

Modulhandbuch

des vier-semesterigen Master- Studiengangs

Global Logistics

Master of Science (M.Sc.)

Fachbereich 3: Wirtschaft und Recht - Business and Law

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1. Qualifikationsziele

Der Master-Studiengang Global Logistics (M.Sc.) richtet sich an Studierende, die aufgrund ihres Bachelor-Abschlusses qualifiziert sind, internationale Supply Chains im Zeichen von Digitalisierung und Nachhaltigkeit aus betriebswirtschaftlicher Sicht zu konzipieren.

Zum Erlernen praxis-orientierter Problemlösungskompetenz kombiniert das Programm projektbasiertes Lernen auf Basis von Unternehmensdaten mit angewandter Analyse globaler Logistikdatensätze. Die Studierenden erhalten ein umfassendes Verständnis der Logistik, welches die Bereiche Nachhaltigkeit, gesellschaftliche Auswirkungen der Logistik, führende und neue IT-Lösungen sowie grundlegende Inhalte in Recht und Wirtschaft beinhaltet. Das Forschungsprojekt und die Abschlussarbeit bereiten die Studierenden darauf vor, wissenschaftliche Forschung zu betreiben.

Absolventinnen und Absolventen des Masterstudiengangs Global Logistics (M.Sc.) sind qualifiziert für eine berufliche Tätigkeit in national und international operierenden Logistikunternehmen und -abteilungen aller Branchen sowie in entsprechenden Verbänden und Organisationen oder für eine Promotion.

Das Studium befähigt die Absolventinnen und Absolventen, aktuelle logistische Herausforderungen im Bereich des Welthandels zu erkennen und unternehmensindividuelle Fragestellungen zu bearbeiten, und vermittelt vertiefte Fach- und Methodenkompetenzen in den Bereichen Logistik und Transportwirtschaft.

Sie erwerben das Wissen und die Fähigkeit, die Nachhaltigkeitsauswirkungen der Logistik in einem bestimmten Kontext auf lokaler oder globaler Ebene zu bewerten und sind in der Lage, geeignete Lösungen zur Verringerung der sozialen und ökologischen Auswirkungen zu entwickeln.

Die Absolventinnen und Absolventen sind in der Lage, komplexe Fragestellungen und Probleme in verschiedenen logistischen Teilbereichen, insbesondere unter Anwendung quantitativer Methodenkompetenzen in den Bereichen Planung, Koordination, Disposition und Produktion sowie Einkauf oder Distribution, selbständig zu identifizieren, zu analysieren und praxisgerechte Lösungen zu entwickeln. Mit Hilfe der im Studium erworbenen Reflexions- und Urteilsfähigkeit können sie relevante Erkenntnisse interpretieren und fundierte Handlungsempfehlungen ableiten.

Sie sind in der Lage, wissenschaftliche Fragestellungen auf der Basis des aktuellen Forschungsstandes zu untersuchen, geeignete Forschungsansätze auszuwählen, die wissenschaftliche Analyse durchzuführen und die Forschung unter Beachtung wissenschaftlicher Standards zu dokumentieren. Dabei erwerben sie die notwendigen Grundlagen, um ihre methodischen und inhaltlichen Kompetenzen weiter zu vertiefen, um sich neuen Herausforderungen zu stellen.

Die Absolventinnen und Absolventen können eigene Projektergebnisse vor Vertretern aus Wirtschaft und Wissenschaft zielgruppengerecht präsentieren und sich mit ihnen fachbezogen austauschen. Sie sind in der Lage, auch in neuen und ungewohnten Situationen ihr technisches Wissen und ihre IT-Kenntnisse zu nutzen, um Informationen kritisch zu bewerten und zu analysieren und praktische Schlussfolgerungen zu ziehen, die transportökonomische, betriebswirtschaftliche und soziale Aspekte berücksichtigen.

Die Absolventen haben sich im Laufe des Studiums fachlich und persönlich weiterentwickelt und handeln unternehmerisch, sozial und ethisch verantwortlich. Darüber hinaus lernen die Absolventen durch anwendungsorientierte logistische Projektarbeit zu strukturieren, zu managen, zu führen und Verantwortung in der Zusammenarbeit mit anderen zu übernehmen. Sie sind in der Lage, ihre eigene Rolle im Team zu reflektieren, diese einzunehmen und Entscheidungsprozesse voranzutreiben. Dadurch sind sie in der Lage, ihr praktisches und wissenschaftliches Wissen selbstständig und

situationsgerecht anzuwenden. Die Absolventinnen und Absolventen können Projekte methodisch planen und durchführen und mit Unterstützung der Führungsebene selbstständig als Berater*in, Projektleiter*in oder Führungskraft agieren.

2. Empfohlener Studienverlaufsplan

4	Simulation in Logistics 5 ECTS	Master Thesis with Colloquium 25 ECTS					30 ECTS
3	Research Project 10 ECTS		Information Systems in Logistics 5 ECTS	Supply Chain Management 5 ECTS	General Framework in Transport Economics 5 ECTS	Change Management 5 ECTS	30 ECTS
2	Global and Sustainable Logistics 5 ECTS	Selected Topics in Logistics 5 ECTS	Quantitative Methods 5 ECTS	Empirical Methods 5 ECTS	International Trade and International Business Law 5 ECTS	IT-based Process Management 5 ECTS	30 ECTS
1	Empirical Social Research 10 ECTS		Innovation Management 10 ECTS		Strategic and Intercultural Management 5 ECTS	Principles of Information Management and Information Technology 5 ECTS	30 ECTS

3. Modul- und Prüfungsübersicht

Nr.	Modultitel	ECTS [CP]	Dauer [Sem.]	Prüfungsform	Sprache
1. Semester					
1	Empirical Social Research	10	1	Portfolio examination consisting of: 1. Presentation (at least 20, at most 30 minutes) with written assignment (processing time 2 weeks), weighting 50% 2. Written examination (90 minutes), weighting 50% Grading scheme: graded as per §15 AB BA/MA Frankfurt UAS	English
2	Innovation Management	10	1	Written homework assignment (processing time 8 weeks) with presentation (at least 10, at most 15 minutes) Grading scheme: graded as per §15 AB BA/MA Frankfurt UAS	English
3	Strategic and Intercultural Management	5	1	Written examination (120 minutes) Grading scheme: graded as per §15 AB BA/MA Frankfurt UAS	English
4	Principles of Information Management and Information Technology	5	1	Written examination (90 minutes) Grading scheme: graded as per §15 AB BA/MA Frankfurt UAS	English
2. Semester					
5	Selected Topics in Logistics	5	1	Project work (processing time 8 weeks) with presentation (at least 5, at most 10 minutes) Grading scheme: graded as per §15 AB BA/MA Frankfurt UAS	English
6	Global and Sustainable Logistics	5	1	Written examination (90 minutes) Grading scheme: graded as per §15 AB BA/MA Frankfurt UAS	English
7	Empirical Methods	5	1	Portfolio examination consisting of: 1. Presentation of the results of a case study/small research project (at least 20, at most 30 minutes) with written assignment (processing time 4 weeks), weighting 50% 2. Written examination (60 minutes), weighting 50% Grading scheme: graded as per §15 AB BA/MA Frankfurt UAS	English
8	Quantitative Methods	5	1	Portfolio examination consisting of: 1. Presentation of the results of a case study/small research project (at least 20, at most 30 minutes)	English

				with written assignment (processing time 4 weeks), weighting 50% 2. Written examination (60 minutes), weighting 50% Grading scheme: graded as per §15 AB BA/MA Frankfurt UAS	
9	IT based Process Management	5	1	Project work (processing time 8 weeks) with presentation (at least 15, at most 30 minutes) Grading scheme: graded as per §15 AB BA/MA Frankfurt UAS	English
10	International Trade and International Business Law	5	1	Written examination (90 minutes) Grading scheme: graded as per §15 AB BA/MA Frankfurt UAS	English
3. Semester					
11	Supply Chain Management	5	1	Written examination (90 minutes) Grading scheme: graded as per §15 AB BA/MA Frankfurt UAS	English
12	Research Project	10	1	Project work (processing time 8 weeks) with presentation (at least 5, at most 15 minutes) Grading scheme: graded as per §15 AB BA/MA Frankfurt UAS	English
13	Information Systems in Logistics	5	1	Partial examinations: 1. Written examination (90 minutes), weighting 50% Grading scheme: graded as per §15 AB BA/MA Frankfurt UAS 2. Project work (processing time 8 weeks) with presentation (at least 5, at most 15 minutes), weighting 50% Grading scheme: graded as per §15 AB BA/MA Frankfurt UAS	English
14	General Framework in Transport Economics	5	1	Written examination (90 minutes) Grading scheme: graded as per §15 AB BA/MA Frankfurt UAS	English
15	Change Management	5	1	Project work (processing time 6 weeks) with presentation (at least 10, at most 30 minutes) Grading scheme: graded as per §15 AB BA/MA Frankfurt UAS	English
4. Semester					
16	Simulation in Logistics	5	1	Project work (processing time 8 weeks) with presentation (at least 15, at most 30 minutes) Grading scheme: graded as per §15 AB BA/MA Frankfurt UAS	English
17	Master Thesis with Colloquium	25	1	Master-Thesis (processing time 20 weeks) with Colloquium (at least 30, at most 45 minutes)	English

				Grading scheme: graded as per §15 AB BA/MA Frankfurt UAS	
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Module 1: Empirical Social Research

Module title	Empirical Social Research
Module number	1
Module usability	Leadership and Psychology (4 Semester) (M.A.)
Module duration	One semester
Module relevance	Compulsory module
ECTS points (CP) / work-load (h)	10 CP / 300 hours
Recommended semester of study	1
Language(s) of instruction for this module	English
Language(s) of examination for this module	English
Availability	Each summer semester
Admission requirement(s) for the module and module examination	None
Requirements for awarding ECTS points:	
A) Prerequisite assessments for admission to the module examination (type, workload, duration and grading scheme)	None
B) Final module assessment (type, workload, duration and grading scheme)	Portfolio examination consisting of: 1. Presentation (at least 20, at most 30 minutes) with written assignment (processing time 2 weeks), weighting 50% 2. Written examination (90 minutes), weighting 50% Grading scheme: graded as per §15 AB BA/MA Frankfurt UAS
Learning outcomes / skills	After this module, students will have a thorough understanding of the empirical social research-process (up to field-work). As such, they will be able to develop research-ideas through literature research, refine them into research questions, identify relevant theoretical constructs and variables, construct a research model, delineate testable hypotheses and construct a questionnaire, resp. research guide. They will know basic forms of scientific reasoning (induction, deduction, abduction) and will be able to write scientific proposals. They will have gained an overview of quantitative and qualitative empirical research methods and sampling frames and will be able to reflect on their appropriate usage. As small research-teams, the students will learn how to work together to develop a research-proposal, applying the concepts and techniques taught in this module. Students will be able to discuss ethical issues and legal data-protection issues related to research.
Course title	Empirical Social Research (4 SWS)
Module content	<ul style="list-style-type: none"> • Introduction to Empirical Social Research: Foundations, scientific reasoning, and the role of theories • Basic skills: Literature research, scientific writing, citations and quotes • The research process: From idea to questionnaire

	<ul style="list-style-type: none"> • Research designs: Qualitative, quantitative, experiments, mixed methods • Qualitative research methods: Interviews, focus-groups, ethnography, psychophysiology • Quantitative research methods: Survey methods and sampling • Questionnaires and answers: How to construct a questionnaire / research guide and how respondents answer it • Murphy's law: Pretesting and field-work • Rules of the game: Ethics, data-protection, good scientific practice • New developments in research: AI, the research process and synthetic data
Learning and teaching formats	Seminar with exercise
SCH of the module	4 SWS
Contact hours (h)	60 h
Independent study (h)	240 h
Practice hours (h)	0 h
Literature	<p>Clark, T. et al.: Bryman's Social Research Methods, Oxford. Creswell, J.D./Creswell, J.W: Research Design, Los Angeles. De Vaus, D.: Research Design in Social Research, Los Angeles. Flick, U.: Designing qualitative research, Los Angeles. Flick, U.: Introducing research methodology, Los Angeles. Groves, R.M. et al.: Survey Methodology, Hoboken.</p> <p>Most recent edition.</p> <p>In the recent edition.</p>
Module coordination	Dr. Christian Holst
Teachers	Dr. Christian Holst, lecturers of the faculty
Notes (In particular, recommended prior knowledge)	
U!REKA-Module	No

Module 2: Innovation Management

Module title	Innovation Management
Module number	2
Module usability	Leadership and Psychology (4 Semester) (M.A.)
Module duration	One semester
Module relevance	Compulsory module
ECTS points (CP) / workload (h)	10 CP / 300 hours
Recommended semester of study	1
Language(s) of instruction for this module	English
Language(s) of examination for this module	English
Availability	Each summer semester
Admission requirement(s) for the module and module examination	None
Requirements for awarding ECTS points:	
A) Prerequisite assessments for admission to the module examination (type, workload, duration and grading scheme)	None
B) Final module assessment (type, workload, duration and grading scheme)	Written homework assignment (processing time 8 weeks) with presentation (at least 10, at most 15 minutes) Grading scheme: graded as per §15 AB BA/MA Frankfurt UAS
Learning outcomes / skills	Students can compare, reflect on and present the academic foundations of innovation management in different application contexts using examples. Their specialized knowledge lies in understanding and comparing how innovation processes are designed and implemented across diverse corporate settings, including large corporations and start-ups. Students understand different approaches to the innovative development of business ideas and models and can apply various methods to business modeling. In doing so, they take into account institutional and legal frameworks as well as social developments in the areas of sustainability and digitalization. They can critically evaluate the prospects of an innovation project and recognize the challenges in the implementation process. In particular, they understand the importance of the close connection between the market and resource approach and their importance for effective business and financial planning. Students exchange ideas in teams and make appropriate and responsible decisions to structure and present the results in the context of the application.
Course title	Innovation Management (4 SWS)
Module content	Subject of innovation: product innovation, process innovation, business model innovation, service innovation Types of innovation: incremental vs. radical innovations / market-driven vs.

	<p>technology-driven innovations Innovation management in the context of business development, entrepreneurship and leadership Business idea – business model – business plan: current trends and methods (design thinking, where-to-play, business model canvas, social canvas, St. Gallen approach to business modeling, etc.) Selected aspects of the innovation process (in particular choice of legal form, copyright, strategy and corporate growth, HRM, market analysis, go-to-market strategies, blue ocean strategy, adoption curves, marketing mix, feasibility studies, road map, business plan, financial plan, lean start-up, effectuation/causation, prototyping, agile methods, minimum viable product, open innovation, co-creation)</p>
Learning and teaching formats	Seminar with case study
SCH of the module	4 SWS
Contact hours (h)	60 h
Independent study (h)	240 h
Practice hours (h)	0 h
Literature	<p>Chesbrough, H.: Open Innovation, Boston. Christensen, C. M.: The Innovator's Dilemma, Boston. Kim, W. Ch./Mauborgne, R.: Blue Ocean Strategy, Boston. Osterwalder, A./Pigneur, Y.: Business Model Generation, Hoboken. Ries, E.: The Lean Startup, New York. Siemon, C.: Don't burn the business plan: The role of business plans from a systemisc-evolutionary perspective, in: International Journal of Managerial Studies and Research, 2023, Vol. 11 (12), S. 7-18, https://doi.org/10.20431/2349-0349.1112002. Tidd, J./Bessant, J.: Managing Innovation, Hoboken. Trott, P.: Innovation Management and New Product Development, Harlow.</p> <p>In each case, the most recent edition. Further literature will be announced in the course.</p> <p>In the recent edition.</p>
Module coordination	Prof. Dr. Cord Siemon
Teachers	Prof. Dr. Cord Siemon, lecturers of the faculty
Notes (In particular, recommended prior knowledge)	
U!REKA-Module	No

Module 3: Strategic and Intercultural Management

Module title	Strategic and Intercultural Management
Module number	3
Module usability	Leadership and Psychology (4 Semester) (M.A.)
Module duration	One semester
Module relevance	Compulsory module
ECTS points (CP) / work-load (h)	5 CP / 150 hours
Recommended semester of study	1
Language(s) of instruction for this module	English
Language(s) of examination for this module	English
Availability	Each summer semester
Admission requirement(s) for the module and module examination	None
Requirements for awarding ECTS points:	
A) Prerequisite assessments for admission to the module examination (type, workload, duration and grading scheme)	None
B) Final module assessment (type, workload, duration and grading scheme)	Written examination (120 minutes) Grading scheme: graded as per §15 AB BA/MA Frankfurt UAS
Learning outcomes / skills	<p>At the end of the module students will be able to</p> <ul style="list-style-type: none"> - explain how today's businesses use strategic management and intercultural management to establish a sustained competitive advantage in an international and intercultural environment, - examine contemporary strategic management issues, examine contemporary intercultural management issues, revealing the strengths and weaknesses of a corporation and its competitors in an international environment, - understand the key topics of formation and implementation of strategies in the global environment, the building of strategic alliances, negotiation and cross-cultural communication, intercultural marketing, and corporate social responsibility, - contemplate cross-functionally, blending topics from intercultural human resource management, sustainability, marketing, finance, operations, accounting, and economic disciplines, - analyze strategic problems in strategic management and explain strategic management tools and concepts, analyze intercultural problems in strategic management - develop solutions to international and intercultural strategic business problems as well as sustainability problems, recommend adaptations to international and intercultural organizational practices, suggest alternative solutions and defend their position - define and understand the concepts of global competition,

	<p>internationalization and globalization of corporations</p> <ul style="list-style-type: none"> - apply the basic concepts, methods and tools of strategic management and intercultural management - reflect current and complex aspects and challenges of strategic management and intercultural management - develop and implement a strategy for an international or global corporation - manage the planning and implementation processes of an international or global corporation - reflect on megatrends such as diversity, sustainability and digitalization in international strategic management case studies and practical examples - work together in international teams and apply social competency and intercultural competency in international and intercultural teams - develop an awareness of the value of diversity and systematically strengthen the international and intercultural competences of a corporation and its strategic business units
Course title	Strategic and Intercultural Management (4 SWS)
Module content	<ul style="list-style-type: none"> - strategic planning and implementation processes of an international or global corporation, internationalization and globalization of corporate activities, intercultural management in a globalized world - introduction to the most relevant concepts as well as important developments and trends of strategic management and intercultural management - students are exposed to the current strategic developments of multinational corporations from both industrialized and emerging countries. - the importance of the external environment, market barriers and global/regional integrations as well as different country cultures will be discussed. - strategic coordination by means of organizational structures, corporate culture as well as formal and informal mechanisms, bringing together headquarter and subsidiaries roles and responsibilities are being looked at. - the different options for international market entry and operations modes as well as selected value chain activities such as international and intercultural corporate human resource management are being explored. - using case study assignments and discussions, the acquired knowledge will be applied and deepened by means of debates on selected topics in strategic management and intercultural management - strategic management concepts, tools and methods of international corporations, current topics and trends of strategic management, current topics and trends of intercultural management - the internationalization of corporations and different internationalization strategies of corporations, an overview of international and intercultural market entry strategies of corporations and related typical problems and challenges - diversity, sustainability and digitalization in strategic management and strategic planning and implementation, discussion of various intercultural management challenges in the context of international strategic management - case studies, practical examples, seminar papers and discussions concerning current topics and trends in strategic management and intercultural management
Learning and teaching formats	Seminar-based Course
SCH of the module	4 SWS
Contact hours (h)	60 h
Independent study (h)	90 h

Practice hours (h)	0 h
Literature	<p>Bartlett, C. / Beamish, P.: Transnational Management: Text, Cases & Readings in Cross-Border Management, Cambridge</p> <p>Fatehi, K./ Choi, J.: International Business Management, Succeeding in a Culturally Diverse World, Berlin</p> <p>Hofstede, G. / Hofstede, G.J.: Cultures and Organizations - Software of the Mind: Intercultural Cooperation and Its Importance for Survival, New York</p> <p>Luhans, F./ Doh, J.: International Management: Culture, Strategy and Behavior, New York</p> <p>Morschett, D. /.Schramm-Klein, H. / Zentes, J.: Strategic International Management: Text and Cases, Cambridge</p> <p>Sapiro, A.: Strategic Management, Fundamental Concepts for Decision Making and Strategy Execution, Berlin</p> <p>Schühly, A.: Cultural Influences on the Process of Strategic Management, Berlin</p> <p>In the recent edition.</p>
Module coordination	Prof. Dr. Tino Michalski
Teachers	Prof. Dr. Tino Michalski, lecturers of the faculty
Notes (In particular, recommended prior knowledge)	
U!REKA-Module	No

Module 4: Principles of Information Management and Information Technology

Module title	Principles of Information Management and Information Technology
Module number	4
Module usability	Leadership and Psychology (4 Semester) (M.A.)
Module duration	One semester
Module relevance	Compulsory module
ECTS points (CP) / workload (h)	5 CP / 150 hours
Recommended semester of study	1
Language(s) of instruction for this module	English
Language(s) of examination for this module	English
Availability	Each summer semester
Admission requirement(s) for the module and module examination	None
Requirements for awarding ECTS points:	
A) Prerequisite assessments for admission to the module examination (type, workload, duration and grading scheme)	None
B) Final module assessment (type, workload, duration and grading scheme)	Written examination (90 minutes) Grading scheme: graded as per §15 AB BA/MA Frankfurt UAS
Learning outcomes / skills	<p>Communication: Students effectively communicate complex IT concepts, Data Management strategies, and application architecture implications to non-technical stakeholders, translating technical jargon and highlighting relevance for organizational contexts.</p> <p>Critical thinking: Students critically assess the suitability and impact of Information Management and IT solutions from strategic and process-oriented perspectives, anticipating organizational challenges during implementation. They evaluate the pros and cons of various project management methods (waterfall, agile) considering team dynamics.</p> <p>Students will be able to describe key concepts of computer science in an operational context, including data management, process control, process modeling, and application architectures.</p> <p>Students will apply the principles of relational databases modeling and design data stores for unstructured data as a basis for data modeling in an enterprise. They will develop process models using examples.</p> <p>Students will write and execute simple Python programs.</p> <p>Students will identify and break down requirements and application architectures to assess their suitability for operational needs in an enterprise context.</p> <p>Students will learn and compare different project management methods (waterfall, agile) and justify the selection of methods for specific scenarios.</p>

	Students will know the design principles of data visualizations and generate data visualizations using program libraries applying these principles.
Course title	Principles of Information Management and Information Technology (4 SWS)
Module content	<ul style="list-style-type: none"> * Introduction to IT and information management, overview of module objectives and content * Foundations of data management, introduction to relational databases and data stores for unstructured data (JSON, XML, ...) * Process modeling and introduction to BPMN (Business Process Model and Notation) * Application architectures: Web applications (Model View Controller), Cloud applications * Introduction to programming with Python, basics of syntax and data structures * Data visualization concepts (Gestalt principles) and implementation of simple graphs with Python. * Software lifecycle, phases of software development * Fundamentals of project management in application development, traditional methods and agile processes * Case study: Analysis and specification of requirements
Learning and teaching formats	Seminar-based Course
SCH of the module	4 SWS
Contact hours (h)	60 h
Independent study (h)	90 h
Practice hours (h)	0 h
Literature	<p>Laudon, K. C., & Laudon, J. P.: Management Information Systems: Managing the Digital Firm. Harlow / London / New York / Boston.</p> <p>Sommerville, I.: Software Engineering. Boston et al.</p> <p>McKinney, W.: Python for Data Analysis: Data Wrangling with Pandas, NumPy, and IPython. Beijing et al.</p> <p>Dennis, A., Wixom, B. H., & Roth, R. M.: Systems Analysis and Design. Hoboken, USA.</p> <p>In the recent edition.</p>
Module coordination	Prof. Dr. Markus Grüne
Teachers	Prof. Dr. Markus Grüne, lecturers of the faculty
Notes (In particular, recommended prior knowledge)	
U!REKA-Module	No

Module 5: Selected Topics in Logistics

Module title	Selected Topics in Logistics
Module number	5
Module usability	Global Logistics (3 Semester) (M.Sc.)
Module duration	One semester
Module relevance	Compulsory module
ECTS points (CP) / work-load (h)	5 CP / 150 hours
Recommended semester of study	2
Language(s) of instruction for this module	English
Language(s) of examination for this module	English
Availability	Each winter semester
Admission requirement(s) for the module and module examination	None
Requirements for awarding ECTS points:	
A) Prerequisite assessments for admission to the module examination (type, workload, duration and grading scheme)	None
B) Final module assessment (type, workload, duration and grading scheme)	Project work (processing time 8 weeks) with presentation (at least 5, at most 10 minutes) Grading scheme: graded as per §15 AB BA/MA Frankfurt UAS
Learning outcomes / skills	<p>Students are able to illustrate and constitute strategies and concepts for applied and actual topics in production and logistics.</p> <p>They understand value chain based organizational structures of companies and their corresponding logistical requirements (network structure, flow principles) and may describe logistical structures and contents.</p> <p>The students enhance and deepen their knowledge along the value stream chain of companies and their logistical competencies while deepening their knowledge of the logistical function in the context of the procurement, production, distribution and reverse logistics. The students can describe and execute the methods of production planning and control as well as quality management. Students are capable of explaining and designing outbound logistics planning (especially transport planning).</p> <p>The participants analyse logistics-related trends and strategies for major industries and their consequences and impacts on the (inter-)national logistics.</p> <p>The students can evaluate a given setting in production or logistics, identify the current and future requirements as well as existing challenges.</p> <p>Depending on topic they are able to develop procurement strategies and apply material requirements planning (MRP).</p> <p>The students are able to develop recommendations and an implementation roadmap.</p>

	Through application-oriented logistical project work graduates have learned to structure, manage, lead and take responsibility in cooperation with others. They are able to reflect on their own role in the team, assume that role and drive decision-making processes forward.
Course title	Selected Topics in Logistics (4 SWS)
Module content	<p>The group projects will address applied challenges from the following areas</p> <p>Procurement:</p> <ul style="list-style-type: none"> - Procurement Concepts - Material Requirements Planning - Economic Order Quantity Model - Operational Procurement Processes - Concepts of e-Procurement <p>Production</p> <ul style="list-style-type: none"> - Production Planning and Scheduling - Industry 4.0 Applications <p>Distribution:</p> <ul style="list-style-type: none"> - Distribution Structure - Warehouse Structures - Warehouse Technology - Location Planning - Vehicle Routing - Special Trade Logistics Concepts - Demand Planning <p>Reverse Logistics:</p> <ul style="list-style-type: none"> - Legal Requirements - Logistical Principles <p>During the projects the students will do an on-site visit and have frequent exchanges with company representatives.</p>
Learning and teaching formats	Seminar-based Course
SCH of the module	4 SWS
Contact hours (h)	60 h
Independent study (h)	82 h
Practice hours (h)	8 h
Literature	<p>Chopra, S./Meindl, P.: Supply Chain Management: Strategy, Planning, and Operation, London</p> <p>Grant, D.B.: Logistics Management, London</p> <p>Handfield et al.: Sourcing and Supply Management, Hampshire</p> <p>Mangan, J./Lalwani C./Butcher T.: Global Logistics and Supply Chain Management, Hoboken</p> <p>Current editions</p> <p>In the recent edition.</p>
Module coordination	Prof. Dr. Benjamin Bierwirth
Teachers	Prof. Dr. Benjamin Bierwirth, lecturers of the faculty
Notes (In particular, recommended prior knowledge)	
U!REKA-Module	No

Module 6: Global and Sustainable Logistics

Module title	Global and Sustainable Logistics
Module number	6
Module usability	Global Logistics (3 Semester) (M.Sc.)
Module duration	One semester
Module relevance	Compulsory module
ECTS points (CP) / workload (h)	5 CP / 150 hours
Recommended semester of study	2
Language(s) of instruction for this module	English
Language(s) of examination for this module	English
Availability	Each winter semester
Admission requirement(s) for the module and module examination	None
Requirements for awarding ECTS points:	
A) Prerequisite assessments for admission to the module examination (type, workload, duration and grading scheme)	None
B) Final module assessment (type, workload, duration and grading scheme)	Written examination (90 minutes) Grading scheme: graded as per §15 AB BA/MA Frankfurt UAS
Learning outcomes / skills	<p>Participating students will be able to achieve the following fundamental competencies in hub and transport logistics as well as regarding sustainability in logistics: Students will be able to analyze systematically, evaluate and solve complex situations while planning or operating logistics infrastructure and processes using applicable methods. They can assess the progress towards sustainable logistics and are able to evaluate new logistics concepts with regards to reduction of emissions.</p> <p>Expanding and deepening theoretical knowledge while implementing practical tests with logistical problems the students will train their social skills and organization method during group works and discussions. This is done by performing case studies as well as workshops with companies.</p> <p>With the aid of decision support systems to develop solutions, students cannot only discuss alternative solutions but also evaluate those.</p> <p>Working on case studies strengthens the social skills of the students, improves cooperation and communication skills and trains their ability to deal with conflicts.</p>
Course title	Hub and Transport Logistics (2 SWS) Sustainable Logistics (2 SWS)
Module content	Hub and Transport Logistics: The focus of this unit are hubs (e.g. airports, transshipment facilities, terminals, ports) as the central nodes in transportation networks as well as

	<p>international transport logistics with different modes of transport (road, rail, sea, air). Based on the specific processes the material, information and financial flows will be outlined and discussed.</p> <p>The required infrastructure and its design as well as the management challenges for the various players in the transport chain will be presented. New technologies or current trends will be outlined - latest industry developments will be presented by guest lectures from various companies.</p> <ul style="list-style-type: none"> - Development of the transport industry, - Basic Knowledge of the traffic industry, - Mode of transport, - Transport infrastructure, - Material handling and communication technologies - Transport Markets, - Logistics services <p>Sustainable Logistics: The focus of this unit is the introduction of sustainability and its challenges in logistics. The state of the logistics industry, as per mode of transport, will be presented. New concepts and the impact of sustainability initiatives will be discussed.</p> <ul style="list-style-type: none"> - Concept of Sustainability (3-Pillar) - Emissions calculations in logistics - Sustainability initiatives in the various modes of transport - Sustainable Last-Mile-Logistics concepts - Trends and challenges
Learning and teaching formats	Seminar, Seminar-based Course
SCH of the module	4 SWS
Contact hours (h)	60 h
Independent study (h)	90 h
Practice hours (h)	0 h
Literature	<p>Hub and Transport Logistics: Christopher, M.: Logistics & Supply Chain Management, Upper Saddle River Goldsby, T./lynegar, D./Rao, S.: Definitive Guide to Transportation, Principles, Strategies, and Decisions for the Effective Flow of Goods and Services, Upper Saddle River</p> <p>Sustainable Logistics: Shekarian, E., Ijadi, B., Zare, A., & Majava, J. (2022): Sustainable supply chain management: a comprehensive systematic review of industrial practices. Sustainability, 14(13), 7892. Cano, J. A., Londoño-Pineda, A., & Rodas, C. (2022): Sustainable logistics for e-commerce: A literature review and bibliometric analysis. Sustainability, 14(19), 12247. Clausen, U./Dellbrügge, M.: Advances in Resilient and Sustainable Transport, Berlin. Golinska-Dawson, P., Tsai, K.-M., Werner-Lewandowska, K. (2023): Smart and Sustainable Supply Chain and Logistics, Cham Heizer, J., Render, B., Munson, C. (2019): Operations Management: Sustainability and Supply Chain Management, London</p> <p>In the recent edition.</p>

Module coordination	Prof. Dr. Benjamin Bierwirth
Teachers	Prof. Dr. Benjamin Bierwirth, lecturers of the faculty
Notes (In particular, recommended prior knowledge)	
U!REKA-Module	No

Module 7: Empirical Methods

Module title	Empirical Methods
Module number	7
Module usability	Global Logistics (3 Semester) (M.Sc.)
Module duration	One semester
Module relevance	Compulsory module
ECTS points (CP) / workload (h)	5 CP / 150 hours
Recommended semester of study	2
Language(s) of instruction for this module	English
Language(s) of examination for this module	English
Availability	Each winter semester
Admission requirement(s) for the module and module examination	None
Requirements for awarding ECTS points:	
A) Prerequisite assessments for admission to the module examination (type, workload, duration and grading scheme)	None
B) Final module assessment (type, workload, duration and grading scheme)	Portfolio examination consisting of: 1. Presentation of the results of a case study/small research project (at least 20, at most 30 minutes) with written assignment (processing time 4 weeks), weighting 50% 2. Written examination (60 minutes), weighting 50% Grading scheme: graded as per §15 AB BA/MA Frankfurt UAS
Learning outcomes / skills	Students can apply their knowledge of statistical estimation and testing to questions from the field of global logistics. They are able to specify and estimate explanatory and decision-making models from the field of logistics and economics using multivariate regression analysis. Students are familiar with approaches to solving data and estimation problems and can select and apply these according to the problem at hand. As small research-teams, the students will learn to collaboratively develop solutions for real-world problems and data from the fields of global logistics and economics on the basis of the statistical and econometric methods and estimation techniques taught in this module and to implement them using suitable software (e.g. Python or R).
Course title	Methods in Empirical Research (4 SWS)
Module content	Estimation methods: Desirable properties of estimators, point and interval estimation for the arithmetic mean of a population, point and interval estimation for the proportion in a population, point and interval estimation for the variance of a population. Testing statistical hypotheses: Hypothesis tests and significance levels,

	<p>testing hypotheses about the mean of a population, testing hypotheses about the proportion in a population, testing hypotheses about the variance of a population.</p> <p>Testing statistical hypotheses for two populations: Testing the equality of means of two populations, testing the equality of proportions in two populations, testing the equality of variances of two populations, testing the equality of means in related samples.</p> <p>Testing statistical hypotheses about distributions: Chi-squared goodness-of-fit tests, normal distribution test.</p> <p>Univariate regression analysis: Criteria for the determination of regression functions, determination of the linear univariate regression function using the least squares method, properties of linear least squares univariate regressions, decomposition of the deviation sum of squares and linear coefficient of determination, sampling model of linear univariate regressions, distributions of the sample regression coefficients, confidence intervals for the regression coefficients, tests for the regression coefficients in linear univariate regressions.</p> <p>Multivariate regression analysis: Estimation of regression coefficients in linear multivariate regression models, distribution of sample regression coefficients, confidence intervals and tests for the regression coefficients in linear multivariate regression models, multivariate and partial coefficients, forecasting using multivariate regression models, non-linear regression functions, use of dummy variables in regression analysis.</p>
Learning and teaching formats	Seminar with case study
SCH of the module	4 SWS
Contact hours (h)	60 h
Independent study (h)	90 h
Practice hours (h)	0 h
Literature	<p>Asteriou, D./Hall, S. G.: Applied Econometrics, New York et al.</p> <p>Greene, W. H.: Econometric Analysis, Upper Saddle River, New Jersey.</p> <p>Kaganovsky, L.: Applied Statistics with Python, Roca Baton, London, New York.</p> <p>Washington, S. P./Karlaftis, M. G./Mannering, F. L. et al.: Statistical and Econometric Methods for Transportation Data Analysis, Roca Baton, London, New York.</p> <p>Wooldridge, J. M.: Introductory Econometrics: A Modern Approach, Boston (MA).</p> <p>Current editions</p> <p>In the recent edition.</p>
Module coordination	Prof. Dr. Andre Jungmittag
Teachers	Prof. Dr. Andre Jungmittag, lecturers of the faculty
Notes (In particular, recommended prior knowledge)	Recommended previous knowledge: Analysis, basics of linear algebra, descriptive statistics and basics of probability theory
U!REKA-Module	No

Module 8: Quantitative Methods

Module title	Quantitative Methods
Module number	8
Module usability	Global Logistics (3 Semester) (M.Sc.)
Module duration	One semester
Module relevance	Compulsory module
ECTS points (CP) / workload (h)	5 CP / 150 hours
Recommended semester of study	2
Language(s) of instruction for this module	English
Language(s) of examination for this module	English
Availability	Each winter semester
Admission requirement(s) for the module and module examination	None
Requirements for awarding ECTS points:	
A) Prerequisite assessments for admission to the module examination (type, workload, duration and grading scheme)	None
B) Final module assessment (type, workload, duration and grading scheme)	Portfolio examination consisting of: 1. Presentation of the results of a case study/small research project (at least 20, at most 30 minutes) with written assignment (processing time 4 weeks), weighting 50% 2. Written examination (60 minutes), weighting 50% Grading scheme: graded as per §15 AB BA/MA Frankfurt UAS
Learning outcomes / skills	The students know quantitative and qualitative methods of economic and social sciences and are able to adopt those into practice. They have learned to structure and analyze optimization problems in logistics. They are able to describe optimization problems in mathematical terms and have mastered mathematical optimization techniques to solve these problems. Based on the mathematical solution, they are able to draw practical conclusions that take economics and social aspects into account. Furthermore students are able to define and answer empirical questions. They are able to propose hypotheses and derive predictions from evidence collected. They use statistical formulas and methods of result analysis to forming logical, valid conclusions. As small research-teams, the students will learn to collaboratively develop and implement solutions for real-world problems from the field of Operations Research on the basis of the concepts and techniques taught in this module and to implement them using suitable software (e.g. Python or R).
Course title	Quantitative Methods in Logistics (4 SWS)
Module content	Linear optimization, examples: production planning, transport problems, vehicle routing (travelling salesman problem), location planning, over-view

	<p>of solution algorithms, outlook of non-linear programming. Graphs, trees, network, network plan, examples: critical path analysis, logistical networks. Queuing models Linear optimization, examples: production program planning, transport problems, mixture problems, travelling salesman problem, overview of solution algorithms, outlook of non-linear programming. Graphs, trees, network, network plan, examples: critical path analysis, logistical networks. Queuing theory, examples: logistical chain.</p>
Learning and teaching formats	Seminar with case study
SCH of the module	4 SWS
Contact hours (h)	60 h
Independent study (h)	90 h
Practice hours (h)	0 h
Literature	<p>Taha, H.A.: Operations Research – An Introduction, Pearson Heizer, J., Render, B.: Operations Management, Pearson Current editions</p> <p>In the recent edition.</p>
Module coordination	Prof. Dr. Andre Jungmittag
Teachers	Prof. Dr. Andre Jungmittag, lecturers of the faculty
Notes (In particular, recommended prior knowledge)	
U!REKA-Module	No

Module 9: IT based Process Management

Module title	IT based Process Management
Module number	9
Module usability	Global Logistics (3 Semester) (M.Sc.)
Module duration	One semester
Module relevance	Compulsory module
ECTS points (CP) / work-load (h)	5 CP / 150 hours
Recommended semester of study	2
Language(s) of instruction for this module	English
Language(s) of examination for this module	English
Availability	Each winter semester
Admission requirement(s) for the module and module examination	None
Requirements for awarding ECTS points:	
A) Prerequisite assessments for admission to the module examination (type, workload, duration and grading scheme)	None
B) Final module assessment (type, workload, duration and grading scheme)	Project work (processing time 8 weeks) with presentation (at least 15, at most 30 minutes) Grading scheme: graded as per §15 AB BA/MA Frankfurt UAS
Learning outcomes / skills	The students acquire deepened knowledge in the field of applied business process management and selected IT-supported logistical processes. Upon completion of the module the student is able to <ul style="list-style-type: none"> - document, classify and analyze key processes in this area. - apply the methods for designing decision-making and business processes and the methods for implementing them in an ERP-system, in particular with SAP. - perform typical tasks and processes on a computer system in the context of case studies. - reflect on their own ideas and methods and compare them critically in team exercises. - analyze the knowledge they have acquired and put it into practice. - identify and analyze problems in the implementation of decision-making and business processes and solve those if necessary. - present project plans, methods and solutions to an expert audience and reflect and discuss different views of processes.
Course title	IT based Process Management (4 SWS)
Module content	<ul style="list-style-type: none"> - IT-based modelling of business and decision processes (e.g with BPMN and DMN). - Mapping of organizational structures and data to an IT-System. - Modelling and running logistical processes on an IT-System.

	<p>- ERP case studies focusing on logistics (e.g. sales, materials management, production planning and, where appropriate, corresponding areas like controlling, finance or human resources).</p> <p>- Practical use of and exercises on a market-leader ERP system (e.g. SAP/HANA).</p> <p>The project deliverable requires the practical implementation of the required objects in the ERP system, a project report in written form and a presentation of the final result or intermediate status of work.</p>
Learning and teaching formats	Seminar-based Course
SCH of the module	4 SWS
Contact hours (h)	60 h
Independent study (h)	90 h
Practice hours (h)	0 h
Literature	<p>Kurbel, K. E.: Enterprise Resource Planning and Supply Chain Management : Functions, Business Processes and Software for Manufacturing Companies, Springer, Heidelberg.</p> <p>Manish P.: Discover SAP ERP Financials, Gallileo Press, Boston.</p> <p>Murray, M.: Discover Logistics with SAP, Gallileo Press, Boston.</p> <p>Sarferaz, S.: Compendium on Enterprise Resource Planning : Market, Functional and Conceptual View Based on SAP S/4HANA, Springer, Cham.</p> <p>Vom Brocke, J. / Roseman, M.: Introduction, methods and information systems, Handbook on business process management, Vol. 1, Springer, New York.</p> <p>Vom Brocke, J. / Mendling, J.: Business Process Management Cases, Springer, Cham.</p> <p>Weske, M.: Business Process Management, Springer, Berlin.</p> <p>In the recent edition.</p>
Module coordination	Prof. Dr. Ralf Banning
Teachers	Prof. Dr. Ralf Banning, lecturers of the faculty
Notes (In particular, recommended prior knowledge)	
U!REKA-Module	No

Module 10: International Trade and International Business Law

Module title	International Trade and International Business Law
Module number	10
Module usability	Global Logistics (3 Semester) (M.Sc.)
Module duration	One semester
Module relevance	Compulsory module
ECTS points (CP) / workload (h)	5 CP / 150 hours
Recommended semester of study	2
Language(s) of instruction for this module	English
Language(s) of examination for this module	English
Availability	Each winter semester
Admission requirement(s) for the module and module examination	None
Requirements for awarding ECTS points:	
A) Prerequisite assessments for admission to the module examination (type, workload, duration and grading scheme)	None
B) Final module assessment (type, workload, duration and grading scheme)	Written examination (90 minutes) Grading scheme: graded as per §15 AB BA/MA Frankfurt UAS
Learning outcomes / skills	<p>International Trade: Students will be able to analyze the development of the world economy in the 21st century based on relevant models of international trade, including new theoretical approaches. Particularly, they will understand the links between foreign trade (economic openness), technological dynamics and economic growth.</p> <p>International Business Law: Students can identify the legal structure of the European Union and comprehend the impact of EU law on Member States. In particular, they can analyze the functioning of the Single European Market. Regarding conflicts of laws, they understand the general principles of private international law (on determining the applicable law) and international procedure law. They also know the basic rules of UN sales law (CISG). Students can autonomously research on legal topics and present their findings in class. They are capable of reading and interpreting European and national law texts, and derive from them the solutions to legal problems.</p>
Course title	International Trade (2 SWS) International Business Law (2 SWS)
Module content	International Trade: Foreign Trade Theory: technological differences and comparative advantage; factor endowment and foreign trade; returns to scale; foreign trade

	<p>and internationalization of the production.</p> <p>Foreign Trade Policy: tools of the trade policy (duties, import rate, ex-port restrictions and their impacts); economic integration (preference zone, free trade zone, tariff union, common market); multilateral trade policy (GATT;GATS;TRIPS; WTO).</p> <p>International Business Law: European Business Law: legal and institutional framework of the European Union; influence of European law on national legislation; fundamental freedoms in the Single European Market International Business Law: general principles of private international law; private international law re contracts, tort, property and company law (Rome I-Regulation, Rome II-Regulation and the German EGBGB); international procedure law (Brussels Ia-Regulation and the German Code of Civil Procedure); UN sales law (CISG)</p>
Learning and teaching formats	Seminar-based Course
SCH of the module	4 SWS
Contact hours (h)	60 h
Independent study (h)	90 h
Practice hours (h)	0 h
Literature	<p>International Trade: Krugman, Obstfeld and Melitz: International Economics – Theory and Policy, Pearson Carbaugh: Global Economics, South Western Love and Lattimore: International Trade – Free, Fair and Open? OECD Insight, OECD Publishing</p> <p>International Business Law: In class, we are mainly working with original law texts, namely Treaty on European Union, Treaty on the Functioning of the European Union, Rome I Regulation, Rome II Regulation, German EGBGB, Brussels Ia Regulation, German Code of Civil Procedure and CISG. In addition, we analyze judgements of the European Court of Justice and search for valid sources on European and international business law on the internet as students shall be trained in autonomous legal research. Therefore, specific literature is not listed here.</p> <p>In the recent edition.</p>
Module coordination	Prof. Dr. Andre Jungmittag, Prof. Dr. Stefanie Sendmeyer
Teachers	Prof. Dr. Andre Jungmittag, Prof. Dr. Stefanie Sendmeyer, lecturers of the faculty
Notes (In particular, recommended prior knowledge)	
U!REKA-Module	No

Module 11: Supply Chain Management

Module title	Supply Chain Management
Module number	11
Module usability	Global Logistics (3 Semester) (M.Sc.)
Module duration	One semester
Module relevance	Compulsory module
ECTS points (CP) / workload (h)	5 CP / 150 hours
Recommended semester of study	3
Language(s) of instruction for this module	English
Language(s) of examination for this module	English
Availability	Each summer semester
Admission requirement(s) for the module and module examination	None
Requirements for awarding ECTS points:	
A) Prerequisite assessments for admission to the module examination (type, workload, duration and grading scheme)	None
B) Final module assessment (type, workload, duration and grading scheme)	Written examination (90 minutes) Grading scheme: graded as per §15 AB BA/MA Frankfurt UAS
Learning outcomes / skills	<p>The students are able to apply presented generic supply chain strategies and dedicated SCM concepts. The students can understand problems in supply chain design and coordination and are able to identify the respective root causes. They are able to apply established approaches how to tackle those issues and address these problems with the existing academic research methods.</p> <p>The students have the ability to analyze and optimize integrated, efficient and flexible processes including customers, suppliers, manufacturers and service providers. According to the requirements of companies, who are linked to each other through an economical and technical chain, the students achieve a cross-company view on the supply chain and the ability to optimize overarching processes. They are able to perform an analysis of organization and functions.</p> <p>The students learn social competence through the joint preparation of case studies. They improve their cooperational and communicational skills as well as conflict handling skills during the group work.</p>
Course title	Supply Chain Management (4 SWS)
Module content	The lecture course addresses fundamental topics in supply chain design and coordination and is featuring a range of operations from research/management science approaches to the associated decision making via

	<p>mathematical modelling and model-based analysis.</p> <ul style="list-style-type: none"> - Building a strategic framework to analyze supply chains - Designing the supply chain network - Understanding generic supply chain strategies - Planning and coordinating demand and supply in a supply chain - Planning and managing inventories in a supply chain - Designing and planning transportation networks - Managing cross-functional drivers in a supply chain - Analysis of reference models and SCM concepts (e.g. SCOR, SCRM, VMI, CPFR)
Learning and teaching formats	Seminar-based Course
SCH of the module	4 SWS
Contact hours (h)	60 h
Independent study (h)	90 h
Practice hours (h)	0 h
Literature	<p>Chopra, S., Meindl, P.: Supply Chain Management, London Mangan, J./ Lalwani, C./ Butcher, T.: Global Logistics and Supply Chain Management, Hoboken Stadtler, H./ Kilger, C./ Meyr, H.: Supply Chain Management and Advanced Planning, Berlin Stadtler, H., et. al.: Advanced Planning in Supply Chains, Berlin Harvard Case Studies Current edition</p> <p>In the recent edition.</p>
Module coordination	Prof. Dr. Benjamin Bierwirth
Teachers	Prof. Dr. Benjamin Bierwirth, lecturers of the faculty
Notes (In particular, recommended prior knowledge)	
U!REKA-Module	No

Module 12: Research Project

Module title	Research Project
Module number	12
Module usability	Global Logistics (3 Semester) (M.Sc.)
Module duration	One semester
Module relevance	Compulsory module
ECTS points (CP) / workload (h)	10 CP / 300 hours
Recommended semester of study	3
Language(s) of instruction for this module	English
Language(s) of examination for this module	English
Availability	Each summer semester
Admission requirement(s) for the module and module examination	None
Requirements for awarding ECTS points:	
A) Prerequisite assessments for admission to the module examination (type, workload, duration and grading scheme)	None
B) Final module assessment (type, workload, duration and grading scheme)	Project work (processing time 8 weeks) with presentation (at least 5, at most 15 minutes) Grading scheme: graded as per §15 AB BA/MA Frankfurt UAS
Learning outcomes / skills	<p>Students are able to select, apply, analyze, present and work independently on selected models in logistics and economics. They are able to perform a structured literature review and summarize the results of research papers. They can develop or detail research questions for the given topic and are able to select a suitable scientific methodology for solving industrial problems or generate a scientific contribution.</p> <p>Students learn about different logistic concepts and economic models and how to adjust logistic models or methodology dependent on the respective cause of the given challenge.</p> <p>The students deepen their understanding of the potentials and limitations of the extended models from scientific papers and enhances problem-solving and creative thinking skills.</p> <p>The students apply themselves to demanding topics in the logistics and economics, sharpen their scientific expertise as well as improve their scientific writing and presentation skills.</p> <p>Through application-oriented logistical project work, students have learned to structure, manage, lead and take responsibility in cooperation with others. They are able to reflect on their own role in the team, assume that role and drive decision-making processes forward. This enables them to apply their practical and scientific knowledge independently and in a manner appropriate to the situation. Graduates can plan and carry out projects</p>

	methodically supported at management level independently and act as consultants, project managers or executives.
Course title	Research Project (4 SWS)
Module content	<p>The task consists of a scientific research questions based on company/institutional challenge or research data. The project can be conducted in collaboration with an institution.</p> <p>The cases have to be solved according to academic and scientific standards and will generally contain empirical and theoretical components. A Structured Literature Review (SLR) is required in the project. Data collection can be an integral part of the project.</p> <p>A simplified draft of an academic paper is the intended output.</p>
Learning and teaching formats	Project
SCH of the module	4 SWS
Contact hours (h)	60 h
Independent study (h)	240 h
Practice hours (h)	0 h
Literature	<p>Will be published during course</p> <p>In the recent edition.</p>
Module coordination	Prof. Dr. Benjamin Bierwirth
Teachers	Prof. Dr. Benjamin Bierwirth, lecturers of the faculty
Notes (In particular, recommended prior knowledge)	
U!REKA-Module	No

Module 13: Information Systems in Logistics

Module title	Information Systems in Logistics
Module number	13
Module usability	Global Logistics (3 Semester) (M.Sc.)
Module duration	One semester
Module relevance	Compulsory module
ECTS points (CP) / workload (h)	5 CP / 150 hours
Recommended semester of study	3
Language(s) of instruction for this module	English
Language(s) of examination for this module	English
Availability	Each summer semester
Admission requirement(s) for the module and module examination	None
Requirements for awarding ECTS points:	
A) Prerequisite assessments for admission to the module examination (type, workload, duration and grading scheme)	None
B) Final module assessment (type, workload, duration and grading scheme)	<p>Partial examinations:</p> <ol style="list-style-type: none"> 1. Written examination (90 minutes), weighting 50% Grading scheme: graded as per §15 AB BA/MA Frankfurt UAS 2. Project work (processing time 8 weeks) with presentation (at least 5, at most 15 minutes), weighting 50% Grading scheme: graded as per §15 AB BA/MA Frankfurt UAS
Learning outcomes / skills	<p>Students are able to describe and design decision-making processes in digital enterprises, as well as formulate suggestions for improvement. Students can differentiate between databases, data warehouses and data lakes, understanding their respective applications. They can describe the phases in database design and create conceptual and logical designs of relational databases.</p> <p>They also understand key information security concepts, including authentication, encryption, and protection against cyber attacks.</p> <p>Students can apply procedures for statistical data analysis within a business context and can explain machine learning concepts and their application in various domains.</p> <p>Lastly, students can reflect on emerging trends in business informatics, such as AI-driven decision-making, block-chain technologies, data mesh. They critically reflect on ethical and social implications of data-driven business processes, and take responsibility for continuous learning in the rapidly evolving field of digital business and data science.</p> <p>Students will receive an overview on major information systems used in the logistics domain such as Advanced Planning Systems (APS). They able to</p>

	<p>analyze and describe processes used in Advanced Planning Systems (APS) and logistics information systems.</p> <p>Students will work in groups developing solution approaches and design specifications for Information Systems in selected areas of the logistics domain and apply project management methods to a specific problem and communicate project status and requirements within IT projects.</p>
Course title	<p>Advanced Business Information Systems (2 SWS)</p> <p>Information Systems in Logistics (2 SWS)</p>
Module content	<p>Advanced Business Information Systems:</p> <p>Digital Economy:</p> <ul style="list-style-type: none"> - Digital Enterprises, and Data-driven Information Systems - Digital Transformation <p>Data Architectures:</p> <ul style="list-style-type: none"> - Static Data Models - Relational Database Organization, Business Intelligence / Data Warehousing, Data Lakes. - Dynamic data models - data (pre)processing methods and data stream processing (ETL, Spark), data cleansing <p>Information Security:</p> <ul style="list-style-type: none"> - Authentication and encryption methods - (Protection against) cyber attacks <p>Exploratory Data Analysis:</p> <ul style="list-style-type: none"> - Data Exploration, Clustering, Data Visualization (types of reports, dashboards, self-service). <p>Projects in a Digital Enterprise:</p> <ul style="list-style-type: none"> - Project management methods in Data Science e.g. with CRISP-DM. - Business process models <p>Frontiers in in Information Management</p> <ul style="list-style-type: none"> - e.g. Artificial Intelligence, Distributed Ledger, Data Mesh. <p>Information Systems in Logistics:</p> <ul style="list-style-type: none"> - Application of quantitative methods to solve logistical problems supported by software (e.g. planning function of SAP SRM) - Overview, classification and attributes of ERP and APS systems - Application software in logistics - Evaluation and limitations of the application in logistics and SCM
Learning and teaching formats	Seminar-based Course
SCH of the module	4 SWS
Contact hours (h)	60 h
Independent study (h)	90 h
Practice hours (h)	0 h
Literature	<p>Advanced Business Information Systems:</p> <p>Baesens, B.: Analytics in a Big Data World: The Essential Guide to Data Science and Its Applications, Hoboken.</p> <p>Castelli, G./Meregalli, S./Pennarola, F.: The Post-Digital Enterprise - Going Beyond the Hype, Cham.</p> <p>Bruce, P./Bruce, A./Gedeck, P.: Practical Statistics for Data Scientists: 50+ Essential Concepts Using Python and R, Sebastopol.</p> <p>Strengtholt, P.: Data Management at Scale, Sebastopol.</p>

	<p>Textbooks should be the most current edition. Further literature/resources will be announced at the beginning of the course.</p> <p>Information Systems in Logistics: Stadtler, H., Kilger, C., Meyr, H.: Supply Chain Management and Advanced Planning, Berlin Stadtler, H. et al: Advanced Planning in Supply Chains, Berlin Dickersbach, J. T.: Supply Chain Management with SAP APO, Berlin SCM case study university competence center</p> <p>In the recent edition.</p>
Module coordination	Prof. Dr. Benjamin Bierwirth, Prof. Dr. Dennis Forster
Teachers	Prof. Dr. Benjamin Bierwirth, Prof. Dr. Dennis Forster, lecturers of the faculty
Notes (In particular, recommended prior knowledge)	
U!REKA-Module	No

Module 14: General Framework in Transport Economics

Module title	General Framework in Transport Economics
Module number	14
Module usability	Global Logistics (3 Semester) (M.Sc.)
Module duration	One semester
Module relevance	Compulsory module
ECTS points (CP) / workload (h)	5 CP / 150 hours
Recommended semester of study	3
Language(s) of instruction for this module	English
Language(s) of examination for this module	English
Availability	Each summer semester
Admission requirement(s) for the module and module examination	None
Requirements for awarding ECTS points:	
A) Prerequisite assessments for admission to the module examination (type, workload, duration and grading scheme)	None
B) Final module assessment (type, workload, duration and grading scheme)	Written examination (90 minutes) Grading scheme: graded as per §15 AB BA/MA Frankfurt UAS
Learning outcomes / skills	The students know and are able to apply the basic models to analyze transport markets and transport industries. They can judge the relevance of these approaches for business as well as for economic decisions. The students know and can use the tools of economic geography to explain where economic activities occur. Furthermore, they can assess the relevance of spatial networks, agglomerations, core and periphery structures for business and economic processes and decisions. The students can apply abstract theoretical models to analyze complex processes and to reach decisions. They can adapt abstract theoretical models to concrete real-life decision processes.
Course title	Transport Economics (2 SWS) Economic Geography (2 SWS)
Module content	Transport Economics: Introduction: Transport and Economics Transport, Transport Markets, and the Transport Industries The Demand for Transport The Direct Costs of Transport The External Costs of Transport Pricing of Transport Services Containing the Environmental Costs of Transport Economics of Transport Logistic

	<p>Transport and Development</p> <p>Economic Geography: Traditional Economic Geography: Traditional Location Theory; Modeling Economic Geographies New Economic Geography: Conceptual Foundations and Basic Models (Monopolistic Competition, Transport Costs, Core and Periphery) Making the Spatial Economy: Cities, States, Countries; Mobility of Goods and Production Factors (Labor and Capital) Organizing Economic Space: Commodity Chains; Technological Change; International Trade; Transnational Corporations Agglomerations and Clusters</p>
Learning and teaching formats	Seminar-based Course
SCH of the module	4 SWS
Contact hours (h)	60 h
Independent study (h)	90 h
Practice hours (h)	0 h
Literature	<p>Transport Economics: Braeutigam, R. R.: Learning About Transport Costs, in: Essays in Transportation Economics and Policy: A Handbook in Honor of John R. Meyer, José A. Gómez-Ibáñez, William B. Tye, and Clifford Winston, editors, The Brookings Institution Button, K.: Transport Economics, Cheltenham, UK; Northampton, MA, USA Small, K. A./Verhoef, E. T./Lindsey, R.: The Economics of Urban Transportation, London and New York Current editions</p> <p>Economic Geography: Brakman, S./Garetsen, H./van Marrewijk, C.: The New Introduction to Geographical Economics, Cambridge, UK Coe, N.M./Kelly, P.F./Yeung, H.W.C.: Economic Geography: A Contemporary Introduction, Malden, MA, USA; Oxford, UK, Victoria, AUS Fujita, M./Krugman, P./Venables, A. J.: The Spatial Economy, Cambridge, MA, USA; London, UK Wood, A.: Economic Geography, New York Current editions</p> <p>In the recent edition.</p>
Module coordination	Prof. Dr. Andre Jungmittag
Teachers	Prof. Dr. Andre Jungmittag, lecturers of the faculty
Notes (In particular, recommended prior knowledge)	
U!REKA-Module	No

Module 15: Change Management

Module title	Change Management
Module number	15
Module usability	Global Logistics (3 Semester) (M.Sc.)
Module duration	One semester
Module relevance	Compulsory module
ECTS points (CP) / work-load (h)	5 CP / 150 hours
Recommended semester of study	3
Language(s) of instruction for this module	English
Language(s) of examination for this module	English
Availability	Each summer semester
Admission requirement(s) for the module and module examination	None
Requirements for awarding ECTS points:	
A) Prerequisite assessments for admission to the module examination (type, workload, duration and grading scheme)	None
B) Final module assessment (type, workload, duration and grading scheme)	Project work (processing time 6 weeks) with presentation (at least 10, at most 30 minutes) Grading scheme: graded as per §15 AB BA/MA Frankfurt UAS
Learning outcomes / skills	<p>The students are able to</p> <ul style="list-style-type: none"> - Understand the importance of change and the difference to stability - Be aware of the connection between management and change - Describe all different types of change and the connection to consequences of the working environment - Identify and apply the different types of change in daily business - Recognize the necessity of change in daily business - Apply change management processes and concepts - Identify barriers of change - Understand the phenomenon, reasons and consequences of conflicts - Deal with different type of conflicts and use conflict management tools <p>Students will be sensitized identifying and solving possibilities and challenges involved by an organizational change process. They are able to identify change concepts and transfer them into real situations or case studies as well as to evaluate the results. They are also able to work successfully in a team and can apply the learnt conflict and change concepts to achieve a productive teamwork while performing numerous exercises during class hours.</p>
Course title	Change Management (4 SWS)

Module content	Impact of Change and Stability; Relation of Management and Change; Types of Change; Models of Change; Causes of Change; Implementation of Change Management Processes
Learning and teaching formats	Seminar-based Course
SCH of the module	4 SWS
Contact hours (h)	60 h
Independent study (h)	90 h
Practice hours (h)	0 h
Literature	Cameron, E., Green, M.: Making Sense of Change Management: A complete guide to the models, tools & techniques of Organizational Change, Kogan Page Carnall, C.A.: Managing Change in Organizations, Prentice Hall Hayes, J.: The Theory and Practice of Change Management, Palgrave Macmillan; Jick, T.D., Peiperl, M.A.,: Managing Change, Cases and Concepts, McGraw- Hill Kotter, J. P.: Leading Change, Harvard Business School Press Current editions Additional literature will be published In the recent edition.
Module coordination	Prof. Dr. Nicolas Giegler
Teachers	Prof. Dr. Nicolas Giegler, lecturers of the faculty
Notes (In particular, recommended prior knowledge)	
U!REKA-Module	No

Module 16: Simulation in Logistics

Module title	Simulation in Logistics
Module number	16
Module usability	Global Logistics (3 Semester) (M.Sc.)
Module duration	One semester
Module relevance	Compulsory module
ECTS points (CP) / workload (h)	5 CP / 150 hours
Recommended semester of study	4
Language(s) of instruction for this module	English
Language(s) of examination for this module	English
Availability	Each winter semester
Admission requirement(s) for the module and module examination	None
Requirements for awarding ECTS points:	
A) Prerequisite assessments for admission to the module examination (type, workload, duration and grading scheme)	None
B) Final module assessment (type, workload, duration and grading scheme)	Project work (processing time 8 weeks) with presentation (at least 15, at most 30 minutes) Grading scheme: graded as per §15 AB BA/MA Frankfurt UAS
Learning outcomes / skills	The students <ul style="list-style-type: none"> - know the basic structure of event based simulation models - own the ability to use computer based simulation systems - understand the relevance of simulation in production and logistics - are able to transfer problems of production and logistics into structured simulation models and solve them with a specific methodology - have a deeper understanding of logistical problems and know the importance of and apply statistical methods for modelling and analysis of simulation studies - are able to explain and use the link between simulation and meta-heuristical algorithms and are able to characterize simulation software
Course title	Simulation in Logistics (4 SWS)
Module content	The students learn the fundamentals of modeling and simulation methods. In the course the simulation software Siemens Plant Simulation is introduced and the students will work with the software to do a practice-oriented simulation study in the field of production or logistics. Therefore the students need to link their expertise from logistics and production as well as operations research with knowledge in mathematics and statistics / computer science. <ul style="list-style-type: none"> - Basis in event-based simulation - Random numbers

	<ul style="list-style-type: none"> - Procedure model in simulation - Statistical methods for modelling and analysis - Case studies in simulation software
Learning and teaching formats	Seminar-based Course
SCH of the module	4 SWS
Contact hours (h)	60 h
Independent study (h)	90 h
Practice hours (h)	0 h
Literature	<p>Law, A.: Simulation Modelling and Analysis, New York Banks, J. et al: Discrete-Event Simulation, London Manuals for Siemens Plant Simulation software (Current editions)</p> <p>In the recent edition.</p>
Module coordination	Prof. Dr. Benjamin Bierwirth
Teachers	Prof. Dr. Benjamin Bierwirth, lecturers of the faculty
Notes (In particular, recommended prior knowledge)	
U!REKA-Module	No

Module 17: Master Thesis with Colloquium

Module title	Master Thesis with Colloquium
Module number	17
Module usability	Global Logistics (3 Semester) (M.Sc.)
Module duration	One semester
Module relevance	Compulsory module
ECTS points (CP) / work-load (h)	25 CP / 750 hours
Recommended semester of study	4
Language(s) of instruction for this module	English
Language(s) of examination for this module	English
Availability	Each semester
Admission requirement(s) for the module and module examination	For students of the three-semester program: At least 50 CP For students of the four-semester program: At least 80 CP
Requirements for awarding ECTS points:	
A) Prerequisite assessments for admission to the module examination (type, workload, duration and grading scheme)	None
B) Final module assessment (type, workload, duration and grading scheme)	Master-Thesis (processing time 20 weeks) with Colloquium (at least 30, at most 45 minutes) Grading scheme: graded as per §15 AB BA/MA Frankfurt UAS
Learning outcomes / skills	The master thesis is a supervised final thesis in a certain period proving the candidate's ability to apply scientific methods on a base of deepened or specialized knowledge in the field of logistics. Editing problem solutions, present final results and justify those results. The master thesis is a written scientific paper with a colloquium after the submission.
Course title	
Module content	
Learning and teaching formats	
SCH of the module	0 SWS
Contact hours (h)	0 h
Independent study (h)	0 h
Practice hours (h)	0 h
Literature	In the recent edition.
Module coordination	Prof. Dr. Benjamin Bierwirth

Teachers	Prof. Dr. Benjamin Bierwirth, lecturers of the faculty
Notes (In particular, recommended prior knowledge)	
U!REKA-Module	No