

Economics

wir821 - International Trade, Production and Change

Module label	International Trade, Production and Change
Module code	wir821
Credit points	6.0 KP
Workload	180 h
Applicability of the module	<ul style="list-style-type: none"> • kein Abschluss European Studies in Global Perspectives > Society, Economy and Politics • Master Applied Economics and Data Science (Master) > Economics • Master's Programme Business Administration, Economics and Law (Master) > Kernmodule CHI • Master's Programme Business Administration, Economics and Law (Master) > Schwerpunkt "China - Wirtschaft und Sprache" (CHI) - Kernmodule (MPO2020) • Master's Programme Business Administration, Economics and Law (Master) > Schwerpunkt "Transnational Economics and Law" (TEL) (MPO2020) • Master's Programme Business Administration, Economics and Law (Master) > Schwerpunkt "Volkswirtschaftslehre" (VWL) (MPO2020) • Master's programme Business Administration: Management and Law (Master) > Kernmodule CHI • Master's Programme Sustainability Economics and Management (Master) > Supplementary Modules
Responsible persons	<ul style="list-style-type: none"> • Trautwein, Hans-Michael (module responsibility) • Trautwein, Hans-Michael (authorised to take exams) • Bitzer, Jürgen (authorised to take exams) • Poppitz, Philipp (authorised to take exams) • Trautwein, Hans-Michael (Module counselling)
Prerequisites	keine
Skills to be acquired in this module	<ul style="list-style-type: none"> • Understanding of trade relations, international factor movements and corresponding balance-of-payments mechanisms. • Capability to discuss structural change in global trade and productions in terms of formal models and case studies. • Understanding of the causes and alternative strategies of economic integration in regional blocs. • Understanding of the causes and alternative strategies of economic transformation in emerging markets. • Ability to research data and evaluate the literature on specific aspects of international trade, production and structural change.
Module contents	<p>The lectures and seminar papers address issues in the following subfields:</p> <ul style="list-style-type: none"> • international trade, • international trade policies and regimes, • geographical economics, • foreign direct investment, • labour migration, • fragmentation of production, • regulations of international trade and factor movements, • development strategies, • regional integration.
Recommended reading	<p>Brakman, S.; Garretsen, H. & van Marrewijk, C. (2009): The New Introduction to Geographical Economics (2nd ed.). Cambridge: Cambridge University Press.</p> <p>Feenstra, R. (2003): Advanced International Trade: Theory and Evidence. Princeton: University Press.</p> <p>Further references to specific topics and current literature will be given in the events.</p>
Links	
Language of instruction	English

Duration (semesters)	1 Semester
Module frequency	jährlich
Module capacity	unlimited

Reference text

- Mitarbeit in Vorlesung und Seminar ist Pflicht für den Erwerb eines Leistungsnachweises, der als Referat im Seminar erbracht wird.
- Das Seminar wird in der Form eines Blockseminars abgehalten.
- Es gibt eine Vorbesprechung Anfang des Semesters, in der die Themen vergeben werden.

Examination		Prüfungszeiten	Type of examination	
Final exam of module		during term	seminar paper and presentation	
Type of course	Comment	SWS	Frequency	Workload of compulsory attendance
Lecture		2		28
Seminar		2		28
Total module attendance time				56 h

wir823 - International Finance and Exchange Rate Economics

Module label	International Finance and Exchange Rate Economics
Module code	wir823
Credit points	6.0 KP
Workload	180 h
Applicability of the module	<ul style="list-style-type: none"> • kein Abschluss European Studies in Global Perspectives > Society, Economy and Politics • Master Applied Economics and Data Science (Master) > Economics • Master's Programme Business Administration, Economics and Law (Master) > Basismodule • Master's Programme Business Administration, Economics and Law (Master) > Schwerpunktmodule AFT - VWL • Master's Programme Business Administration, Economics and Law (Master) > Schwerpunkt "Transnational Economics and Law" (TEL) (MPO2020) • Master's Programme Business Administration, Economics and Law (Master) > Schwerpunkt "Volkswirtschaftslehre" (VWL) (MPO2020) • Master's programme Business Administration: Management and Law (Master) > Basismodule • Master's programme Business Administration: Management and Law (Master) > Schwerpunktmodule AFT - VWL
Responsible persons	<ul style="list-style-type: none"> • Trautwein, Hans-Michael (module responsibility) • Trautwein, Hans-Michael (authorised to take exams) • Trautwein, Hans-Michael (Module counselling)
Prerequisites	
Skills to be acquired in this module	<ul style="list-style-type: none"> • Understanding of exchange rates as strategic prices in open economies. • Understanding of the interdependence of balance-of-payments constraints and exchange rates. • Capability to discuss different models of exchange rate determination. • Ability to research data and evaluate the literature on specific aspects of financial market globalization and strategies of exchange-rate policy. • Understanding of the history of fixed-exchange-rate systems. • Ability to relate the importance of historical experience in international monetary and financial economics.
Module contents	<p>The lectures address the following issues:</p> <ul style="list-style-type: none"> • exchange rates and the balance of payments, • open-economy macroeconomics, • exchange rate determination, • international financial markets, • fixed-exchange-rate systems, • currency crises, • optimum currency areas and monetary integration, • choice of exchange rate regime, • financial market regulation. <p>In the seminar students will present papers on general and topical issues (theoretical models, policy strategies, case studies) in the fields of financial market globalization and exchange-rate policy.</p>
Recommended reading	<p>Selected chapters from:</p> <p>Copeland, L. (2008): Exchange Rates and International Finance (5th ed.). Harlow: Pearson.</p> <p>Eichengreen, B. (2008): Globalizing Capital: A History of the International Monetary System (2nd ed.). Princeton: Princeton University Press.</p> <p>Gandolfo, G. (2016): International Finance and Open-Economy Macroeconomics (2nd ed.). Berlin: Springer.</p> <p>And other specific readings for the seminar papers.</p>
Links	
Language of instruction	English
Duration (semesters)	1 Semester
Module frequency	jährlich

Module capacity

unlimited

Reference text

- Mitarbeit in Vorlesung und Seminar ist Pflicht für den Erwerb eines Leistungsnachweises.
- Das Seminar wird in der Form eines Blockseminars abgehalten.
- Es gibt eine Vorbesprechung Anfang des Semesters, in der die Themen vergeben werden.

Examination		Prüfungszeiten	Type of examination	
Final exam of module		Während der Vorlesungszeit	Referat oder mündliche Prüfung	
Type of course	Comment	SWS	Frequency	Workload of compulsory attendance
Lecture		2		28
Seminar		2		28
Total module attendance time				56 h

wir873 - Applied Economics

Module label	Applied Economics			
Module code	wir873			
Credit points	6.0 KP			
Workload	180 h			
Applicability of the module	<ul style="list-style-type: none"> • Master Applied Economics and Data Science (Master) > Economics • Master's Programme Business Administration, Economics and Law (Master) > Schwerpunkt "Volkswirtschaftslehre" (VWL) (MPO2020) • Master's Programme Sustainability Economics and Management (Master) > Supplementary Modules 			
Responsible persons	<ul style="list-style-type: none"> • Bitzer, Jürgen (module responsibility) • Lehrenden, Die im Modul (authorised to take exams) 			
Prerequisites				
Skills to be acquired in this module	<p>The students are able to:</p> <ul style="list-style-type: none"> - develop an empirical research project, - collect the required data, - carry out an econometric analysis, - interpret, discuss and present the results. 			
Module contents	<p>The module consists of a lecture and a seminar. In the lecture, the students develop their research project and present their work process. In the bloc seminar, the students present their results and discuss them.</p>			
Recommended reading				
Links				
Languages of instruction	German, English			
Duration (semesters)	1 Semester			
Module frequency	jährlich			
Module capacity	unlimited			
Reference text	<p>Dieses Modul besteht aus einer Vorlesung und einem Seminar. Beide Veranstaltungen werden in englischer Sprache angeboten. Sollten keine Austauschstudenten teilnehmen, kann auf Wunsch der StudentInnen die Veranstaltung auch in Deutsch abgehalten werden. Die Präsentation von Referaten im Seminar ist in Ausnahmefällen auch in deutscher Sprache möglich.</p>			
Examination	Prüfungszeiten	Type of examination		
Final exam of module	vary according to type of examination	term paper or seminar paper and presentation or written exam or oral exam or portfolio or project paper		
Type of course	Comment	SWS	Frequency	Workload of compulsory attendance
Lecture		2		28
Seminar		2		28
Total module attendance time				56 h

wir874 - Advanced Microeconomics

Module label	Advanced Microeconomics			
Module code	wir874			
Credit points	6.0 KP			
Workload	180 h			
Applicability of the module	<ul style="list-style-type: none"> • Master Applied Economics and Data Science (Master) > Economics • Master's Programme Business Administration, Economics and Law (Master) > Basismodule • Master's Programme Business Administration, Economics and Law (Master) > Kernmodule CHI • Master's Programme Business Administration, Economics and Law (Master) > Mantelmodule (MPO2020) • Master's programme Business Administration: Management and Law (Master) > Basismodule • Master's programme Business Administration: Management and Law (Master) > Kernmodule CHI • Master's programme Social Sciences (Master) > Wahlpflichtmodule anderer Institute und Departments 			
Responsible persons	<ul style="list-style-type: none"> • Helm, Carsten (module responsibility) • Lehrenden, Die im Modul (authorised to take exams) • Lehrenden, Die im Modul (Module counselling) 			
Prerequisites	keine			
Skills to be acquired in this module	<p>Students</p> <ul style="list-style-type: none"> • understand the importance of incentive systems for economic processes and can analyze the effects of incentive systems; • have a firm knowledge in game theory and contract theory, and can address questions in the context of scientific discussion; • are able to apply methods from game theory and contract theory largely independently to the analysis of situations in which agents interact strategically; • are able to design incentive schemes – on their own and in teams – and to acquire knowledge on their own for this purpose and, to present their results, and to defend them in the scientific discourse. 			
Module contents	<p>The first part of the module covers game theory. Game theory is an important method in economics to analyze strategic interactions of agents, e.g., on markets, in organizations or in bargaining situations.</p> <p>The second part of the module covers contract theory that – according to the Nobel laureate Kenneth Arrow – has been „the most important development in economics in the last forty years“. We work out the fundamentals of screenings, signaling and moral hazard and apply them to different topics, e.g., from labor economics, economic organization and management, law and economics as well as industrial economics.</p> <p>In both parts, there is a tutorial. Here students largely independently apply the acquired knowledge to different situations of strategic interaction in economics and present their results.</p>			
Recommended reading	<ul style="list-style-type: none"> - Gibbons, R. (1992): A Primer in Game Theory. FT Prentice Hall (main text for 1st part) - Tadelis, St. (2012): Game Theory. An Introduction. ? Princeton Univers. Press. - Watson, J. (2013): Strategy: An Introduction to Game Theory. Norton (main text for 2nd part) - Osborne, M.J. (2003): An Introduction to Game Theory. Oxford University Press. - Salanie, B. (2005): The Economics of Contracts: A Primer. MIT Press. 			
Links	http://www.fwiwi.uni-oldenburg.de/			
Language of instruction	English			
Duration (semesters)	1 Semester			
Module frequency	jährlich			
Module capacity	unlimited			
Examination	Prüfungszeiten	Type of examination		
Final exam of module	At the end of the lecture period.	exam		
Type of course	Comment	SWS	Frequency	Workload of compulsory attendance
Course or seminar		4	WiSe	56
Exercises			--	0
Total module attendance time				56 h

wir876 - Topics in Economic Research

Module label	Topics in Economic Research			
Module code	wir876			
Credit points	6.0 KP			
Workload	180 h			
Applicability of the module	<ul style="list-style-type: none"> • Master Applied Economics and Data Science (Master) > Economics • Master's Programme Business Administration, Economics and Law (Master) > Schwerpunkt "Volkswirtschaftslehre" (VWL) (MPO2020) • Master's Programme Water and Coastal Management (Master) > Socioeconomics 			
Responsible persons	<ul style="list-style-type: none"> • Bitzer, Jürgen (module responsibility) • Böhringer, Christoph (module responsibility) • Helm, Carsten (module responsibility) • Trautwein, Hans-Michael (module responsibility) • Huse, Cristian (module responsibility) • Gören, Erkan (module responsibility) • Asane-Otoo, Emmanuel (module responsibility) • Lehrenden, Die im Modul (authorised to take exams) • Lehrenden, Die im Modul (Module counselling) 			
Prerequisites				
Skills to be acquired in this module	<p>Students have the opportunity to take an economics module of their choice (worth 6 CP) at the master's level. This can also take place at another university or during studies abroad.</p> <p>Students are required to:</p> <ul style="list-style-type: none"> • independently engage with a topic using scientific methods, • independently research and make use of current academic literature, • integrate their topic into an academic discussion. 			
Module contents	This is dependent upon the module chosen.			
Recommended reading				
Links				
Languages of instruction				
Duration (semesters)	1 Semester			
Module frequency	halbjährlich			
Module capacity	unlimited			
Examination	Prüfungszeiten	Type of examination		
Final exam of module	will be announced in the first session	term paper or presentation or written exam or oral exam or portfolio.		
Type of course	Comment	SWS	Frequency	Workload of compulsory attendance
Course or seminar (oder Kolloquium)		4	SuSe	56
Colloquium			SuSe	0
Exercises			SuSe and WiSe	0
Total module attendance time				56 h

wir878 - Public Economics and Market Design

Module label	Public Economics and Market Design	
Module code	wir878	
Credit points	6.0 KP	
Workload	180 h	
Applicability of the module	<ul style="list-style-type: none"> • Master Applied Economics and Data Science (Master) > Economics • Master's Programme Business Administration, Economics and Law (Master) > Schwerpunkt "Volkswirtschaftslehre" (VWL) (MPO2020) • Master's programme Social Sciences (Master) > Wahlpflichtmodule anderer Institute und Departments • Master's Programme Sustainability Economics and Management (Master) > Supplementary Modules • Master's Programme Water and Coastal Management (Master) > Socioeconomics 	
Responsible persons	<ul style="list-style-type: none"> • Lehrenden, Die im Modul (Module counselling) • Helm, Carsten (Module counselling) • Helm, Carsten (module responsibility) • Lehrenden, Die im Modul (authorised to take exams) 	
Prerequisites	none	
Skills to be acquired in this module	<p>The students are able</p> <ul style="list-style-type: none"> • to understand sources of market failures and government failures • understand taxing and spending activities of governments • understand the distinction between normative and positive perspectives in the evaluation of government policy • to apply economic methods to current issues in public economics • present their research result in the form of written papers and oral presentations 	
Module contents	<ul style="list-style-type: none"> • The course covers key concepts of public economics, which studies how government taxing and spending activities affect the economy – economic efficiency and the distribution of income and wealth. <p>Lecture: After introducing the theory and methodology of public economics, we discuss a historical and theoretical overview of the public sector. We then focus on departures from efficiency (especially asymmetric information), taxation issues (including tax evasion, fiscal federalism and tax competition among independent jurisdictions), and the intertemporal issue of social security (especially pension system).</p> <p>Seminar: covers current issues in public economics, e.g. reform of health care or pension system.</p>	
Recommended reading	<ul style="list-style-type: none"> • Hindriks, J. and G. D. Myles (2013): Intermediate Public Economics, MIT Press, Cambridge. • Rosen, H.S. and T. Gayer (2010): Public Finance, Mcgraw-Hill Higher Education. • Blankart, C. B. (2011): Öffentliche Finanzen in der Demokratie, Vahlen, München. • Corneo, G. (2009): Öffentliche Finanzen: Ausgabenpolitik, Mohr Siebeck, Tübingen. 	
Links	http://www.fiwi.uni-oldenburg.de/	
Languages of instruction	German, English	
Duration (semesters)	1 Semester	
Module frequency	jährlich	
Module capacity	30	
Reference text	The seminar will be conducted as a block seminar	
Examination	Prüfungszeiten	Type of examination
Final exam of module	end of semester	seminar paper end presentation

Type of course	Comment	SWS	Frequency	Workload of compulsory attendance
Lecture and seminar		2	SuSe	28
Seminar		2		28
Total module attendance time				56 h

wir901 - Environmental Economics

Module label	Environmental Economics			
Module code	wir901			
Credit points	6.0 KP			
Workload	180 h (Lecture: 3 SWS (42h) Exercise: 1 SWS (14h))			
Applicability of the module	<ul style="list-style-type: none"> • Master Applied Economics and Data Science (Master) > Economics • Master's Programme Business Administration, Economics and Law (Master) > Schwerpunktmodule NM-VWL • Master's Programme Business Administration, Economics and Law (Master) > Schwerpunkt "Volkswirtschaftslehre" (VWL) (MPO2020) • Master's programme Business Administration: Management and Law (Master) > Schwerpunktmodule NM-VWL • Master's Programme Computing Science (Master) > Module aus anderen Studiengängen • Master's Programme Environmental Modelling (Master) > Mastermodule • Master's Programme Sustainability Economics and Management (Master) > Basic Modules 			
Responsible persons	<ul style="list-style-type: none"> • Helm, Carsten (Module counselling) • Lehrenden, Die im Modul (Module counselling) • Lehrenden, Die im Modul (authorised to take exams) • Helm, Carsten (module responsibility) 			
Prerequisites	Keine			
Skills to be acquired in this module	Know and be able to apply fundamental concepts and figures of thought in environmental economics; be able to analyse and evaluate environmental problems and solution approaches; practice scientific methods and the ability to discuss; be able to classify environmental economics in the context of interdisciplinary sustainability research.			
Module contents	Economic analysis of environmental impacts (property rights, external effects, market failure); ethical aspects of environmental economics, instruments of environmental policy (tradable permits, taxes, subsidies, liability law); innovation and adaptation of new technologies; international environmental problems.			
Recommended reading	<p>Daniel J. Phaneuf and Till Requate. <i>A Course in Environmental Economics: Theory, Policy, and Practice</i>. Cambridge University Press, 2016.</p> <p>Roger Perman, Yue Ma, Michael Common, David Maddison and James McGilvray. <i>Natural Resource and Environmental Economics</i>. Addison Wesley. 2011 (4th edition).</p>			
Links				
Language of instruction	English			
Duration (semesters)	1 Semester			
Module frequency	Annually			
Module capacity	unlimited			
Type of module	Pflicht o. Wahlpflicht / compulsory or optional			
Teaching/Learning method	Lecture and exercise			
Examination	Prüfungszeiten		Type of examination	
Final exam of module	At the end of the lecture period		Written exam; bonus through solution of exercises	
Type of course	Comment	SWS	Frequency	Workload of compulsory attendance
Lecture		2		28
Exercises		2		28
Total module attendance time				56 h

wir889 - Applied Environmental Economics

Module label	Applied Environmental Economics	
Module code	wir889	
Credit points	6.0 KP	
Workload	180 h	
Applicability of the module	<ul style="list-style-type: none"> • Master Applied Economics and Data Science (Master) > Economics • Master's Programme Business Administration, Economics and Law (Master) > Schwerpunktmodule NM-VWL • Master's programme Business Administration: Management and Law (Master) > Schwerpunktmodule NM-VWL • Master's Programme Environmental Modelling (Master) > Mastermodule • Master's Programme Sustainability Economics and Management (Master) > Accentuation Modules 	
Responsible persons	<ul style="list-style-type: none"> • Lehrenden, Die im Modul (authorised to take exams) • Huse, Cristian (module responsibility) • Huse, Cristian (Module counselling) 	
Prerequisites		
Skills to be acquired in this module	<p>Be able to conceptually understand and apply key empirical tools used by any economist (and other professionals) in Environmental, Energy, and Transport Economics.</p> <p>Be able to perform and critically evaluate an empirical analysis.</p>	
Module contents	Econometric methods (discrete choice); Welfare analysis; Valuation; Types of data; Cost-benefit analysis.	
Recommended reading	<p>Phaneuf, D.J., and T. Requate. <i>A Course in Environmental Economics: Theory, Policy, and Practice</i>. Cambridge University Press, 2016.</p> <p>Cameron, A. C., and P. Trivedi (2005). <i>Microeconometrics: Methods and Applications</i>. Cambridge: Cambridge University Press.</p>	
Links		
Language of instruction	English	
Duration (semesters)	1 Semester	
Module frequency		
Module capacity	60	
Examination	Prüfungszeiten	Type of examination
Final exam of module	At the end of the lecture period	Portfolio
Type of course	Lecture	
SWS	4	
Frequency	SuSe or WiSe	
Workload attendance time	56 h	

wir890 - Climate Economics

Module label	Climate Economics			
Module code	wir890			
Credit points	6.0 KP			
Workload	180 h			
Applicability of the module	<ul style="list-style-type: none"> • Master Applied Economics and Data Science (Master) > Economics • Master's Programme Environmental Modelling (Master) > Mastermodule • Master's Programme Sustainability Economics and Management (Master) > Supplementary Modules 			
Responsible persons	<ul style="list-style-type: none"> • Böhringer, Christoph (module responsibility) • Lehrenden, Die im Modul (authorised to take exams) • Riesenbeck, Lukas (Module counselling) 			
Prerequisites				
Skills to be acquired in this module	<p>This course aims at giving students an understanding of reasons, objectives and economic instruments for climate policy. Students first get acquainted with the natural science of the climate where anthropogenic greenhouse gas emissions constitute the source of man-made climate change. The latter is then explained from an economic perspective as a global environmental externality calling for environmental regulation to avoid substantial market failures. Game theoretic analysis of international negotiations and agreements provides key insights about the fundamental problems of free-riding and efficient climate policy design. Beyond theoretical propositions, 15 the lecture will critically discuss past and contemporary climate policies such as the Kyoto Protocol, the Paris Agreement, or the EU Emissions Trading System</p>			
Module contents	<p>atural science of climate change; environmental externalities and market failures; environmental regulation (emission taxes, standards, tradable permits, etc.); international environmental agreements; critical appraisal of climate policy implementation.</p>			
Recommended reading	<p>Roger Perman, Yue Ma, Michael Common, David Maddison and James McGilvray. Natural Resource and Environmental Economics. Addison Wesley. 2011 (4th edition).</p> <p>Daniel J. Phaneuf and Till Requate. A Course in Environmental Economics: Theory, Policy, and Practice. Cambridge University Press, 2016.</p>			
Links				
Language of instruction	English			
Duration (semesters)	1 Semester			
Module frequency	Annual			
Module capacity	30			
Previous knowledge	Microeconomics			
Examination	Prüfungszeiten	Type of examination		
Final exam of module	At the end of the lecture period	Written exam (max. 120min)		
Type of course	Comment	SWS	Frequency	Workload of compulsory attendance
Lecture		2	SuSe or WiSe	28
Seminar		2	SuSe or WiSe	28
Total module attendance time				56 h

wir893 - Development Economics

Module label	Development Economics			
Module code	wir893			
Credit points	6.0 KP			
Workload	180 h			
Applicability of the module	<ul style="list-style-type: none"> • Master Applied Economics and Data Science (Master) > Economics • Master's Programme Sustainability Economics and Management (Master) > Supplementary Modules 			
Responsible persons	<ul style="list-style-type: none"> • Bitzer, Jürgen (module responsibility) • Lehrenden, Die im Modul (authorised to take exams) • Bitzer, Jürgen (Module counselling) 			
Prerequisites				
Skills to be acquired in this module	<p>The students are able:</p> <ul style="list-style-type: none"> • to identify and discuss empirical challenges in research on developing countries • to understand, summarize, and discuss recent research studies in development economics • evaluate strategies to reach sustainable economic development discussed in the public and politics • participate in a discussion on the topic, developing a well-grounded position and problem solving strategy • to present current research to and discuss it verbally and in written form • to identify gaps in the literature on developing countries 			
Module contents	<p>The module introduces the students to the current challenges of developing countries and the strategies to overcome them. The module will focus on the empirical research on developing countries, addressing the reasons for the sluggish development as well as the applied approaches to foster economic development. In the lecture the empirical methods used in development economics will be discussed. In the seminar current research papers on topics like poverty, conflicts, foreign aid, health, human capital and institutions in developing countries will be discussed.</p>			
Recommended reading	<p>Michael P. Todaro and Stephen C. Smith (2014): Economic Development, 12th Edition, Pearson: New York.</p> <p>Söderbom, Måns , Francis Teal, Markus Eberhardt, Simon Quinn and Andrew Zeitlin (2015): Empirical Development Economics, Routledge: New York.</p>			
Links				
Language of instruction	English			
Duration (semesters)	1 Semester			
Module frequency	Yearly			
Module capacity	unlimited			
Examination	Prüfungszeiten	Type of examination		
Final exam of module	At the end of the lecture period	Formal presentation with written elaboration and discussion		
Type of course	Comment	SWS	Frequency	Workload of compulsory attendance
Lecture		2	SuSe or WiSe	28
Seminar		2	SuSe or WiSe	28
Total module attendance time				56 h

wir895 - Industrial Organization

Module label	Industrial Organization	
Module code	wir895	
Credit points	6.0 KP	
Workload	180 h	
Applicability of the module	<ul style="list-style-type: none"> • Master Applied Economics and Data Science (Master) > Economics • Master's Programme Business Administration, Economics and Law (Master) > Basismodule • Master's Programme Business Administration, Economics and Law (Master) > Schwerpunktmodule UF - VWL • Master's programme Business Administration: Management and Law (Master) > Basismodule • Master's programme Business Administration: Management and Law (Master) > Schwerpunktmodule UF - VWL • Master's Programme Sustainability Economics and Management (Master) > Accentuation Modules 	
Responsible persons	<ul style="list-style-type: none"> • Huse, Cristian (module responsibility) • Lehrenden, Die im Modul (authorised to take exams) • Huse, Cristian (Module counselling) 	
Prerequisites		
Skills to be acquired in this module	Be able to conceptually understand, critically evaluate, and apply methods used economists to study the behaviour of firms, consumers, and their interaction.	
Module contents	Econometric methods; models of firm behaviour; models of consumer behaviour; regulation; applications.	
Recommended reading	Belleflamme, P., & Peitz, M. (2015). Industrial Organization: Markets and Strategies. Cambridge University Press. 2nd edition. Addition references to be announced at the start of each term.	
Links		
Language of instruction	English	
Duration (semesters)	1 Semester	
Module frequency		
Module capacity	30	
Examination	Prüfungszeiten	Type of examination
Final exam of module	At the end of the lecture period	Portfolio
Type of course	Lecture and exercise	
SWS	4	
Frequency	SuSe or WiSe	
Workload attendance time	56 h	

wir922 - Topics in Industrial Organization

Module label	Topics in Industrial Organization			
Module code	wir922			
Credit points	6.0 KP			
Workload	180 h			
Applicability of the module	<ul style="list-style-type: none"> • Master Applied Economics and Data Science (Master) > Economics 			
Responsible persons	<ul style="list-style-type: none"> • Asane-Otoo, Emmanuel (module responsibility) • Bitzer, Jürgen (module responsibility) • Böhringer, Christoph (module responsibility) • Gören, Erkan (module responsibility) • Helm, Carsten (module responsibility) • Huse, Cristian (module responsibility) • Trautwein, Hans-Michael (module responsibility) • Lehrenden, Die im Modul (authorised to take exams) 			
Prerequisites				
Skills to be acquired in this module	<p>Students have the opportunity to take an economics module of their choice (worth 6 CP) at the master's level. This can also take place at another university or during studies abroad. Students are required to:</p> <ul style="list-style-type: none"> independently engage with a topic using scientific methods independently research and make use of current academic literature integrate their topic into an academic discussion 			
Module contents	This is dependent upon the module chosen.			
Recommended reading				
Links				
Language of instruction	English			
Duration (semesters)	1 Semester			
Module frequency	bi-annually			
Module capacity	unlimited			
Type of module	Wahlpflicht / Elective			
Examination	Prüfungszeiten			Type of examination
Final exam of module			1 seminar paper or 1 formal presentation or 1 written examination or 1 oral examination or 1 portfolio or 1 project report	
Type of course	Comment	SWS	Frequency	Workload of compulsory attendance
Lecture		2	SuSe or WiSe	28
Seminar		2	SuSe or WiSe	28
Total module attendance time				56 h

wir751 - Study Abroad I

Module label	Study Abroad I			
Module code	wir751			
Credit points	6.0 KP			
Workload	180 h (According to the specification of the foreign university)			
Applicability of the module	<ul style="list-style-type: none"> • Master Applied Economics and Data Science (Master) > Economics • Master's programme Business Administration: Management and Law (Master) > Ergänzungsmodule - Auslandsstudium 			
Responsible persons	<ul style="list-style-type: none"> • Lehrenden, Die im Modul (authorised to take exams) • Bitzer, Jürgen (module responsibility) • Bitzer, Jürgen (Module counselling) 			
Prerequisites	According to the specification of the foreign university			
Skills to be acquired in this module	According to the specification of the foreign university			
Module contents	According to the specification of the foreign university			
Recommended reading	According to the specification of the foreign university			
Links	According to the specification of the foreign university			
Languages of instruction				
Duration (semesters)	1 Semester			
Module frequency				
Module capacity	unlimited (According to the specification of the foreign university)			
Examination	Prüfungszeiten	Type of examination		
Final exam of module	According to the specification of the foreign university	According to the specification of the foreign university		
Type of course	Comment	SWS	Frequency	Workload of compulsory attendance
Lecture			--	0
Exercises			--	0
Practical training			--	0
Study trip			--	0
Tutorial			--	0
Total module attendance time				0 h

wir752 - Study Abroad II

Module label	Study Abroad II			
Module code	wir752			
Credit points	6.0 KP			
Workload	180 h			
Applicability of the module	<ul style="list-style-type: none"> • Master Applied Economics and Data Science (Master) > Economics • Master's programme Business Administration: Management and Law (Master) > Ergänzungsmodule - Auslandsstudium 			
Responsible persons	<ul style="list-style-type: none"> • Bitzer, Jürgen (module responsibility) • Lehrenden, Die im Modul (authorised to take exams) • Bitzer, Jürgen (Module counselling) 			
Prerequisites	According to the specification of the foreign university			
Skills to be acquired in this module	According to the specification of the foreign university			
Module contents	According to the specification of the foreign university			
Recommended reading				
Links	According to the specification of the foreign university			
Language of instruction	German			
Duration (semesters)	1 Semester			
Module frequency				
Module capacity	unlimited			
Examination	Prüfungszeiten		Type of examination	
Final exam of module	According to the specification of the foreign university		According to the specification of the foreign university	
Type of course	Comment	SWS	Frequency	Workload of compulsory attendance
Lecture			--	0
Exercises			--	0
Practical training			--	0
Seminar			--	0
Study trip			--	0
Tutorial			--	0
Total module attendance time				0 h

wir753 - Study Abroad III

Module label	Study Abroad III			
Module code	wir753			
Credit points	6.0 KP			
Workload	180 h			
Applicability of the module	<ul style="list-style-type: none"> • Master Applied Economics and Data Science (Master) > Economics 			
Responsible persons	<ul style="list-style-type: none"> • Bitzer, Jürgen (module responsibility) • Lehrenden, Die im Modul (authorised to take exams) • Bitzer, Jürgen (Module counselling) 			
Prerequisites	According to the specification of the foreign university			
Skills to be acquired in this module	According to the specification of the foreign university			
Module contents	According to the specification of the foreign university			
Recommended reading	According to the specification of the foreign university			
Links	According to the specification of the foreign university			
Language of instruction	German			
Duration (semesters)	1 Semester			
Module frequency				
Module capacity	unlimited			
Examination	Prüfungszeiten		Type of examination	
Final exam of module	According to the specification of the foreign university		According to the specification of the foreign university	
Type of course	Comment	SWS	Frequency	Workload of compulsory attendance
Lecture			--	0
Exercises			--	0
Practical training			--	0
Seminar			--	0
Study trip			--	0
Tutorial			--	0
Total module attendance time				0 h

wir760 - Computable General Equilibrium Analysis

Module label	Computable General Equilibrium Analysis			
Module code	wir760			
Credit points	6.0 KP			
Workload	180 h			
Applicability of the module	<ul style="list-style-type: none"> • Master Applied Economics and Data Science (Master) > Economics • Master's Programme Sustainability Economics and Management (Master) > Supplementary Modules 			
Responsible persons	<ul style="list-style-type: none"> • Böhringer, Christoph (module responsibility) • Lehrenden, Die im Modul (authorised to take exams) • Böhringer, Christoph (Module counselling) 			
Prerequisites	None			
Skills to be acquired in this module	During the course work students will learn how to set up computable general equilibrium (CGE) models step-by-step using the GAMS software (General Algebraic Modeling System) and apply them to actual policy issues of broader interest.			
Module contents	This course provides a practical guideline to CGE modeling. We start with the formulation of a simple stylized CGE model for open economies and lay out how such a model can be matched (calibrated) to empirical data. We will then discuss several refinements of our prototype model to investigate contemporary policy issues such as environmental tax reforms or trade restrictions (e.g. the implementation of import tariffs and quotas). The single country model will be subsequently extended towards a multi-region model framework which accommodates to investigate in appropriate detail the economic impacts of multilateral policy initiatives such as trade policy reforms or international climate agreements.			
Recommended reading				
Links				
Language of instruction	English			
Duration (semesters)	1 Semester			
Module frequency	jährlich/annual			
Module capacity	14			
Examination	Prüfungszeiten	Type of examination		
Final exam of module	end of semester	aus der Prüfungsordnung zu entnehmen - to be taken from the examination regulations		
Type of course	Comment	SWS	Frequency	Workload of compulsory attendance
Lecture		2	WiSe	28
Seminar		2	WiSe	28
Total module attendance time				56 h

Empirical Methods

wir875 - Forecasting Methods

Module label	Forecasting Methods
Module code	wir875
Credit points	6.0 KP
Workload	180 h
Applicability of the module	<ul style="list-style-type: none">• Master Applied Economics and Data Science (Master) > Empirical Methods• Master's Programme Business Administration, Economics and Law (Master) > Schwerpunktmodule UF - VWL• Master's Programme Business Administration, Economics and Law (Master) > Schwerpunkt "Volkswirtschaftslehre" (VWL) (MPO2020)• Master's programme Business Administration: Management and Law (Master) > Schwerpunktmodule UF - VWL• Master's Programme Business Informatics (Master) > Module der Wirtschafts- und Rechtswissenschaften (Master)• Master's Programme Computing Science (Master) > Module aus anderen Studiengängen
Responsible persons	<ul style="list-style-type: none">• Stecking, Ralf Werner (module responsibility)• Lehrenden, Die im Modul (authorised to take exams)
Prerequisites	
Skills to be acquired in this module	With successful completion of the course, students shall: <ul style="list-style-type: none">• be aware of and be able to evaluate quantitative forecasting methods.• be able to select adequate methods in relevant fields of application, like time series and classification analysis.• be able to run computer-aided analyses and to interpret the results properly.
Module contents	Various aspects of quantitative forecasting methods such as: <ul style="list-style-type: none">• Time series components,• Trend and seasonal methods,• Stationarity,• Multivariate forecasting methods,• Autoregressive and moving average processes,• Box-Jenkins method.
Recommended reading	Abraham, B. und Ledolter, J. (2005): Statistical Methods for Forecasting, New York Hamilton, J.D. (1994): Time series analysis, Princeton NJ Kohler, U. und Kreuter, F. (2008): Datenanalyse mit Stata : allgemeine Konzepte der Datenanalyse und ihre praktische Anwendung, 3. Aufl., München Kreiß, J.-P. und Neuhaus, G. (2006): Einführung in die Zeitreihenanalyse, Berlin Makridakis, S., Wheelwright, S.C., MacGee, V.E. (1983): Forecasting : methods and applications, New York Neusser, K. (2011): Zeitreihenanalyse in den Wirtschaftswissenschaften, 3. Aufl., Wiesbaden Schira, J. (2016): Statistische Methoden der VWL und BWL, 5. Aufl., München Schlittgen, R. und Streitberg, B.H.J. (2001): Zeitreihenanalyse, München Schlittgen, R. (2001): Angewandte Zeitreihenanalyse, München Thome, H. (2005): Zeitreihenanalyse, München
Links	

Language of instruction	English			
Duration (semesters)	1 Semester			
Module frequency	halbjährlich			
Module capacity	unlimited			
Examination	Prüfungszeiten	Type of examination		
Final exam of module	end of semester	written exam or oral exam or term paper or seminar paper and presentation		
Type of course	Comment	SWS	Frequency	Workload of compulsory attendance
Lecture		2		28
Exercises		2		28
Total module attendance time				56 h

wir887 - Advanced Econometrics

Module label	Advanced Econometrics			
Module code	wir887			
Credit points	6.0 KP			
Workload	180 h			
Applicability of the module	<ul style="list-style-type: none"> • Master Applied Economics and Data Science (Master) > Empirical Methods 			
Responsible persons	<ul style="list-style-type: none"> • Huse, Cristian (module responsibility) • Lehrenden, Die im Modul (authorised to take exams) • Huse, Cristian (Module counselling) 			
Prerequisites				
Skills to be acquired in this module	Be able to conceptually understand, critically evaluate, and apply methods used in the statistical analysis of data.			
Module contents	Introduction to statistical software; Econometrics review; Econometrics and statistical learning methods (Classification, Resampling, Model selection and regularization, Nonlinear models, Tree-based methods, Unsupervised learning); Applications to Economics.			
Recommended reading	<p>James, Witten, Hastie, and Tibshirani (2013). An Introduction to Statistical Learning. Springer Series in Statistics.</p> <p>Grolemund and Wickham (2017). R for Data Science. O'Reilly Media, 1st edition.</p> <p>Papers to be assigned in due course</p>			
Links				
Language of instruction	English			
Duration (semesters)	1 Semester			
Module frequency				
Module capacity	30			
Examination	Prüfungszeiten		Type of examination	
Final exam of module	At the end of the lecture period		Portfolio	
Type of course	Comment	SWS	Frequency	Workload of compulsory attendance
Lecture		2	SuSe or WiSe	28
Seminar		2	SuSe or WiSe	28
Total module attendance time				56 h

wir888 - Applied Econometrics Using GIS Techniques

Module label	Applied Econometrics Using GIS Techniques
Module code	wir888
Credit points	6.0 KP
Workload	180 h
Applicability of the module	<ul style="list-style-type: none">• Master Applied Economics and Data Science (Master) > Empirical Methods
Responsible persons	<ul style="list-style-type: none">• Gören, Erkan (module responsibility)• Lehrenden, Die im Modul (authorised to take exams)
Prerequisites	None
Skills to be acquired in this module	This course provides an introduction to some fundamental geo-processing operations using ArcGIS that are most relevant for economics research. The broad term GIS encompasses a set of tools (both software and hardware) to collect, store, visualize and analyze spatial data from the real world. GIS techniques allow economists to use data on geography and weather as sources of exogenous variation for estimating the causal impact of a wide range of treatments (e.g., infrastructure, mass media, slave trade, land suitability for agriculture, and terrain ruggedness). Satellite images from the earth's surface, which can be analyzed with geo-processing tools in GIS, allow economists to construct geo-spatial indicators (e.g., temporal changes in the intensity of night-time light and patterns of deforestation) that more closely reflect the local actors and underlying mechanisms of interest.

Module contents

- Gain practical experience with the implementation of geo-processing tools using ArcGIS.
- Application of GIS programming tools that are most relevant for economics research through replication of various pieces of empirical economics research papers.
- A non-exhaustive list of geo-processing tools using ArcGIS includes performing mathematical functions on spatial data, the calculation of geographic distances between various forms of spatial units, aggregating geospatial data within polygons, and drawing maps.
- Introduction to map projection and geographic coordinate systems.
- Introduction to programming in Python for the purpose of automation and replication of geo-processed spatial datasets.
- Acquire the necessary data management skills to export spatial data in a suitable file format that can be directly imported into standard econometric software packages such as Stata.

Recommended reading

- Harder, Christian, and Brown, Clint (2016). The ArcGIS Imagery Book: New View. New Vision. First Edition, Esri Press, 380 New York Street, Redlands, California, United States of America.
- Harder, Christian, and Brown, Clint (2017). The ArcGIS Book: 10 Big Ideas about Applying The Science of Where. Second Edition, Esri Press, 380 New York Street, Redlands, California, United States of America.
- Heywood, Ian, Cornelius, Sarah, and Carver, Steve (2011). An Introduction to Geographical Information Systems. Fourth Edition, Pearson Education Limited, Harlow, England.
- Keranan, Kathryn, and Malone, Lyn (2017). Instructional Guide for The ArcGIS Imagery Book. First Edition, Esri Press, 380 New York Street, Redlands, California, United States of America.
- Keranan, Kathryn, and Malone, Lyn (2018). Instructional Guide for The ArcGIS Book. Second Edition, Esri Press, 380 New York Street, Redlands, California, United States of America.
- Law, Michael, and Collins, Amy (2018). Getting to Know ArcGIS Desktop. Fifth Edition, Esri Press, 380 New York Street, Redlands, California, United States of America.
- Zandbergen, Paul A. (2013). Python Scripting for ArcGIS. First Edition, Esri Press, 380 New York Street, Redlands, California, United States of America.

Links

Languages of instruction	German, English
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Duration (semesters)		1 Semester		
Module frequency				
Module capacity		unlimited		
Examination	Prüfungszeiten	Type of examination		
Final exam of module	Am Ende der Vorlesungszeit	Mündliche Prüfung oder Klausur oder Referat oder Projektbericht		
Type of course	Comment	SWS	Frequency	Workload of compulsory attendance
Lecture		2	SuSe or WiSe	28
Seminar		2	SuSe or WiSe	28
Total module attendance time				56 h

wir891 - Complex Data Analysis

Module label	Complex Data Analysis			
Module code	wir891			
Credit points	6.0 KP			
Workload	180 h			
Applicability of the module	<ul style="list-style-type: none"> • Master Applied Economics and Data Science (Master) > Empirical Methods • Master's programme Business Administration: Management and Law (Master) > Schwerpunktmodule AFT - Methoden • Master's programme Business Administration: Management and Law (Master) > Schwerpunktmodule NM - Methoden • Master's programme Business Administration: Management and Law (Master) > Schwerpunktmodule UF - Methoden • Master's Programme Sustainability Economics and Management (Master) > Supplementary Modules 			
Responsible persons	<ul style="list-style-type: none"> • Stecking, Ralf Werner (module responsibility) • Lehrenden, Die im Modul (authorised to take exams) 			
Prerequisites				
Skills to be acquired in this module	With successful completion of the course, students shall be able to analyze complex empirical data sets, like aggregated data, privacy constrained data, distance information, distributions, tables, symbolic or granular data. Students will also learn to handle issues of big data challenges: large number of cases or variables, unknown dependencies, redundancy, missing values, small or no variance. In this course students will learn theoretical aspects of complex data analysis, as well as practical applications for real data sets with statistical software packages.			
Module contents	Principal Component Analysis, Correspondence Analysis, Cluster Analysis, Linear Discriminant Analysis, Multidimensional Scaling, CART, Symbolic Data Analysis			
Recommended reading	<p>Billard, L. and Diday, E. (2006): Symbolic Data Analysis, West Sussex</p> <p>Hastie, T., Tibshirani, R. and Friedman, J. (2001): The Elements of Statistical Learning, New York</p> <p>Pedrycz, W. (2017): Granular Computing, Boca Raton</p> <p>Tuffery, S. (2011): Data Mining and Statistics for Decision Making, West Sussex</p>			
Links				
Languages of instruction	German, English			
Duration (semesters)	1 Semester			
Module frequency				
Module capacity	unlimited			
Examination	Prüfungszeiten	Type of examination		
Final exam of module	Am Ende der Vorlesungszeit	Klausur oder Mündliche Prüfung oder Hausarbeit oder Referat		
Type of course	Comment	SWS	Frequency	Workload of compulsory attendance
Lecture		2	SuSe or WiSe	28
Seminar		2	SuSe or WiSe	28
Total module attendance time				56 h

wir892 - Computational Economics

Module label	Computational Economics			
Module code	wir892			
Credit points	6.0 KP			
Workload	180 h			
Applicability of the module	<ul style="list-style-type: none"> • Master Applied Economics and Data Science (Master) > Empirical Methods • Master's programme Social Sciences (Master) > Wahlpflichtmodule anderer Institute und Departments • Master's Programme Sustainability Economics and Management (Master) > Supplementary Modules 			
Responsible persons	<ul style="list-style-type: none"> • Böhringer, Christoph (module responsibility) • Lehrenden, Die im Modul (authorised to take exams) • Riesenbeck, Lukas (Module counselling) • Schürer, Laura (Module counselling) 			
Prerequisites	None			
Skills to be acquired in this module	<p>Computer-based simulations play a key role for quantifying the economic impacts of policy reforms. Among numerical simulation methods, computable partial equilibrium (CPE) models are widely used in applied economic analysis. These models build on microeconomic theory for describing supply and demand behavior of economic agents on markets. Students will learn how to program such models and apply them to the impact assessment of trade, fiscal, or environmental policies.</p>			
Module contents	<p>In the course, we start from basic microeconomic theory to describe the supply-side and demand-side responses on economic markets triggered by regulatory policy measures such as taxes or subsidies. We then translate simple theoretical models into computable partial equilibrium (CPE) models and use empirical data for model parametrization. Subsequently, the CPE models are used to quantify the economic efficiency impacts and the economic incidence of policy instruments such as taxes, subsidies, standards or quotas. For the implementation of the simulation models on the students' PC we will learn a powerful state-of-the-art modeling language called GAMS (Generic Algebraic Modeling System) which initially had been developed for World Bank economists. The fundamental strength of GAMS lies in the ease with which algebraic models in economics and management (or other sciences) can be formulated and solved. Students enrolled to the course will receive a free GAMS license. For the examination, the students will be requested to adapt a basic market model towards a policy issue of their choice and provide a small written essay (max. 10 pages) on their applied analysis. For this, the students can team up in groups with 2 people and hand in their essay until the end of the summer semester.</p>			
Recommended reading	Tba			
Links				
Language of instruction	English			
Duration (semesters)	1 Semester			
Module frequency	Annual			
Module capacity	14			
Examination	Prüfungszeiten	Type of examination		
Final exam of module	At the end of the lecture period	Portfolio		
Type of course	Comment	SWS	Frequency	Workload of compulsory attendance
Lecture		2	SuSe or WiSe	28
Seminar		2	SuSe or WiSe	28
Total module attendance time				56 h

wir894 - Econometrics of Policy Evaluation

Module label	Econometrics of Policy Evaluation	
Module code	wir894	
Credit points	6.0 KP	
Workload	180 h	
Applicability of the module	<ul style="list-style-type: none"> • Master Applied Economics and Data Science (Master) > Empirical Methods • Master's Programme Business Administration, Economics and Law (Master) > Basismodule • Master's programme Business Administration: Management and Law (Master) > Basismodule • Master's Programme Sustainability Economics and Management (Master) > Basic Modules 	
Responsible persons	<ul style="list-style-type: none"> • Huse, Cristian (module responsibility) • Huse, Cristian (Module counselling) 	
Prerequisites		
Skills to be acquired in this module	<p>Be able to conceptually understand and apply key empirical methods used by any economist (and other professionals) in the evaluation of policies. Be able to perform and critically evaluate an empirical analysis.</p>	
Module contents	Econometric methods (Causality, Randomization, Regression discontinuity, Difference-in-differences, topics in Microeconometrics); applications.	
Recommended reading	<p>Gertler, P. et al (2016). <i>Impact Evaluation in Practice</i>, 2nd. Edition. Washington, DC: Inter-American Development Bank and World Bank. Cameron, A. C., and P. Trivedi (2005). <i>Microeconometrics: Methods and Applications</i>. Cambridge: Cambridge University Press.</p>	
Links		
Language of instruction	English	
Duration (semesters)	1 Semester	
Module frequency		
Module capacity	60	
Examination	Prüfungszeiten	Type of examination
Final exam of module	At the end of the lecture period	Portfolio
Type of course	Lecture	
SWS	4	
Frequency	SuSe or WiSe	
Workload attendance time	56 h	

wir897 - Spatial Econometrics

Module label	Spatial Econometrics
Module code	wir897
Credit points	6.0 KP
Workload	180 h
Applicability of the module	<ul style="list-style-type: none"> Master Applied Economics and Data Science (Master) > Empirical Methods
Responsible persons	<ul style="list-style-type: none"> Gören, Erkan (module responsibility) Lehrenden, Die im Modul (authorised to take exams)
Prerequisites	None
Skills to be acquired in this module	

This course provides an introduction to spatial econometrics modelling that are particularly appropriate to analyse real-world phenomena of spatial dependence among geographically proximate units. With successful completion of the course, students shall be able to identify spatial diffusion processes across various empirical settings and to have a thorough understanding in the application, estimation, and interpretation of the relevant spatial regression models.

Module contents

- The formal expression of spatial dependence.
- Modelling, estimation, and interpretation of spatial econometric models for cross-sectional, panel, and dynamic spatial panel data.
- Gain practical experience with the implementation of spatial econometric models using appropriate econometrics software packages.

Recommended reading

- Anselin, Luc (1988). Spatial Econometrics: Methods and Models. Kluwer Academic Publishers, Dordrecht, Boston, London.
- Darmofal, David (2015). Spatial Analysis for the Social Sciences. Cambridge University Press, New York, USA.
- Elhorst, J. Paul (2014). Spatial Econometrics: From Cross-Sectional Data to Spatial Panels. Springer, Heidelberg, New York, Dordrecht, London.
- LeSage, James, and Pace, R. Kelley (2009). Introduction to Spatial Econometrics. CRC Press, Taylor & Francis Group, Boca Raton, London, New York.

Links

Language of instruction	English			
Duration (semesters)	1 Semester			
Module frequency	jährlich			
Module capacity	unlimited			
Examination	Prüfungszeiten	Type of examination		
Final exam of module	Am Ende der Vorlesungszeit	Mündliche Prüfung oder Klausur oder Referat oder Projektbericht		
Type of course	Comment	SWS	Frequency	Workload of compulsory attendance
Lecture		2	SuSe or WiSe	28
Seminar		2	SuSe or WiSe	28
Total module attendance time				56 h

Data Science

inf535 - Computational Intelligence I

Module label	Computational Intelligence I
Module code	inf535
Credit points	6.0 KP
Workload	180 h
Applicability of the module	<ul style="list-style-type: none">• Master Applied Economics and Data Science (Master) > Data Science• Master's Programme Business Informatics (Master) > Akzentsetzungsmodulare der Informatik• Master's Programme Computing Science (Master) > Angewandte Informatik• Master's Programme Engineering of Socio-Technical Systems (Master) > Embedded Brain Computer Interaction• Master's Programme Engineering of Socio-Technical Systems (Master) > Human-Computer Interaction• Master's Programme Engineering of Socio-Technical Systems (Master) > Systems Engineering• Master's Programme Environmental Modelling (Master) > Mastermodule
Responsible persons	<ul style="list-style-type: none">• Kramer, Oliver (module responsibility)• Lehrenden, Die im Modul (authorised to take exams)
Prerequisites	Basics of statistics
Skills to be acquired in this module	<p>After successful completion of the course, students should have acquired the ability to master the presented methods in theory and practice. The students should be able to recognize and model corresponding optimization and data analysis problems themselves and to apply the methods unerringly.</p> <p>Professional competence The students:</p> <ul style="list-style-type: none">• recognise optimisation problems• implement simple algorithms of heuristic optimisation• critically discuss solutions and selection of methods• deepen previous knowledge of analysis and linear algebra <p>Methodological competence The students:</p> <ul style="list-style-type: none">• deepen programming skills• apply modelling skills• learn about the relation between problem class and method selection <p>Social competence The students:</p> <ul style="list-style-type: none">• cooperatively implement content introduced in lecture• evaluate own solutions and compare them with those of their peers <p>Self-competence The students:</p> <ul style="list-style-type: none">• evaluate own skills with reference to peers• realize personal limitations• adapt own problem solving approaches with reference to required method competences

Module contents

Computational Intelligence comprises intelligent and adaptive methods for optimisation and learning. The module "Computational Intelligence I" concentrates on methods for evolutionary optimisation and heuristic approaches. The exercises introduce and deepen practical aspects of the

implementation and algorithmic design, also taking into account application aspects.

Overview of Content:

- foundations of optimisation
- genetic algorithms and evolution strategies
- parameter control and self-adaptation
- runtime analysis
- swarm algorithms
- constrained optimisation
- multi-objective optimisation
- meta-modeling

Recommended reading

- EIBEN, A. E.; SMITH, J. E.: Introduction to Evolutionary Computing. Springer, 2003.
- KENNEDY, J.; EBERHART, R.C.; YUHUI, S.: Swarm Intelligence. Morgan Kaufmann, 2001.
- KRAMER, O.: Computational Intelligence. Springer, 2009.
- RUTKOWSKI, L.: Computational Intelligence Methods and Techniques. Springer, 2008.
- ROJAS, R.: Theorie der neuronalen Netze: Eine systematische Einführung. Springer, 1993.

Links

Languages of instruction	English , German
Duration (semesters)	1 Semester
Module frequency	annual
Module capacity	unlimited
Teaching/Learning method	V+Ü

Examination	Prüfungszeiten	Type of examination
Final exam of module	At the end of the lecture period	Written or oral exam

Type of course	Comment	SWS	Frequency	Workload of compulsory attendance
Lecture		2	WiSe	28
Exercises		2	WiSe	28
Total module attendance time				56 h

inf536 - Computational Intelligence II

Module label	Computational Intelligence II
Module code	inf536
Credit points	6.0 KP
Workload	180 h
Applicability of the module	<ul style="list-style-type: none">• Master Applied Economics and Data Science (Master) > Data Science• Master's Programme Business Informatics (Master) > Akzentsetzungsmodulare der Informatik• Master's Programme Computing Science (Master) > Angewandte Informatik• Master's Programme Engineering of Socio-Technical Systems (Master) > Embedded Brain Computer Interaction• Master's Programme Engineering of Socio-Technical Systems (Master) > Human-Computer Interaction• Master's Programme Engineering of Socio-Technical Systems (Master) > Systems Engineering• Master's Programme Environmental Modelling (Master) > Mastermodule
Responsible persons	<ul style="list-style-type: none">• Kramer, Oliver (module responsibility)• Lehrenden, Die im Modul (authorised to take exams)

Prerequisites

useful previous knowledge: Linear Algebra, Stochastics

Skills to be acquired in this module

In the lecture "Convolutional Neural Networks" you will learn the basics of Convolutional Neural Networks, from methodological understanding to implementation.

Professional competence

The Students:

- will learn Deep Learning expertise, which are essential qualifications as AI experts and Data Scientists.

Methodological competence

The Students:

- learn the methods mentioned as well as the implementation in Python, NymPy and Keras.

Social competence

The Students:

- are encouraged to discuss the taught content in groups and work together to implement the programming tasks in the exercises

Self-competence

The Students:

- are guided to conduct independent research on advanced methods as the teaching field changes dynamically

Module contents

Students learn the basics of machine learning and in particular the topics of dense layers, cross-entropy, backpropagation, SGD, momentum, Adam, batch normalization, regularization, convolution, pooling, ResNet, DenseNet, and convolutional SOMs

Recommended reading

- Deep Learning by Aaron C. Courville, Ian Goodfellow und Yoshua

Bengio

Links				
Language of instruction		English		
Duration (semesters)		1 Semester		
Module frequency		every summer term		
Module capacity		unlimited		
Teaching/Learning method		V+Ü		
Examination	Prüfungszeiten	Type of examination		
Final exam of module				
	lecture-free period at the end of the semester	written exam, e-exam		
Type of course	Comment	SWS	Frequency	Workload of compulsory attendance
Lecture		2	SuSe	28
Exercises		2	SuSe	28
Total module attendance time				56 h

inf604 - Business Intelligence I

Module label	Business Intelligence I
Module code	inf604
Credit points	6.0 KP
Workload	180 h
Applicability of the module	<ul style="list-style-type: none">• Master Applied Economics and Data Science (Master) > Data Science• Master of Education Programme (Vocational and Business Education) Computing Science (Master of Education) > Akzentsetzungsbereich• Master's Programme Business Informatics (Master) > Akzentsetzungsmodul Bereich Wirtschaftsinformatik• Master's Programme Business Informatics (Master) > Akzentsetzungsmodul der Informatik• Master's Programme Computing Science (Master) > Angewandte Informatik• Master's Programme Engineering of Socio-Technical Systems (Master) > Embedded Brain Computer Interaction• Master's Programme Engineering of Socio-Technical Systems (Master) > Human-Computer Interaction• Master's Programme Engineering of Socio-Technical Systems (Master) > Systems Engineering
Responsible persons	<ul style="list-style-type: none">• Marx Gómez, Jorge (authorised to take exams)• Lehrenden, Die im Modul (authorised to take exams)• Bremer-Rapp, Barbara (module responsibility)• Solsbach, Andreas (module responsibility)
Prerequisites	No participant requirement
Skills to be acquired in this module	<p>Objective of the module/skills: Current module provides basics of business intelligence with focus on enterprises and strong emphasis on data warehousing technologies. Students of the course are provided with knowledge, which reflects current research and development in a data analytic domain.</p> <p>Professional competence The students:</p> <ul style="list-style-type: none">• name and recognize the role of business intelligence as part of daily business process• being able to analyse advantages and disadvantages of different approaches and methods of the data analytics and being able to apply them in simple case studies• obtain theoretical knowledge about data collection and modelling processes, including most applicable approaches and best practices <p>Methodological competence The students:</p> <ul style="list-style-type: none">• being able to execute typical tasks of business intelligence, and also being able to deepen knowledge on different approaches and methods• gain a hands on experience and being able to understand advantages and disadvantages of different methods and being able to use obtained knowledge in most efficient ways <p>Social competence The students:</p> <ul style="list-style-type: none">• build solutions based on case studies given to the group, for example solving the issue of a factless fact table• discuss solutions on a technical level• present obtained case studies solutions as part of the exercises <p>Self-competence The students:</p> <ul style="list-style-type: none">• critically review provided data and information
Module contents	

Data warehouse technology together with business intelligence are increasingly being used by business in order to get better decision support and enrich ongoing processes with data-rich decisions. Data warehouse technology enables an integration of data from heterogeneous sources, whether business intelligence builds data processing on top of it. For instance, business intelligence allows to build reporting on very large volumes of data (including historical) coming primarily from data warehouse.

As part of the current module following contents are taught:

- Definition and scope of business intelligence.
- Procedures and objectives of data warehousing.
- Process of extracting, transforming and loading (ETL) of data.
- Phases of data modelling, data capturing and reporting in conjunction with a plausible case studies/scenarios.
- Prospects for further and evolving topics for business intelligence (e.g. Adaptive Business Intelligence, In-Memory Computing. etc.)
- Introduction to Data Mining.
- Case studies based practical exercises and assessments in order to impart practical knowledge.

Recommended reading

- Gómez, J. M., Rautenstrauch, C., & Cissek, P. (2008). Einführung in Business Intelligence mit SAP NetWeaver 7.0. Springer Science & Business Media.
- Ariyachandra, T., & Watson, H. J. (2006). Which data warehouse architecture is most successful?. Business intelligence journal, 11(1), 4.
- Jensen, C., Pedersen, T. B., & Thomsen, C. (2010). Multidimensional databases and data warehousing. Morgan & Claypool Publishers.
- Haneke, U., Trahasch, S., Hagen, T., & Lauer, T. (2010). Open Source Business Intelligence: Möglichkeiten, Chancen und Risiken quelloffener BI-Lösungen. Hanser.
- Müller, R. M., & Lenz, H. J. (2013). Business intelligence. Berlin, Heidelberg: Springer Berlin Heidelberg.
- Sabherwal, R., & Becerra-Fernandez, I. (2013). Business intelligence: Practices, technologies, and management. John Wiley & Sons.
- Awe, O. W., Liu, R., & Zhao, Y. (2016). Analysis of energy consumption and saving in wastewater treatment plant: case study from Ireland. Journal of Water Sustainability, 6(2), 63-76.
- Adamson, C. (2010). The complete reference star schema. McGraw-Hill.
- Linstedt, D., & Olschimke, M. (2015). Building a scalable data warehouse with data vault 2.0. Morgan Kaufmann.
- Schnider, D., Jordan, C., Welker, P., & Wehner, J. (2016). Data warehouse blueprints: business intelligence in der Praxis. Carl Hanser Verlag GmbH Co KG.

Links

<http://www.wi-ol.de>

Languages of instruction	German, English
Duration (semesters)	1 Semester
Module frequency	annual
Module capacity	unlimited
Teaching/Learning method	V+Ü

Examination	Prüfungszeiten	Type of examination
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Final exam of module	At the end of the lecture period	Written exam max. 120 minutes
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Type of course	Comment	SWS	Frequency	Workload of compulsory attendance
Lecture		2	WiSe	28
Exercises		2	WiSe	28
Total module attendance time				56 h

inf607 - Business Intelligence II

Module label	Business Intelligence II
Module code	inf607
Credit points	6.0 KP
Workload	180 h
Applicability of the module	<ul style="list-style-type: none">• Master Applied Economics and Data Science (Master) > Data Science• Master's Programme Business Informatics (Master) > Akzentsetzungsmodule Bereich Wirtschaftsinformatik• Master's Programme Business Informatics (Master) > Akzentsetzungsmodule der Informatik• Master's Programme Computing Science (Master) > Angewandte Informatik• Master's Programme Engineering of Socio-Technical Systems (Master) > Embedded Brain Computer Interaction• Master's Programme Engineering of Socio-Technical Systems (Master) > Human-Computer Interaction• Master's Programme Engineering of Socio-Technical Systems (Master) > Systems Engineering
Responsible persons	<ul style="list-style-type: none">• Marx Gómez, Jorge (authorised to take exams)• Lehrenden, Die im Modul (authorised to take exams)• Solsbach, Andreas (module responsibility)• Bremer-Rapp, Barbara (module responsibility)
Prerequisites	No participant requirement
Skills to be acquired in this module	<p>Current module provides advanced business intelligence, data science with focus on enterprises and strong emphasis on big data and data analytics. Students of the course are provided with knowledge, which reflects current research and development in a data analytics domain.</p> <p>Professional competence The students:</p> <ul style="list-style-type: none">• name and recognize the role of data analytics / data science as part of a daily business process in a particular company• able to organize from management perspective data analysis project• being able to analyse advantages and disadvantages of different approaches and methods of the data analytics and being able to apply them in simple case studies• obtain theoretical knowledge about data collection and modelling processes, including state of the art approaches and available best practices <p>Methodological competence The students:</p> <ul style="list-style-type: none">• being able to execute typical tasks of data analysis, and also being able to proceed deeper with respect to different approaches and methods• gain a hands on experience and being able to understand advantages and disadvantages of different methods and being able to use obtained knowledge <p>Social competence The students:</p> <ul style="list-style-type: none">• build solutions based on case studies given to the group, for example design of regression model based on provided dataset• discuss solutions on a technical level• present obtained case studies solutions as part of the exercises <p>Self-competence The students:</p> <ul style="list-style-type: none">• critically review provided offered information

Module contents

After current course students will get advanced knowledge in the domains such as business intelligence and data analytics. Besides that, students will have a chance to have a deeper look into related technical fields such as InMemory Computing, Data Mining and Machine Learning, Big Data Processing with Distributed Systems (e.g. Apache Hadoop / Spark) from both, research and practical, perspectives. Students will be provided with real-world experience gather from business intelligence and data science related projects. Materials of the course are believed to be justified with current demands of data analytics market. Thus, providing students with relevant knowledge in order to give them advantages in future job.

Recommended reading

- Jürgen Cleve und Uwe Lämmel - Data Mining; Berlin/München/Boston: Walter de Gruyter GmbH, 2020 (German)
- Max Bramer (2013): "Principles of data mining" (English)
- Ian Witten, Eibe Frank, Mark Hall (2011): "Data mining : practical machine learning tools and techniques" (English)
- Jure Leskovec, Anand Rajaraman, Jeffrey Ullman (2014): "Mining of massive datasets" (English)
- Sebastian Raschka und Vahid Mirjalili - Python machine learning : machine learning and deep learning with Python, scikit-learn, and TensorFlow; Birmingham Mumbai: Packt Publishing, September 2017 (English)
- Aurélien Géron - Hands-on machine learning with Scikit-Learn, Keras, and TensorFlow : concepts, tools, and techniques to build intelligent systems; Beijing Boston Farnham Sebastopol Tokyo: O'Reilly, September 2019 (English)

Links

<http://www.wi-ol.de/>

Languages of instruction	German, English
Duration (semesters)	1 Semester
Module frequency	Summer term
Module capacity	unlimited
Teaching/Learning method	V + Ü

Examination	Prüfungszeiten	Type of examination
Final exam of module	At the end of the block course	Written examination or oral examination or term paper or referat or portfolio or practical exercises and written examination or practical exercises and oral examination.

Type of course	Comment	SWS	Frequency	Workload of compulsory attendance
Lecture		2	SuSe	28
Exercises		2	SuSe	28
Total module attendance time				56 h

inf040 - Introduction to Data Science

Module label	Introduction to Data Science
Module code	inf040
Credit points	6.0 KP
Workload	180 h
Applicability of the module	<ul style="list-style-type: none">• Bachelor's Programme Business Informatics (Bachelor) > Akzentsetzungsbereich Praktische Informatik und Angewandte Informatik• Bachelor's Programme Computing Science (Bachelor) > Akzentsetzungsbereich - Wahlbereich Informatik• Bachelor's Programme Sustainability Economics (Bachelor) > Wahlpflichtbereich• Master Applied Economics and Data Science (Master) > Data Science• Master of Education Programme (Gymnasium) Computing Science (Master of Education) > Wahlpflichtmodule (Praktische Informatik)• Master of Education Programme (Gymnasium) Computing Science (Master of Education) > Wahlpflichtmodule (Theoretische Informatik)• Master of Education Programme (Hauptschule and Realschule) Computing Science (Master of Education) > Mastermodule• Master of Education Programme (Vocational and Business Education) Computing Science (Master of Education) > Akzentsetzungsbereich• Master's Programme Computing Science (Master) > Praktische Informatik
Responsible persons	<ul style="list-style-type: none">• Wingerath, Wolfram (module responsibility)• Lehrenden, Die im Modul (authorised to take exams)
Prerequisites	Basics of databases, Python programming and statistics
Skills to be acquired in this module	<p>The module teaches fundamentals from the field of Data Science, covering purposes, challenges, and common best practices.</p> <p>Professional competences</p> <p>The students</p> <ul style="list-style-type: none">• have knowledge of basic concepts, problems and solution approaches from the field of Data Science.• are able to justify the choice of specific data analysis methods for a given problem• include possible imponderables in the analysis when evaluating analysis results <p>Methodological competences</p> <p>The students</p> <ul style="list-style-type: none">• are able to translate questions from a specific domain into a feasible analysis• work on Data Science tasks to expand their understanding of the different approaches and methods. <p>Social competences</p> <p>The students</p> <ul style="list-style-type: none">• discuss approaches and problems encountered in smaller and larger groups <p>Self competences</p> <p>The students</p> <ul style="list-style-type: none">• reflect on their actions when identifying possible solutions and critically question their own results

Module contents

Data Science is an interdisciplinary science at the intersection of statistics, machine learning, data visualization, and mathematical modeling. This course is designed to provide a practical introduction to the field of Data Science by teaching theoretical principles while also applying them practically. Topics covered range from data collection and preparation (data sources & formats, data cleaning, data bias), mathematical foundations (statistical distributions, correlation analysis, significance) and methods for visualization (tables & plots, histograms, best practices) to the development of models for classifying or predicting values (linear regression, classification, clustering).

Recommended reading

- The Data Science Design Manual (Seven Kiena, 2017)
- Invisible Women: Data Bias in a World Designed for Men (Caroline Criado-Perez, 2019)

Links

Language of instruction	English
Duration (semesters)	1 Semester
Module frequency	in winter term
Module capacity	unlimited
Teaching/Learning method	V+Ü

Examination	Prüfungszeiten	Type of examination
Final exam of module	At the end of the lecture period or by arrangement with the instructor.	Written or oral exam or portfolio or project or practical exercise

Type of course	Comment	SWS	Frequency	Workload of compulsory attendance
Lecture		2	WiSe	28
Exercises		2	WiSe	28
Total module attendance time				56 h

inf962 - Fundamental Competencies in Computing Science III: Algorithms and Computational Problem Solving

Module label	Fundamental Competencies in Computing Science III: Algorithms and Computational Problem Solving
Module code	inf962
Credit points	6.0 KP
Workload	180 h
Applicability of the module	<ul style="list-style-type: none">• Master Applied Economics and Data Science (Master) > Data Science• Master's Programme Engineering of Socio-Technical Systems (Master) > Fundamentals/Foundations• Master's Programme Environmental Modelling (Master) > Mastermodule
Responsible persons	<ul style="list-style-type: none">• Vogel-Sonnenschein, Ute (module responsibility)• Lehrenden, Die im Modul (authorised to take exams)
Prerequisites	

No specific knowledge is required to take part in this module.

This module provides students with non-computer science backgrounds with the computational problem-solving skills necessary to complete subsequent computer science courses. It is not intended for students who study computer science or business informatics.

Skills to be acquired in this module

Graduates of the module have acquired a deeper understanding of basic theories and techniques in computer science and can classify problems that arise. This enables students to structure and model simple tasks from their subject area using computer science, to design approaches to solutions and to estimate the effort required to solve them. They have a basic understanding of the design and use of relational databases.

This course provides students with fundamental computational problem-solving skills necessary to complete subsequent courses in computer science.

Professional competences

The students

- name the basic concepts of von Neumann's computer architecture,
- describe concepts of the computational representation of information and their limits,
- use basic data structures and algorithms and reason about their complexity,
- model simple problems with formal concepts such as automata and formal languages,
- design simple relational databases and identify the advantages of database-based storage.

Methodological competences

The students

- analyze problems from their area of application,
- design appropriate solutions for simple problems using the Python

programming language and estimate the effort required to execute them,

- design simple object-oriented models
- use a simple IDE and implement scripts in Python,
- discuss alternative computational representations of data and problems and draw informed conclusions from them

Social competences

The students

- present and discuss their solutions in an interdisciplinary team,
- develop solutions to simple problems cooperatively in a team.

Self-competences

The students

- critically reflect on fundamental design decisions in algorithms and data structures,
- deepen their time management skills.

Module contents

- von Neumann computer architecture,
- tasks of operating systems
- computer representation of information,
- formal languages, grammar and automata,
- basic data structures,
- algorithms and complexity,
- programming simple object-oriented solutions in Python
- basic concepts of SQL-based databases

Recommended reading

1. Robert Sedgewick and Kevin Wayne
Algorithms
2011, ISBN: 032157351X
2. Hans Petter Langtangen
A Primer on Scientific Programming with Python
Springer Berlin Heidelberg, 2014, ISBN: 9783642549595
3. Robert Sedgewick and Kevin Wayne
Computer science : an interdisciplinary approach
Boston Columbus Indianapolis New York San Francisco Amsterdam
Cape Town Dubai
London Marid Milan Munich Paris Montreal Toronto Delhi Mexico City
São Paulo
Sydney Hong Kong Seoul Singapore Taipei Tokyo Addison-Wesley,
2017, ISBN:
0134076427;
4. John Guttag
*Introduction to computation and programming using Python : with
application to
understanding data*
Cambridge, Massachusetts London, England The MIT Press, 2016,
ISBN:
9780262529624
5. Paul Gries, Jennifer Campbell, Jason Montojo, and Jennifer Campbell
**Practical programming : an introduction to computer science
using Python 3.6**
Raleigh, North Carolina The Pragmatic Bookshelf, 2017, ISBN:
9781680502688
6. Gerard Blanchet
Computer architecture
Hoboken, NJ Wiley, 2013, ISBN: 1118577795
7. J. Glenn Brookshear (1944-) and Dennis Brylow
Computer science : an overview
Boston Munich u.a. Pearson, 2015, ISBN: 1292061162;
8. *Python Programming : An Introduction to Computer Science*
<http://ce.sharif.edu/courses/97-98/2/ce153-3/resources/root/Text%20Bo>

oks/An%20Introduction%20to%20Computer
%20Science.pdf by John Zelle
9. *Online-Course Python for newbies*:
<https://runestone.academy/runestone/books/published/thinkcspy/GeneralIntro/SpecialWaystoExecutePythoninthisBook.html>
|
Buch zum Online-Kurs: Brad Miller, David Ranum, "How to think like a
Computer Scientist"
e-Book: <http://openbookproject.net/thinkcs/python/english3e/>

Links	
Language of instruction	English
Duration (semesters)	1 Semester
Module frequency	every winter semester
Module capacity	unlimited
Reference text	

In the winter term, this module is held in English, in the summer term in German.

Slides and homework are in English.

Teaching/Learning method	V+Ü	
Examination	Prüfungszeiten	Type of examination

Final exam of module		
	<ul style="list-style-type: none"> • The exam takes place in the first three weeks after the end of the event period. • The re-exam takes place in the last three weeks before the start of the next event period. 	<ul style="list-style-type: none"> • Practical exercises and exams or • Practical exercises and oral examination (with fewer than 20 participants)

Type of course	Comment	SWS	Frequency	Workload of compulsory attendance
Lecture		4	WiSe	56
Exercises		2	WiSe	28
Total module attendance time				84 h

Specialization

inf510 - Energy Information Systems

Module label	Energy Information Systems
Module code	inf510
Credit points	6.0 KP
Workload	180 h
Applicability of the module	<ul style="list-style-type: none">• Master Applied Economics and Data Science (Master) > Specialization• Master's Programme Business Informatics (Master) > Akzentsetzungsmodulare der Informatik• Master's Programme Computing Science (Master) > Angewandte Informatik• Master's Programme Environmental Modelling (Master) > Mastermodule
Responsible persons	<ul style="list-style-type: none">• Lehnhoff, Sebastian (module responsibility)• Lehrenden, Die im Modul (authorised to take exams)
Prerequisites	No participant requirements
Skills to be acquired in this module	<p>The students will learn different approaches to integrate distributed facilities, the regulatory framework, relevant standards and architecture concepts of energy management systems and will be able to apply this knowledge.</p> <p>Professional competence The students:</p> <ul style="list-style-type: none">• develop and evaluate IT-architectures for energy management systems• model objects of this domain appropriately• model energy information systems• realise and differentiate advanced tasks of decentralised energy management systems <p>Methodological competence The students:</p> <ul style="list-style-type: none">• identify problems of energy management, analyse these problems systematically and provide solutions• apply different simulation approaches of decentralised plants and consumers <p>Social competence The students:</p> <ul style="list-style-type: none">• discuss solutions for energy management systems in the group• develop use cases in teams• present self-developed solutions <p>Self-competence The students:</p> <ul style="list-style-type: none">• reflect their actions with regard to structuring and decomposing systems• reflect their own use of power as a limited resource
Module contents	<p>This module provides the computer science basics for energy management. It provides the requirements of energy supply information systems with the focus on technical components and the requirements of decentralised and renewable energy plants.</p> <p>These are:</p> <ul style="list-style-type: none">• Architectures for energy information systems, e.g. SOA, Seamless Integration Architecture (IEC TC 57), OPC-UA• Norms and standards of energy industry data models (CIM, 61850)

- Systematisation of energy information system requirements based on ontologies
- Development, analysis and adaption of energy industry reference models and processes
- Methods and technologies to support energy industry processes
- Methods and algorithms to support decision processes of the decentralised energy plants control
- Smart Grid plant communication, particularly for load management
- Methods for modelling and simulation of power supply system dynamics

Recommended reading

- Crastan V.: "Elektrische Energieversorgung II", Springer 2004
- Heuck K., Dettman K. D., Schulz D.: "Elektrische Energieversorgung I", 7. Aufl., Vieweg 2007
- Konstantin, P.: "Praxisbuch Energiewirtschaft", Springer 2006 - Schwab, A.: "Elektroenergiesysteme, Springer 2009

Links

Language of instruction	English	
Duration (semesters)	1 Semester	
Module frequency	annual	
Module capacity	unlimited	
Teaching/Learning method	V+S	
Examination	Prüfungszeiten	Type of examination
Final exam of module	At the end of the semester	Student research project or presentation

Type of course	Comment	SWS	Frequency	Workload of compulsory attendance
Lecture		2	WiSe	28
Seminar		2	WiSe	28
Total module attendance time				56 h

wir842 - Banking

Module label	Banking	
Module code	wir842	
Credit points	6.0 KP	
Workload	180 h	
Applicability of the module	<ul style="list-style-type: none"> • Master Applied Economics and Data Science (Master) > Specialization • Master of Education Programme (Vocational and Business Education) Economics and Business Administration (Master of Education) > Mastermodule • Master's Programme Business Administration, Economics and Law (Master) > Schwerpunkt "Accounting, Finance, Taxation" (AFT) (MPO2020) • Master's Programme Business Administration, Economics and Law (Master) > Schwerpunktmodule AFT - BWL • Master's Programme Business Administration, Economics and Law (Master) > Schwerpunktmodule RdW - BWL • Master's programme Business Administration: Management and Law (Master) > Schwerpunktmodule AFT - BWL • Master's programme Business Administration: Management and Law (Master) > Schwerpunktmodule RdW - BWL • Master's Programme Business Informatics (Master) > Module der Wirtschafts- und Rechtswissenschaften (Master) 	
Responsible persons	<ul style="list-style-type: none"> • Prokop, Jörg (module responsibility) • Lehrenden, Die im Modul (authorised to take exams) 	
Prerequisites		
Skills to be acquired in this module	<p>Upon completion of the module students will be able to explain the role financial institutions play in financial markets based on economic theory. They will have a sound knowledge of institutional and regulatory conditions under which financial institutions operate today, and they will be able to critically assess respective developments in the financial sector. Moreover, they will have developed a sound understanding of how banks are managed in a competitive environment.</p>	
Module contents	<p>We will discuss theoretical foundations of financial intermediation in general, and of banking in particular as well as the economic, institutional, and regulatory context in which financial institutions operate today. Moreover, we will cover selected topics in the area of bank management and bank accounting..</p>	
Recommended reading	<ul style="list-style-type: none"> • Arnold: Modern Financial Markets & Institutions: a practical perspective, latest edition, Pearson • Berger / Molyneux / Wilson (Eds.): The Oxford Handbook of Banking, latest edition, Oxford University Press • de Haan / Oosterloo / Schoemaker: Financial Markets and Institutions – A European Perspective, latest edition, Cambridge • Hartmann-Wendels / Pfingsten / Weber: Bankbetriebslehre, latest edition, Springer • Tolkmitt: Neue Bankbetriebslehre, latest edition, Gabler <p>Further readings may be announced during the course.</p>	
Links	http://www.uni-oldenburg.de/fiwi_bbl/	
Languages of instruction	German, English	
Duration (semesters)	1 Semester	
Module frequency	jährlich	
Module capacity	unlimited	
Examination	Prüfungszeiten	Type of examination
Final exam of module	typically at the end of the semester; potential mid-term examination dates will be announced in the first session	1 term paper (Hausarbeit) or 1 written exam (Klausur) or 1 oral exam (mündliche Prüfung) or 1 Portfolio
Type of course	Lecture	
SWS	4	
Frequency		
Workload attendance time	56 h	

wir843 - Financial Risk Management

Module label	Financial Risk Management	
Module code	wir843	
Credit points	6.0 KP	
Workload	180 h	
Applicability of the module	<ul style="list-style-type: none"> • Master Applied Economics and Data Science (Master) > Specialization • Master's Programme Business Administration, Economics and Law (Master) > Schwerpunkt "Accounting, Finance, Taxation" (AFT) (MPO2020) • Master's Programme Business Administration, Economics and Law (Master) > Schwerpunktmodule AFT - BWL • Master's Programme Business Administration, Economics and Law (Master) > Schwerpunktmodule RdW - BWL • Master's programme Business Administration: Management and Law (Master) > Schwerpunktmodule AFT - BWL • Master's programme Business Administration: Management and Law (Master) > Schwerpunktmodule RdW - BWL 	
Responsible persons	<ul style="list-style-type: none"> • Lehrenden, Die im Modul (authorised to take exams) • Prokop, Jörg (module responsibility) 	
Prerequisites		
Skills to be acquired in this module	<p>The aim of the course is to provide students with a thorough knowledge of how to identify, classify, measure, and manage different types of financial business risks. In particular, we will discuss the properties and potential applications of derivatives in financial risk management. Upon completion of this module students</p> <ul style="list-style-type: none"> • will have a sound understanding of the concept of risk management, and will be able to distinguish different types of financial risks and risk management approaches; • will be able to devise hedging strategies, arbitrage strategies, and speculative strategies using financial derivatives such as futures contracts, forward contracts, options, and swaps; • will be able to consistently apply valuation models to determine theoretical prices of financial derivatives. • will be able to assess limitations of financial derivatives in risk management. 	
Module contents	<p>The course provides insights into the theory and practice of modern financial business risk management, including:</p> <ul style="list-style-type: none"> • the concept of risk, types of financial risks, and approaches to risk measurement; • the mechanics of financial markets, including derivatives markets; • the properties of selected financial instruments, including financial derivatives such as forwards, futures, options, and swaps; • tools and techniques for managing financial risks. 	
Recommended reading	<p>Highly recommended readings:</p> <ul style="list-style-type: none"> • John C. Hull, Options, Futures, And Other Derivatives, current edition, Pearson. • Aswath Damodaran, Strategic Risk Taking: A Framework For Risk Management, Pearson 2008. <p>Optional readings:</p> <ul style="list-style-type: none"> • John C. Hull, Risk Management and Financial Institutions, latest edition, Pearson. • John C. Hull, Fundamentals of Futures and Options Markets, latest edition, Pearson. <p>Further readings may be announced during the course.</p>	
Links		
Language of instruction	English	
Duration (semesters)	1 Semester	
Module frequency	halbjährlich	
Module capacity	unlimited	
Examination	Prüfungszeiten	Type of examination
Final exam of module	typically at the end of the semester; potential mid-term examination dates will be announced in the first session	1 term paper (Hausarbeit) or 1 written exam (Klausur) or 1 oral exam (mündliche Prüfung) or 1 Portfolio
Type of course	Lecture ggf. mit Übung	

SWS	4
Frequency	--
Workload attendance time	56 h

wir886 - Digital Transformation: Strategies and Sustainability

Module label	Digital Transformation: Strategies and Sustainability
Module code	wir886
Credit points	6.0 KP
Workload	180 h (4 SWS (56h))
Applicability of the module	<ul style="list-style-type: none">• Master Applied Economics and Data Science (Master) > Specialization• Master's Programme Business Administration, Economics and Law (Master) > Schwerpunkt Führung von Unternehmen und gesellschaftliche Organisation (FUGO) (MPO2020)• Master's Programme Business Administration, Economics and Law (Master) > Schwerpunktmodule NM-BWL• Master's Programme Business Administration, Economics and Law (Master) > Schwerpunktmodule RdW - BWL• Master's Programme Business Administration, Economics and Law (Master) > Schwerpunktmodule UF - BWL• Master's programme Business Administration: Management and Law (Master) > Schwerpunktmodule NM-BWL• Master's programme Business Administration: Management and Law (Master) > Schwerpunktmodule RdW - BWL• Master's programme Business Administration: Management and Law (Master) > Schwerpunktmodule UF - BWL• Master's Programme Sustainability Economics and Management (Master) > Supplementary Modules
Responsible persons	<ul style="list-style-type: none">• Lehrenden, Die im Modul (authorised to take exams)• Hoppmann, Jörn (module responsibility)
Prerequisites	
Skills to be acquired in this module	<p>The students should:</p> <ul style="list-style-type: none">• know basic definitions, trends and application areas of digitalization• be able to assess the economic effects of digitalization• understand corporate strategies and business models in the context of digital transformation• know how companies should design processes and structures to promote digitalization in organizations• have an overview of social, legal and ethical aspects of digitalization• assess the environmental impact of digitalization• evaluate digital products, services and business models using ethical and sustainable guidelines• independently develop proposals for the integration of ethical, social and ecological criteria in digitalization projects and processes
Module contents	<p>The module "Digital Strategy and Sustainability" provides insights into the role digitalization for companies and the associated social discourse. The digital transformation leads to the emergence of new business models, markets and forms of interaction. This requires comprehensive changes in strategic orientation as well as in business processes and structures. In addition, new regulations and standards are required at the societal level in order to meet the ethical, ecological, and societal challenges posed by digitization.</p> <p>In the first part of the seminar, students are familiarized with the basics and application areas of digitalization as well as the economic, social, and ecological implications. Toward this end, important questions in the context of digital transformation will be raised and discussed drawing on company case studies. Exemplary questions that will be dealt with in this context are</p> <ul style="list-style-type: none">• What are the technological drivers of digitalization and what trends can be observed?• What is the impact of digital transformation on industries and companies?• How can companies design strategies, business models, processes and structures to address the digital transformation?• What are the consequences of digitalization on a societal and legal level?• How does the digital transformation affect the natural environment?• How can social, ethical, and ecological aspects be integrated into digital products, services and business models? <p>In the second part of the course, students will develop digital business models in teams under the guidance of experienced coaches, taking into account economic, ecological and social/ethical criteria. The results are presented to the other students and company representatives and will be summarized in a term paper. An important part of the term paper is the critical reflection of current methods used to develop digital business models with regard to sustainability criteria.</p>

Recommended reading

Platform Revolution: How Networked Markets Are Transforming the Economy – and How to Make Them Work for You | Geoffrey G. Parker, Marshall W. van Alstyne, Sangeet Paul Choudary | ISBN: 9780393249132
Machine, Platform, Crowd: Harnessing Our Digital Future | Andrew McAfee, Erik Brynjolfsson | ISBN-13: 978-0393254297

Links

Language of instruction	English			
Duration (semesters)	1 Semester			
Module frequency	Annually			
Module capacity	40			
Reference text	Das Modul sollte im 2. Semester besucht werden.			
Type of module	Wahlpflicht / Elective			
Module level	EB (Ergänzungsbereich / Complementary)			
Examination	Prüfungszeiten		Type of examination	
Final exam of module	Submission at the end of the semester		Assignment	
Type of course	Comment	SWS	Frequency	Workload of compulsory attendance
Lecture		2	SuSe or WiSe	28
Exercises		2	SuSe or WiSe	28
Total module attendance time				56 h

wir896 - Operations Management

Module label	Operations Management			
Module code	wir896			
Credit points	6.0 KP			
Workload	180 h			
Applicability of the module	<ul style="list-style-type: none"> • Master Applied Economics and Data Science (Master) > Specialization • Master's Programme Business Administration, Economics and Law (Master) > Schwerpunkt Führung von Unternehmen und gesellschaftliche Organisation (FUGO) (MPO2020) • Master's Programme Business Administration, Economics and Law (Master) > Schwerpunktmodule RdW - BWL • Master's Programme Business Administration, Economics and Law (Master) > Schwerpunktmodule UF - BWL • Master's programme Business Administration: Management and Law (Master) > Schwerpunktmodule RdW - BWL • Master's programme Business Administration: Management and Law (Master) > Schwerpunktmodule UF - BWL • Master's Programme Business Informatics (Master) > Module der Wirtschafts- und Rechtswissenschaften (Master) 			
Responsible persons	<ul style="list-style-type: none"> • Busse, Christian (module responsibility) • Lehrenden, Die im Modul (authorised to take exams) 			
Prerequisites				
Skills to be acquired in this module	<p>In der zum Modul gehörigen Vorlesung werden vor allem formalanalytische Modelle erarbeitet, mit denen Produktionsprobleme beschrieben und im Rahmen der Modellannahmen optimiert werden können. Hiermit sollen die Studierenden eine Kompetenz zur Analyse realer Produktionsprozesse erwerben, mit Hilfe derer sie diese nicht nur verstehen, sondern idealerweise auch verbessern können. Im begleitenden Seminar werden mithilfe von in Gruppen verfassten Hausarbeiten aktuelle Fragestellungen und Konzepte zu den formalanalytischen Modellen aufgearbeitet und bewertet. Das Seminar baut ergänzend zur Vorlesung auf konzeptioneller und empirischer Forschung auf. Hiermit lernen die Studierenden wissenschaftliche Diskurse zu praktisch relevanten und nur schwer modellierbaren Herausforderungen des Operations Managements kennen. Ferner werden die Fähigkeiten zum wissenschaftlichen Arbeiten, zur Teamarbeit und zum Präsentieren vor großen Gruppen trainiert.</p>			
Module contents	<p>Die Vorlesung behandelt voraussichtlich folgende Themen: Nachfrageprognose, Prozessmanagement, Produktionsplanung, Ablaufplanung, Revenue Management, Behavioral Operations Management</p>			
Recommended reading	<p>Thonemann, U. (2015). Operations Management – Konzepte, Methoden und Anwendungen. Pearson, Hallbergmoos.</p> <p>Helber, S. (2014): Operations Management Tutorial, Stefan Helber (Eigenverlag).</p>			
Links	https://www.uni-oldenburg.de/produktion			
Language of instruction	English			
Duration (semesters)	1 Semester			
Module frequency	jährlich			
Module capacity	unlimited			
Examination	Prüfungszeiten		Type of examination	
Final exam of module	Am Ende des Semesters		Portfolio	
Type of course	Comment	SWS	Frequency	Workload of compulsory attendance
Lecture		2	SuSe or WiSe	28
Seminar		2	SuSe or WiSe	28
Total module attendance time				56 h

wir898 - Strategic Sustainability Management

Module label	Strategic Sustainability Management
Module code	wir898
Credit points	6.0 KP
Workload	180 h
Applicability of the module	<ul style="list-style-type: none"> • Master Applied Economics and Data Science (Master) > Specialization • Master's Programme Business Administration, Economics and Law (Master) > Kernmodule CHI • Master's Programme Business Administration, Economics and Law (Master) > Schwerpunkt "China - Wirtschaft und Sprache" (CHI) - Kernmodule (MPO2020) • Master's Programme Business Administration, Economics and Law (Master) > Schwerpunkt Führung von Unternehmen und gesellschaftliche Organisation (FUGO) (MPO2020) • Master's Programme Business Administration, Economics and Law (Master) > Schwerpunktmodule NM-BWL more... • Master's Programme Business Administration, Economics and Law (Master) > Schwerpunktmodule RdW - BWL • Master's programme Business Administration: Management and Law (Master) > Kernmodule CHI • Master's programme Business Administration: Management and Law (Master) > Schwerpunktmodule NM-BWL • Master's programme Business Administration: Management and Law (Master) > Schwerpunktmodule RdW - BWL • Master's Programme Business Informatics (Master) > Module der Wirtschafts- und Rechtswissenschaften (Master) • Master's Programme Sustainability Economics and Management (Master) > Accentuation Modules
Responsible persons	<ul style="list-style-type: none"> • Hoppmann, Jörn (module responsibility) • Lehrenden, Die im Modul (authorised to take exams) • Hoppmann, Jörn (Module counselling)
Prerequisites	
Skills to be acquired in this module	<p>The students should...</p> <ul style="list-style-type: none"> • know and understand basic concepts, instruments and theories in the context of corporate sustainability and corporate social responsibility • be able to apply conceptual frameworks to analyze and critically question the sustainability of companies • develop options to improve the sustainability of companies and derive recommendations for their implementation in practice
Module contents	<p>The module "Strategic Sustainability Management" provides an overview of the debates on the role of firms for sustainable development from a strategic perspective. The first session will briefly introduce the historical debate on Corporate Sustainability and Corporate Social Responsibility and delineate important concepts. The following sessions will use concrete company case studies as a basis for a critical discussion of questions in the context of corporate sustainability that are of strategic importance for firms. Questions that will be discussed are, amongst others:</p> <ul style="list-style-type: none"> • How can one determine whether a firm acts in a socially and ecologically sustainable way? • Which factors drive and hinder the diffusion of socially and ecologically superior solutions and companies in the market? • To which extent is there a conflict between firm and market growth on the one hand and sustainability on the other hand? • Which possibilities does a company have to deal with conflicts between social/ecological and economic goals? • How can existing firms and value chains be transformed toward sustainability? • What is the role of managers and boards of directors for organizational change toward sustainability? • How does the ownership and financial structure of firms influence their strategy toward sustainability? • In how far can cooperation and partnerships between organizations help integrate social and ecological aspects in 53 firms?

In addition to discussing these questions by drawing on company case studies, students will be introduced to the corresponding theoretical concepts and frameworks in the academic literature. Also, students will be given the opportunity to test different strategies for implementing sustainability in organizations during a simulation, which allows them to gain first-hand insights into the emerging challenges. Toward the end of the course, students will apply and deepen the knowledge they have gathered over the semester by writing a seminar thesis.

Recommended reading				
Links				
Languages of instruction		German, English		
Duration (semesters)		1 Semester		
Module frequency		Yearly		
Module capacity		unlimited		
Examination		Prüfungszeiten		Type of examination
Final exam of module		End of term		Portfolio
Type of course	Comment	SWS	Frequency	Workload of compulsory attendance
Lecture		2	SuSe or WiSe	28
Seminar		2	SuSe or WiSe	28
Total module attendance time				56 h

wir899 - Supply Chain Management

Module label	Supply Chain Management	
Module code	wir899	
Credit points	6.0 KP	
Workload	180 h	
Applicability of the module	<ul style="list-style-type: none"> • Master Applied Economics and Data Science (Master) > Specialization • Master's Programme Business Administration, Economics and Law (Master) > Schwerpunkt Führung von Unternehmen und gesellschaftliche Organisation (FUGO) (MPO2020) • Master's Programme Business Administration, Economics and Law (Master) > Schwerpunktmodule RdW - BWL • Master's Programme Business Administration, Economics and Law (Master) > Schwerpunktmodule UF - BWL • Master's programme Business Administration: Management and Law (Master) > Schwerpunktmodule RdW - BWL • Master's programme Business Administration: Management and Law (Master) > Schwerpunktmodule UF - BWL • Master's Programme Business Informatics (Master) > Module der Wirtschafts- und Rechtswissenschaften (Master) 	
Responsible persons	<ul style="list-style-type: none"> • Busse, Christian (module responsibility) • Lehrenden, Die im Modul (authorised to take exams) 	
Prerequisites		
Skills to be acquired in this module	<p>In der zum Modul gehörigen Vorlesung werden vor allem formalanalytische Modelle erarbeitet, mit denen Probleme in Wertschöpfungsketten beschrieben und im Rahmen der Modellannahmen optimiert werden können. Hiermit sollen die Studierenden eine Kompetenz zur unternehmensübergreifenden Analyse der gesamten Wertschöpfungskette (Supply Chain) erwerben, mit Hilfe derer sie diese nicht nur verstehen, sondern idealerweise auch verbessern können. Im begleitenden Seminar werden mithilfe von in Gruppen verfassten Hausarbeiten aktuelle Fragestellungen und Diskussionen im Supply Chain Management aufgearbeitet und bewertet. Das Seminar baut ergänzend zur Vorlesung auf konzeptioneller und empirischer Forschung auf. Hiermit lernen die Studierenden wissenschaftliche Diskurse zu praktisch relevanten und nur schwer modellierbaren Herausforderungen des Supply Chain Managements kennen. Ferner werden die Fähigkeiten zum wissenschaftlichen Arbeiten, zur Teamarbeit und zum Präsentieren vor großen Gruppen trainiert.</p>	
Module contents	<p>Die Vorlesung behandelt voraussichtlich folgende Themen: Grundlagen der Supply Chain, Strategischer Fit, Netzwerk- und Standortplanung, Bestandsmanagement, Produkt- und Prozessdesign, Supply-Chain-Koordination, Vertragsdesign, Transport in der Supply Chain, Nachhaltiges Supply Chain Management</p>	
Recommended reading	<p>Chopra, S. & Meindl, P. (2014). Supply Chain Management – Strategie, Planung und Umsetzung (5., aktualisierte Auflage). Pearson, Hallbergmoos.</p> <p>Thonemann, U. (2015). Operations Management – Konzepte, Methoden und Anwendungen. Pearson, Hallbergmoos.</p> <p>Bowersox, D. J.; Closs, D. J. & Cooper, M. B. (2002): Supply Chain Logistics Management. Boston.</p> <p>Ballou, R. H. (2004): Business Logistics / Supply Chain Management (5th ed.). Upper Saddle River.</p> <p>Monczka, R.; Trent, R. & Handfield, R. (2002): Purchasing and Supply Chain Management (2nd ed.). Mason: Thomson Learning.</p>	
Links	https://www.uni-oldenburg.de/produktion	
Language of instruction	English	
Duration (semesters)	1 Semester	
Module frequency	jährlich	
Module capacity	unlimited	
Examination	Prüfungszeiten	Type of examination
Final exam of module	Am Ende des Semesters	1 Hausarbeit oder 1 Referat oder 1 Klausur oder

Examination	Prüfungszeiten	Type of examination		
		1 mündliche Prüfung oder 1 Portfolio oder 1 Projektbericht		
Type of course	Comment	SWS	Frequency	Workload of compulsory attendance
Lecture		2	SuSe or WiSe	28
Seminar		2	SuSe or WiSe	28
Total module attendance time				56 h

wir921 - Sustainable Supply Chain Management

Module label	Sustainable Supply Chain Management
Module code	wir921
Credit points	6.0 KP
Workload	180 h
Applicability of the module	<ul style="list-style-type: none"> • Master Applied Economics and Data Science (Master) > Specialization • Master's Programme Business Administration, Economics and Law (Master) > Schwerpunktmodule NM-BWL • Master's Programme Business Administration, Economics and Law (Master) > Schwerpunktmodule RdW - BWL • Master's programme Business Administration: Management and Law (Master) > Schwerpunktmodule NM-BWL • Master's programme Business Administration: Management and Law (Master) > Schwerpunktmodule RdW - BWL • Master's Programme Sustainability Economics and Management (Master) > Accentuation Modules
Responsible persons	<ul style="list-style-type: none"> • Busse, Christian (module responsibility) • Lehrenden, Die im Modul (authorised to take exams) • Busse, Christian (Module counselling)
Prerequisites	
Skills to be acquired in this module	<p>By focusing on sustainability from an intra-, and inter-organizational perspective, this module aims to equip students with an in-depth knowledge of the sustainability-related challenges and problems within supply chain management and suggests some tools for managing the same. It further seeks to capacitate students to understand and analyze the trade-offs and conflicts of targets within sustainable supply chain management. The content is closely linked to the latest research in the field, providing a theoretical understanding (within the lecture) while using real-world case examples (within the seminar) to develop a practical understanding simultaneously. Students will be able to connect theory with practice and get a taste of real-life corporate scenarios or lay a foundation for possible master theses. Further, working in groups will help students brush up their team management skills, and the final report shall accustom them to the intricacies of scientific writing.</p>
Module contents	<p>This masters-level module focuses on how firms could practically manage sustainability in its supply chains. Two broader perspectives, as detailed below, guide the coursework:</p> <p>1) The material flow perspective approaches SSCM with sustainably managing physical flows and processes within a firm's operations and upstream (and downstream) supply chain links. Individual (lecture) sessions are built around the following topics: Introduction to Sustainability and Supply Chain Management; Introduction to Sustainable Supply Chain Management; Sustainable Product Development & Lean and Green; Workplace Health and Safety; Sustainable Transportation; Sustainable Warehousing & Sustainable Packaging; and Closed-Loop Supply Chain Management</p> <p>2) The relationship perspective further adopts a more direct managerial viewpoint on inter-firm relations. Individual (lecture) sessions discuss the following topics: Stakeholder Management; Legitimacy, Decoupling & Greenwashing; Supply Chain Sustainability Risks; Sustainable Supplier Management; and Supply Chain Sustainability Dilemmas</p> <p>Some of the theoretical perspectives discussed within the lecture sessions will be prepared by case studies of well-known companies such as Walmart, DHL, HP, Volkswagen, Lidl, and Apple.</p>
Recommended reading	<p>The lecture content has been developed from various research publications, rather than a textbook. Students are encouraged to read some of the original publications as amendments to the lecture. The case studies will mostly be based on professionally written cases. Scholarly publications/articles, as well as the case study documents, will be provided and discussed throughout the sessions.</p>
Links	
Language of instruction	English
Duration (semesters)	1 Semester
Module frequency	Yearly in the summer term

Module capacity	unlimited	
Reference text	This module is offered in the summer term. For a more detailed description of course content and organization, please note the syllabus that will be made available via Stud.IP before the beginning of the course.	
Examination	Prüfungszeiten	Type of examination
Final exam of module	Portfolio	
Type of course	Lecture and seminar	
SWS	4	
Frequency	SuSe or WiSe	
Workload attendance time	56 h	

wir806 - Information Technology Law

Module label	Information Technology Law
Module code	wir806
Credit points	6.0 KP
Workload	180 h
Applicability of the module	<ul style="list-style-type: none"> • Bachelor's Programme Business Informatics (Bachelor) > Wahlbereich Informatik, Kultur und Gesellschaft • Bachelor's Programme Computing Science (Bachelor) > Wahlbereich Informatik, Kultur und Gesellschaft • Master Applied Economics and Data Science (Master) > Specialization • Master of Education Programme (Gymnasium) Computing Science (Master of Education) > Pflichtmodule • Master of Education Programme (Hauptschule and Realschule) Computing Science (Master of Education) > Mastermodule more... • Master of Education Programme (Vocational and Business Education) Computing Science (Master of Education) > Recht und Gesellschaft • Master's Programme Business Administration, Economics and Law (Master) > Basismodule • Master's Programme Business Administration, Economics and Law (Master) > Mantelmodule (MPO2020) • Master's Programme Business Administration, Economics and Law (Master) > Schwerpunktmodule RdW - Recht • Master's programme Business Administration: Management and Law (Master) > Basismodule • Master's programme Business Administration: Management and Law (Master) > Schwerpunktmodule RdW - Recht • Master's Programme Business Informatics (Master) > Module der Wirtschafts- und Rechtswissenschaften (Master) • Master's Programme Computing Science (Master) > Module aus anderen Studiengängen
Responsible persons	<ul style="list-style-type: none"> • Rott, Peter (module responsibility) • Lehrenden, Die im Modul (authorised to take exams) • Rott, Peter (Module counselling)
Prerequisites	not applicable
Skills to be acquired in this module	<p>The students are familiar with the effects of digitalisation with its chances and risks in European and German private law and, in particular, consumer law. They obtain knowledge of specific areas of digitalised private law and consumer law with particular relevance for their future professional practice, are able to solve consumer law cases in a goal-oriented way, are able to find approaches for legal problems as well as recognise liability risks and how to deal with them, and are, in contract negotiations, able to recognise the requirements for regulation and to evaluate its consequences</p>
Module contents	<p>This module conveys how new technologies impact on private law and, in particular, on consumer law. It focuses on the (modified) interpretation of existing laws but even more on the reactions of the EU and national legislators and of the judiciary to new technological developments. The module discusses, among others, distance selling law, digitalised sales law and product liability law, the law of digital content and digital services, unfair commercial practices on internet and the law of the platform economy. Finally, the module looks at enforcement.</p>
Recommended reading	to be announced in the first lecture
Links	
Language of instruction	German
Duration (semesters)	1 Semester
Module frequency	jährlich
Module capacity	unlimited
Type of module	Wahlpflicht / Elective
Module level	MM (Mastermodul / Master module)
Teaching/Learning method	Lecture and Seminar

Previous knowledge

basic knowledge of civil law is helpful.

Examination	Prüfungszeiten	Type of examination		
Final exam of module				
to be taken from the examination regulations				
Type of course	Comment	SWS	Frequency	Workload of compulsory attendance
Lecture		2		28
Seminar		2		28
Total module attendance time				56 h

Masterabschlussmodul

mam - Master's Degree Module

Module label	Master's Degree Module		
Module code	mam		
Credit points	30.0 KP		
Workload	900 h		
Applicability of the module	<ul style="list-style-type: none">• Master Applied Economics and Data Science (Master) > Masterabschlussmodul		
Responsible persons			
Prerequisites			
Skills to be acquired in this module			
Module contents			
Recommended reading			
Links			
Languages of instruction	German, English		
Duration (semesters)	1 Semester		
Module frequency			
Module capacity	unlimited		
Examination	Prüfungszeiten	Type of examination	
Final exam of module		Abschlussarbeit	
Type of course	Seminar		
SWS	2		
Frequency	SuSe or WiSe		
Workload attendance time	28 h		

