Modulgruppe Finance and Insurance) Master Marketing mit Studienbeginn ab WS17/18: Wahlmodul in der Modulgruppe „Interdisziplinäre Module“ Master Marketing mit Studienbeginn vor WS17/18: Wahlmodul in der Modulgruppe „Sonstiges“ Master Management: Vertiefungsbereich (Modulgruppe Sonstiges) Master Wirtschaftsingenieurwesen: Wahlbereich (Grundlagen FACT) Master International Information Systems (from 2018/19): Module in the section Information Systems – Digital Business (Elective) Master International Information Systems (from 2021/22): Module in the section Information Systems – Extension Courses	
10	Studien- und Prüfungsleistungen	<ul style="list-style-type: none"> - Seminararbeit (15-20 Seiten) in Gruppenarbeit und - Präsentation (15-30 Minuten, inklusive Protokoll zur Präsentation) in Gruppenarbeit. <p><i>Es handelt sich um eine einheitliche Prüfung, bei der die einzelnen Teilleistungen untrennbar miteinander verbunden sind. Für das Bestehen des Moduls müssen nach § 19 Abs. 1 Satz 4 MPOWIWI in der jeweils geltenden Fassung alle Teilleistungen in demselben Semester bestanden werden. Wegen des untrennbaren Bezugs der Teilleistungen aufeinander ist abweichend von § 25 Abs. 1 Satz 2 MPOWIWI eine Wiederholung nur einer der nicht bestandenen Teilleistungen nicht möglich. Das Nichtbestehen einer der Teilleistungen erfordert die Wiederholung der gesamten Prüfung.</i></p>	
11	Berechnung Modulnote	Seminararbeit (50%) und Präsentation (50%)	
12	Turnus des Angebots	Jedes Semester	

13	Arbeitsaufwand	Präsenzzeit: 60 h + Eigenstudium: 90 h
14	Dauer des Moduls	1 Semester
15	Unterrichts- und Prüfungssprache	Deutsch
16	(Vorbereitende) Literatur	Wird in der Veranstaltung bekannt gegeben

Study abroad courses

1	Module name IIS-57262	Study abroad courses (Information systems)	¹⁾
2	Courses/lectures	Study abroad courses (Information systems)	¹⁾
3	Lecturers	Staff at exchange university	

4	Module coordinator	Prof. Laumer, Prof. Möslin, Prof. Amberg
5	Contents	Courses students will be attending during the exchange semester in one of the partner universities or others should fit into the area Information systems thus extending the student's knowledge and competencies in this field of study. The suitability of the courses will be assessed by the programme coordinator.
6	Learning objectives and skills	Students acquire additional knowledge and competencies in their field of study
7	Recommended prerequisites	Learning agreement
8	Integration in curriculum	Third semester
9	Module compatibility	Master International Information Systems: Module in the section Information Systems (Elective)
10	Method of examination	In accordance with exam regulations of the exchange university
11	Grading procedure	In accordance with grading key and credits of the course
12	Module frequency	In accordance with the curriculum of the exchange university
13	Workload	In accordance with the specific course and the credits of the course
14	Module duration	1 semester
15	Teaching and examination language	Tbd in the course
16	(Recommended) reading	Tbd in the course

¹⁾ 5, 10 or 15 ECTS

Interdisciplinary Qualifications

Foreign Language Skills

1	Modulbezeichnung IIS57090	Foreign language skills	5 ECTS
2	Lehrveranstaltungen	<p>Allgemeinsprachliche Grundausbildung</p> <p>1 Übung im Umfang von 5 ECTS in einer Fremdsprache (mit Ausnahme von Englisch und Deutsch als Fremdsprache) aus dem Bereich UNlcert I oder II, d.h. aus dem Niveaubereich A1 bis B2 GER</p> <p><u>oder</u></p> <p>1x</p> <p>5 ECTS</p> <p><u>oder</u></p> <p>1x</p> <p>Fachsprachliche Grundausbildung</p> <p>1 Übung im Umfang von 5 ECTS oder 2 Übungen im Umfang von 2,5 ECTS in einer Fremdsprache aus dem Bereich UNlcert III Fachsprache. Die Kurse enden auf dem Niveau C1 GER</p>	<p>1 x 5 ECTS</p> <p><u>oder</u></p> <p>1x</p> <p>5 ECTS</p> <p><u>oder</u></p> <p>1x</p> <p>5 ECTS</p> <p><u>oder</u></p> <p>2x</p> <p>2,5 ECTS</p>
3	Lehrende	Mitarbeiter der Abteilung Fremdsprachenausbildung Nürnberg des Sprachenzentrums der FAU (Leitung: Dr. Oesterreicher)	

4	Modulverantwortliche/r	Dr. Oesterreicher
5	Inhalt	<p>Allgemeinsprachliche Grundausbildung:</p> <ul style="list-style-type: none"> • Vermittlung und Vertiefung grundlegender schriftlicher und mündlicher Kompetenzen • Einführung in Präsentations- und kommunikativen Kompetenzen unter Berücksichtigung interkultureller Spezifika • Auf- und Ausbau einer fremdsprachlichen Hilfsmittelkompetenz <p>Fachsprachliche Grundausbildung:</p> <ul style="list-style-type: none"> • Vermittlung und Vertiefung handlungsorientierter schriftlicher und mündlicher Kompetenzen mit fachsprachlichem Bezug • Vermittlung von Präsentations- und kommunikativen Kompetenzen unter Berücksichtigung interkultureller Spezifika • Förderung der Studierfähigkeit • Auf- und Ausbau einer fremdsprachlichen Hilfsmittelkompetenz
6	Lernziele und Kompetenzen	<p>Allgemeinsprachliche Grundausbildung:</p> <p>Die Studierenden erwerben die nötigen Grundkenntnisse der jeweiligen Fremdsprache. Sie werden an eine schriftlich und mündlich idiomatische Ausdrucksweise herangeführt. Sie erhalten</p>

		<p>einen Einblick in die interkulturellen und sprachimmanenten Spezifika der entsprechenden Kommunikationsformen. Sie können den Erwerb von in vorausgegangenen Modulen begonnenen Sprachen fortsetzen.</p> <p>Fachsprachliche Grundausbildung:</p> <p>Die Studierenden lernen schriftlichen und mündlichen Diskursen sowohl im Studium als auch arbeitsplatzbezogen zu folgen. Sie lernen sich idiomatisch adäquat schriftlich und mündlich auszudrücken. Sie erreichen eine Vertrautheit mit den interkulturellen und sprachimmanenten Spezifika der entsprechenden Kommunikationsformen. Sie können an in vorhergehenden Modulen erworbene Kenntnisse anknüpfen.</p>
7	Empfohlene Voraussetzungen für die Teilnahme	Abschluss der dem Sprachkurs jeweils vorangehenden Niveaustufe des GER – nachweisbar über einen Einstufungstest, entsprechende Zertifikate oder erfolgreich abgeschlossene Kurse
8	Einpassung in Musterstudienplan	Ab 1. Semester
9	Verwendbarkeit des Moduls	<p>Master International Information Systems (ab 2016/17 + 2018/19 + 2021/22);</p> <p>Master in Arbeitsmarkt & Personal (Wahlbereich);</p> <p>Master in Sozialökonomik (Wahlbereich);</p> <p>Master in Economics (Wahlbereich)</p>
10	Studien- und Prüfungsleistung	Je Übung eine 60 minütige Abschlussklausur + mündliche Leistung
11	Berechnung Modulnote	$\bar{U} = 100\%$
12	Turnus des Angebots	Jährlich im WS und SS
13	Arbeitsaufwand	<p>Präsenzstudium: 60 h</p> <p>Eigenstudium: 90 h</p>
14	Dauer des Moduls	1-2 Semester
15	Unterrichts- und Prüfungssprache	Je nach gewählter Fremdsprache
16	(Vorbereitende) Literatur	Lt. Auskunft Dozent

Seminar International Information Systems

(only for students with study start before winter term 2021/22)

1	Module name IIS-57469	Designing Information Systems for Behavior Change: Practical Applications	5 ECTS
2	Courses/lectures 74671	Seminar: Designing Information Systems for Behavior Change: Practical Applications	5 ECTS
3	Lecturers	Prof. Dr. Verena Tiefenbeck	

4	Module coordinator	Prof. Dr. Verena Tiefenbeck
5	Contents	<p>Information systems increasingly provide the necessary tools to collect, analyze, and communicate data about individuals both in organizational and private contexts. This makes it possible to implement data-driven behavioral interventions using various devices including mobile phones, fitness trackers, or electricity smart meters. While some of these products successfully induce behavior change, others completely fail. The seminar introduces students to key concepts from behavioral economics and psychology and how to use them to build effective applications for behavior change in relevant domains including sustainability, healthcare or household spending.</p> <p>At the beginning of the semester, an introduction to the topic is provided and topics for the seminar thesis are assigned. During the semester, students work on their seminar thesis. The results are presented and discussed at the end of the semester.</p>
6	Learning objectives and skills	<p>The research seminar prepares students for a master's thesis, so that they are able to answer a concrete research question in the field of digital transformation.</p> <p>More specifically, students ...</p> <ul style="list-style-type: none"> • Understand important behavioral theories • Get a first impression on theory testing • Relate the insights to practical challenges • Understand the limitations of the theories • Structure and plan a research-related assignment • Read and evaluate scientific publications • Write a scientific report • Use and cite literature sources • Present research findings to an audience
7	Recommended prerequisites	None
8	Integration in curriculum	Second or forth semester
9	Module compatibility	Master International Information Systems (from 2018/19 + 2016/17): Module in the section Seminar International Information Systems
10	Method of examination	Seminar paper and presentation
11	Grading procedure	Seminar paper (70%), presentation (30%)

		Es handelt sich um eine einheitliche Prüfung, bei der die einzelnen Teilleistungen untrennbar miteinander verbunden sind. Für das Bestehen des Moduls müssen nach § 19 Abs. 1 Satz 4 MPOWIWI in der jeweils geltenden Fassung alle Teilleistungen in demselben Semester bestanden werden. Wegen des untrennbaren Bezugs der Teilleistungen aufeinander ist abweichend von § 25 Abs. 1 Satz 2 MPOWIWI eine Wiederholung nur einer der nicht bestandenen Teilleistungen nicht möglich. Das Nichtbestehen einer der Teilleistungen erfordert die Wiederholung der gesamten Prüfung.
12	Module frequency	Summer term
13	Workload	Contact hours: 30 h Independent study: 120 h
14	Module duration	1 semester
15	Teaching and examination language	English
16	(Recommended) reading	Will be announced in class

1	Module name IIS-56430	Digitalization of work and life	5 ECTS
2	Courses/lectures	Seminar: Digitalization of work and life (4 SWS)	5 ECTS
3	Lecturers	Prof. Dr. Sven Laumer	

4	Module coordinator	Prof. Dr. Sven Laumer
5	Contents	<p>Digitalization provides opportunities for a better quality of life, new business models and efficient management. However, it also has a "dark" side, as people may be stressed or become addicted to digital technologies. As part of this research seminar, various research questions of digitalization in business and society are discussed and students carry out their own research project.</p> <p>To support their own research projects theories and methods of information systems research will be introduced.</p> <p>The seminar is offered as a block seminar. An introduction is provided at the beginning of semester. Students work on their seminar thesis during the semester. The results are presented and discussed at the end of the semester during a block seminar.</p>
6	Learning objectives and skills	The research seminar prepares students for a master's thesis, so that they are able to answer a concrete research question in the field of digital transformation by applying an information system's research method.
7	Recommended prerequisites	12, number of participants is limited, please see website for details for the application process (no first come, first serve approach)
8	Integration in curriculum	Second or forth semester
9	Module compatibility	Master International Information Systems (from 2018/19 + 2016/17): Module in the section Seminar International Information Systems
10	Method of examination	Seminar paper and presentation
11	Grading procedure	Seminar paper (70%) and presentation (30%)
12	Module frequency	Summer term
13	Workload	<p>Contact hours: 30 h</p> <p>Independent study: 120 h</p>
14	Module duration	1 Semester
15	Teaching and examination language	German, English on demand
16	(Recommended) reading	<p>Grover, Varun. "Are we losing out with digitization?." Journal of Information Technology Case and Application Research 17.1 (2015): 3-7.</p> <p>Hess, Thomas, et al. "Digital Life as a Topic of Business and Information Systems Engineering?." Business & Information Systems Engineering 6.4 (2014): 247-253.</p> <p>Legner, Christine, et al. "Digitalization: opportunity and challenge for the business and information systems engineering community." Business & information systems engineering 59.4 (2017): 301-308.</p>

		Riedl, René, et al. "On the relationship between information management and digitalization." Business & Information Systems Engineering (2017): 1-8.
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1	Module name IIS-57200	Interdisciplinary business seminar	5 ECTS
2	Courses/lectures IIS72001	Interdisciplinary business seminar	5 ECTS
3	Lecturers	Prof. Bodendorf and colleagues	

4	Module coordinator	Prof. Bodendorf
5	Contents	This seminar confronts students with real international IS business challenges in an interdisciplinary context. Students learn how to address real-world problems and to create application-oriented solutions based on sound methods rooted in robust theoretical frameworks and a well-founded evidence base.
6	Learning objectives and skills	<p>The students</p> <ul style="list-style-type: none"> • can independently define new usage-oriented problems in e-business, considering the economic impact on companies, and solve them with the aid of suitable methods. • discuss problem-solving approaches in groups and present their work results.
7	Recommended prerequisites	Command of English
8	Integration in curriculum	Second or third semester
9	Module compatibility	Master International Information Systems (from 2018/19 + 2016/17): Mod-ule in the section Seminar International Information Systems
10	Method of examination	Seminar paper and presentation (Seminararbeit und Präsentation)
11	Grading procedure	Seminar paper (100%) and presentation (passed) (Seminararbeit (100%) und Präsentation (bestanden))
12	Module frequency	Each semester
13	Workload	Attendance: 30 h Self-study: 120 h
14	Module duration	1 semester
15	Teaching and examination language	English
16	(Recommended) reading	Will be announced at the beginning of the course.

1	Module name IIS-54350	Internet of things and industrial services seminar	5 ECTS
2	Courses/lectures	Internet of things and industrial services seminar (4 SWS)	5 ECTS
3	Lecturers	Prof. Matzner and assistants	

4	Module coordinator	Prof. Matzner
5	Contents	Cyber-physical Systems (CPS) are physical products that are equipped with embedded hardware and software, that may interact with their environment through sensors and actuators, and that may be networked with remote computers. Examples are modern networked cars and production machines in the smart factory. CPS pave the way for new digital business models based on CPS-enabled service offerings. This seminar addresses the phenomenon of digital industrial services based on cyber-physical systems and the Internet-of-Things.
6	Learning objectives and skills	<p>The students</p> <ul style="list-style-type: none"> • will learn about different uses of CPS in digital industrial service systems. • can adopt one of different research methods (literature-study, empirical or design research) in order to address a specific research question or research problem. • will gain theoretical knowledge about digital industrial service systems based on cyber-physical systems and the Internet-of-Things as well as relevant technologies in this domain • will train their research, writing, and presentation skills. • will learn how to set up and conduct an IoT service project.
7	Recommended prerequisites	None
8	Integration in curriculum	Third semester
9	Module compatibility	<p>Master International Information Systems (from 2018/19 + 2016/17): Module in the section Seminar International Information Systems</p> <p>Master FACT (Vertiefungsbereich, Modulgruppe Interdisziplinäre Module)</p> <p>Master WING (wirtschaftswissenschaftliche Modulgruppe M7)</p> <p>Master International Production Engineering and Management (International Elective Modules M6)</p>
10	Method of examination	<p>Seminar paper (tw. in Gruppenarbeit) (20 ± 5 pages)</p> <p>Final presentation (tw. in Gruppenarbeit) (20 minutes)</p>
11	Grading procedure	<p>Seminar paper (70%)</p> <p>Presentation (30%)</p>
12	Module frequency	Each semester
13	Workload	Contact hours: 30 h

		Independent study: 120 h
14	Module duration	1 semester
15	Teaching and examination language	English
16	(Recommended) reading	All relevant material will be provided during the seminar.

1	Module name IIS-57190	Nailing your thesis	5 ECTS
2	Courses/lectures IIS480491 IIS580491	Lecture: Nailing your thesis (4 SWS) Exercise: Nailing your thesis (4 SWS)	2,5 ECTS 2,5 ECTS
3	Lecturers	Prof. Riehle	

4	Module coordinator	Prof. Riehle, M.B.A.
5	Contents	<p>This course teaches students how to perform research work and how to publish the results. According to most Prüfungsordnungen Bachelor or Master theses have to be scientific work, and this class teaches students how to do so.</p> <p>The class consists of a 2 SWS lecture part and a 2 SWS exercise part. It is run as a 3h block with a short break in between. With homework and self-study, the course effort is 5 ECTS.</p> <p><u>If students pick up one of the offered research projects, total effort doubles to 10 ECTS (see Research Project Applied Software Engineering). The research project does not require additional time in class.</u></p> <p>The lecture part covers the following topics:</p> <ul style="list-style-type: none"> • Science and society • The research process • Exploratory research • Confirmatory research • Writing a thesis/paper • Scientific community <p>The exercise associated with the lecture involves reading, writing, and evaluating weekly homework, but no research project. Taken as lecture + exercises, student effort totals 5 ECTS.</p> <p>Students can pick up a research project for an additional 5 ECTS. Students perform research and write a (short) research paper (see Research Project Applied Software Engineering).</p> <p>The syllabus, schedule, literature, and more can be found at http://nythesis.com. Please sign up for the course on StudOn (link accessible through schedule spreadsheet) as soon as possible.</p> <p>In addition to the traditional classroom setting, the course may be offered online (through Adobe Connect at https://webconf.vc.dfn.de/dirkriehle).</p>
6	Learning objectives and skills	<ul style="list-style-type: none"> • Understand how to perform research • Understand how to write a research thesis
7	Recommended prerequisites	None
8	Integration in curriculum	Third semester Only possible, if the elective “Nailing your Thesis” has not been taken yet.
9	Module compatibility	Master International Information Systems (from 2018/19 + 2016/17): Module in the section Seminar International Information Systems
10	Method of examination	Student work comprises

		<ul style="list-style-type: none"> • class participation (aktive Teilnahme am Unterricht) • student presentations (Präsentationen) • For more information see http://wp.me/pDU66-DT
11	Grading procedure	Grades are based on linearly combining the individual grades from class participation and student presentations (Gewichtete Note aus der Teilnahme am Unterricht und den Präsentationen).
12	Module frequency	Every two semesters
13	Workload	60h in class, 90h pre- and post-work
14	Module duration	1 semester
15	Teaching and examination language	English
16	(Recommended) reading	See http://nythesis.com

1	Modulbezeichnung IIS-57180	Research seminar on data management	5 ECTS
2	Lehrveranstaltungen IIS71801	Master-Seminar Datenmanagement (2 SWS)	5 ECTS
3	Lehrende	Prof. Lenz, Mitarbeiter INF6	

4	Modulverantwortliche/r	Prof. Lenz
5	Inhalt	<p>Ein Seminar im Master-Studium soll die Fähigkeit vermitteln, sich anhand von Fachliteratur und Forschungsberichten über ein aktuelles Problem (hier aus dem Gebiet der Datenbanken) selbständig zu informieren, sich in einem mündlichen Vortrag von 30 Minuten damit auseinanderzusetzen und seine Auffassung dazu in einer Diskussion zu vertreten. Im Unterschied zu einem Bachelor-Seminar geht es auch noch darum, unterschiedliche Begriffsverwendungen zu erkennen und zu vereinheitlichen. (Im Bachelor-Seminar beschränkt sich die Fachliteratur auf wenige Quellen, u.U. sogar nur eine einzige, die eine einheitliche Begriffsbildung aufweisen.) Die systematische Vorgehensweise bei der Erarbeitung und Aufbereitung des Stoffs steht eindeutig im Vordergrund; im Vergleich dazu ist das Thema des Seminars nachrangig.</p> <p>Für Studierende der Informatik ist die passive Beherrschung der englischen Sprache eine unabdingbare Voraussetzung. Deshalb sollten die englischsprachigen Quellen nach Möglichkeit nicht übersetzt, sondern im Original gelesen werden. Es zeigt sich immer wieder, dass Übersetzungen ohne ausreichendes Verständnis des Texts ohnehin unbrauchbar sind. Falls der Wunsch besteht, auch die aktive Beherrschung der englischen Sprache zu üben, kann der Seminarvortrag auf Englisch gehalten werden.</p>
6	Lernziele und Kompetenzen	<p>Die Studierenden:</p> <ul style="list-style-type: none"> • arbeiten mit wissenschaftlicher Literatur; • vereinheitlichen unterschiedliche Begriffsbildungen; • fassen ihre Exzerpte in einem Vortrag zusammen; • formulieren eine kurze Zusammenfassung des Vortrags (Extended Abstract) • vertreten ihre Auffassung in einer Diskussion • führen ggf. relevante Software in Demonstrationen vor.
7	Empfohlene Voraussetzungen für die Teilnahme	Grundlagen von Datenbanksystemen – im Umfang der Module KonzMod und IDB im Bachelorstudium Informatik oder vergleichbarer Module
8	Einpassung in Musterstudienplan	2. oder 3. Semester
9	Verwendbarkeit des Moduls	Master International Information Systems (from 2018/19 + 2016/17): Module in the section Seminar International Information Systems
10	Studien- und Prüfungsleistung	Ausarbeitung, Präsentationsfolien, Vortrag
11	Berechnung Modulnote	30% Ausarbeitung, 30% Präsentationsfolien, 40% Vortrag
12	Turnus des Angebots	unregelmäßig, Winter- oder Sommersemester

13	Arbeitsaufwand	Präsenzzeit: 2 x 15 = 30h Vorbereitungszeit: 120h
14	Dauer des Moduls	1 Semester
15	Unterrichts- und Prüfungssprache	Deutsch oder Englisch
16	(Vorbereitende) Literatur	Bücher über wissenschaftliches Arbeiten (gibt es in sehr großer Zahl) DEININGER, Marcus ; LICHTER, Horst ; LUDEWIG, Jochen ; SCHNEIDER, Kurt: Studien-Arbeiten : ein Leitfaden zur Vorbereitung, Durchführung und Betreuung von Studien-, Diplom- und Doktorarbeiten am Beispiel Informatik. 2., durchges. Aufl., Zürich : vdf, Stuttgart : Teubner, 1993. - ISBN 3-519-12156-5 und 3-7281-1961-X.

1	Module name IIS-57220	Value co-creation	5 ECTS
2	Courses/lectures IIS72201	Value co-creation	5 ECTS
3	Lecturers	Prof. Möslin and colleagues	

4	Module coordinator	Prof. Möslin
5	Contents	Producers of goods or service providers are not the only ones responsible for the creation of value in business interactions. Various authors have lately turned the attention to the role of customers as co-creators. In this seminar, we will study the current literature on the topic and discuss it from a practical perspective.
6	Learning objectives and skills	The students: <ul style="list-style-type: none"> • gain deeper insight into the theories of value co-creation. • learn to work with scientific papers and apply the results. • develop skills in collaborative interaction within the context of the seminar.
7	Recommended prerequisites	None
8	Integration in curriculum	Third semester
9	Module compatibility	Master International Information Systems (from 2018/19 + 2016/17): Module in the section Seminar International Information Systems
10	Method of examination	Seminar work and presentation (Präsentation, Seminararbeit)
11	Grading procedure	Seminar paper (50%) and presentation (50%) (Präsentation, Seminararbeit)
12	Module frequency	Winter term
13	Workload	Contact hours: 30 h Independent study: 120 h
14	Module duration	1 semester
15	Teaching and examination language	English
16	(Recommended) reading	Literature will be announced and distributed in the first sessions.

1	Module name IIS-57440	User experience (UX) research seminar	5 ECTS
2	Courses/lectures	Seminar: User experience (UX) research (4 SWS)	5 ECTS
3	Lecturers	Prof. Dr. Steffi Haag	

4	Module coordinator	Prof. Dr. Steffi Haag
5	Contents	<p>User experience (UX) research systematically analyzes users and their requirements in order to shed light on the process of designing the experiences users make in interaction with digital technologies and policies.</p> <p>During the seminar, (groups of) students employ theories, concepts, tools, and methods (e.g., interviews, surveys, experiments) to analyze research problems regarding users' cognitions, emotions, and behaviors while interacting with state-of-the-art digital technologies and derive implications for technology development, corporate strategy, new business models, and innovations. Approach and results of the research projects are written down in a seminar paper, presented, and discussed with peers and industry experts during blocked sessions.</p> <p>Topics are introduced and assigned in the first session. During the semester, students work on their seminar thesis. The results are presented and discussed in the middle and at the end of the semester.</p>
6	Learning objectives and skills	<p>Students can prepare and interpret different theoretical and methodological approaches to user research. They</p> <ul style="list-style-type: none"> • can analyze scientific literature to independently define relevant research problems • can use quantitative or qualitative research methods to analyze those problems • can write and review seminar papers • can critically reflect, present, and discuss research design and results within the audience of the seminar • can give adequate feedback to complex challenges • develop skills in collaborative interaction with peers.
7	Recommended prerequisites	<p>None</p> <p>The number of participants is limited. Please see website for details on the application process!</p>
8	Integration in curriculum	1. – 4. semester
9	Module compatibility	<p>Master International Information Systems (from 2018/19 + 2016/17): Module in the section Seminar International Information Systems</p> <p>Master Wirtschaftsingenieurwesen</p> <p>Master in Management: Vertiefungsbereich "Value Creation & Digital Transformation" oder „Entrepreneurship & Innovation“</p>

		Master in International Business Studies: Free Specialization Module (FSM)
10	Method of examination	Seminar paper, presentation, and class participation, partly in groups.
11	Grading procedure	Seminar paper (60%), presentation (30%), and class participation (10%)
12	Module frequency	Summer term
13	Workload	Contact hours: 30h Independent study: 120h
14	Module duration	1 Semester, in blocked sessions
15	Teaching and examination language	Irregularly, English or German. Please see website.
16	(Recommended) reading	Relevant literature is provided during the seminar.

Studium Generale

(only for students with study start in or after winter term 2021/22)

1	Module name IIS-57095	Studium Generale	5 ECTS
2	Courses/lectures	Studium Generale	5 ECTS
3	Lecturers	Professors of the University Erlangen-Nürnberg	

4	Module coordinator	Professors of the University Erlangen-Nürnberg
5	Contents	Will be announced by the chairs
6	Learning objectives and skills	The Studium Generale enables students to expand their horizons of observation and to sharpen their own profile. Students can take any module. Moduls must not necessarily be part of the IIS curriculum.
7	Recommended prerequisites	none
8	Integration in curriculum	Second semester
9	Module compatibility	Master International Information Systems (from 2021/2022): Module in the section Interdisciplinary Qualifications
10	Method of examination	Will be announced by the chairs
11	Grading procedure	Will be announced by the chairs
12	Module frequency	Each semester (winter and summer; depending on the chair)
13	Workload	Contact hours: 30 Independent study: 120 h
14	Module duration	1 semester
15	Teaching and examination language	English
16	(Recommended) reading	See chair websites

IIS Research Seminar

(only for students with study start in or after winter term 2021/22)

1	Module name IIS-57096	IIS Research Seminar	5 ECTS
2	Courses/lectures	IIS Research Seminar	5 ECTS
3	Lecturers	Professors of the Institute of Information Systems and the Department of Computer Science	

4	Module coordinator	Professors of the Institute of Information Systems and the Department of Computer Science
5	Contents	Will be announced by the chairs
6	Learning objectives and skills	The research seminar prepares students for a master's thesis, so that they are able to answer a concrete research question in the field of digital transformation by applying an information system's research method
7	Recommended prerequisites	none
8	Integration in curriculum	Third semester; number of participants is limited, please see the website of the master IIS for details regarding the application process
9	Module compatibility	Master International Information Systems (from 2021/2022): Module in the section Interdisciplinary Qualifications
10	Method of examination	Will be announced by the chairs
11	Grading procedure	Will be announced by the chairs
12	Module frequency	Each semester (winter and summer; depending on the chair)
13	Workload	Contact hours: 30 Independent study: 120 h
14	Module duration	1 semester
15	Teaching and examination language	English
16	(Recommended) reading	See chair websites

IIS Project Seminar

(only for students with study start in or after winter term 2021/22)

1	Module name IIS-57097	IIS Project Seminar	5 – 10 ECTS
2	Courses/lectures	IIS Project Seminar	5 – 10 ECTS
3	Lecturers	Professors of the Institute of Information Systems and the Department of Computer Science	

4	Module coordinator	Professors of the Institute of Information Systems and the Department of Computer Science
5	Contents	Will be announced by the chairs
6	Learning objectives and skills	Students are given the opportunity to apply their previously acquired basic knowledge to a practical problem within the framework of a project work.
7	Recommended prerequisites	none
8	Integration in curriculum	Third semester; number of participants is limited, please see the website of the master IIS for details regarding the application process
9	Module compatibility	Master International Information Systems (from 2021/2022): Module in the section Interdisciplinary Qualifications
10	Method of examination	Will be announced by the chairs
11	Grading procedure	Will be announced by the chairs
12	Module frequency	Each semester (winter and summer; depending on the chair)
13	Workload	Contact hours: 30 Independent study: 120 h
14	Module duration	1 – 2 semesters, will be announced by the chair
15	Teaching and examination language	English
16	(Recommended) reading	See chair websites

Master Thesis

1	Modulbezeichnung IIS1999	Masterarbeit (Master's thesis)	30 ECTS
2	Lehrveranstaltungen	Masterarbeit	30 ECTS
3	Lehrende	Prof. Amberg / Prof. Möslin / Prof. Matzner / Prof. Laumer / Prof. Harth / Prof. Haag / Prof. Tiefenbeck / Prof. Zschech / Prof. Morschheuser / Prof. Kraus / Prof. Riehle / Prof. Saglietti / Prof. Freiling / Prof. Tielemann / Prof. Kleinöder / Prof. German / Dr. Grosso / Prof. Eskofier / Prof. Philippsen / Prof. Lenz / Prof. Maier	

4	Modulverantwortliche/r	Prof. Laumer stellvertretend für die Dozierenden im Studiengang
5	Inhalt	Die Masterarbeit beinhaltet das Verfassen einer konzeptionellen oder empirischen Arbeit zu einem Thema aus dem Bereich Wirtschaftsinformatik. Die Masterarbeit sollte einen Bezug zu internationalen Aspekten der Wirtschaftsinformatik herstellen.
6	Lernziele und Kompetenzen	Die Studierenden sind in der Lage, innerhalb einer vorgegebenen Frist ein Thema bzw. eine Fragestellung aus dem Bereich Wirtschaftsinformatik selbstständig mit wissenschaftlichen Methoden zu bearbeiten sowie die Erkenntnisse prägnant aufzuarbeiten und kompetent zu interpretieren.
7	Empfohlene Voraussetzungen für die Teilnahme	<ul style="list-style-type: none"> • Voriger Besuch der Veranstaltungen des 1.-3. Semesters • Mit der Anmeldung zur Masterarbeit im Studiengang International Information Systems muss ein Nachweis über den bereits absolvierten oder den geplanten verpflichtenden Auslandsaufenthalt erbracht werden.
8	Einpassung in Musterstudienplan	4. Semester
9	Verwendbarkeit des Moduls	Master International Information Systems
10	Studien- und Prüfungsleistung	Masterarbeit: schriftliche Arbeit (ca. 60 Seiten)
11	Berechnung Modulnote	Masterarbeit 100%
12	Turnus des Angebots	Nach Maßgabe des jeweiligen Lehrstuhls
13	Arbeitsaufwand	Präsenzzeit: 0 h Eigenstudium: 900 h
14	Dauer des Moduls	6 Monate
15	Unterrichts- und Prüfungssprache	Deutsch oder Englisch
16	(Vorbereitende) Literatur	Aktuelle Forschungsliteratur