Anlage 2: Description of the Modules

Synopsis of the modules in the Master's Degree Program in Economics and Management Science (MEMS)

Mandatory Modules	**Study Points**	
Advanced Microeconomics or Advanced Microeconomic Theory I (PhD-level)	6 6	Strausz Weizsäcker
Advanced Macroeconomics	6	Burda/Weinke
General Management	12	Adam/Gassen/Klapper/ Lessmann/Maiterth/Müller/ Schade/Schöttner

Mandatory Elective Modules in Economics	**Study Points**	
Information Economics	6	Strausz
Decision-Making under Uncertainty	6	Weizsäcker
Empirical Labour Economics	6	Spitz-Oener
Advanced Monetary Economics	6	Weinke
Advanced International Trade: Theory and Empirics	6	Wolf
Competition Policy	6	Kamecke
Public Economics	6	Engelmann
Labour Markets and Social Policy	6-12	Burda/Spitz-Oener
Advanced Labor Economics	6	Burda
Current Issues in Macroeconomics	6	Burda/Weinke
Topics in Macroeconomics	6	Burda/Weinke
Advanced Macroeconomic Analysis I (PhD-level)	6	Burda/Weinke
Advanced Macroeconomic Analysis II (PhD-level)	6	Burda/Weinke
Current Research in Macroeconomics	6	Burda/Weinke
Theory of Incentives	6	Strausz
Game Theory	6	Strausz
Advanced Microeconomic Theory II (PhD-level)	6	Strausz
Topics in Microeconomics	6-18	Strausz/Weizsäcker
Selected Topics in Competition Policy	6	Kamecke
Topics in Industrial Organization	6-12	Kamecke
Datengrundlagen der Wirtschaftspolitik (DGWP) (German)	6	N.N.
Advanced Topics in Public Economics	6-15	N.N.
Social Preferences	6	Engelmann
Economic History	6-18	Wolf
Spatial Economics	6	Wolf
Trust and Reputation	6	Weizsäcker
Voting Behavior	6	Engelmann
Emerging Markets	6	Menkhoff
Network based energy systems	6	Hubert
Economic Growth	6	Schwark
Selected topics in the field of Economics	3-12	Prüfungsausschuss

Mandatory Elective Module in Business Administration	**Study Points**	
Management	6-24	Schöttner
Finance	6-21	Müller
Financial Contracting	6-12	Hubert
Topics in Energy and Network Economics	6-15	Hubert
Real Estate Economics	6	Hubert
Analysis of Competition	6	Hubert
Marketing	6-24	Klapper
Entrepreneurship and Innovation	6-18	Schade
Seminar on Entrepreneurship and Innovation	6	Schade
Topics in the Theory of Markets and Organizations I/II	9-18	Hubert
Accounting Courses	6-24	Gassen
Master Thesis Seminar Accounting	6	Gassen
Master Tax Seminar	6-12	Maiterth
Financial Economics	6-24	Adam/Stomper
Thesis Seminar Corporate Finance	6	Adam

Mandatory Elective Module in Business Administration	**Study Points**	
Thesis Seminar Financial Economics	6	Stomper
Selected topics in the field of Business Administration	3-12	Prüfungsausschuss

Mandatory Elective Module in Quantitative Methodology (QM)	**Study Points**	
Multivariate Statistical Analysis	6-9	Härdle
Advanced Statistics	6-15	Härdle
Statistics and Finance	6-15	Härdle
Privatissimum Statistik	18	Härdle
Applied Econometrics	6	Droge/Fitzenberger
Econometric Methods	12	Droge/Fitzenberger
Time Series Analysis	6-9	Droge/Fitzenberger
Selected Topics in Econometrics	6	Droge/Fitzenberger
Econometric Projects	6	Droge/Fitzenberger
Analysis of Panel Data	6	Droge/Fitzenberger
Multiple Time Series Analysis	6	Droge/Fitzenberger
Microeconometrics	6	Droge/Fitzenberger
Financial Econometrics	6-9	Droge/Fitzenberger
Advanced Econometrics	6	Droge/Fitzenberger
Business Analytics and Data Science	6	Lessmann
Seminar Information Systems	6	Lessmann
IT Security and Privacy	6	Lessmann
Applied Predictive Analytics	6	Lessmann
Business Process Management	6	Lessmann
E-Business and Online Marketing	6	Lessmann
Selected topics in the field of Quantitative Methodology	3-12	Lessmann

Elective Modules	**Study Points**	
Variable Module for completing courses inside the economic department	3-12	Prüfungsausschuss
Elective Module for courses outside of the economic department which students may select on their own initiative	3-24	Prüfungsausschuss

Master Thesis

Students are awarded 18 study points for the Master Thesis.

Competency Targets of the Mandatory Modules of the Master's Program Economics and Management Science (MEMS)

Students will acquire specific knowledge in the fields of microeconomics, macroeconomics, the main features of business management and strategic management, which they will be able to apply in concrete situations, as well as a broad understanding of the most recent developments in these economic disciplines.
Students will be able to communicate this knowledge; they will learn to structure it, to classify it, to visualize it, as well as to judge this information with a critical eye, to assess its value.

Students will be motivated (encouraged) to make the effort necessary for a successful course of studies, as well as to create the preconditions, through their dedication and commitment, for a productive intellectual climate through all the various phases and stages of their course of study.
Students will learn to select and apply the appropriate scientific and academic methodologies as well as the specific tools and resources needed to solve a specific problem
Students will improve their ability to accept criticism and to engage with this criticism in a fruitful manner. They will also improve their ability to contribute intelligently to discussions and to defend their arguments. Students will also learn to assume various roles, such as participants in discussions, or experts or moderators.
Students will improve their abilities to work in teams and to sustain their own life-long learning.

At the end of their course of studies, students will be able to work independently and to assume responsibility when they undertake demanding and challenging tasks in business and in public administration.
Students will acquire the ability to undertake analytical analysis, within the framework of which economic methodologies are used, to analyze complex economic problems in order to describe these problems clearly and lucidly, and in so doing to assist and prepare the management of firms and corporation in regard to important decisions.
Students will be introduced to the most recent research and they will be able and qualified to apply the most recent methodological developments in economics; indeed, students will have reached a level such that they would be qualified to independent academic work or to do a doctorate in these fields.

Kompetenzziele des Pflichtbereiches im Masterstudiengang Economics and Management Science (MEMS)

Die Studierenden erwerben vertiefendes und anwendungsorientiertes Wissen auf den Fachgebieten Mikroökonomie, Makroökonomie, Grundsätze der Unternehmensführung und Strategisches Management sowie weiterführendes Wissen über die aktuellsten Entwicklungen in diesen Wissenschaftsdisziplinen.
Die Studierenden sind in der Lage, dieses Wissen wiederzugeben, zu strukturieren, konstruktiv und kritisch einzuordnen, zu gewichten und darzustellen.

Die Studierenden sind motiviert, den für einen positiven Studienerfolg notwendigen persönlichen Einsatz zu leisten und schaffen durch ihr Engagement die Voraussetzungen für ein konstruktives Studienklima in den verschiedenen Formen des Studiums.
Die Studierenden lernen, die für ein erfolgreiches Studium erforderlichen und geeigneten wissenschaftlichen Arbeitsmethoden und Hilfsmittel zu wählen und gezielt zur Lösungsfindung/Problemlösung einzusetzen.
Die Studierenden können fundierte Kritik akzeptieren und sich damit auseinander setzen. Gleichzeitig sind sie in der Lage, kritische Argumente in Diskussionen einzubringen und zu verteidigen. Sie lernen dabei verschiedene Rollen als Diskutant/in, Experte/in oder Moderator/in einzunehmen.
Die Studierenden erwerben die Fähigkeit zu Teamarbeit und lebenslangem Lernen.

Die Studierenden sind in der Lage, in der freien Wirtschaft und in der Verwaltung anspruchsvolle und verantwortliche Aufgaben selbstständig zu übernehmen.
Die Studierenden erwerben die Fähigkeit zum Einstieg in analytische Tätigkeiten, im Rahmen derer wirtschaftswissenschaftliche Methoden genutzt werden, um komplexe wirtschaftliche Probleme übersichtlich darzustellen und so wichtige Entscheidungen des Managements von Unternehmen vorzubereiten.
Die Studierenden werden an den aktuellen Stand der Forschung herangeführt und dazu befähigt, wirtschaftswissenschaftliche Methoden auf einem Niveau anzuwenden, das sie für eine selbstständige akademische Tätigkeit oder eine Promotion in diesen Gebieten qualifiziert.

Mandatory Module: Advanced Microeconomics			**Study Points: 6**
Goals: The lecture plus tutorial listed below are a mandatory course on advanced microeconomics. The course emphasizes a sample of topics ranging from the theory of competitive markets, to industrial organization, welfare economics, information, and incentives. The lectures are supplemented by problem solving exercises and in class presentations by participants.			
Prerequisites to participate in the module: none			
Course	Periods/ Week	SP; work load	Topics
Lecture Introduction to Advanced Micro-economic Analysis	2	3; Attendance (30 h) Reading the relevant literature (60 h)	General Equilibrium; Partial Equilibrium; Externalities; Imperfect Competition; Asymmetric Information; Behavioral Aspects
Tutorial Introduction to Advanced Micro-economic Analysis	2	3; Attendance (30 h) Solve exercises and preparations for presentations in class (30 h) Exam preparation (30 h)	Exercises and model application
Module examinations		Written exam (90 min)	
Duration of the module		☒ 1 Semester ☐ 2 Semesters	
Module can be started in		☒ Fall Semester ☐ Spring Semester	

This module is suitable for students who want to qualify for an admission to PhD. This module replaces the module "Advanced Microeconomics".

Advanced Microeconomic Theory I (PhD-level)			**Study Points: 6**
Learning objectives: The students understand fundamental microeconomic concepts and tools on a very advanced level.			
Preconditions: none			
Teaching format	Hours per week, workload in hours	Credits preconditions for granting	Topics, contents
Lecture Advanced Microeconomics Theory I (PhD-level)	4 SWS 60 hours 50 hours Attendance 15 hours preparation	2 credits, participation	Theory of consumption and production, optimal decision under uncertainty, general equilibrium, matching, introduction to game theory
Exercise Advanced Microeconomics Theory I (PhD-level)	2 SWS 60 hours 25 hours Attendance 35 hours preparation of exercises	2 credits, participation	Exercises
Final exam	60 hours Written exam (180 min) and preparation	2 credits, pass Exam	
Duration	☒ 1 semester	☐ 2 semester	
Start of module	☒ winter term	☐ summer term	

Mandatory Module: Advanced Macroeconomics	**Study Points: 6**

Goals:

Introduction to Advanced Macroeconomic Analysis (IAMA)
In this class, the students will learn the key tools for analysing a variety of economic models and their policy implications. In particular, the students will learn
- tools of intertemporal optimization: Euler equations, dynamic programming
- econometric tools for analysing economic data and their practical application, using a software such as EViews These tools will be applied to a variety of specific models and data sets in order to introduce the students into advanced macroeconomic analysis.

Advanced Macroeconomic Analysis I (AMA I – Ph.D.-Level)
This is the first term of a two-term "first-year" sequence in macroeconomics, intended for master and doctoral students with a strong interest in academic research. It requires a solid background in mathematics.

Strong emphasis will be placed on acquiring the key tools for advanced macroeconomic analysis suitable for pursuing PhD-level research. The following topics will be taught:
A1: Tools of intertemporal optimization: Euler equations, dynamic programming and Lagrangian methods, stochastic difference equations, dynamic stochastic general equilibrium models; solution techniques;
B1: macroeconomic applications of welfare theorems, the Ramsey problem, consumption, investment, search, labour markets.
This will be complemented by learning mathematical and econometric tools, such as MATLAB and/or EViews.

Prerequisites to participate in the module: none
(one course is optional)

Course	Periods/ Week	Anzahl der SP/ Arbeitsleistungen	Topics
Lecture IAMA	2	3; Attendance (30 h) Preparation (30 h) Exam preparation (30 h)	Key tools for macro- economic analysis and basic applications.
Tutorial IAMA	2	3; Attendance (30 h) Preparation (30 h) Exam preparation (30 h)	Exercises and literature review
Lecture AMA I – Ph.D.-Level	2	3; Attendance (30 h) Preparation (30 h) Exam preparation (30 h)	Lectures on Advanced Economic Dynamics
Tutorial AMA I – Ph.D.-Level	2	3; Attendance (30 h) Preparation of exercises (30 h) Exam preparation (30 h)	Exercises
Module examinations		Written exam (90 min)	
Duration of the module		☒ 1 Semester ☐ 2 Semesters	
Module can be started in		☒ Fall ☐ Spring Semester Semester	

Mandatory Module: General Management			**Study Points: 12**
Goals: The mandatory module General Management aims at equipping students with necessary backgrounds in all relevant areas of management science, including finance and accounting. Students are suggested to select courses so that they obtain advanced background knowledge in the areas where they did not acquire sufficient skills in their undergraduate studies.			
Prerequisites to participate in the module: none			
Course	Periods/ Week	SP; work load	Topics
Lecture Financial Accounting and Analysis	2	3; Attendance (25 h) Literature study and preparation (35 h) Exam preparation (30 h)	The goal of the course is to present students the basics of financial accounting and financial statement analysis. The course comprises three main parts. The first part deals with the objectives, fundamentals and institutions of financial accounting. The second part focuses on specific accounting rules under International Financial Reporting Standards (IFRS). The third part covers topics related to financial statement analysis such as financial analysis, forecasting methods and valuation models.
Exercise Financial Accounting and Analysis	2	3; Attendance (25 h) Literature study and preparation (35 h) Exam preparation (30 h)	
Lecture Economics of Entrepreneurship	2	3; Attendance (25 h) Literature study and preparation (35 h) Exam preparation (30 h)	- theoretical and formal aspects of the macro- and microeconomic aspects of entrepreneurship - psychological foundations of entrepreneurship
Exercise Economics of Entrepreneurship	2	3; Attendance (25 h) Literature study and preparation (35 h) Exam preparation (30 h)	- absorption of the lecture content and deepening of knowledge of selected aspects
Lecture Marketing Management	2	3; Attendance (25 h) Literature study and preparation (35 h) Exam preparation (30 h)	Theories and strategies of marketing management and the core principles of the marketing-mix
Exercise Marketing Management	2	3; Attendance (25 h) Literature study and preparation (35 h) Exam preparation (30 h)	Theories and strategies of marketing management and the core principles of the marketing-mix revisited
Integrated Lecture Corporate Finance	4	6; Class attendance (45 h) Literature study and preparation (75 h) Exam preparation (60 h)	- Financial Markets - Corporate Securities - Financial-Statement Analysis - Working-Capital Management - Capital Structure

			- Payout Policy - Company and Project Valuation
Lecture Organization and Management	2	3; Attendance (25 h) Literature study and preparation (35 h) Exam preparation (30 h)	Boundaries and structure of the firm, incentive contracts, ownership and property rights
Exercise Organization and Management	2	3; Attendance (25 h) Preparation (35 h) Exam preparation (30 h)	Students deepen their understanding of the topics from the lecture by solving problem sets and discussing additional material
Vorlesung Grundzüge der Besteuerung	2	3; Präsenzzeit (25 h) Vor- und Nachbereitung der Lehrveranstaltungen (35 h) Vorbereitung der Klausur (30 h)	Grundprinzipien der Besteuerung; Grundzüge des deutschen Unternehmenssteuerrechts (Einkommen-, Körperschaft- und Gewerbesteuer)
Übung Grundzüge der Besteuerung	2	3; Präsenzzeit (25 h) Vor- und Nachbereitung der Lehrveranstaltungen (35 h) Vorbereitung der Klausur (30 h)	Übungsaufgaben zu den Themen der Vorlesung Grundzüge der Besteuerung
Lecture Business Analytics & Data Science	2	3; Attendance (25 h) Preparation (35 h) Exam preparation (30 h)	▪ Fundamentals of Business Analytics ▪ Making data accessible: Tools for summarization, grouping, and visualization ▪ The business case for predictive modeling ▪ Prediction methods for regression and classification ▪ Advanced data types: time series, text, survival, and network data ▪ Fundamentals of intelligent search
Exercise Business Analytics & Data Science	2	3; Attendance (25 h) Literature study and preparation completion of a programming task related to business analytics including a written report (ca. 5.000 ZoL) (35 h) Exam preparation (30 h)	▪ Further elaboration of lecturing material. ▪ Practical PC exercises using the R programming language
Module examinations		Written exam Marketing Management (90 min) Lecture and Exercise Business Analytics & Data Science Practical assignment: solve modeling problem using R and document solution in a written report (ca. 10.000 ZoL) or written exam (60 min) Written exam for each other course (90 min)	
Duration of the module		☐ 1 Semester ☒ 2 Semesters	
Module can be started in		☒ Fall Semester ☒ Spring Semester Semester or	

Competency Targets of the Elective Compulsory Modules as well as the Elective Modules in the Master's Program Economics and Management Science (MEMS)

Students acquire supplementary and additional basic information and special knowledge from related academic disciplines, which can be used within the field of economics (contextual knowledge).

Students develop a good command of interdisciplinary problem-solving methods.

Students learn to develop and use internal and external resources.

Students will be able to expand and to deepen their individual profiles.

Students learn to be flexible, to be able to respond to quick or sudden changes and differing and varied situations, and indeed, to help shape such developments.

Students learn to perceive their own expectations, values and norms as well as the expectations, values and norms of others, to differentiate among them, and to treat others with respect and tolerance. They will be able to reflect on their own experiences and to create a link between such experiences and their current work as well as to question their own actions.

Students learn strategies to manage their time, to acquire knowledge, to reach decisions, to find solutions to problems and to manage projects.

Students are able to work in teams and to contribute independently and competently to solving problems.

Kompetenzziele des Wahlpflicht bzw. Wahlbereiches im Masterstudiengang Economics and Management Science (MEMS)

Die Studierenden erwerben ergänzendes und weiterführendes Grundwissen und Spezialwissen aus verwandten Wissenschaftsdisziplinen, das in Beziehung zum Fachgebiet gesetzt werden kann („Kontextwissen").

Die Studierenden lernen, fächerübergreifende Problemlösungsmethoden zu beherrschen.

Die Studierenden sind der Lage, interne und externe Ressourcen zu erschließen.

Die Studierenden sind in der Lage, erworbene individuelle Profile zu erweitern und zu vertiefen.

Die Studierenden sind so flexibel, sich auf schnelle oder plötzliche Veränderungen und unterschiedliche Situationen einstellen zu können und somit in der Lage, diese aktiv mitzugestalten.

Die Studierenden lernen, eigene und fremde Erwartungen, Normen und Werte wahrzunehmen, zu differenzieren und damit umzugehen (Toleranz). Sie können die eigenen Lebenserfahrungen reflektieren und Verbindungen zur aktuellen Arbeit herstellen sowie das eigene Handeln hinterfragen.

Die Studierenden verfügen über effiziente Arbeitstechniken wie Zeitmanagement, Wissenserwerb, Entscheidungsfindung, Problemlösungstechniken und Projektmanagement.

Die Studierenden besitzen die Fähigkeit, in einem Team zu arbeiten und einen eigenständigen und kompetenten Beitrag zur Projektlösung zu leisten.

Mandatory Elective Module Economics: Information Economics	**Study Points: 6**

Learning objectives:

The students know the effect of asymmetric information in economic markets.
They know the crucial role of the information structure that underlies an economic market and apply these ideas and concepts to concrete economic problems.

Preconditions: “Introduction to Advanced Microeconomic Analysis”

Teaching format	Hours per week, workload in hours	Credits preconditions for granting	Topics, contents
Lecture Information Economics	2 SWS 60 hours 25 hours Attendance 35 hours Literature study and preparation	2 credits, participation	Incomplete quality information (Lemons problem), Labour markets with asymmetric information (signaling, efficiency wages, equilibrium unemployment), Insurance markets with asymmetric information (screening), Credit markets with asymmetric information (rationing), Principal-Agent Problems
Exercise Information Economics	2 SWS 60 hours 25 hours Attendance 35 hours Literature study and preparation	2 credits, participation	Exercises
Final exam	60 hours Written exams (90 min) and preparation	2 credits, pass Exam	
Duration	☒ 1 semester	☐ 2 semester	
Start of module	☐ winter term	☒ summer term	

Mandatory Elective Module Economics: Decision-Making under Uncertainty	**Study Points: 6**

Learning objectives:

The students are familiar with the most important models of economic decision-making under uncertainty. They analyze behavior under expected utility with known and unknown probabilities, under probability-weighting models and ambiguity preference.

Preconditions: none

Teaching format	Hours per week, workload in hours	Credits preconditions for granting	Topics, contents
Lecture Decision-Making under Uncertainty	2 SWS 60 hours 25 hours Attendance 35 hours Literature study and preparation	2 credits, participation	- The general model of choice under uncertainty - Expected utility - Probability weighting - Prospect Theory, - Ambiguity preferences
Exercise Decision-Making under Uncertainty	2 SWS 60 hours 25 hours Attendance 35 hours Literature study and preparation	2 credits, participation	Exercises and applications
Final exam	60 hours Written exam (90 min) and preparation	2 credits, pass Exam	
Duration	☒ 1 semester	☐ 2 semester	
Start of module	☐ winter term	☒ summer term	

Mandatory Elective Module Economics: Empirical Labor Economics			**Study Points: 6**
Learning objectives: This is an advanced course in the economic analysis of the labor market. It will deepen the students' understanding of what are the determinants of the observed structure of wages and employment. The introduction of topics will be on textbook level, but the focus will be on the discussion of empirical implementation strategies used in recent publications.			
Preconditions: Acquaintance of intermediate microeconomics, labor economics, and econometrics is highly recommended.			
Teaching format	Hours per week, workload in hours	Credits preconditions for granting	Topics, contents
Lecture Empirical Labor Economics I	2 SWS 60 hours 25 hours Attendance 35 hours Literature study and preparation	2 credits, participation	This course provides an overview on the economic analysis of labor markets. The emphasis is on applied microeconomics and empirical analyses. Topics to be covered include: labor supply and demand, human capital, education and training, changes in the wages structure and inequality, biased technological change and returns to skills, organizational change and skill demand, the closing gender pay gap.
Lecture Empirical Labor Economics II	2 SWS 60 hours 25 hours Attendance 35 hours Literature study and preparation	2 credits, participation homework assignments	
Final exam	60 hours Written exam (90 min) and preparation	2 credits, pass Exam	
Duration	☒ 1 semester	☐ 2 semester	
Start of module	☒ winter term	☐ summer term	

Mandatory Elective Module Economics: Advanced Monetary Economics			**Study Points: 6**
Learning objectives: The students are able to use dynamic stochastic general equilibrium models for positive and normative analysis.			
Preconditions: none			
Teaching format	Hours per week, workload in hours	Credits preconditions for granting	Topics, contents
Lecture Advanced Monetary Economics	2 SWS 60 hours 25 hours Attendance 35 hours Literature study and preparation	2 credits, participation	The lecture develops a stochastic dynamic general equilibrium model featuring monopolistic competition and sticky prices. Compared with the exposition in the course “Monetary Economics” more emphasis will be put on the technical aspects that one needs to understand in order to use this framework. We will also analyze some recent extensions of the baseline model that is at center stage in the course “Monetary Economics”.
Exercise Advanced Monetary Economics	2 SWS 60 hours 25 hours Attendance 35 hours Literature study and preparation	2 credits, participation	The Exercise helps understand the material of the lecture in different ways. First, some additional derivations of theoretical and empirical results are provided. Second, applications of the theory are illustrated. Third, some aspects of the practical implementation of monetary policy are discussed.
Final exam	60 hours Written exam (90 min) and preparation	2 credits, pass exam	
Duration	☒ 1 semester	☐ 2 semester	
Start of module	☒ winter term	☒ summer term	

Mandatory Elective Module Economics: Advanced International Trade: Theory and Empirics			**Study Points: 6**
Learning objectives: The students are able to analyze the patterns of international trade, both in theory and empirics. Starting with the classic Ricardian and Heckscher-Ohlin trade models, students know the frontier of research including models such as Eaton and Kortum (2002), Melitz (2003) and Melitz & Ottaviano (2008).			
Preconditions: Basics in both micro and macro economics			
Teaching format	Hours per week, workload in hours	Credits preconditions for granting	Topics, contents
Lecture Advanced International Trade: Theory and Empirics	2 SWS 60 hours 25 hours Attendance 35 hours Literature study and preparation	2 credits, participation	Ricardian trade model, Heckscher-Ohlin trade model, Eaton-Kortum trade model, Melitz-Ottaviano trade model, economic policy, economic history, economic geography
Exercise Advanced International Trade: Theory and Empirics	2 SWS 60 hours 25 hours Attendance 35 hours Literature study and preparation	2 credits, participation	Discussion and empirical application of theoretical concepts from the lecture
Final exam	60 hours Written exam (90 min) or Paper summary (10 %), Presentation (20 %) and written exam (90 min, 70 %)	2 credits, pass	
Duration	☒ 1 semester	☐ 2 semester	
Start of module	☐ winter term	☒ summer term	

Mandatory Elective Module Economics: Competition Policy			**Study Points: 6**
Learning objectives: The students understand the structure of elementary models in industrial organization. They are able to discuss issues in competition policy with the help of such models and to develop simple models to address selected questions of competition policy.			
Preconditions: none			
Teaching format	Hours per week, workload in hours	Credits preconditions for granting	Topics, contents
Lecture Competition Policy	2 SWS 60 hours 25 hours Attendance 35 hours Literature study and preparation	2 credits, participation	Neoclassical welfare theory; normative results of static (SCP, dynamic price competition, vertical restraints) and dynamic (patent races, endogenous growth theory) industrial organization theory.
Exercise Competition Policy	2 SWS 60 hours 25 hours Attendance 35 hours Literature study and preparation	2 credits, participation	Practice of the theoretic analysis of policy question with the help of simple examples.
Final exam	60 hours Written exam (90 min) and preparation	2 credits, pass Exam	
Duration	☒ 1 semester	☐ 2 semester	
Start of module	☐ winter term	☒ summer term	

Mandatory Elective Module Economics: Public Economics	**Study Points: 6**

Learning objectives:

The students
- know key theoretical concepts of public economics
- can explain the key reasons for government intervention regarding the provision of public goods, externalities, social policy and the aims of these policies
- can discuss important limitations of government intervention
- know key results on taxation
- can assess the implications of recent research regarding extensions and empirical relevance of key theoretical concepts of public economics

Preconditions:
- Introduction to Advanced Microeconomic Analysis or equivalent
- Knowledge of elementary game theory

Teaching formats	Hours per week, workload in hours	Credits and preconditions for granting	Topics, contents
Lecture Public Economics	2 SWS 60 hours 25 hours presence in class, 35 hours preparation and learning	2 credits, participation	- Foundations of government intervention - Public goods - Externalities - Social policy - Taxation - Recent research results
Exercise Public Economics	2 SWS 60 hours 25 hours presence in class, 35 hours preparation and learning	2 credits, participation	- Applied problems based on the lecture - Discussion of further literature
Final exam	60 hours Exam Public Economics (90 min) and preparation	2 credits, pass Exam	
Duration	☒ 1 semester	☐ 2 semester	
Start of Module	☐ winter term	☒ summer term	

Mandatory Elective Module Economics: Labour Markets and Social Policy	**Study Points: 6-12**

Goals:

Lecture + Tutorial I
The theoretical functioning of labour markets and labour market interventions are of key concern to practical policymaking. A number of relevant issues will be examined in this class. Examples include:
What determines the demand for and supply of different types of labour in modern economies?
How is labour compensated, and which factors determine the level of wages?
How does search and matching in the labour market work, and how can this matching process be influenced by policy e.g. regarding unemployment benefits or certain labour market regulation?

Lecture + Tutorial II
This lecture examines social policies as well as their economic foundations. Examples of topics covered are:
What are the effects of various intergenerational schemes for financing pension systems? Which ones work best and why?
What are the consequences of welfare reform? How can one analyse the macroeconomic consequences of reforms of the health sector, the education sector or other sectors which are largely dominated by public policy?
How can a society provide insurance against labour market risk? Is there an optimal unemployment insurance scheme?

Lecture + Tutorial III
The empirical analysis of labour markets is applied to labour supply and demand, human capital, education and training, changes in the wages structure and inequality, biased technological change and returns to skills, organizational change and skill demand, the closing gender gap. The introduction of topics will be on textbook level, but the main focus will be on the discussion of empirical implementation strategies used in recent publications. Exercises will be held in the computer lab and students will learn to work with Stata.

Lecture IV
Economics is an empirical science. The validity of the competing economic theories and therefore the legitimacy of the application of economic theories to economic policy is an empirical question. This course has two goals. First, it covers basic methods and techniques of the empirical analysis in economics. Second, the students become familiar with the typical line of argumentation in the empirical analysis of current problems in economics. As an integral part of the course applications are implemented in the PC-Pool based on the software package Stata.

Seminar
The seminar aims at preparing students to present and discuss critically empirical research in all areas of labour economics. It may likewise be viewed as a preparation for an empirical diploma, master or doctoral thesis. Students are free to choose a topic themselves or to work on a topic proposed by the instructor. The topic is expected to be in the field labour economics. Participants are expected to discuss the relevant literature, data sources, methodology, to acquaint themselves with the necessary institutional details and to present and discuss their work.

Prerequisites to participate in the module: none

Course	Periods/ Week	SP; work load	Topics
Lecture I	2	3; Attendance (30 h) Preparation (30 h) Exam preparation (30 h)	Lectures on Labour Markets and Social Policy
Tutorial I	2	3; Attendance (30 h) Preparation (30 h) Exam preparation (30 h)	Exercises, Discussions, Literature Review

Lecture II	2	3; Attendance (30 h) Preparation (30 h) Exam preparation (30 h)	Lectures on Labour Markets and Social Policy
Tutorial II	2	3; Attendance (30 h) Preparation (30 h) Exam preparation (30 h)	Exercises, Discussions, Literature Review
Lecture III	2	3; Attendance (30 h) Preparation (30 h) Exam preparation (30 h)	Lectures on Labour Markets and Social Policy
Tutorial III	2	3; Attendance (30 h) Preparation (30 h) Exam preparation (30 h)	Exercises, Discussions, Literature Review
Lecture IV	2	3; Attendance (30 h) Preparation (30 h) Exam preparation (30 h)	Lectures and integrated tutorial using Stata
Seminar	2	6; Discussions (45h) Presentation (45h) Seminar paper (90 h)	Discussions, Presentation, Writing of seminar paper
Module examinations		Lecture/Tutorial: Written exam (90 min) for each course Seminar: Seminar paper	
Duration of the module		☒ 1 Semester ☐ 2 Semesters	
Module can be started in		☒ Fall Semester ☒ Spring Semester or	

Mandatory Elective Module Economics: Advanced Labor Economics	**Study Points: 6**

Learning Objectives:

Students gain a command of central theoretical frameworks for thinking about how labor markets function and how they deviate from the standard competitive paradigm.
They are able to apply labor economics to practical labor market contexts and understand the possibilities and limitations which can arise in the empirical verification of labor market theory using data.

Preconditions: module “Introduction to Advanced Microeconomic Analysis” or “Advanced Microeconomics Theory I (PhD-level)” and module “Introduction to Advanced Macroeconomics Analysis” or “Advanced Macroeconomic Analysis I (PhD-level)”

Teaching format	Hours per week, workload in hours	Credits preconditions for granting	Topics, contents
Lecture Advanced Labor Economics	2 SWS 60 hours 25 hours Attendance 35 hours Literature study and preparation	2 credits, participation	Theoretical model of labor markets, their applications and empirical implementation; survey of literature
Exercise Advanced Labor Economics	2 SWS 60 hours 25 hours Attendance 35 hours Literature study and preparation	2 credits, participation	Review of models and exercises
Final exam	60 hours Written exam (90 min) and preparation	2 credits, pass	
Duration	☒ 1 semester	☐ 2 semester	
Start of module	☐ winter term	☒ summer term	

Mandatory Elective Module Economics: Current Issues in Macroeconomics			**Study Points: 6**
Goals: This class provides an in-depth examination of current issues in macroeconomics.			
Prerequisites to participate in the module: Module “Introduction to Advanced Macroeconomics” and Module “Advanced Monetary Economics” or “Labour Markets and Social Policy”			
Course	Periods/ Week	SP; work load	Topics
Lecture	2	3; Attendance (30 h) Preparation (30 h) Exam preparation (30 h)	Lectures on current issues in macroeconomics
Tutorial	2	3; Attendance (30 h) Preparation (30 h) Exam preparation (30 h)	Exercises, Literature Review, Discussions
Module examinations		Written exam (90 min)	
Duration of the module		☒ 1 Semester ☐ 2 Semesters	
Module can be started in		☒ Fall Semester ☒ Spring Semester Semester or	

<table>
<tr><td colspan="3">Mandatory Elective Module Economics: Topics in Macroeconomics</td><td>Study Points: 6</td></tr>
<tr><td colspan="4">Goals:

This seminar aims to carry out projects on selected topics in macroeconomics.</td></tr>
<tr><td colspan="4">Prerequisites to participate in the module: Module “Introduction to Advanced Macroeconomics” or “Monetary and Fiscal Policy” or “Labour Markets and Social Policy”</td></tr>
<tr><td>Course</td><td>Periods/ Week</td><td>SP; work load</td><td>Topics</td></tr>
<tr><td>Seminar</td><td>2</td><td>6;
Attendance (30 h)
Preparation for seminar and presentation (60 h)
Seminar Project (90 h)</td><td>Topics in macroeconomics</td></tr>
<tr><td colspan="2">Module examinations</td><td colspan="2">Seminar Paper</td></tr>
<tr><td colspan="2">Duration of the module</td><td colspan="2">☒ 1 Semester ☐ 2 Semesters</td></tr>
<tr><td colspan="2">Module can be started in</td><td colspan="2">☒ Fall Semester ☒ Spring Semester
Semester or</td></tr>
</table>

Mandatory Elective Module Economics: Advanced Macroeconomic Analysis I (PhD-level)	**Study Points: 6**

Goals:
In this current research on dynamic economic models will be examined in detail to prepare students for doing research in macroeconomics and related fields. Depending on the approach examined, particular emphasis may be given to the theoretical or to the empirical aspects of the analysis. Examples are
Modern variants of the neoclassical growth model
Modern dynamic business cycle theories.
dynamic models of matching on labor markets
models of intergenerational trade (overlapping generations models)
models of intertemporal choice
facts and models of long run growth
dynamic models of international trade
econometric dynamic multivariate models regarding the interaction of major economic time series. The empirics of shocks driving the economy.
econometric panel approaches regarding the functioning and the dynamics of labor markets
numerical solution methods for linearized and non-linearized models.
Models pertaining to asset markets and to the role of money.
models of asset markets resulting from the intertemporal portfolio allocation problem
models of money.
The econometric evidence regarding the role of money and the role of monetary policy shocks.
Models of the interplay between monetary and fiscal policy.
Models of international exchange on goods and asset markets.

Prerequisites to participate in the module: none

Course	Periods/ Week	SP; work load	Topics
Lecture	2	3; Attendance (30 h), Preparation (30 h), Exam preparation (30 h)	Lectures on Advanced Economic Dynamics
Tutorial	2	3; Attendance (30 h), Preparation of exercises (30 h), Exam preparation (30 h)	Exercises
Module examinations		Written exam (90 min)	
Duration of the module		☒ 1 Semester ☐ 2 Semesters	
Module can be started in		☒ Fall Semester ☒ Spring Semester Semester or	

Mandatory Elective Module Economics: Advanced Macroeconomic Analysis II (PhD-level)	**Study Points: 6**

Goals:

This is the second term of a two-term "first-year" sequence in macroeconomics, intended for master and doctoral students with a strong interest in academic research. It requires a solid background in mathematics. Strong emphasis will be placed on acquiring the key tools for advanced macroeconomic analysis suitable for pursuing PhD-level research. The following topics will be taught:
A2: Asset pricing; advanced preference theory such as Epstein-Zin; dynamic contracts and applications; growth models, OLG models;
B2: Money and models of price and wage rigidities; economic policy and time consistency, applied VAR analysis.
This will be complemented by deepening the knowledge regarding mathematical and econometric tools, such as MATLAB and/or EViews.

Prerequisites to participate in the module: “Advanced Macroeconomic Analysis (Ph.D.)”. Also may be accepted if approved by the lecturer: “Introduction to Advanced Macroeconomic Analysis”

Course	Periods/ Week	SP; work load	Topics
Lecture	2	3; Attendance (30 h) Preparation (30 h) Exam preparation (30 h)	Key tools for macroeconomic analysis, advanced study of topics A2 and B2.
Tutorial	2	3; Attendance (30 h) Preparation (30 h) Exam preparation (30 h)	In-depth review, literature review and exercises
Module examinations		Written exam (90 min)	
Duration of the module		☒ 1 Semester ☐ 2 Semesters	
Module can be started in		☐ Fall Semester ☒ Spring Semester	

<table>
<tr><td colspan="3">Mandatory Elective Module Economics: Current Research in Macroeconomics</td><td>Study Points: 6</td></tr>
<tr><td colspan="4">Goals:

This seminar aims to teach students to carry out projects at the current research frontier in macroeconomics.</td></tr>
<tr><td colspan="4">Prerequisites to participate in the module: none</td></tr>
<tr><td>Course</td><td>Periods/ Week</td><td>SP; work load</td><td>Topics</td></tr>
<tr><td>Seminar</td><td>2</td><td>6;
Attendance (60 h)
Preparation (60 h)
Seminar Research Project (60 h)</td><td>Carrying out research projects in macroeconomics</td></tr>
<tr><td colspan="2">Module examinations</td><td colspan="2">Research paper</td></tr>
<tr><td colspan="2">Duration of the module</td><td colspan="2">☒ 1 Semester ☐ 2 Semesters</td></tr>
<tr><td colspan="2">Module can be started in</td><td colspan="2">☒ Fall Semester ☒ Spring Semester
Semester or</td></tr>
</table>

<table>
<tr><td colspan="3">Mandatory Elective Module Economics: Theory of Incentives</td><td>Study Points: 6</td></tr>
<tr><td colspan="4">Goals:

The course reviews the main topics and models of the incentive theory. It focuses on the principal-agent paradigm where the principal delegates an action to a single agent through the take-it-or-leave-it offer of a contract. Major topics are represented by the problem of adverse selection, which occurs when the agent learns some piece of information relevant to the contractual relationship, and the problem of moral hazard, which appears as soon as the agent’s actions are not observable. First, the trade-offs that emerge in these contexts are characterized: the rent extraction-efficiency trade-off under adverse selection and the trade-offs between the extraction of limited liability rent and efficiency and also between insurance and efficiency under moral hazard. Then, extensions of the basic framework to more complex environments are discussed. Mixed models with adverse selection, moral hazard and nonverifiability of the state of the world are also treated. Principal-agent models with adverse selection and moral hazard are finally considered in a dynamic context.</td></tr>
<tr><td colspan="4">Prerequisites to participate in the module:
Basics in microeconomics “Introduction to Advanced Microeconomic Analysis” and “Game Theory”</td></tr>
<tr><td>Course</td><td>Periods/ Week</td><td>SP; work load</td><td>Topics</td></tr>
<tr><td>Lecture + Tutorial Theory of Incentives</td><td>4</td><td>3;
Attendance (60 h)
Preparation (90 h)
Exam preparation (30 h)</td><td>The Problem of Adverse Selection, Revelation Principle, Solution Techniques, Ex-Post vs. Ex-Ante Contracting, Limited Liability, The Problem of Moral Hazard, First-Order-Approach</td></tr>
<tr><td colspan="2">Module examinations</td><td colspan="2">Written exam (90 min)</td></tr>
<tr><td colspan="2">Duration of the module</td><td colspan="2">☒ 1 Semester ☐ 2 Semesters</td></tr>
<tr><td colspan="2">Module can be started in</td><td colspan="2">☐ Fall Semester ☒ Spring Semester</td></tr>
</table>

Mandatory Elective Module Economics: Game Theory			**Study Points: 6**
Goals: The purpose of this course is to familiarize students with game-theoretic methods that are used in various fields of economics.			
Prerequisites to participate in the module: Module „Advanced Microeconomics".			
Course	Periods/ Week	SP; work load	Topics
Lecture	2	3; Attendance (30 h) Preparation (30 h) Exam preparation (30 h)	Normal-form games, extensive-form games, games with incomplete information, standard solution concepts and refinements
Tutorial	2	3; Attendance (30 h) Preparation (30 h) Exam preparation (30 h)	Exercises
Module examinations		Written exam (90 min)	
Duration of the module		☒ 1 Semester ☐ 2 Semesters	
Module can be started in		☐ Fall Semester ☒ Spring Semester	

Mandatory Elective Module Economics: Advanced Microeconomic Theory II (PhD-level)			**Credits: 6**
Learning objectives: The students understand fundamental microeconomic concepts and tools on a very advanced level.			
Preconditions: none			
Teaching format	Hours per week, workload in hours	Credits preconditions for granting	Topics, contents
Lecture Advanced Microeconomic Analysis II (PhD-level) I	4 SWS 60 hours 45 hours Attendance 15 hours Literature study and preparation	2 credits, participation	Decision under uncertainty, market power, strategic interaction, game theory, asymmetric information, incentives, mechanism design, contract theory.
Lecture Advanced Microeconomic Analysis II (PhD-level) II	2 SWS 60 hours 25 hours Attendance 35 hours Literature study and preparation	2 credits, participation	Exercises
Final exam	60 hours Written exam (90 min) and preparation	2 credits, pass	
Duration	☒ 1 semester	☐ 2 semester	
Start of module	☐ winter term	☒ summer term	

Mandatory Elective Module Economics: Topics in Microeconomics	**Study Points: 6-18**

Goals:

This module gathers several seminars/lectures on selected topics in microeconomics. Lectures and seminars may be in English or German. Based on the basic knowledge acquired in "Advanced Microeconomics", this module shall enable students to study applications of microeconomic techniques and to analyze microeconomic problems in different fields of economics.

Prerequisites to participate in the module: Module „Advanced Microecomomics"

Course	Periods/ Week	SP; work load	Topics
Lecture Advanced Microeconomic Analysis I (PhD)	4	6; Attendance (60 h) reading (60 h) homework assignments and exam preparation (60 h)	Preferences, decision under certainty, theory of household and firm, general equilibrium.
Lecture Advanced Microeconomic Analysis II (PhD)	4	6; Attendance (60 h) reading (60 h) homework assignments and exam preparation (60 h)	Decision under uncertainty, market power, strategic interaction, game theory, asymmetric information, incentives, mechanism design, contract theory.
Lecture Regulation in Product Markets	2	3; Attendance (30 h) reading (30 h) homework assignments and exam preparation (30 h)	Antitrust and Merger Regulation; Price and Monopoly Regulation; Environmental Regulation; Regulation in Vertical Markets
Seminar Behavioral Economics	2	6; Attendance (60 h) reading literature (60 h) writing and presenting a seminar paper (60 h)	Decision-making under risk and uncertainty, anticipatory utility and other variants of utility, biased expectations, experimental methods, empirical evidence
Seminar Microfinance	2	6; Attendance (30 h) Group assignment (120 h) Presentation (30 h)	Microcredit, Microfinance, Microinsurance, Financial Repression, Credit Rationing, Transaction Costs
Seminar The Theory of Regulation under Asymmetric Information	2	6; Attendance (30 h) reading literature, giving a presentation (75 h) writing a seminar paper (75 h)	Regulation, asymmetric information, monopoly, principal-agent problem.

Seminar Empirical Methods in Applied Micro-economics	2	6; Discussions (30 h) Presentation preparation (30 h) Seminar paper preparation (120 h)	Microeconometrics; Applied Microeconomics; Public Policy
Seminar Theory of Market Structure	2	6; Attendance (30 h) Reading literature (60 h) Writing and presenting a seminar paper (90 h)	Institutions; Rational Expectations; Equilibrium; Financial Market
Seminar Market Design	2	6; Attendance (30 h) Reading literature (25 h) Writing a seminar paper (90 h) Preparing a presentation (35 h)	Theory: Introduction to market design and mechanism design, auctions, two-sided matching; Applications: cap-and-trade, electricity markets, school choice, position auctions, kidney exchange
Seminar Advanced Experimental Economics	3	6; Attendance (45 h) Reading literature (60 h) Writing a seminar paper and preparing a presentation (75 h)	Economic experiments, social preferences, non-equilibrium beliefs, quantal response equilibrium, econometric estimation
Seminar The Economics of Identity and Ethnic Conflict	2	6; Attendance (30 h) Reading literature (60 h) Writing a seminar paper and preparing a presentation (90 h)	Theory: club goods, economics of identity, economics of fractionalization Empirics: measuring conflict and fractionalization, experimental evidence
Module examinations		Advanced Microeconomic Analysis I: Written exam (180 min) Advanced Microeconomic Analysis II: Written exam (90 min) Regulation in Product Markets: written exam (90 min) Decision-Making under Uncertainty: written exam (90 min) Seminar Microfinance: Group assignment paper (70 %), presentation (30 %) Seminar Behavioral Economics: Seminar paper (70 %), presentation (30 %) Seminar The Theory of Regulation under Asymmetric Information: Seminar paper, presentation Seminar Empirical Methods in Applied Microeconomics: Seminar paper (80 %), presentation (20 %) Seminar Theory of Market Structure: Seminar paper (80 %), presentation (20 %) Seminar Market Design: Seminar paper (70 %), presentation (30 %) Seminar Advanced Experimental Economics: Seminar paper (80 %), presentation (20 %) Seminar The Economics of Identity and Ethnic Conflict: Seminar paper (70 %), presentation (30 %)	
Duration of the module		☒ 1 Semester ☐ 2 Semesters	
Module can be started in		☒ Fall Semester ☒ Spring Semester	

Mandatory Elective Module Economics: Selected Topics in Competition Policy			**Study Points: 6**
Goals: The participants get to know selected parts of the theory of industrial organization with a special emphasis on their implications for the European competition law. They learn to use formal results in a discussion of controversial political issues. To prepare for this the lecture introduces fundamental theoretical concepts and their application as well as the relevant parts of the competition law. This lecture is concentrated on the first part of the term. In the second part of the term the students demonstrate in their seminar presentations that they understand this method of economic analysis.			
Prerequisites to participate in the module: Module „Applied Microeconomics“			
Course	Periods/ Week	SP; work load	Topics
Lecture	1	1,5; Attendance (15 h) Preparation (10 h) exam preparation (20 h)	One of the topics: cartel prohibition, abuse control, and merger control in the European or German Competition law
Seminar	2	4,5; Attendance (30 h) Seminar paper and presentation (105 h)	Discussion of selected problems of competition policy, case studies, modelling issues and/or changes of the law
Module examinations		Lecture: Written exam (60 min) Seminar: Seminar paper (80 %), presentation (20 % of final mark)	
Duration of the module		☒ 1 Semester ☐ 2 Semester	
Module can be started in		☒ Fall Semester ☐ Spring Semester	

Mandatory Elective Module Economics: Topics in Industrial Organization			**Study Points: 6-12**
Goals: In each lecture or seminar the participants study one aspect of industrial organization. In empirical industrial organization they are introduced to theory-based empirical model building in core areas of industrial economics and learn how to implement empirical studies using micro-econometric methods and real-market data. In "Cartel law" they are introduced to the European and German antitrust legislation from an economic point of view. In the seminar "actual problems of economic policy" the participants analyze selected topics discussed in the popular press which are related to the insights from one of these lectures, while the seminar "Applied Industrial Organization" discusses various issues in the field of industrial organization. In this module it is also possible to get credit for courses from the module "topics in microeconomics" or from further courses in the field of industrial organisation which the candidate passed in other universities.			
Prerequisites to participate in the module: Module „Applied Microeconomics"			
Course	Periods/ Week	SP; work load	Topics
Lecture Empirical Industrial Organization	2	3; Attendance (30 h) Preparation (20 h) Exam preparation (40 h)	Structural approach in industrial economics; analyses of firm behaviour in dynamic markets.
Tutorial Empirical Industrial Organization	2	3; Attendance (30 h) Preparation (20 h) Exam preparation (40 h)	Empirical model building and micro-econometric methods; computer implementation using real-market data.
Lecture Cartel Law for Economists	2	3; Attendance (30 h) Preparation (20 h) Exam preparation (40 h)	European and German cartel law from an economic perspective. (So far this lecture has always been taught in German.)
Seminar „Aktuelle Probleme der Wirtschaftspolitik – Thema Umwelt" (German)	2 + field trip	6; Attendance (30 h) Seminar paper and presentation (60 h) Field trip (60 h + 30 h preparation)	Diskussion von ausgewählten Themen aus dem Bereich Umweltökonomik und –politik.
Seminar Applied Industrial Organization	2	3; Attendance of seminar (30 h) Seminar paper and presentation (60 h)	Discussion of selected problems of industrial organisation, case studies, experimental evidence, modelling issues and/or changes of the institutional environment.
Module examinations		Lectures: Written exam (60 min, 90 min if exercises and lecture are examined) Seminar: Seminar paper and presentation	
Duration of the module		☒ 1 Semester ☐ 2 Semesters	
Module can be started in		☒ Fall Semester or ☒ Spring Semester	

Mandatory Elective Module Economics: Datengrundlagen der Wirtschaftspolitik (DGWP)	**Study Points: 6**

Goals:

Im Vordergrund des Gesamtkonzeptes stehen

das Wecken des Interesses der Studierenden für statistische Fragestellungen und Probleme in Politik und Wirtschaft,
die Vermittlung der Arbeitsweise der amtlichen und nichtamtlichen Datenproduzenten auf nationaler, europäischer und internationaler Ebene,
die Qualität und Aussagefähigkeit ökonomischer Daten,
der kompetente und verantwortungsvolle Umgang mit verfügbarem Datenmaterial aus amtlichen, nichtamtlichen und medialen Datenquellen
eigenständige Datenrecherchen,
selbständige wissenschaftliche Arbeit mit amtlichen und nichtamtlichen Originaldaten unter Einbeziehung statistischer Methoden zur Bereitstellung von Informations- und Entscheidungsgrundlagen,
Hinweise zum Einsatz moderner Computerprogramme.

Prerequisites to participate in the module: Module „Statistics“

Course	Periods/ Week	SP; work load	Topics
Seminar DGWP	3	6; Attendance (45h) Preparation and presentation (65h) Seminar paper (70h)	Bevölkerungsstatistik, Arbeitsmarktstatistik, Produktionsstatistik, Konjunkturtests, Verbraucherpreisstatistik (Messung der Teuerung), Expertenvorträge und Ko-Referate zu Themen des Seminars, Problemdiskussionen
Module examinations		Seminar paper (70 %), presentation (30 % of final mark)	
Duration of the module		☒ 1 Semester	☐ 2 Semesters
Module can be started in		☒ Fall Semester or	☒ Spring Semester

Mandatory Elective Module Economics: Advanced Topics in Public Economics			**Study Points: 6-15**
Goals: To learn about advanced topics of Public Economics in the cutting point of government and markets			
Prerequisites to participate in the module: none			
Course	Periods/ Week	SP; work load	Topics
Lecture/ Seminar Elemente der Finanz-wissenschaft I (German)	2	3; Attendance (30 h) Preparation (30 h) Exam preparation (30 h) or Attendance (30 h) Exam paper (30 h) Preparation of presentation (60h)	Various aspects of Public Economics
Lecture/ Seminar Elemente der Finanz-wissenschaft II (German)	4	6; Attendance (60 h) Preparation (60 h) Exam preparation (60 h) or Attendance (60 h) Exam paper (60 h) Preparation of presentation (60h)	Various aspects of Public Economics
Lecture Theory of Taxation	2	3; Attendance (30 h) Preparation (30 h) Exam preparation (30 h)	Tax incidence Tax shift Optimal taxation Public Enterprise Pricing
Lecture Theory of Social Choice	2	3; Attendance (30 h) Preparation (30 h) Exam preparation (30 h)	Collective decisions, Impossibility theorems, Distributive justice, Bargaining
Lecture Welfare Theory	2	3; Attendance (30 h) Preparation (30 h) Exam preparation (30 h)	Welfare Theory, Foundations of Cost Benefit Analysis
Lecture Theory of Social Policy	2	3; Attendance (30 h) Preparation (30 h) Exam preparation (30 h)	Public expenditures, justice and efficiency, public insurance (e.g. health and unemployment insurance) and redistribution.
Lecture Environmental and Resource Economics	2	3; Attendance (30 h) Preparation (30 h) Exam preparation (30 h)	Pollution, Renewable Resources, Exhaustible Resources, Environmental Policy
Lecture Environmental Economic Policy	2	3; Attendance (30 h) Preparation (30 h) Exam preparation (30 h)	Environmental Economic Policy

Lecture The theory of optimal extraction of natural resources	2	3; Attendance (30 h) Preparation (30 h) Exam preparation (30 h)	The course is an introduction to the theory of the optimal extraction of natural resources.
Lecture Development Economics	2	3; Attendance (30 h) Preparation (30 h) Exam preparation (30 h)	The course is an introduction to the principles of Development Economics
Seminar Ökonomie und Sprache (German)	2	6; Attendance (30 h) Exam paper and presentation (90 h) Exam preparation (60 h)	Schnittstelle zwischen Ökonomie und Sprache, Soziolinguistik, Ökonomie der Sprache
Seminar Environmental and Resource Economics	2	3; Attendance(30 h) Seminar paper (30 h) Preparation of presentation (30h)	Pollution, Renewable Resources, Exhaustible Resources, Environmental Policy
Seminar Empirical Distribution Analysis	4	6; Attendance (60 h) Seminar paper (60 h) Preparation of presentation (60h)	This course aims at introducing empirical methods of distributional analysis.
Seminar Development Economics	4	6; Attendance(60 h) Preparation of presentation (30h) Case Study (90 h)	Development Economics; influence of trade, distribution, institutions, factor mobility on development; policy analysis
Seminar Selected Topics in Development Economics	2	3; Attendance (30 h) Preparation of presentation I (10 h) Seminar paper (30 h) Preparation of presentation II (20 h)	Individual research papers based on background knowledge in development economics
Module examinations		Lecture: Written exam (90 min, 67%) homework (if requested 33%) Seminar: Seminar paper (33-67%), presentation (33%), written exam/case study (if requested 33%)) Seminar Development Economics: Presentation (if requested, 25%), case study (75-100%)	
Duration of the module		☒ 1 Semester ☒ 2 Semesters	
Module can be started in		☒ Fall Semester or ☒ Spring Semester	

Mandatory Elective Module Economics: Social Preferences	**Study Points: 6**

Lern- und Qualifikationsziele:

The students
- know key experimental evidence on social preferences
- can apply the most important models of social preferences to explain key experimental results and know their limitations
- can contribute to the debate about the relevance of laboratory experiments on social preference
- are able to explain the relevance of social preferences for economic theory and have an understanding how economic models can be extended to incorporate social preferences

Preconditions:
- Introduction to Advanced Microeconomic Analysis or equivalent
- Knowledge of elementary game theory
- Knowledge of statistical analysis will make it easier to follow the data analysis in the experimental papers and thus enable a more critical view, but is not strictly necessary

Teaching formats	Hours per week, workload in hours	Credits and preconditions for granting	Topics, contents
Lecture Social Preferences – Theories and Evidence	2 SWS 60 hours 25 hours presence in class, 35 hours preparation and learning	3 credits, participation	- Experimental evidence of social preference - Models of social preferences and their applications - Testing models of social preferences - Multiplicity of fairness norms and heterogeneity of social preferences - Relevance and generalizability of laboratory experiments on social preferences - Applications to economic theory
Tutorial Social Preferences – Theories and Evidence	2 SWS 60 hours 25 hours presence in class, 35 hours preparation and learning	2 credits, participation	- Discussions of further literature, examples, and applications of the topics from the lecture
Final exam	60 hours Exam Social Preferences – Theories and Evidence (90 min) and preparation	1 credits, Exam Social Preferences – Theories and Evidence, pass	
Duration	☒ 1 semester	☐ 2 semester	
Start of Module	☒ winter term	☐ summer term	

Mandatory Elective Module Economics: Economic History	**Study Points: 6-18**

Goals:

Economic history stresses the long-term perspective and the role of historical case studies for economic decision making. It offers new insights and allows the students to apply their knowledge of economic theory and empirical methods. The aim of the lectures is to give an overview over the economic history of the world, in particular of Europe and Germany. The seminars introduce the students to modern research in economic history. The discussion of recent publications enables students to devise own research questions and research designs for their master's thesis.

Prerequisites to participate in the module: none

Course	Periods/ Week	SP; work load	Topics
Lecture/ Tutorial European Economic History I	4	6; Attendance (60 h) Preparation (60 h) Exam preparation (60 h)	European Economic History 1800 - 1914
Lecture/ Tutorial European Economic History II	4	6; Attendance (60 h) Preparation (60 h) Exam preparation (60 h)	European Economic History 1914 – up to now
Seminar	2	6; Attendance (30 h) Preparation (60 h) Presentation (30 h) Seminar paper (60 h)	The seminars cover key topics in European economic history, ranging from methods of modern research in economic history, over economic crises to long-run economic developments, and specific historical case-studies.
Seminar Data Management and Empirical Economics	2	6; Attendance (30 h) Preparation (60 h) Presentation (30 h) Seminar Paper (60 h)	This research seminar deals with information systems used in Economic history, such as statistical software, database management systems and geographical information systems.
Module examinations		Lectures: Written exam (90 min) Seminars: Seminar paper (70%), presentation (30%) of final mark	
Duration of the module		☒ 1 Semester ☐ 2 Semesters	
Module can be started in		☒ Fall Semester ☒ Spring Semester Semester or	

<table>
<tr><td colspan="3">Mandatory Elective Module Economics: Spatial Economics</td><td>Study Points: 6</td></tr>
<tr><td colspan="4">Goals:
The students will be introduced to the vast literature on Spatial Economics. The course starts with ideas developed by Von Thünen and Krugman leading to modern theories on the interaction between economics and geography. We will introduce models and empirics for topics such as international specialization, the clustering of industries, the spatial pattern of economic growth, and the relationship between core and periphery within economic regions.</td></tr>
<tr><td colspan="4">Prerequisites to participate in the module: Basics in both micro and macro economics</td></tr>
<tr><td>Course</td><td>Periods/ Week</td><td>SP; work load</td><td>Topics</td></tr>
<tr><td>Seminar

Spatial Economics</td><td>2</td><td>6;
Attendance (60 h)
Presentation (30 h)
Seminar paper (90 h)</td><td>Core and Periphery, Increasing returns to scale, Transport costs, Law of one price, Clustering, Specialization</td></tr>
<tr><td colspan="2">Module examinations</td><td colspan="2">Seminar: Seminar paper (70%), Presentation (30%)</td></tr>
<tr><td colspan="2">Duration of the module</td><td>☒ 1 Semester</td><td>☐ 2 Semesters</td></tr>
<tr><td colspan="2">Module can be started in</td><td>☒ Fall Semester <u>or</u></td><td>☐Spring Semester</td></tr>
</table>

Mandatory Elective Module Economics: Trust and Reputation	**Study Points: 6**

Learning objectives:

The students are familiar with the most important microeconomic analyses of trust and reputation, including recent developments in the literature.

Preconditions: Module "Introduction to Advanced Microeconomic Analysis" or “Game Theory” [or equivalent].

Teaching format	Hours per week, workload in hours	Credits preconditions for granting	Topics, contents
Seminar Trust and Reputation I	1 SWS 45 hours 15 hours Attendance 30 hours Literature study and preparation	1,5 credits, participation	Theories of economic behavior under asymmetric information with a focus on the roles of and mechanisms behind trust and reputation. Empirical applications thereof.
Seminar Trust and Reputation II	1 SWS 45 hours 15 hours Attendance 30 hours Literature study and preparation	1,5 credits, participation presentation (25 min)	Exercise
Final exam	90 hours Seminar paper (30,000 ZoL) and preparation	3 credits, pass	
Duration	☒ 1 semester	☐ 2 semester	
Start of module	☐ winter term	☒ summer term	

Mandatory Elective Module Economics: Voting Behavior	**Study Points: 6**

Learning objectives:

The students:

- know key theoretical results on voting behavior
- can argue how voting outcomes depend on modeling assumptions, voting procedures and voters' preferences
- are able to explain how well theoretical predictions on voting are confirmed in experimental studies and what this implies for applications of different voting procedures

Preconditions: Module "Introduction to Advanced Microeconomic Analysis" [or equivalent].

Teaching format	Hours per week, workload in hours	Credits preconditions for granting	Topics, contents
Seminar Voting Behavior I	1 SWS 45 hours 15 hours Attendance 30 hours Literature study and preparation	1,5 credits, participation,	Theories of voting behavior.
Seminar Voting Behavior II	1 SWS 45 hours 15 hours Attendance 30 hours Literature study and preparation	1,5 credits, participation, assignment: presentation (45 min)	Experimental studies on voting behavior.
Final exam	90 hours Seminar paper (50,000 ZoL) and preparation	3 credits, pass	
Duration	☒ 1 semester	☐ 2 semester	
Start of module	☒ winter term	☐ summer term	

Mandatory Elective Module Economics: Emerging Markets	**Study Points: 6**

Learning objectives:

The students are able to characterize the specific role of emerging economies in the world economy. They know about stylized processes of (financial) development, about mechanisms of financial crises, the foundation and policy issues of microfinance, and the impact of individual characteristics on behavior.

Preconditions: basic knowledge in monetary, financial and international economics

Teaching format	Hours per week, workload in hours	Credits preconditions for granting	Topics, contents
Lecture	2 SWS 60 hours 25 hours Attendance 35 hours Literature study and preparation	2 credits, participation assignment (about 20,000 characters)	Principles of emerging economies Financial sector development Financial crisis Microfinance Risk attitude and financial literacy
Seminar	2 SWS 60 hours 25 hours Attendance 35 hours Literature study and preparation	2 credits, participation term paper (30,000 ZoL) and preparation	Selected topics of emerging markets
Final exam	60 hours Multimedia exam (30 min) and preparation	2 credits, pass	
Duration	☒ 1 semester	☐ 2 semester	
Start of module	☒ winter term	☐ summer term	

<table>
<tr><td colspan="3">Mandatory Elective Module Economics: Network based energy systems</td><td>Study points: 6</td></tr>
<tr><td colspan="4">Learning objectives:

The students can use insights from optimization theory and game theory to understand issues in network based energy systems.</td></tr>
<tr><td colspan="4">Preconditions: a good background in microeconomics, industrial organization and game theory</td></tr>
<tr><td>Teaching format</td><td>Hours per week,
workload in hours</td><td>Credits
preconditions for granting</td><td>Topics, contents</td></tr>
<tr><td>Lecture</td><td>2 SWS

75 hours
25 hours Attendance
50 hours Literature study and preparation</td><td></td><td>Energy an overview, network based energy systems: gas & power, reform of the industry, restructuring and access rights, market design, gaming power markets, nodal pricing, zonal pricing, market coupling, strategic investment in international energy transport systems, energy security, investment and third party access, contracts and competition</td></tr>
<tr><td>Tutorial</td><td>2 SWS

75 hours
25 hours Attendance
50 hours Literature study and preparation</td><td></td><td>Repetition, deepening and completion of topics from lecture.</td></tr>
<tr><td>Final exam</td><td>30 hours
Written exam (90 minutes) and preparation</td><td colspan="2">6 credits,
pass Exam</td></tr>
<tr><td>Duration</td><td colspan="3">1 semester</td></tr>
<tr><td>Start of module</td><td colspan="3">☐ winter term ☒ summer term</td></tr>
</table>

Mandatory Elective Module Economics: Economic Growth			**Study Points: 6**
Learning Objectives: The students are able to understand and apply exogenous and endogenous economic growth models for further research analysis.			
Preconditions: none			
Teaching format	Hours per week, workload in hours	Credits preconditions for granting	Topics, contents
Lecture Economic Growth	2 SWS 60 hours 25 hours Attendance 35 hours Literature study and preparation	2 credits, participation	The lecture covers the first attempts of growth models, advanced exogenous models and introduces different types of endogenous models.
Exercise Economic Growth	2 SWS 60 hours 25 hours Attendance 35 hours Literature study and preparation	2 credits, participation	The problem sets are additional mathematical examples to give students a better understanding of the lecture.
Final Exam	60 hours Written exam (90 min) and preparation	2 credits, pass exam	
Duration	☒ 1 Semester	☐ 2 Semester	
Start of module	☐ winter term	☒ summer term	

<table>
<tr><td colspan="3">Mandatory Elective Module Economics: Selected topics in the field of Economics</td><td>Study Points: 3-12</td></tr>
<tr><td colspan="4">Goals:

This is a module for the approval of exams successfully taken in the field of Economics. Courses may be from the Curriculum of other university-based Master’s programs or from other faculties of the Humboldt-University Berlin. The approval of the exam is granted by the Examinations Commission of the School of Business and Economics at the Humboldt-University Berlin after consulting the representative in charge.</td></tr>
<tr><td colspan="4">Prerequisites to participate in the module: none</td></tr>
<tr><td>Course</td><td>Periods/ Week</td><td>SP; work load</td><td>Topics</td></tr>
<tr><td>Lecture or Tutorial or Seminar</td><td>2-8</td><td>1 Period/Week generally relates to 1,5 SP or 1,5 ECTS.
The work load is partitioned, 1 SP matches 30h.</td><td>Selected Topics in Economics</td></tr>
<tr><td colspan="2">Module examinations</td><td colspan="2">Written exam, seminar paper and presentation, oral exam, homework assignments</td></tr>
<tr><td colspan="2">Duration of the module</td><td colspan="2">☒ 1 Semester ☐ 2 Semesters</td></tr>
<tr><td colspan="2">Module can be started in</td><td colspan="2">☒ Fall Semester and/or ☒ Spring Semester</td></tr>
</table>

<table>
<tr><td colspan="3">Wahlpflichtmodul VWL: Ausgewählte Themen der Volkswirtschaftslehre</td><td>Studienpunkte: 3-12</td></tr>
<tr><td colspan="4">Lern- und Qualifikationsziele:

Modul zur Anerkennung von Prüfungsleistungen im Bereich der Volkswirtschaftslehre, welche in anderen universitären Masterstudiengängen innerhalb oder außerhalb des Geltungsbereiches des Grundgesetzes bzw. an anderen Fakultäten der Humboldt-Universität zu Berlin erfolgreich erbracht wurden. Über die Anerkennung der Prüfungsleistungen entscheidet der Prüfungsausschuss der Wirtschaftswissenschaftlichen Fakultät der Humboldt-Universität zu Berlin nach Anhörung des jeweiligen Fachvertreters.</td></tr>
<tr><td colspan="4">Voraussetzungen für die Teilnahme am Modul: keine</td></tr>
<tr><td>Lehr- und Lernformen</td><td>Präsenz-SWS</td><td>Anzahl der SP/ Arbeitsleistungen</td><td>Lernziele, Themen, Inhalte</td></tr>
<tr><td>Vorlesung, Übung, Seminar</td><td>2-8</td><td>1 SWS entspricht in der Regel 1,5 SP sowie 1,5 ECTS. Die Arbeitsleistung ist differenziert und wird mit 30 h je SP angesetzt.</td><td>Ausgewählte Themen der Volkswirtschaftslehre</td></tr>
<tr><td colspan="2">Modulprüfungen</td><td colspan="2">Klausur, Seminararbeit und Präsentation, mündliche Prüfung, schriftliche Hausarbeit</td></tr>
<tr><td colspan="2">Dauer des Moduls</td><td colspan="2">☒ 1 Semester ☐ 2 Semester</td></tr>
<tr><td colspan="2">Beginn des Moduls</td><td colspan="2">☒ WS und/oder ☒ SS</td></tr>
</table>

Mandatory Elective Module Business Administration: Management	**Study Points: 6-24**

Learning Objectives:

Organization and Management:

Students get familiar with fundamental incentive and coordination problems in organizations. They learn how to identify and discuss these problems based on concepts from new institutional economics.

Personnel Economics:

Students get familiar with advanced problems in personnel economics. They learn how to identify and discuss these problems based on concepts from principal-agent theory.

Incentives in Organizations:

Students get familiar with advanced problems of coordination and incentive provision within and between firms. They learn how to identify and discuss these problems based on concepts from organizational economics and contract theory.

Advanced Topics in Management:

Students learn how to identify and analyze current problems in the area of management.

Please note: You have to choose either three lectures or two lectures and the seminar.

Preconditions: none

Teaching format	Hours per week, workload in hours	Credits preconditions for granting	Topics, contents
Lecture Organization and Management	2 SWS 60 hours 25 hours Attendance 35 hours Literature study and preparation	2 credits, participation	Boundaries and structure of the firm, incentive contracts, ownership and property rights
Exercise Organization and Management	2 SWS 60 hours 25 hours attendance 35 hours preparation	2 credits, participation	Students deepen their understanding of the topics from the lecture by solving problem sets and discussing additional material
Lecture Personnel Economics	2 SWS 60 hours 25 hours Attendance 35 hours Literature study and preparation	2 credits, participation	Monetary and non-monetary forms of motivation; problems of performance measurement; multitasking problems; delegation of authority; career concerns
Exercise Personnel Economics	2 SWS 60 hours 25 hours Attendance 35 hours Literature study and preparation	2 credits, participation, presentation (30 min)	Students deepen their understanding of the topics from the lecture by solving problem sets and discussing additional material
Lecture Incentives in Organizations	2 SWS 60 hours	2 credits, participation	Incentive and coordination problems within and between firms: adverse selection, team problems, relational

	25 hours Attendance 35 hours Literature study and preparation		contracts, relative performance evaluation
Exercise Incentives in Organizations	2 SWS 60 hours 25 hours Attendance 35 hours Literature study and preparation	2 credits, participation, presentation (30 min)	Students deepen their understanding of the topics from the lecture by solving problem sets and discussing additional material
Seminar Advanced Topics in Management	2 SWS 120 hours 25 hours attendance 95 hours literature study and preparation	4 credits, participation	The cases discussed in this seminar encompass a wide variety of subjects, including specific problems from the fields of personnel, managerial, and organizational economics.
Modulabschluss-prüfung	60 hours exam Organization and Management (90 min) 60 hours exam Personnel Economics (60 min) and preparation 60 hours exam Incentives in Organizations (60 min) and preparation 60 hours seminar paper (30,000 ZoL) (70%), presentation (30 min) (30%) and preparation	2 credits, pass 2 credits, pass 2 credits, pass 2 credits, presentation and seminar paper	
Dauer des Moduls	☒ 1 Semester	☐ 2 Semester	
Beginn des Moduls	☒ WS	or ☒ SS	

Mandatory Elective Module Business Administration: Finance	**Study Points: 6-21**

Goals:

To gain a deep understanding of advanced issues in financial decision making.

The lecture "Finanzierungstheorie" aims at broadening the understanding of financial decision making through the application of normative and descriptive decision and game theoretic models. The tutorials will revisit these models and apply them to problems and discuss them in the financial context.

The seminar "Market Microstructure" covers recent developments in trading rules at organized exchanges and trading platforms, both theoretically und experimentally.

During the seminar "Finance" students will do some research on their own by applying these methods of lectures and tutorials to complex cases.

In the lecture "Börsen und ausserbörsliche Handelsplattformen" students will learn about the latest and relevant developments in trading at exchanges and other trading platforms.

Prerequisites to participate in the module: none

Course	Periods/ Week	SP; work load	Topics
Lecture Finanzierungstheorie (German)	2	3; Attendance (30 h) Preparation (30 h) Exam preparation (30 h)	Valuation of Investments under Uncertainty, Capital Budgeting with Taxes and Inflation, Modigliani/Miller Model with Taxes, Optimal Dividend Policy, Agency Models Dealing with Separation of Ownership and Management, Leasing
Tutorial Finanzierungstheorie (German)	2	3; Attendance (30 h) Preparation (15 h) Assignments (45 h)	Exercises and Model Application
Seminar Market Micro-structure	2	6; Attendance of seminar sessions (30h), Seminar paper (60 h) Preparation (courses, exam) (90 h), Exam preparation (30h)	Market Microstructure
Seminar Finance	4	6; Attendance (60 h) Seminar paper and presentation (120 h)	Topics in Finance
Lecture Börsen und ausserbörs-liche Han-delsplatt-formen (German)	2	3; Visiting the lecture (30h), Preparation for courses (30h) Exam preparations (30h)	Exchanges and Trading Platforms
Module examinations		Finanzierungstheorie: Written exam (90 minutes) Seminar Market Microstructure: seminar paper and written exam (60 minutes) Seminar Finance: seminar paper (50 %) and presentation (50 %) Börsen und ausserbörsliche Handelsplattformen: Written exam (60 minutes)	

Duration of the module	☐ 1 Semester ☒2 Semesters
Module can be started in	☒ Fall Semester ☒ Spring Semester or

<table>
<tr><td colspan="3">Mandatory Elective Module Business Administration: Financial Contracting</td><td>Study Points: 6-12</td></tr>
<tr><td colspan="4">Goals:

Derive fundamental relations between incentives, cash-flow rights and control rights from first assumptions (security design). Apply the insights from optimal contracts to more complex situations.
The lecture provides an introduction into the main theoretical tools and some basic models of financial contracting. In class students solve exercises and discuss examples. In the seminar students apply the tools to selected problems and deepen their understanding by analyzing more complex situations.</td></tr>
<tr><td colspan="4">Prerequisites to participate in the module: A good background in microeconomics and game theory</td></tr>
<tr><td>Course</td><td>Periods/ Week</td><td>SP; work load</td><td>Topics</td></tr>
<tr><td>Lecture

Financial Contracting</td><td>2</td><td>3;
Attendance (30 h)
Reading paper (30 h)
Exam preparation (30 h)</td><td rowspan="3">Effort and risk incentives, security design, screening, optimality of debt and equity, moral hazard, signalling through capital structure, re-contracting, control rights, number of creditors, voting rights.</td></tr>
<tr><td>Tutorial

Financial Contracting</td><td>2</td><td>3;
Attendance (30 h)
Preparation for Tutorial Sessions (15 h)
Assignments (45 h)</td></tr>
<tr><td>Seminar</td><td>2</td><td>6;
Attendance (30h)
Preparation and Presentation of Seminar paper (150 h)</td></tr>
<tr><td colspan="2">Module examinations</td><td colspan="2">Lecture and Tutorials: Written Exam (60 min)
Seminar: Seminar Paper (60%), Presentation (30%), active Participation (10% of final mark)</td></tr>
<tr><td colspan="2">Duration of the module</td><td colspan="2">☒1 Semester ☐ 2 Semesters</td></tr>
<tr><td colspan="2">Module can be started in</td><td colspan="2">☐ Fall Semester ☒ Spring Semester</td></tr>
</table>

Mandatory Elective Module Business Administration: Topics in Energy and Network Economics	**Study Points: 6 - 15**

Goals:

In many countries network based supply systems (electric power and gas) have seen a major structural change from heavily regulated, vertically integrated monopolies towards systems in which coordination over markets and competition play a larger role. We take these industries as an example to analyze market design and strategic behavior.

Students should first take the lecture “network based energy systems”. As an option they may complement the lecture with the seminar “energy systems” (presentations only) which is offered in parallel. In the following term, they can choose between one of the main seminars.

Prerequisites to participate in the module: The module is for students who have a (MA-level) background in microeconomics, industrial organization, and game theory. The courses “analysis of competition” in combination with “microeconomics” provide the necessary background.

Course	Periods/ Week	SP; work load	Topics
Lecture Network based energy systems	2	3; Attendance (25h) Literature study and preparation (50h) Exam preparation (15h)	Energy an overview, network based energy systems: gas & power, reform of the industry, restructuring and access rights, market design, gaming power markets, nodal pricing, zonal pricing, market coupling, strategic investment in international energy transport systems, energy security, investment and third party access, contracts and competition
Tutorial Network based energy systems	2	3; Attendance (25h) Literature study and preparation (50h) Exam preparation (15h)	Repetition, deepening and completion of topics from lecture.
Seminar A Energy Systems	2	3; Attendance (30h), Preparation (60h)	Each student makes several presentations on different aspects of energy systems. The focus is on presentation skills.
Seminar B ‘Gaming’ and designing energy markets	2	6; Attendance (30h), Preparation (150 h)	Students make presentations and write a thesis paper either on a theoretical topic or on an empirical assessment related to strategic behaviour in energy markets, usually starting from one academic paper.
Seminar B Energy Policy	2	6; Attendance (30h), Preparation (150 h)	Students make presentations and write a thesis paper on a broader topic in energy policy.
Module examinations		Lecture + Tutorial: Written examination, 90 minutes Seminar A: Presentations (100%) Seminar B: Seminar Paper (60%), Presentation (30%), Discussion (10%)	
Duration of the module		☒1 Semester ☐ 2 Semesters	

Module can be started in	☒ Fall Semester ☒ Spring Semester Semester or

<table>
<tr><td colspan="3">Mandatory Elective Module Business Administration: Real Estate Economics</td><td>Study Points: 6</td></tr>
<tr><td colspan="4">Goals:

For most people buying or not buying a house is the single most important investment decision in their life. It is taken in an environment which is quite different from the “perfect market set up” which is often investigated in finance. Students shall learn how to address the particularities of real estate investments working with selected contributions from the theoretical and/or empirical literature.

Students are expected to write a seminar paper, make a presentation, and participate in the discussion.</td></tr>
<tr><td colspan="4">Prerequisites to participate in the module: This seminar is for students who have a solid background in finance and econometrics and some basic knowledge in real estate economics. It covers a wide range of theoretical and empirical issues in real estate valuation, dynamics of real estate markets and institutional features.</td></tr>
<tr><td>Course</td><td>Periods/ Week</td><td>SP; work load</td><td>Topics</td></tr>
<tr><td>Seminar

“Real Estate Economics”</td><td>2</td><td>6;
Attendance (30h)
Preparation and Presentation of Seminar paper (150 h)</td><td>Selected topics e.g.: Real estate prices and price risk, transaction behaviour, real estate in portfolio, renting versus owning, mobility, real estate and the aggregate economy</td></tr>
<tr><td colspan="2">Module examinations</td><td colspan="2">Seminar Paper (70%), presentation (30% of final mark)</td></tr>
<tr><td colspan="2">Duration of the module</td><td colspan="2">☒1 Semester ☐ 2 Semesters</td></tr>
<tr><td colspan="2">Module can be started in</td><td colspan="2">☒ Fall Semester ☒ Spring Semester
Semester or</td></tr>
</table>

<table>
<tr><td colspan="3">Mandatory Elective Module Business Administration: Analysis of Competition</td><td>Study Points: 6</td></tr>
<tr><td colspan="4">Goals:

The course covers models and tools for the analysis of strategic interaction with competitors and `complementors'. It is similar to a course in industrial economics, but topics are selected according to their relevance for the study of network based energy-systems (electric power and gas-industry).

The course is designed for students in their first semester master studies. It prepares students for the modul: “Topics in Energy and Network Economics”.</td></tr>
<tr><td colspan="4">Prerequisites to participate in the module: Previous exposure microeconomics and game theory is useful but not indispensable, as the basic notions of non-cooperative and cooperative game theory will be explained when needed.

You should not take the course if you already have taken (master level) courses in microeconomics, game theory and industrial organization.</td></tr>
<tr><td>Course</td><td>Periods/ Week</td><td>SP; work load</td><td>Topics</td></tr>
<tr><td>Lecture and Tutorial

Analysis of Competition</td><td>4</td><td>6
Attendance (60 h),
Preparation (120 h)</td><td>`Co-opetition' & PARTS, using market power, strategic interaction with competitors & complementors, market entry, commitment, vertical chains & networks, boundaries of the firm.</td></tr>
<tr><td colspan="2">Module examinations</td><td colspan="2">Lecture: Written examination, 60 minutes</td></tr>
<tr><td colspan="2">Duration of the module</td><td colspan="2">☒1 Semester ☐ 2 Semesters</td></tr>
<tr><td colspan="2">Module can be started in</td><td colspan="2">☒ Fall Semester ☐ Spring Semester
Semester or</td></tr>
</table>

Mandatory Elective Module Business Administration: Marketing	**Study Points: 6-24**

Goals:

Lecture and Exercise “Marketing Management” (if not selected in the General Management, preconditions: none):
The students:
- learn the core principles of marketing marketing management
- understand how marketing affects consumer behavior and firms’ outcome measures
- learn how consumers respond to marketing activities
- learn how firms’ can understand consumer preferences and how they should respond to consumers’ preferences

Lecture and Exercise “Customer Analytics and Customer Insights” (preconditions: Marketing Management):
The students:
- learn to identify customer perceptions
- learn to evaluate different multivariate techniques to investigate customer perceptions
- learn to estimate customer needs
- understand and learn to evaluate different approaches to estimate customer preferences
- learn ways to estimate consumer willingness to pay for product features
- learn how to estimate discrete choice models at the example of choice based conjoint analysis

Lecture and Exercise “Advanced Marketing Modelling”: (preconditions: Applied Econometrics):
The students learn to empirically estimate the effect of marketing decision on sales, market shares and profits and learn to how to apply discrete choice models to aggregate data.
They learn to work with big data sources readily available in firms and necessary for marketing decisions and learn to apply advanced econometric methods to solve marketing problems.
The students learn to evaluate marketing activities of firms.

Seminar “Marketing”: (preconditions: “Advanced marketing Modeling” or “Customer Analytics and Customer Insights”: The students understand and learn to apply quantitative models in marketing to solve marketing problems.

Prerequisites to participate in the module: none

Course	Periods/ Week	SP; work load	Topics
Lecture Marketing Management	2	3; Attendance (25 h) Literature study and preparation (35 h) Exam preparation (30 h)	Theories and strategies of marketing management and the core principles of the marketing-mix
Exercise Marketing Management	2	3; Attendance (25 h) Literature study and preparation (35 h) Exam preparation (30 h)	Theories and strategies of marketing management and the core principles of the marketing-mix revisited
Lecture Customer Analytics and Customer Insights	2	3; Attendance (25 h) Literature study and preparation (35 h) Written assignment (30)	Concepts and methods for understanding customers need and preferences as the basis for strategic and tactic marketing decision. Special emphasis new product design, measuring customers preferences and conjoint analysis
Exercise Customer Analytics and Customer Insights	2	3; Attendance (25 h) Literature study and preparation (35 h) Written assignment (30)	Computer-based exercises on applying the course content to marketing data (4 non-graded written special work performances (each 15000 Zol, excluding tables and graphs))

Lecture Advanced Marketing Modelling	2	3; Attendance (25 h) Literature study and preparation (35 h) Written assignment (30 h)	Quantitative models of consumer behavior, modeling the effects of marketing on market outcomes and firms' profitability
Exercise Advanced Marketing Modelling	2	3; Attendance (25 h) Literature study and preparation (35 h) Written assignment (30 h)	Computer-based exercises and applying the course content to real purchase and transaction data (4 non-graded written special work performances (each 15000 ZoI, excluding tables and graphs))
Seminar Marketing I +	1	6; Attendance (15 h) Literature study and preparation (30 h)	Recent topics in quantitative marketing
Seminar Marketing II	1	Attendance (15 h) Literature study and preparation (30 h) Seminar paper (90 h)	Recent topics in quantitative marketing
Module examinations		Marketing Management: Written exam (90 min) Customer Analytic and Customer Analytics: Written assignment (20,000 ZoL, excluding tables and graphs) Advanced Marketing Modelling: Written assignment (20,000 ZoL, excluding tables and graphs) Seminar Marketing: Seminar paper (30,000 ZoL, excluding tables and graphs)	
Duration of the module		☒ 1 Semester ☐ 2 Semesters	
Module can be started in		☒ Fall ☒ Spring Semester Semester or	

Mandatory Elective Module Business Administration: Entrepreneurship and Innovation	**Study Points: 6-18**

Goals:

Lecture and Exercise Entrepreneurial Decision Making:
The students know normative and descriptive approaches of decision and game theory and their applications in order to better understand how entrepreneurial decisions are made. They also learn about their own decision tendencies in classroom experiments.

Lecture and Exercise Design of Decision Experiments:
The students have a thorough understanding of the basic scientific requirements of experimentation and experimental design in entrepreneurship, management and related fields. They are in particular familiar with the different methods employed in the field of experimental economics and their respective advantages and disadvantages. Students furthermore know how to critically evaluate and discuss scientific work and how to potentially improve such work. Participants are also capable of programming basic experiments using the experimental software z-Tree (Fischbacher, 2007) and command the required econometric / statistical tools for the successful analysis of (self-modelled) experimental designs.

Advanced Research on Entrepreneurship and Innovation (irregular schedule, depending on the availability of guest professors; see the precise name of the lecture in schedule): Covers application of advanced economic and management research to entrepreneurship and innovation.

Prerequisites to participate in the module: none

Course	Periods/ Week	SP; work load	Topics
Lecture Entrepreneurial Decision Making	2	3; Attendance (25 h) Literature study and preparation (35 h) Exam preparation (30 h)	- various theoretical aspects of designing decision experiments - critically discussing scientific studies and their experimental design - methodological aspects of experimental analysis
Exercise Entrepreneurial Decision Making	2	3; Attendance (25 h) Literature study and preparation (35 h) Exam preparation (30 h)	- absorption of the lecture content and deepening of knowledge of selected aspects
Lecture Design of Decision Experiments	2	3; Attendance (25 h) Literature study and preparation (35 h) Exam preparation (30 h)	- various theoretical aspects of designing decision experiments - critically discussing scientific studies and their experimental design - methodological aspects of experimental analysis
Exercise Design of Decision Experiments	2	3; Attendance (25 h) Literature study and preparation (35 h) Exam preparation (30 h)	- absorption of the lecture content and deepening of knowledge of selected aspects
Advanced Research on Entrepreneurship and Innovation (irregular schedule, depending on the availability of	2 - 4	3 - 6; Lecture: Visiting the lecture (30 h), Preparation for courses (30 h), Exam preparation (30 h) Depending on the instructor the lecture might be accompanied by	Lecture: Application of economic and management research to entrepreneurship. Tutorial: Exercises and model application; small

guest professors; see the precise name of the lecture in schedule)		a tutorial, in this case: Attendance of sessions (30 h), Preparation for tutorial sessions (15 h), Assignments (45 h)	empirical studies
Module examinations		Lecture and Exercise Entrepreneurial Decision Making: Written exam (90 min) Lecture and Exercise Design of Decision Experiments: Written exam (90 min) Lecture Advanced Research on Entrepreneurship and Innovation (irregular schedule, depending on the availability of guest professors; see the precise name of the lecture in schedule): Depending on the lecturer: Written exam (60 minutes if 3 SP, 90 minutes if 6 SP) **or** assignment and presentation of results **or** assignment and written exam (60 minutes if 3 SP, 90 minutes if 6 SP)	
Duration of the module		☒ 1 Semester ☐ 2 Semesters	
Module can be started in		☒ Fall Semester ☒ Spring Semester or	

<table>
<tr><td colspan="3">Mandatory Elective Module Business Administration: Seminar on Entrepreneurship and Innovation</td><td>Study Points: 6</td></tr>
<tr><td colspan="4">Goals:

Students have a deep knowledge on selected aspects of behavioral entrepreneurial decision making, experimental design and innovation processes. Students know how to develop a research question and to design the respective experimental design or empirical research to solve it. They understand how to conduct a scientific literature search and know how to write and structure a scientific seminar paper. Finally, students are able to present their scientific work and to critically discuss it with the audience.</td></tr>
<tr><td colspan="4">Preconditions: Successful attendance of the lecture “Entrepreneurial Decision Making“</td></tr>
<tr><td>Course</td><td>Periods/ Week</td><td>SP; work load</td><td>Topics</td></tr>
<tr><td>Seminar on fundamental topics in Entrepreneurship and Innovation

+

Seminar on specialized topics in Entrepreneurship and Innovation</td><td>1

1</td><td>6;
Attendance (15 h)
Literature study and preparation (30 h)

Attendance (15 h)
Literature study and preparation (30 h)
Seminar paper and preparation (Presentation and discussion a small research project (30 min)) (90 h)</td><td>Fundamental topics in behavioral and/or entrepreneurial decision making and experimental economics

Specialized topics in behavioral and/or entrepreneurial decision making and experimental economics</td></tr>
<tr><td colspan="2">Module examinations</td><td colspan="2">Seminar on Entrepreneurship and Innovation: Seminar paper (45.000 ZoL) and preparation</td></tr>
<tr><td colspan="2">Duration of the module</td><td colspan="2">☒ 1 Semester ☐ 2 Semesters</td></tr>
<tr><td colspan="2">Module can be started in</td><td colspan="2">☒ Fall Semester ☒ Spring Semester
Semester or</td></tr>
</table>

Mandatory Elective Module Business Administration: Topics in Theory of Markets and Organizations I / II			**Study Points: 9-18**
Goals: The courses cover recent developments in the theory of coordination within organizations and markets. The focus is on research methodology.			
Prerequisites to participate in the module: Solid background in microeconomics			
Course	Periods/ Week	SP; work load	Topics
Lecture 1	4	9; Attendance (60 h) Reading paper(120 h) Preparation of presentations and examination (90 h)	Agency problems, incentive contracts, performance measurement, multitask agency relationship, asset ownership and job design, executive compensation, contests, bargaining theory and coalition formation, merger analysis
Lecture 2	4	9; Attendance (60 h) Reading paper(120 h) Preparation of presentations and examination (90 h)	Vertical structures, hierarchies und decision making in committees, bounded rationality, economic psychology and experiments.
Module examinations		Lecture 1: Written exam (90 min, 50 %), Presentation (50 % of final mark) Lecture 2: Written exam (90 min, 50 %), Presentation (50 % of final mark)	
Duration of the module		☒ 1 Semester ☐ 2 Semesters	
Module can be started in		☒ Fall Semester ☒ Spring Semester Semester or	

Mandatory Elective Module Business Administration: Accounting Courses			**Study Points: 6-24**
Goals: This module contains elective classes for master students. Students do not have to be enrolled into the accounting specialization in order to enroll into these classes.			
Prerequisites to participate in the module: Students need a thorough understanding of financial accounting, both based on HGB and on IFRS, of financial statement analysis and of group accounting.			
Course	Periods/ Week	SP; work load	Topics
Lecture Financial Accounting and Analysis	2	3; Attendance (25 h) Literature study and preparation (35 h) Exam preparation (30 h)	The goal of the course is to present students the basics of financial accounting and financial statement analysis. The course comprises three main parts. The first part deals with the objectives, fundamentals and institutions of financial accounting. The second part focuses on specific accounting rules under International Financial Reporting Standards (IFRS). The third part covers topics related to financial statement analysis such as financial analysis, forecasting methods and valuation models.
Exercise Financial Accounting and Analysis	2	3; Attendance (25 h) Literature study and preparation (35 h) Exam preparation (30 h)	
Lecture Accounting Theory and Earnings Management	2	3; Attendance (25 h) Literature study and preparation (35 h) Exam preparation (30 h)	Institutions of accounting; the role of accounting based information from a valuation and from a contracting perspective; accounting and capital market based asset pricing, incentives and earnings management
Exercise Accounting Theory and Earnings Management	2	3; Attendance (25 h) Literature study and preparation (35 h) Exam preparation (30 h)	
Lecture Advanced Topics in Accounting +	2	6; Attendance (25 h) Literature study and preparation (35 h)	Topics include but are not limited to: accounting for lease transactions, accounting for financial instruments, hedge accounting, accounting for stock based compensation, accounting for special purpose entities, special industry accounting, recent regulative changes in standard setting, auditing and corporate governance, valuation based on accounting information, earnings management.
Lecture Valuation	2	3; Attendance (25 h) Literature study and preparation (35 h) Exam preparation (30 h)	Methods of financial statements analysis and company valuation as well as the economic interpretation of these methods

Exercise Valuation	2	3; Attendance (25 h) Literature study and preparation (35 h) Exam preparation (30 h)	
Applied Seminar Advanced Cases in Accounting and Auditing	2	Attendance (25 h) Literature study and preparation (35 h) Case study and preparation (60 h)	The cases discussed in this seminar encompass a wide variety of subject, ranging from specific problems in accounting measurement over valuation related problems in IPO or merger and acquisitions settings to problems related to the identification of fraudulent earnings management
Master Thesis Seminar Accounting: Empirical Methods +	1	6; Attendance (15 h) Literature study and preparation (30 h)	Students have to develop and conduct a small empirical project (data collection, data analysis, presentation of results). For those students who are not familiar with statistical software, we provide a short introduction into the statistical software package STATA.
Master Thesis Seminar Accounting: Research Proposal	1	Attendance (15 h) Literature study and preparation (30 h) Research exposé and preparation (90 h)	Students have to identify their own research question and develop a research proposal which provides the motivation for the research question and also explains the methodology the student will be using to address the research question.
Vorlesung Umwandlung von Unternehmen	2	3; Präsenzzeit (25 h) Vor- und Nachbereitung der Lehrveranstaltungen (35 h) Klausurvorbereitung (30 h)	Die Besteuerung von Restrukturierungen im deutschen Umwandlungssteuerrecht; Steueroptimale Gestaltung von Umwandlungsvorgängen; Auswirkungen der Besteuerung auf den Unternehmenskauf
Übung Umwandlung von Unternehmen	2	3; Präsenzzeit (25 h) Vor- und Nachbereitung der Lehrveranstaltungen (35 h) Klausurvorbereitung (30 h)	Übungsaufgaben zu den Themen der Vorlesung Umwandlung von Unternehmen
Vorlesung Steuerwirkungslehre	2	3; Präsenzzeit (25 h) Vor- und Nachbereitung der Lehrveranstaltungen (35 h) Klausurvorbereitung (30 h)	Integration der deutschen Ertrags-steuern (Einkommens-, Körperschafts- und Gewerbesteuer) in gebräuchliche betriebswirtschaftliche Entscheidungsmodelle, um die Wirkungen auf die unternehmerische Entscheidung zu analysieren. Der Schwerpunkt liegt dabei auf Auswirkungen der Besteuerung auf die unternehmerische Investitions- und Finanzierungsentscheidung im nationalen und internationalen Kontext.
Übung Steuerwirkungslehre	2	3; Präsenzzeit (25 h) Vor- und Nachbereitung der Lehrveranstaltungen (35 h) Klausurvorbereitung (30 h)	Übungsaufgaben zu den Themen der Vorlesung Steuerwirkungslehre
Vorlesung International	2	3; Präsenzzeit (25 h) Vor- und Nachbereitung der	Besteuerung von In- und Out-Bound-Investitionen, Doppelbesteuerungsabkommen,

e Unternehmens-besteuerung + Übung Internationale Unternehmens-besteuerung	 2	Lehrveranstaltungen (35 h) Klausurvorbereitung (30 h) 3; Präsenzzeit (25 h) Vor- und Nachbereitung der Lehrveranstaltungen (35 h) Klausurvorbereitung (30 h)	Hinzurechnungsbesteuerung, Steueroptimale Investitions- und Finanzierungspolitik Die Studenten vertiefen anhand praxisnaher Beispiele und Fallstudien den Vorlesungsstoff
Vorlesung Steuerliche Gewinnermittlung + Vorlesung Umsatzsteuer und Verfahrensrecht	2 2	3; Präsenzzeit (25 h) Vor- und Nachbereitung der Lehrveranstaltungen (35 h) Klausurvorbereitung (30 h) 3; Präsenzzeit (25 h) Vor- und Nachbereitung der Lehrveranstaltungen (35 h) Klausurvorbereitung (30 h)	Steuerbilanzerstellung, Steuerbilanzpolitik, Gesellschafterwechsel, Behandlung von Sacheinlage Die Studenten erlernen vor allem anhand von praktischen Beispielen aus der Rechtsprechung sowie aus dem Tagesgeschäft von Unternehmen die Systematik des Umsatzsteuergesetzes unter Vertiefung der Schwerpunkte wie Lieferung, Leistung, Organschaft, Vorsteuerabzug und Vorsteuerberichtigung. Im steuerlichen Verfahrensrecht lernen die Studenten die Grundzüge der Abgabenordnung und ihre Verschränkung mit dem materiellen Steuerrecht kennen. Dabei liegt die Gewichtung auf dem Steuerbescheid und den Rechtsmitteln, der Festsetzungsfrist und den Änderungsvorschriften. Auch das Steuerstrafrecht und seine Bedeutung für die reguläre Veranlagung werden vermittelt. Das Erlernte wird anhand von Fällen und Fallstudien angewendet und vertieft.
Research Seminar Financial Accounting Research Group	2	6; Seminar attendance (30 h), study of the relevant literature (30 h), preparation and discussion of the assignments (120 h).	This seminar is targeted at interested students which have an active interest in current financial accounting topics and in cutting-edge financial accounting research. The main objective of this seminar is to introduce eligible students to current research in the area of financial accounting and auditing. In this context, we will provide participants with the necessary skills to comprehend common research design choices and to identify shortcomings of these choices. To achieve this, participants of the seminar will be invited to several lectures, tutorials and talks of international guests, which will take place at the institute. Since it is common to discuss the content of these talks beforehand, participants will also be invited to the corresponding discussion meetings at the institute. In addition, we will invite leading industry experts to discuss current financial accounting topics with us in a small colloquial atmosphere. Each seminar period will last for one academic year and we expect participating students to commit to

			the full year.
Module examinations	Each Lecture/Exercise or Lecture + Lecture: Written exam (90 min) Lecture “Advanced Topics in Accounting” + Applied Seminar Advanced Cases in Accounting and Auditing: Case study (30,000 ZoL) Master Thesis Seminar Accounting: Research exposé (30,000 ZoL) Research Seminar Financial Accounting Research Group: Written Reviews		
Duration of the module	☐ 1 Semester	☒ 2 Semesters	
Module can be started in	☒ Fall Semester or	☒ Spring Semester	

<table>
<tr><td colspan="3">Mandatory Elective Module Business Administration: Master Thesis Seminar Accounting (ehem. Accounting Research Seminar)</td><td>Study Points: 6</td></tr>
<tr><td colspan="4">Goals:

This seminar aims at developing the research skills which Master students need to develop and write a master thesis in the area of accounting. Students, who wish to write a master thesis at the Institute of Accounting and Auditing, have to enroll in and successfully complete this seminar.</td></tr>
<tr><td colspan="4">Prerequisites to participate in the module: Students need a thorough understanding of the underpinnings of accounting.</td></tr>
<tr><td>Course</td><td>Periods/ Week</td><td>SP; work load</td><td>Topics</td></tr>
<tr><td>Master Thesis Seminar Accounting</td><td>2</td><td>6;
Attendance (30 h)
Literature study and preparation (30 h)
Research exposé and preparation (30 h)</td><td>Students have to develop and conduct a small empirical project (data collection, data analysis, presentation of results). For those students who are not familiar with statistical software, we provide a short introduction into the statistical software package STATA. Students have to identify their own research question and develop a research proposal which provides the motivation for the research question and also explains the methodology the student will be using to address the research question.</td></tr>
<tr><td colspan="2">Module examinations</td><td colspan="2">Research exposé (30,000 ZoL)</td></tr>
<tr><td colspan="2">Duration of the module</td><td colspan="2">☒ 1 Semester ☐ 2 Semesters</td></tr>
<tr><td colspan="2">Module can be started in</td><td colspan="2">☒ Fall Semester ☒ Spring Semester
Semester or</td></tr>
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<table>
<tr><td colspan="3">Mandatory Elective Module Business Administration: Master Tax Seminar (Master thesis seminar Tax)</td><td>Study Points: 6-12</td></tr>
<tr><td colspan="4">Goals:

The seminar aims at developing the research skills which Master students need to write a master thesis in the area of business taxation. Students, who intend to write their master thesis at the Institute of Business Taxation, are required to complete this seminar successfully.</td></tr>
<tr><td colspan="4">Requirements for participation: Students need a profound knowledge of institutional details and economic effects of business taxation, and have to complete the Master module Accounting as a field of specialization.</td></tr>
<tr><td>Course</td><td>Periods/ Week</td><td>SP; work load</td><td>Topics</td></tr>
<tr><td>Master Tax Seminar (German)</td><td>2</td><td>6;
Seminar attendance (30h),
preparation of the seminar paper (90h),
presentation of the seminar paper, preparation and discussion of other seminar papers (60h)</td><td>During the seminar students deal with current tax issues and tax reforms respectively tax reform proposals in a national and international context.

The classes are held in German.</td></tr>
<tr><td>Current Issues in Tax Accounting (German)</td><td>2</td><td>6;
Seminar attendance (30h),
Preparation of the seminar paper (90h),
Presentation of the seminar paper, preparation and discussion of other seminar papers (60h)</td><td>Ín this seminar we discuss varying issues in taxation.

The classes are held in German.</td></tr>
<tr><td colspan="2">Module examinations</td><td colspan="2">Seminar paper (50 %), presentation of the seminar paper and discussion of other seminar papers (50 %)</td></tr>
<tr><td colspan="2">Duration of the module</td><td colspan="2">☒ 1 Semester ☐ 2 Semesters</td></tr>
<tr><td colspan="2">Module can be started in</td><td colspan="2">☒ Fall Semester ☒ Spring Semester
Semester or</td></tr>
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Mandatory Elective Module Business Administration: Financial Economics	**Study Points: 6-24**

Goals:

Integrated Lecture “Corporate Finance”: Financial Markets, Corporate Securities, Financial-Statement Analysis, Working-Capital Management, Capital Structure, Payout Policy, Company and Project Valuation.

Lecture and exercise “Introduction to financial economics” (preconditions: none): The students are introduced to the foundations of financial economics: the term structure of interest rates and risk premia. The course is a prerequisite for all other courses in finance.

Lecture and exercise “Advanced corporate finance” (preconditions: Knowledge of the principals of finance theory: Capital asset pricing model (CAPM), efficient market hypothesis, Markowitz portfolio selection, Modigliani-Miller theorem, DCF valuation. These concepts are covered in the lectures “Investition & Portfoliomanagement” and “Corporate Finance”):The students are familiar with advanced models of corporate financial policy, such as capital structure, payout policy, fund raising, corporate governance and risk management. They are able to analyze these corporate financial policies in the context of agency problems and information asymmetries.

Lecture and exercise “Financial engineering” (preconditions: Knowledge of the contents of the course "Introduction to Financial Economics"): The students are introduced to techniques for constructing and pricing financial derivatives based on "no-arbitrage" arguments.

Lecture and exercise “Private Equity” (preconditions: Advanced Corporate Finance): The successful students will be fluent in the technical terms of the private-equity industry and be knowledgeable about all stages from start-up, fund-raising, investment, operation, portfolio management, up until exit. They will be able to apply state-of-the-art valuation techniques to start-ups, spin-offs, buy-outs, and IPOs. Typical contract designs will be familiar and related to models of agency theory and monitoring. They will have dealt with LBOs and quantified connections between capital structure, firm performance and investment returns. Finally, they will realize how trade-offs covered in other courses re-appear in more pronounced ways in the context of private equity. Based on case studies they will have proven their analytical skills in real-world problems and via implementation exercises have sharpened their quantitative abilities.

Case Seminar “Advanced Corporate Finance” (preconditions: Knowledge of the principals of finance theory: Capital asset pricing model (CAPM), efficient market hypothesis, Markowitz portfolio selection, Modigliani-Miller theorem, DCF valuation. These concepts are covered in the lectures “Investition & Portfoliomanagement” and “Corporate Finance”. The course “Advanced Corporate Finance” must be taken parallel or prior to the case seminar.): The students are able to analyze corporate financial decisions in complex, real-world situations, and can use theoretical models to justify their own policy recommendations.

Seminar “Advanced Financial Economics – Corporate Finance” (Preconditions: Advanced Corporate Finance, Private Equity): Successful students have acquired in-depth knowledge of the academic corporate-finance literature, which constitutes the focus of this seminar. They have achieved deep understanding of the prevalent models, are capable of relating to the models in the broader context of the field, and to critically reflect on assumptions and implications. Moreover, students possess the skills to implement the models in computer programmes, to obtain numerical results, and to interpret those results meaningfully. After completing the seminar, students are proficient in the academic literature in the field of corporate finance and its models, as well as with scientific methods, such that they can contribute to state-of-the-art research in the context of their dissertations.

Prerequisites: Knowledge of the principals of finance theory: capital asset pricing model (CAPM), efficient market hypothesis, Markowitz portfolio selection, Modigliani-Miller theorem, DCF valuation. The last two concepts are covered in the IL Corporate Finance.

Course	Periods/ Week	SP; work load	Topics
Integrated Lecture Corporate Finance	4	6; Class attendance (45 h) Literature study and preparation (75 h) Exam preparation (60 h)	- Financial Markets - Corporate Securities - Financial-Statement Analysis - Working-Capital Management - Capital Structure - Payout Policy

			- Company and Project Valuation
Lecture Introduction to Financial Economics	2	3; Attendance (25 h) Literature study and preparation (35 h) Exam preparation (30)	Discount factors, the term structure of interest rates, mean-variance theory, portfolio selection, factor pricing models.
Exercise Introduction to Financial Economics	2	3; Attendance (25 h) Literature study and preparation (35 h) Exam preparation (30)	Exercises that prepare students for the final exam.
Lecture Advanced Corporate Finance	2	3; Attendance (25 h) Literature study and preparation (35 h) Exam preparation (30)	Impact of agency costs and information asymmetries on corporate financial policy, such as capital structure, project finance, payout policy, corporate governance, executive compensation, and risk management
Exercise Advanced Corporate Finance	2	3; Attendance (25 h) Literature study and preparation (35 h) Exam preparation (30)	Exercises in topics of Advanced Corporate Finance
Lecture Financial Engineering	2	3; Attendance (25 h) Literature study and preparation (35 h) Exam preparation (30)	Forwards and futures, option pricing in the binomial model and the Black Scholes model, estimation of risk-neutral densities, and applications
Exercise Financial Engineering	2	3; Attendance (25 h) Literature study and preparation (35 h) Exam preparation (30)	Exercises that prepare students for the final exam.
Lecture Private Equity	2	3; Attendance (25 h) Literature study and preparation (35 h) Exam preparation (30)	- Fund raising, deal sourcing - Deal structuring, deal management - Valuation - Exits - Performance measurement - Growth, cycles, welfare
Exercise Private Equity	2	3; Attendance (25 h) Literature study and preparation (35 h) Exam preparation (30)	- Case Studies - Implementation exercises regarding the topics of the lecture
Case Seminar Advanced Corporate Finance I + Case Seminar Advanced Corporate Finance II	1 2	6; Presence in class (15 h) Preparation and learning (15 h) Attendance (25 h) Literature study and preparation (35 h) Homework (40,000 – 60,000 ZoL) and preparation (90 h)	This seminar discusses business case studies that relate to the topics covered in “Corporate Finance” This seminar discusses business case studies that relate to the topics covered in “Advanced Corporate Finance”

Seminar and Proseminar Advanced Financial Economics – Corporate Finance	4	6; Class attendance (50 h) Literature study (35 h) Programming (35 h) Preparation of the seminar paper (+ presentation of research paper, referee report) (60 h)	Capital-Structure Theory Financial Constraints Internal Capital Markets Delegated Investment Management Empirical Methods Corporate Governance Behavioral Finance Corporate Risk Management Financial Contracting: Decision and Control Rights, Strategic Default Investor Monitoring: Takeovers Implementation of models and calculations of select papers from the seminar using GNU/R.
Module examinations		Integrated Lecture Corporate Finance: Written exam (90 min) Lecture and Exercise Introduction to Financial Economics: Written exam (60 min) Lecture and Exercise Advanced Corporate Finance: Written exam (60 or 90 min) Lecture and Exercise Financial Engineering: Written exam (60 min) Lecture and Exercise Private Equity: Written exam (60 min) Case Seminar Advanced Corporate Finance I + II: Homework (80%) and Presentation (20%) SE Advanced Financial Economics – Corporate Finance: Seminarpaper (30,000 ZoL)	
Duration of the module		☒ 1 Semester ☐ 2 Semester	
Module can be started in		☒ WS or ☒ SS	

<table>
<tr><td colspan="3">Mandatory Elective Module Business Administration:

Thesis Seminar Corporate Finance</td><td>Study Points: 6</td></tr>
<tr><td colspan="4">Goals:

This seminar is designed for students who wish to write a master thesis at the institute of corporate finance. Most theses will be of an empirical nature. Therefore, sound econometrical and programming skills are essential. Before selecting this modul , students should have successfully completed the mandatory courses of the Mandatory Elective Modul: Financial Economics</td></tr>
<tr><td>Course</td><td>Periods/ Week</td><td>SP; work load</td><td>Topics</td></tr>
<tr><td>Seminar

Hauptseminar/Thesis Seminar Corporate Finance</td><td>4</td><td>6;
Seminar attendance (60 h)
Literature study (30 h)
Preparation, presentation and discussion of the seminar paper (90 h)</td><td>This course covers advanced topics in corporate finance, as well as major econometric techniques used in empirical corporate finance research. The goal is to prepare students for writing a master thesis at the Institute of Corporate Finance.</td></tr>
<tr><td colspan="2">Module examinations</td><td colspan="2">Seminar paper (50 %), presentations (50 %)</td></tr>
<tr><td colspan="2">Duration of the module</td><td colspan="2">☒ 1 Semester ☐ 2 Semesters</td></tr>
<tr><td colspan="2">Module can be started in</td><td colspan="2">☒ Fall Semester ☒ Spring Semester
Semester or</td></tr>
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<table>
<tr><td colspan="3">Mandatory Elective Module Business Administration:

Thesis Seminar Financial Economics</td><td>Study Points: 6</td></tr>
<tr><td colspan="4">Goals:

This seminar is designed for students who wish to write a master thesis in financial economics at the institute of financial economics. Most theses will be of an empirical nature. Therefore, sound econometrical and programming skills are essential. Before selecting this modul , students should have successfully completed the mandatory courses of the Mandatory Elective Modul: Financial Economics</td></tr>
<tr><td>Course</td><td>Periods/ Week</td><td>SP; work load</td><td>Topics</td></tr>
<tr><td>Seminar

Hauptseminar/Thesis Seminar Financial Economics</td><td>4</td><td>6;
Seminar attendance (60 h)
Literature study (30 h)
Preparation, presentation and discussion of the seminar paper (90 h)</td><td>Preparation for writing a master thesis. The seminar will discuss papers on financial economics.</td></tr>
<tr><td colspan="2">Module examinations</td><td colspan="2">Seminar paper (50 %), presentations (50 %)</td></tr>
<tr><td colspan="2">Duration of the module</td><td colspan="2">☒ 1 Semester ☐ 2 Semesters</td></tr>
<tr><td colspan="2">Module can be started in</td><td colspan="2">☒ Fall Semester ☒ Spring Semester
Semester or</td></tr>
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<tr><td colspan="3">Mandatory Elective Module Economics: Selected topics in the field of Business Administration</td><td>Study Points: 3-12</td></tr>
<tr><td colspan="4">Goals:

This is a module for the approval of exams successfully taken in the field of Business Administration. Courses may be from the Curriculum of other university-based Master's programs or from other faculties of the Humboldt-University Berlin. The approval of the exam is granted by the Examinations Commission of the School of Business and Economics at the Humboldt-University Berlin after consulting the representative in charge.</td></tr>
<tr><td colspan="4">Prerequisites to participate in the module: none</td></tr>
<tr><td>Course</td><td>Periods/ Week</td><td>SP; work load</td><td>Topics</td></tr>
<tr><td>Lecture or Tutorial or Seminar</td><td>2-8</td><td>1 Period/Week generally relates to 1,5 SP or 1,5 ECTS.
The work load is partitioned, 1 SP matches 30h.</td><td>Selected Topics in Business Administration</td></tr>
<tr><td colspan="2">Module examinations</td><td colspan="2">Written exam, seminar paper and presentation, oral exam, homework assignments</td></tr>
<tr><td colspan="2">Duration of the module</td><td colspan="2">☒ 1 Semester ☐ 2 Semesters</td></tr>
<tr><td colspan="2">Module can be started in</td><td colspan="2">☒ Fall Semester ☒ Spring Semester
and/or</td></tr>
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<tr><td colspan="3">Wahlpflichtmodul BWL: Ausgewählte Themen der Betriebswirtschaftslehre</td><td>Studienpunkte: 3-12</td></tr>
<tr><td colspan="4">Lern- und Qualifikationsziele:

Modul zur Anerkennung von Prüfungsleistungen im Bereich der Betriebswirtschaftslehre, welche in anderen universitären Masterstudiengängen innerhalb oder außerhalb des Geltungsbereiches des Grundgesetzes bzw. an anderen Fakultäten der Humboldt-Universität zu Berlin erfolgreich erbracht wurden. Über die Anerkennung der Prüfungsleistungen entscheidet der Prüfungsausschuss der Wirtschaftswissenschaftlichen Fakultät der Humboldt-Universität zu Berlin nach Anhörung des jeweiligen Fachvertreters.</td></tr>
<tr><td colspan="4">Voraussetzungen für die Teilnahme am Modul: keine</td></tr>
<tr><td>Lehr- und Lernformen</td><td>Präsenz-SWS</td><td>Anzahl der SP/ Arbeitsleistungen</td><td>Lernziele, Themen, Inhalte</td></tr>
<tr><td>Vorlesung, Übung, Seminar</td><td>2-8</td><td>1 SWS entspricht in der Regel 1,5 SP sowie 1,5 ECTS. Die Arbeitsleistung ist differenziert und wird mit 30 h je SP angesetzt.</td><td>Ausgewählte Themen der Betriebswirtschaftslehre</td></tr>
<tr><td colspan="2">Modulprüfungen</td><td colspan="2">Klausur, Seminararbeit und Präsentation, mündliche Prüfung, schriftliche Hausarbeit</td></tr>
<tr><td colspan="2">Dauer des Moduls</td><td colspan="2">☒ 1 Semester ☐ 2 Semester</td></tr>
<tr><td colspan="2">Beginn des Moduls</td><td colspan="2">☒ WS und/oder ☒ SS</td></tr>
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<tr><td colspan="3">Mandatory Elective Module QM: Multivariate Statistical Analysis</td><td>Study Points: 6-9</td></tr>
<tr><td colspan="4">Goals:

Data records which are to be analysed by means of statistics often consist of many variables. While the connections between two variables are easily accessible, a group of several variables is not easily examinable in its structure. "Multivariate statistics" imparts procedures which allow an analysis of high-dimensional data records. The course aims to introduce the basic concepts of statistical programming languages as R or Matlab and its application.</td></tr>
<tr><td colspan="4">Prerequisites to participate in the module: Knowledge of basis statistical concepts and an understanding of a broad spectrum of statistical methods for data analysis.</td></tr>
<tr><td>Course</td><td>Periods/ Week</td><td>SP; work load</td><td>Topics</td></tr>
<tr><td>Lecture

Multivariate Statistical Analysis I (MVA1)</td><td>4</td><td>6;
Attendance (60 h)
Self-study (60 h)
Exam preparation (60 h)</td><td>MVA1: Graphical display of multidimensional data, Repetition: matrix algebra, linear model, correlation, Multivariate random variables, Multinormal distribution, Maximum likelihood theory, Principal components, Discriminant Analysis, Cluster Analysis.</td></tr>
<tr><td>Lecture

Statistical programming languages (XIC)</td><td>2</td><td>3;
Attendance (30 h)
Self-study (30 h)
Exam preparation (30 h)</td><td>Data Analysis and programming statistical algorithms in the programming languages R or Matlab</td></tr>
<tr><td colspan="2">Module examinations</td><td colspan="2">MVA1: written exam (120 min) or working paper and eventually presentation or homework
XIC: oral exam (30 min) or written exam (90 min) or working paper and eventually presentation or homework</td></tr>
<tr><td colspan="2">Duration of the module</td><td colspan="2">☒ 1 Semester ☐ 2 Semesters</td></tr>
<tr><td colspan="2">Module can be started in</td><td colspan="2">☒ Fall Semester ☐ Spring Semester</td></tr>
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Mandatory Elective Module QM: Advanced Statistics	**Study Points: 6-15**

Goals:

The courses and lectures will give the students a thorough insight into theoretical aspects as well as practical aspects of advanced statistical methods (R, Matlab and/or SPSS). The lectures cover different aspects in statistics:
- The course Statistical Programming Languages aims to introduce the basic concepts of statistical programming languages as R or Matlab and its application.
- The course Non- and Semiparametric Modelling gives an overview over the flexible regression methods.
- The lecture Multivariate Statistical Analysis 2 further develops methods presented in the first part of the lecture and deals with problems which arise in the analysis of real world data as well as some advanced methods. In the tutorial the students apply the methods to multivariate data with statistical software.
- The lecture Selected Topics in Banking and Insurance deals with specific topics connected either with Banking (e.g. the issues of assessment of the quality of a credit to its risk of defaults) or Insurance (e.g. with claim size distributions, ruin problems, heavy tailed risks, premium, principles and risk measures and loss reserving in insurance).
- The seminar Numerical Introductory Course treats problems which arise in the implementation of statistical methods, e.g. Optimization.
- In the seminar What is statistics? – From the historical perspective historical aspects of the development of statistics will be treated.
- The lectures Data analysis I and II focus on practical steps in data analysis with SPSS and R. We cover various topics in uni-, bi- and multivariate descriptive statistics, tests and regression methods.
- The lecture Statistics of High-Dimensional Time Series provides an overview of statistical methods used for the analysis of high-dimensional time series.

Prerequisites to participate in the module: Knowledge of basis statistical concepts and an understanding of a broad spectrum of statistical methods for data analysis and the module „Multivariate Statistical Analysis"

Course	Periods/ Week	SP; work load	Topics
Lecture Statistical programming languages (XIC)	2	3; Attendance (30 h) Self-study (30 h) Exam preparation (30 h)	Data Analysis and programming statistical algorithms in the programming languages R or Matlab
Lecture Non- and Semiparametric Modelling (NPM)	2	3; Attendance (30 h) Self-study (30 h) Exam preparation (30 h)	NPM: Histogram, Nonparametric Density Estimation, Nonparametric Regression, Additive Models, Linear Models, Generalized Linear Models, Additive Models, Single-Index Models, Generalized Partial Linear Models, Generalized Additive Models
Lecture Multivariate Statistical Analysis II (MVA2)	2	3; Attendance (30 h) Self-study (30 h) Exam preparation (30 h)	MVA2: decomposition of data matrices by factors, Factor analysis, Multidimensional scaling, Canonical correlations, Correspondence analysis, Projection pursuit, Conjoint measurement analysis, SIR
Lecture Selected Topics in Banking and Insurance (SCR)	2	3; Attendance (30 h) Self-study (30 h) Exam preparation (30 h)	SCR: Selected Topics either in Banking, e.g. Credit rating, or Insurance. For details see the commented schedule of lectures.
Seminar	2	3; Attendance (30 h)	NIC: Numerical Linear Algebra, Curve Fitting, Optimization, Random Number

Numerical Introductory Course (NIC)		Self-study (30 h) Exam preparation (30 h)	Generation, Numerical Solutions of Stochastic Differential Equations
Seminar What is statistics? – From the historical perspective (HIST)	2	3; Attendance (30 h) Self-study (30 h) Exam preparation (30 h)	HIST: In the seminar we will investigate elements of the history of statistics, mathematical statistics as well as economical statistics, from the 17th/18th century until the present time.
Seminar Privatissimum Statistik (PRI)	2	3; Attendance (30 h) Preparation of presentation (10 h) Seminar paper (50 h)	PRI: The seminar is a preparation for master thesis.
Vorlesung Datenanalyse I	2	3; Präsenzzeit (30 h) Selbststudium (30 h) Prüfungsvorbereitung (30 h)	DAT1: Wdh. Statistik I&II, Fragebogen-konstruktion, Datenbereinigung, Ausreißer, Fehlende Werte, Univariate und Bivariate Statistik (Grafiken, Kennzahlen und Tests)
Übung Datenanalyse I (UE DAT1)	2	3; Präsenzzeit (30 h) Selbststudium (30 h) Prüfungsvorbereitung (30 h)	UE DAT1: In der Übung werden praktische Aufgaben zum Vorlesungsstoff mit SPSS und/oder R gelöst.
Vorlesung Datenanalyse II	2	3; Präsenzzeit (30 h) Selbststudium (30 h) Prüfungsvorbereitung (30 h)	DAT2: Multivariate Statistik, Lineare Regression, Nicht- und semiparametrische Regression, Item-Response-Modelle, Strukturgleichungsmodelle.
Übung Datenanalyse II (UE DAT2)	2	3; Präsenzzeit (30 h) Selbststudium (30 h) Prüfungsvorbereitung (30 h)	UE DAT2: In der Übung werden praktische Aufgaben zum Vorlesungsstoff mit SPSS und/oder R gelöst.
Seminar Datenanalyse (DAT) (German)	2	3; Attendance (30 h) Preparation of presentation (10 h) Seminar paper (50 h)	DAT: Das Seminar richtet sich an Studierende, die einen konkreten Datensatz mittels statistischer Methoden (z.B. im Rahmen von Projekt- oder Abschlussarbeiten) analysieren wollen.
Lecture Statistics of High-Dimensional Time Series (STS)	2	3; Attendance (30 h) Self-study (30 h) Exam preparation (30 h)	Topics include: the dynamic semiparametric factor model, statistics of multivariate time series models, non-parametric and flexible time series estimation, variable selection and empirical pricing kernel estimation.
Module examinations		XIC, NPM, MVA2/UE MVA2, SCR, DAT1, DAT2, STS: Oral exam (30 min) or written exam (90 min) working paper and eventually presentation or homework NIC, HIST, PRI, DAT: Working paper (80%) and presentation (20%)	
Duration of the module		☒ 1 Semester ☐ 2 Semesters	
Module can be started in		☒ Fall Semester ☒ Spring Semester Semester or	

Mandatory Elective Module QM: Statistics and Finance	**Study Points: 6-15**

Goals:

The course “Statistics of Financial Markets 1” starts with an introduction into the basic concepts of option pricing and its probabilistic foundations. Next, stochastic processes in discrete time are presented and the Wiener process is introduced. Ito’s Lemma is derived and the Black-Scholes (BS) Option model is presented leading to the analytic solution for the BS Option price. Numerical solutions via binomial or trinomial tree constructions are discussed in detail. As a part of the course, an obligatory trip to an European financial institution will be organized.
The course “Statistics of Financial Markets 2” starts with an introduction into the basic concepts of time series and its application. The course gives an overview over risk management models and reviews the current value at Risk (VaR) methodology.
The course “Selected topics of mathematical statistics” covers a part of mathematical statistics which deals with the limiting behavior of different sample statistics, *U*-statistics, *M*-, *L*- and *R*-Estimates. It is laying a bridge between the probability theory and the mathematical statistics by manipulating with “probability” theorems to obtain “statistical” theorems.
The Seminar “Mathematical Statistics” allows for the presentation of research results from the discipline of mathematical statistics. The Seminar “Economic Risk” allows for the presentation of research results from the discipline of Quantitative Finance.
The lecture “Statistical Tools for Finance and Insurance” introduces modern statistical tools as applied to finance and insurance. Each part of the lecture contains content with a high focus on practical applications.
The course entitled “Advanced Methods in Quantitative Finance” covers material that is beyond the scope of the course “Statistics of Financial Markets”.

Prerequisites to participate in the module: Knowledge of basis statistical concepts and an understanding of a broad spectrum of statistical methods for data analysis.

Course	Periods/ Week	SP; work load	Topics
Lecture Statistics of Financial Markets I (SFM1)	4	6; Attendance (60 h) Self-study (60 h) Exam preparation (60 h)	SFM1: Financial derivative, Option management, Basic concepts of probability theory, Stochastic processes in discrete time, Stochastic Integrals and differential equations, Black-Scholes option pricing model, Binomial model for European options and American options, Exotic options and interest rate derivatives
Lecture Statistics of Financial Markets II (SFM2)	2	3; Attendance (30 h) Self-study (30 h) Exam preparation (30 h)	SFM2: Basic concepts of statistical models, ARIMA model, Time series of stochastic Volatility, Nonparametric model on financial time series, Value at risk and back testing, Copulas, Extreme value, Neuronal network
Lecture Selected topics of mathematical statistics (SMS)	2	3; Attendance (30 h) Self-study (30 h) Exam preparation (30 h)	Limiting behavior of different sample statistics U-statistics, M-, L- and R-Estimates. This course gives better understanding for the basic tools learned in the elementary Statistics I and II, like Law of Large Numbers, Central Limit Theorem, Kolmogorov-Smirnov and Cramer-von-Mises tests, sample mean and sample variance behavior, etc.
Lecture Advanced Methods in Quantitative Finance	2	3; Attendance (30 h) Self-study (30 h) Exam preparation (30 h)	Energy options and knowledge of econometric tools and stochastic finance, robust techniques for financial time series

(AMF)			
Lecture Statistical Tools for Finance and Insurande (STF)	2	3 Attendance (30 h) Self-study (30 h) Exam preparation (30 h)	Modern statistical tools applied in finance and insurance
Seminar Mathematical Statistics (MSS)	2	3; Attendance (30 h) Self-study (30 h) Exam preparation (30 h)	Presentation of research results in topics in mathematical statistics
Seminar Economic Risk (QFS)	2	3; Attendance (30 h) Self-study (30 h) Exam preparation (30 h)	Selected Topics of Economic Risk
Module examinations		SFM1: oral exam (30 min) or written exam (90 min) or working paper and eventually presentation or homework SFM2: oral exam (30 min) or written exam (90 min) or working paper and eventually presentation or homework SMS: oral exam (30 min) or written exam (90 min) or working paper and eventually presentation or homework STF: oral exam (30 min) or written exam (90 min) or working paper and eventually presentation or homework AMF: oral exam (30 min) or written exam (90 min) or working paper and eventually presentation or homework MSS: presentation (30 min) or working paper QFS: presentation (30 min) or working paper	
Duration of the module		☒ 1 Semester ☐ 2 Semesters	
Module can be started in		☒ Fall Semester ☒ Spring Semester Semester or	

<table>
<tr><td colspan="3">Mandatory Elective Module QM: Privatissimum Statistik</td><td>Study Points: 18</td></tr>
<tr><td colspan="4">Goals:

The seminar “Privatissimum” is designed to help students in the preparation and completion of their Masters thesis. The thesis must be dedicated to a chosen statistical subject. At the seminar any technical problems or drawbacks are presented and the relevant statistical procedures and results collectively discussed.</td></tr>
<tr><td colspan="4">Prerequisites to participate in the module: Knowledge of basis statistical concepts and an understanding of a broad spectrum of statistical methods for data analysis.</td></tr>
<tr><td>Course</td><td>Periods/ Week</td><td>SP; work load</td><td>Topics</td></tr>
<tr><td>Seminar

Privatissimum Statistik (PRI)</td><td>2</td><td>30;
Attendance (30 h)
Preparation of presentation (60 h)
Master thesis (450 h)</td><td>PRI: Master Thesis</td></tr>
<tr><td colspan="2">Module examinations</td><td colspan="2">PRI: Master thesis (75%) and presentation (25% of final mark)</td></tr>
<tr><td colspan="2">Duration of the module</td><td colspan="2">☒ 1 Semester ☒ 1 Semester</td></tr>
<tr><td colspan="2">Module can be started in</td><td colspan="2">☒ Fall Semester ☒ Spring Semester
Semester or</td></tr>
</table>

Mandatory Elective Module QM: Applied Econometrics	**Study Points: 6**

Learning objectives:

The students have a basic knowledge of econometric models and methods for analyzing cross-sectional data, panel data and time series data as well as of their applicability in practice. They are able to carry out own empirical studies to investigate particular economic problems, whereby they apply appropriately chosen econometric methods and interpret the results in a meaningful way.

Preconditions: basic knowledge equivalent to module Introduction to Econometrics

Teaching format	Hours per week, workload in hours	Credits preconditions for granting	Topics, contents
Lecture Applied Econometrics	3 SWS 90 hours 35 hours Attendance 55 hours Literature study and preparation	3 credits, participation	-Extensions and applications of the linear regression model - Model selection and model diagnostics - Stochastic regressors and instrumental variable estimation - Introduction to panel data analysis - Models for qualitative and limited dependent variables (logit and probit models, truncated and censored data, tobit model) - Time series analysis (specification, estimation and forecasting in (V)AR-models)
Exercise Applied Econometrics	1 SWS 30 hours 15 hours Attendance 15 hours Literature study and preparation	1 credit, participation	- Theoretical exercise questions - application of methods to empirical data - Use of econometric software
Final exam	60 hours Written exam (90 min) and preparation	2 credits, pass exam	
Duration	☒ 1 semester	☐ 2 semesters	
Start of module	☒ winter term	☐ summer term	

Mandatory Elective Module QM: Econometric Methods	**Study Points: 12**

Learning objectives:

The students have a solid knowledge of the econometric methodology including the fundamental role of economic and statistical assumptions. In particular, they have a deep understanding of the ingredients of estimation and inference in the linear regression model and its extensions with matrix algebra. They are familiar with the basic concepts of asymptotic theory, and are able to apply them within the context of least squares, maximum likelihood and instrumental variable estimation. The students are equipped with the necessary knowledge to understand and evaluate current research as well as to successfully address own research questions.

Preconditions: basic knowledge equivalent to module "Introduction to Econometrics"

Teaching format	Hours per week, workload in hours	Credits preconditions for granting	Topics, contents
Lecture Econometric Methods	4 SWS 180 hours 45 hours Attendance 135 hours Literature study and preparation	6 credits, participation	- Linear regression model: least squares estimation, optimality, hypothesis testing, confidence regions - Generalizations and applications of the linear model: selecting regressors, GLS estimation, heteroscedasticity and autocorrelation - Concepts of asymptotic theory and their application to OLS estimation, tests and covariance estimation - Maximum likelihood estimation: basic concepts and examples, asymptotic properties, likelihood-based testing, numerical procedures - Instrumental variable estimation: motivation, asymptotic properties, IV based testing - Generalized Method of Moments: basic concepts and applications
Exercise Econometric Methods	2 SWS 120 hours 25 hours Attendance 95 hours Literature study and preparation	4 credits, participation solving of 4 homework-exercises per term	- Theoretical exercise questions - Empirical examples
Final exam	60 hours Written exam (150 min) and preparation	2 credits, pass exam	
Duration	☒ 1 semester	☐ 2 semester	
Start of module	☒ winter term	☐ summer term	

Mandatory Elective Module QM: Time Series Analysis	**Study Points: 6-9**

Goals:

To gain an understanding of econometric time-series methodology
The lecture gives an introduction to time series analysis. The focus is on univariate modelling tools. We cover different types of stochastic processes like ARIMA and GARCH models, deal with the unit- root methodology and forecasting procedures. Multivariate extensions are demonstrated, with emphasis on vector autoregressive (VAR) processes and its application in causality and impulse response analyses. Nonstationary systems with integrated and cointegrated variables will also be treated.
In the tutorials the time series methods are applied to empirical data. We will intensively make use of econometric software packages.
Seminar Economic Risk: Presentation of research results in the field of Quantitative Finance

Prerequisites to participate in the module: Module „Introduction to Econometrics“ (or equivalent)

Course	Periods/ Week	SP; work load	Topics
Lecture	3	4,5; Attendance (45 h) Preparation for courses (45 h) Exam preparation (30 h)	Stochastic processes, ARIMA and GARCH models, unit-root methodology, forecasting, VAR processes, Cointegration, Causality and impulse-response analysis
Tutorial	1	1,5; Attendance (15 h) Preparation (15 h) Assignments (30 h)	Use of econometrics software and application of time series methods
Seminar Economic Risk	2	3; Attendance (30 h) Self-study (30 h) Exam preparation (30 h)	Selected Topics of Economic Risk
Module examinations		Lecture+Tutorial: Written exam (90 min) Seminar Economic Risk: Presentation (30 min) or working paper	
Duration of the module		☒ 1 Semester ☐ 2 Semesters	
Module can be started in		☒ Fall ☐ Spring Semester Semester	

<table>
<tr><td colspan="3">Mandatory Elective Module QM: Selected Topics in Econometrics</td><td>Study Points: 6</td></tr>
<tr><td colspan="4">Goals:

To understand and to learn how to apply advanced methods in certain special fields of econometrics.
The lecture(s) and/or seminar deal with specific topics in Econometrics. Topics may cover nonlinear and nonparametric time series analysis, econometric forecasting, resampling methods or Bayesian econometrics. The students will learn, for example also in tutorials, how to apply the advanced methods to empirical data. To this end we will rely on the use of econometric software.
To complete the module students may choose courses of 6 SP.</td></tr>
<tr><td colspan="4">Prerequisites to participate in the module: Module „Econometric Methods“</td></tr>
<tr><td>Course</td><td>Periods/ Week</td><td>SP; work load</td><td>Topics</td></tr>
<tr><td>Seminar/ Lecture/ Tutorial</td><td>4</td><td>6;
Attendance (60 h)
Preparation for courses (60 h)
Exam preparation (60 h)</td><td>Presentation of advanced methods in special fields of econometrics;
Use of econometric software and application of econometric methods</td></tr>
<tr><td colspan="2">Module examinations</td><td colspan="2">Seminar: Seminar paper and/or oral presentation
Lecture: Written exam (90 min if 4 periods/week or 60 min if 2 periods/week) or oral exam</td></tr>
<tr><td colspan="2">Duration of the module</td><td colspan="2">☒1Semester or ☒ 2 Semesters</td></tr>
<tr><td colspan="2">Module can be started in</td><td colspan="2">☒ Fall ☒ Spring Semester
Semester or</td></tr>
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<table>
<tr><td colspan="3">Mandatory Elective Module QM: Econometric Projects</td><td>Study Points: 6</td></tr>
<tr><td colspan="4">Goals:

To learn how to apply econometric methods for empirical analysis. During the seminar the students will conduct an own empirical study. The students learn how to apply different econometric methods to real data. This includes empirical data-handling and the ability to translate an economic model framework into an econometric model that can be estimated. Furthermore, the students learn how to present their study in written and oral form.</td></tr>
<tr><td colspan="4">Prerequisites to participate in the module: Module “Econometric Methods“ and one other complementary or compulsory course in econometrics</td></tr>
<tr><td>Course</td><td>Periods/ Week</td><td>SP; work load</td><td>Topics</td></tr>
<tr><td>Seminar</td><td>2</td><td>6;
Attendance (30 h)
Seminar paper (90 h)
Presentation (45 h)
Assignments (15 h)</td><td>Conduct own empirical analysis</td></tr>
<tr><td colspan="2">Module examinations</td><td colspan="2">Seminar paper and oral presentation</td></tr>
<tr><td colspan="2">Duration of the module</td><td colspan="2">☒ 1 Semester ☐ 2 Semesters</td></tr>
<tr><td colspan="2">Module can be started in</td><td colspan="2">☒ Fall Semester ☒ Spring Semester
Semester or</td></tr>
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Mandatory Elective Module QM: Analysis of Panel Data			**Study Points: 6**
Goals: The course aims at providing the basic concepts and methods for analysing panel data. The lecture introduces different error component regression models with fixed and random effects. It covers tests of hypotheses with panel data as well as techniques for serial correlation, heteroscedasticity, simultaneous equations, dynamic models and models for qualitative dependent variables. In the tutorials the methods are revisited and applied to empirical data.			
Prerequisites to participate in the module: Module „Econometric Methods“			
Course	Periods/ Week	SP; work load	Topics
Lecture	3	4,5; Attendance (45 h) Preparation (45 h) Exam preparation (45 h)	Basic concepts, error component regression models with fixed and random effects, tests of hypotheses with panel data, serial correlation and heteroscedasticity, simultaneous equations, dynamic models, models for qualitative dependent variables.
Tutorial	1	1,5; Attendance (15 h) Preparation (15 h) Exam preparation (15 h)	Theoretical exercise questions, application of methods to empirical data.
Module examinations		Written exam (90 min)	
Duration of the module		☒ 1 Semester ☐ 2 Semesters	
Module can be started in		☐ Fall Semester ☒ Spring Semester	

<table>
<tr><td colspan="3">Mandatory Elective Module QM: Multiple Time Series Analysis</td><td>Study Points: 6</td></tr>
<tr><td colspan="4">Goals:

To gain a deep understanding of advanced multiple time series methods and their applications.
The lecture gives an introduction to multiple time series techniques and will cover vector autoregressive (VAR) processes, VAR estimation, VAR order selection and model checking. Nonstationary systems with integrated and cointegrated variables will also be treated. The use of VAR models in forecasting, causality and impulse response analysis will be explained and illustrated using empirical examples.</td></tr>
<tr><td colspan="4">Prerequisites to participate in the module: Module „Econometric Methods“</td></tr>
<tr><td>Course</td><td>Periods/ Week</td><td>SP; work load</td><td>Topics</td></tr>
<tr><td>Lecture</td><td>4</td><td>6;
Attendance (60 h)
Preparation (30 h)
Exam preparation (45 h)
Assignments (45 h)</td><td>Vector autoregressive (VAR) processes, co integrated VAR models, forecasting, causality and impulse-response analysis</td></tr>
<tr><td colspan="2">Module examinations</td><td colspan="2">Written exam (90 min)</td></tr>
<tr><td colspan="2">Duration of the module</td><td colspan="2">☒ 1 Semester ☐ 2 Semesters</td></tr>
<tr><td colspan="2">Module can be started in</td><td colspan="2">☒ Fall Semester ☒ Spring Semester
Semester or</td></tr>
</table>

Mandatory Elective Module QM: Microeconometrics	**Study Points: 6**

Goals:

To gain a deep understanding of models and methods for qualitative and limited dependent variables and their applications.
The lecture gives an introduction to models for qualitative and limited dependent variables and will cover logit and probit models for binary dependent variables, multinomial logit and probit models for unordered and ordered categories. In addition, models for censored and truncated data and models with sample selection problems as well as models for duration and count data will be discussed. The use of these models will be explained and illustrated using empirical examples.

Prerequisites to participate in the module: Module „Introduction to Econometrics“ (or equivalent)

Course	Periods/ Week	SP; work load	Topics
Lecture	3	4,5; Attendance (45 h) Preparation (45 h) Exam preparation (45 h)	Models for limited dependent variables including logit and probit models, models for censored and truncated data, sample selection problems and models for duration and count data
Tutorial	1	1,5; Attendance (15 h) Preparation (30 h)	Solving problems and computer tutorials
Module examinations		Written exam (90 min)	
Duration of the module		☒ 1 Semester ☐ 2 Semesters	
Module can be started in		☒ Fall Semester ☒ Spring Semester Semester or	

<table>
<tr><td colspan="3">Mandatory Elective Module QM: Financial Econometrics</td><td>Study Points: 6-9</td></tr>
<tr><td colspan="4">Goals:

To gain an understanding of econometrics methods for the analysis of financial market data
The lecture deals with the statistical properties of financial market data and econometric methods that can be used to analyse these data. We will study procedures to test for the efficient market hypothesis and become familiar with methods to model the mean and the volatility of financial data series. Besides the application of nonparametric and classical test procedures, the focus will be on time series methods and models. In particular, ARMA and GARCH models will be covered.
Empirical illustrations and exercises are incorporated into the lecture.
Seminar Economic Risk: Presentation of research results in the field of Quantitative Finance</td></tr>
<tr><td colspan="4">Prerequisites to participate in the module: Module „Econometric Methods“</td></tr>
<tr><td>Course</td><td>Periods/ Week</td><td>SP; work load</td><td>Topics</td></tr>
<tr><td>Lecture</td><td>4</td><td>6; Visiting the lecture (60 h), Preparation for courses (45 h), Exam preparations (45 h) Assignments (30 h)</td><td>Basic concepts and properties of financial returns, Foundations in time series analysis, Modelling time-varying volatility, Estimating and testing asset pricing models, Modelling high-frequency financial data</td></tr>
<tr><td>Seminar

Economic Risk (QFS) (German)</td><td>2</td><td>3;
Attendance(30 h)
Preparation (30 h)
Exam preparation (30 h)</td><td>Presentation of research results in Economic Risk</td></tr>
<tr><td colspan="2">Module examinations</td><td colspan="2">Lecture: Written exam (90 min)
Seminar Economic Risk: Presentation (30 min) or working paper</td></tr>
<tr><td colspan="2">Duration of the module</td><td colspan="2">☒ 1 Semester ☐ 2 Semesters</td></tr>
<tr><td colspan="2">Module can be started in</td><td colspan="2">☒ Fall Semester ☒ Spring Semester
Semester or</td></tr>
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Mandatory Elective Module QM: Advanced Econometrics	**Study Points: 6**

Goals:

This course deals with advanced estimation techniques in modern econometrics. Main topics include generalized methods of moments (GMM) estimation for single-equation models and multiple-equation models, information theoretic approaches, pseudo-maximum likelihood methods as well as empirical likelihood techniques. Furthermore, an introduction to Bayesian econometric methods will be given. Here the focus is on fundamental principles of Bayesian inference, Markov chain Monte-Carlo (MCMC) methods as well as different applications of Bayesian inference. Finally, non- and semiparametric methods in econometrics are covered. We will study basic Kernel density estimation, nonparametric regression techniques and estimation of partially linear and additive models. A deep knowledge of the techniques conveyed in this course is extremely useful since they are applied in various areas in modern econometrics, including time series econometrics, micro econometrics, panel econometrics as well as financial econometrics.

Prerequisites to participate in the module: Module „Econometric Methods“

Course	Periods/ Week	SP; work load	Topics
Lecture	4	6 ; Attendance (60 h) Preparation (60 h) Exam preparation (60 h)	GMM estimation, multiple-equation models, pseudo-maximum likelihood and empirical likelihood methods, Bayesian inference, MCMC techniques, nonparametric regression, partially linear and additive models
Module examinations		Written exam (90 min)	
Duration of the module		☒ 1 Semester ☐ 2 Semesters	
Module can be started in		☒ Fall Semester ☒ Spring Semester Semester or	

Mandatory Elective Module Business Information Technology and Computer Science: Business Analytics and Data Science Leistungspunkte: *6*

Learning Objectives:
The module is concerned with the theories, concepts, and practices of Information Systems, emphasizing the support of managerial decision making by means of formal, data oriented methods. Students have the opportunity to develop a variety of skills, including:

- Students are familiar with the three branches of **descriptive, predictive and prescriptive analytics** and appreciate the relationships between these streams.
- Given some data, students are able to select appropriate techniques to **summarize and visualize the data** so as to maximize managerial insight.
- Students understand the **potential and also the limitations of predictive analytics** to aid decision making. They comprehend when and how business applications can benefit from predictive analytics. Given some decision task, they are able to recommend suitable prediction methods.
- Students are familiar with the fundamentals of predictive modelling. Using standard software packages, they can **develop basic and advanced prediction models and assess their accuracy** in a statistically sound manner.

Language: English

Fachliche Voraussetzungen für die Teilnahme am Modul: none

Lehrveranstaltungsart	Präsenzzeit, Workload in Stunden:	Leistungspunkte und Voraussetzung für deren Erteilung	Themen, Inhalte
Lecture Business Analytics and Data Science	2 SWS 60 Hours Contact hours: 25 h Course preparation: 35 h	2 SP, attendance	• Fundamentals of Business Analytics • Making data accessible: Tools for summarization, grouping, and visualization • The business case for predictive modeling • Prediction methods for regression and classification • Advanced data types: time series, text, survival, and network data • Fundamentals of intelligent search
Tutorial Business Analytics and Data Science	2 SWS 60 Hours Contact hours: 25 h Course preparation: 35 h	2 SP, attendance *Special working task* (only if MAP is written exam): Completion of a programming task related to business analytics including a written report (ca. 5.000 ZoL)	• Further elaboration of lecturing material. • Practical PC exercises using various software packages (e.g., Excel, Matlab, Python)
Modulabschlussprüfung	60 Hours Practical assignment: solve modeling problem using R and document solution in a written report (ca. 10.000 ZoL) *or* Written exam (60 min)		2 SP Pass written exam Business Analytics and Data Science (100%)
Dauer des Moduls	☒ 1 Semester ☐ 2 Semester		
Beginn des Moduls	☒ Wintersemester ☐ Sommersemester		

Mandatory Elective Module Business Information Technology and Computer Science: Seminar Information Systems: Leistungspunkte: *6*

Learning Objectives:

The module is concerned with recent developments and emerging technologies in the field of Information Systems. Students have the opportunity to develop the following skills:

- Students further develop their knowledge and understanding of the theories, applications, and methods of Information Systems.
- Students are able to critically appraise recent IS trends and developments using established IS theories and practices.
- Students further develop their ability to conduct scholarly research, concentrating on academic writing, information retrieval and literature analysis.

Language: english

Fachliche Voraussetzungen für die Teilnahme am Modul: none

Lehrver-anstaltungsart	Präsenzzeit Workload in Stunden	Leistungspunkte, Voraussetzung für deren Erteilung	Themen, Inhalte
Seminar Information Systems I	1.5 SWS 45 hours Contact hours: 25 h Preparation and post-processing: 20 h	1,5 LP, Attendance	Students work in groups of two to three members and prepare a seminar thesis. The thesis relates to a current topic in the scope of IS. Seminar topics vary each year and will be announced in due course before the start of the seminar. All papers will be presented and discussed in the seminar sessions.
Seminar Information Systems II	1.5 SWS 45 hours Contact hours: 25 h Preparation and post-processing: 20 h	1,5 LP, Attendance *Special working task:* seminar presentation and discussion (ca. 30 min) with preparation	
Modulabschluss-prüfung	90 Hours Seminar thesis (ca. 30.000 ZoL)	3 LP; Pass	
Dauer des Moduls	☒ 1 Semester	☐ 2 Semester	
Beginn des Moduls	☒ WS	☐ SS	

<table>
<tr><td colspan="3">Mandatory Elective Module Business Information Technology and Computer Science: IT Security & Privacy</td><td>Study Points: 6</td></tr>
<tr><td colspan="4">Learning Objectives:

The module presents an introduction to engineering and management of IT security and privacy in networked organizations. Students have the opportunity to gain knowledge and develop skills in the following areas:

▪ Security and Privacy Requirements
▪ Cryptography
▪ Network Protocols
▪ System, Network and Web Security
▪ Privacy-Enhancing Technologies
▪ Security Management</td></tr>
<tr><td colspan="4">Fachliche Voraussetzungen für die Teilnahme am Modul bzw. bestimmten Lehrveranstaltungen des Moduls: None</td></tr>
<tr><td>Lehrver-anstaltungsart</td><td>Präsenzzeit
Workload in Stunden</td><td>Leistungspunkte, Voraussetzung für deren Erteilung</td><td>Themen, Inhalte</td></tr>
<tr><td>Lecture
IT Security & Privacy</td><td>2 SWS

60 Hours
Contact hours: 25 h
Course pre-paration: 35 h</td><td>2 LP,
Attendance</td><td rowspan="2">There will be a lecture-style introduction to IT Security & Privacy.
In parallel, students work together in groups and prepare a seminar thesis. The thesis relates to a current topic or project in the scope of IT Security and Privacy.
Seminar topics vary each year and will be announced in due course before the start of the seminar.
All papers will be presented and discussed in the seminar sessions.</td></tr>
<tr><td>Seminar

IT Security & Privacy</td><td>2 SWS

60 Hours
Contact hours: 25 h
Course pre-paration: 35 h</td><td>2 LP,
Attendance</td></tr>
<tr><td>Modulabschluss-prüfung</td><td>60 Hours
Preparation of seminar thesis: 30 h
Literature retrieval and analysis: 15 h
Preparation of seminar presentation: 15 h</td><td colspan="2">2 LP;

Seminar thesis (50%), Systematic retrieval and analysis of relevant literature (25%), oral presentation (25%)</td></tr>
<tr><td>Dauer des Moduls</td><td colspan="2">☒ 1 Semester</td><td>☐ 2 Semester</td></tr>
<tr><td>Beginn des Moduls</td><td colspan="2">☒ WS</td><td>☐ SS</td></tr>
</table>

Mandatory Elective Module Business Information Technology and Computer Science: Applied Predictive Analytics	**Study Points: 6**

Learning Objectives:

The model give students an opportunity to participate in a real-world forecasting challenge related to planning problems in business areas such as marketing, finance, or others. In this scope, students have the opportunity to develop a variety of skills, including:

- Students further develop their **team work and project management** abilities through participating in a **real-world project setting**.
- Students get acquainted with contemporary **software packages for predict analytics**.
- Students are able to **develop advanced forecasting models** using a variety of techniques from statistics, machine learning, and other domains.
- Students advance their knowledge in **data integration, preparation, and transformation** which allows them to create predictive variables from noisy real-world data sets.

Language: deutsch, english

Fachliche Voraussetzungen für die Teilnahme am Modul bzw. bestimmten Lehrveranstaltungen des Moduls: Module Business Analytics & Data Science

Lehrver-anstaltungsart	Präsenzzeit Workload in Stunden	Leistungspunkte, Voraussetzung für deren Erteilung	Themen, Inhalte
Seminar Applied Predictive Analytics	2 SWS 90 Hours Contact hours: 25 h Preparation and post-processing: 15 h Model development and evaluation: 50 h	3 LP, Teilnahme	The module involves participating in a real-world forecasting competition such as the annual data mining cup, the ACM KDD cup, or a kaggle challenge. In this scope, students will experience several typical challenges that arise in real-world modeling projects, and develop the necessary skills to overcome these obstacles.
Modulabschluss-prüfung	90 Hours Preparation of written report: 45 h Preparation of seminar presentation: 45 h	3 LP; Written report (80%), presentations within the seminar (20%)	
Dauer des Moduls	☒ 1 Semester	☐ 2 Semester	
Beginn des Moduls	☐ WS	☒ SS	

Mandatory Elective Module Business Information Technology and Computer Science: Business Process Management	**Study Points: 6**

Learning Objectives:

The module is concerned with theories, concepts, methods, and practices to analyze and continuously improve business processes. Students have the opportunity to develop a variety of skills, including:

- Students understand the origins, motivations and **objectives of business process management** and are familiar with the **process management lifecycle**.
- Students appreciate the role and potential of **information and communication technology** to improve business process performance.
- Students are familiar with the basic principles of qualitative and quantitative **process analysis**.
- Students have a sound knowledge of **BPMN** and are able **to create process models** for basic and advanced business processes.
- Students acquaint themselves with methods for assessing the relative merits and demerits of **business process outsourcing**.
- Students have a basic understanding of process mining and recognize the potential and limitations of automatic process detection.

Fachliche Voraussetzungen für die Teilnahme am Modul bzw. bestimmten Lehrveranstaltungen des Moduls: none

Lehrver-anstaltungsart	Präsenzzeit Workload in Stunden	Leistungspunkte, Voraussetzung für deren Erteilung	Themen, Inhalte
Lecture Business Process Management	2 SWS 60 Hours Contact hours: 25 h Course pre-paration: 35 h	2 LP, Attendance	▪ Process management lifecycle ▪ Principles of business process modeling using BPMN ▪ Process analysis ▪ Technologies for business process automation (e.g., BPEL) ▪ Business process outsourcing ▪ Process mining
Tutorial Business Process Management	2 SWS 60 Hours Contact hours: 25 h Course pre-paration: 35 h	2 LP, Attendance	▪ Further elaboration of lecturing material ▪ Exercises from the field of BPM ▪ Solving process modeling tasks using BPMN
Modulabschluss-prüfung	60 Hours Preparation for written exam (90 min)	2 LP, Pass written exam Business Process Management	
Dauer des Moduls	☒ 1 Semester	☐ 2 Semester	
Beginn des Moduls	☐ WS	☐ SS	

Mandatory Elective Module Business Information Technology and Computer Science:: E-Business & Online Marketing	**Study Points: 6**

Learning Objectives:

The module is concerned with theories, practices and technologies in the field of E-Business and Online Marketing. Students have the opportunity to develop a variety of skills, including:

- Students appreciate the **state-of-the-art in E-Business and Online Marketing** from a theoretical and practical standpoint.
- Students familiarize themselves with core **E-Business applications** (e.g., SCM, CRM, etc.), understand their origins, and how they depend on information and communication technology. Through generalizing these links, students are able to fully appreciate the relationship between internet technologies and E-Business strategy.
- Students are aware of key **E-Business models**, understand their relative merits and demerits, and are able to judge the appropriateness of these models for specific business applications.
- Students appreciate the **internet marketing mix**, know about the different digital channels for marketing communication, and understand the concept of **multi-channel management**.
- Students are familiar with the **fundamentals of web analytics** to measure the effectiveness of online marketing initiatives.
- Students are familiar with the concept and methods of web mining and understand the role of web mining in online marketing.
- Students have a basic understanding **search engines** and their underlying **algorithms**.

Language: english

Fachliche Voraussetzungen für die Teilnahme am Modul bzw. bestimmten Lehrveranstaltungen des Moduls: none

Lehrver-anstaltungsart	Präsenzzeit Workload in Stunden	Leistungspunkte, Voraussetzung für deren Erteilung	Themen, Inhalte
Lecture E-Business & Online Marketing	2 SWS 45 hours 25 hours Attendance 20 hours Literature study and preparation	1,5 credits, participation	E-Business strategy; E-Business infrastructure; E-Business applications; Internet marketing mix; Marketing communication using digital channels; Web analytics fundamentals; Web Mining
Seminar E-Business & Online Marketing	2 SWS 75 hours 25 hours Attendance 50 hours Literature study and preparation	2,5 credits Special working task: presentation of a topic in the scope of the lecture (ca. 30 min)	Based on the content of the lecture, students prepare a presentation on current and emerging trends in E-business and online marketing and give an oral presentation.
Modulabschluss-prüfung	60 Hours Written exam (60 min) and preparation	2 credits, Pass	
Dauer des Moduls	☒ 1 Semester	☐ 2 Semester	
Beginn des Moduls	☐ WS	☒ SS	

<table>
<tr><td colspan="3">Mandatory Elective Module QM: Selected topics in the field of Quantitative Methodology</td><td>Study Points: 3-12</td></tr>
<tr><td colspan="4">Goals:

This is a module for the approval of exams successfully taken in the field of Quantitative Methodology. Courses may be from the Curriculum of other university-based Master’s programs or from other faculties of the Humboldt-University Berlin. The approval of the exam is granted by the Examinations Commission of the School of Business and Economics at the Humboldt-University Berlin after consulting the representative in charge.</td></tr>
<tr><td colspan="4">Prerequisites to participate in the module: none</td></tr>
<tr><td>Course</td><td>Periods/ Week</td><td>SP; work load</td><td>Topics</td></tr>
<tr><td>Lecture or Tutorial or Seminar</td><td>2-8</td><td>1 Period/Week generally relates to 1,5 SP or 1,5 ECTS.
The work load is partitioned, 1 SP matches 30h.</td><td>Selected Topics in Quantitative Methodology</td></tr>
<tr><td colspan="2">Module examinations</td><td colspan="2">Written exam, seminar paper and presentation, oral exam, homework assignments</td></tr>
<tr><td colspan="2">Duration of the module</td><td colspan="2">☒ 1 Semester ☐ 2 Semesters</td></tr>
<tr><td colspan="2">Module can be started in</td><td colspan="2">☒ Fall Semester ☒ Spring Semester
and/or</td></tr>
</table>

<table>
<tr><td colspan="3">Wahlpflichtmodul QM: Ausgewählte Themen der Quantitativen Methoden</td><td>Studienpunkte: 3-12</td></tr>
<tr><td colspan="4">Lern- und Qualifikationsziele:

Modul zur Anerkennung von Prüfungsleistungen im Bereich der Quantitativen Methoden, welche in anderen universitären Masterstudiengängen innerhalb oder außerhalb des Geltungsbereiches des Grundgesetzes bzw. an anderen Fakultäten der Humboldt-Universität zu Berlin erfolgreich erbracht wurden. Über die Anerkennung der Prüfungsleistungen entscheidet der Prüfungsausschuss der Wirtschaftswissenschaftlichen Fakultät der Humboldt-Universität zu Berlin nach Anhörung des jeweiligen Fachvertreters.</td></tr>
<tr><td colspan="4">Voraussetzungen für die Teilnahme am Modul: keine</td></tr>
<tr><td>Lehr- und Lernformen</td><td>Präsenz-SWS</td><td>Anzahl der SP/ Arbeitsleistungen</td><td>Lernziele, Themen, Inhalte</td></tr>
<tr><td>Vorlesung, Übung, Seminar</td><td>2-8</td><td>1 SWS entspricht in der Regel 1,5 SP sowie 1,5 ECTS. Die Arbeitsleistung ist differenziert und wird mit 30 h je SP angesetzt.</td><td>Ausgewählte Themen der Quantitativen Methoden</td></tr>
<tr><td colspan="2">Modulprüfungen</td><td colspan="2">Klausur, Seminararbeit und Präsentation, mündliche Prüfung, schriftliche Hausarbeit</td></tr>
<tr><td colspan="2">Dauer des Moduls</td><td colspan="2">☒ 1 Semester ☐ 2 Semester</td></tr>
<tr><td colspan="2">Beginn des Moduls</td><td colspan="2">☒ WS und/oder ☒ SS</td></tr>
</table>

<table>
<tr><td colspan="3">Elective Module: Variable Module for completing courses inside the economic department</td><td>Study Points: 3-12</td></tr>
<tr><td colspan="4">Goals:

Acquirement of knowledge in the fields of business administration and/or economics and/or quantitative methods.

Students may fill the difference between the points acquired in the mandatory, mandatory elective and elective modules and the total amount of 120 SP with this module. The maximum admissible amount is 12 SP.

The approvable courses for this module are courses within the Economics Department which are not part of a mandatory module and are rewarded with less than 6 SP.</td></tr>
<tr><td colspan="4">Prerequisites to participate in the module: none</td></tr>
<tr><td>Course</td><td>Periods/ Week</td><td>SP; work load</td><td>Topics</td></tr>
<tr><td>Lecture or Tutorial or Seminar</td><td>2-8</td><td>1 Period/Week generally relates to 1,5 SP or 1,5 ECTS.
The work load is partitioned, 1 SP matches 30h.</td><td>Various
(Courses at large, from other courses of studies as well)</td></tr>
<tr><td colspan="2">Module examinations</td><td colspan="2">Written exam, seminar paper and presentation, oral exam
The required examinations will be announced at the beginning of the semester.</td></tr>
<tr><td colspan="2">Duration of the module</td><td colspan="2">☒ 1 Semester ☐ 2 Semesters</td></tr>
<tr><td colspan="2">Module can be started in</td><td colspan="2">☒ Fall Semester ☒ Spring Semester
Semester or</td></tr>
</table>

<table>
<tr><td colspan="3">Wahlmodul: Variables Modul zur Ergänzung des Wahlbereiches</td><td>Studienpunkte: 3-12</td></tr>
<tr><td colspan="4">Goals:

Erwerb von Kenntnissen in Betriebs- und/oder Volkswirtschaftslehre und/oder in quantitativen Methoden.

Durch dieses Modul können Studienpunkte im Umfang der Differenz der in Pflicht-, Wahlpflicht-, bzw. Wahlmodulen erworbenen Studienpunkte zu dem Gesamtumfang von 120 Studienpunkten erworben werden. In diesem Modul sind maximal 12 SP zulässig.

In diesem Modul sind ausschließlich Lehrveranstaltungen der Wirtschaftswissenschaftlichen Fakultät enthalten, für die weniger als 6 SP vergeben werden und die nicht Bestandteil eines Pflichtmoduls sind.</td></tr>
<tr><td colspan="4">Voraussetzungen für die Teilnahme am Modul: keine</td></tr>
<tr><td>Lehr- und Lernformen</td><td>Präsenz-SWS</td><td>Anzahl der SP/ Arbeitsleistungen</td><td>Lernziele, Themen, Inhalte</td></tr>
<tr><td>Vorlesung oder Übung oder Seminar</td><td>2-8</td><td>1 SWS entspricht in der Regel 1,5 SP sowie 1,5 ECTS.
Die Arbeitsleistung ist differenziert und wird mit 30 h je SP angesetzt.</td><td>Differenziert (Lehrveranstaltungen, auch fachfremder Studiengänge)</td></tr>
<tr><td colspan="2">Modulprüfungen</td><td colspan="2">Klausur, Seminararbeit und Präsentation, mündliche Prüfung
Die relevanten Prüfungsleistungen werden spätestens zu Semesterbeginn bekannt gegeben.</td></tr>
<tr><td colspan="2">Dauer des Moduls</td><td colspan="2">☒ 1 Semester ☐ 2 Semester</td></tr>
<tr><td colspan="2">Beginn des Moduls</td><td colspan="2">☒ WS und/oder ☐ SS</td></tr>
</table>

Elective Module for courses outside of the economic department which students may select on their own initiative	Study Points: 3 - 24

Goals:

According to § 6 Abs. 2 of the study regulations students may take courses, up to a total of 24 SP, outside of the Economic Department. The goal of this is to enable students to acquire further qualifications which are either subject-specific, or are foreign to the field of economics, or are interdisciplinary, so that they may further their professional orientation.

The prerequisites for attendance and participation are to be found in the regulations of the respective departments

When considering the examinations, tests and study points, the examinations commission for the Master Program in Economics and Management Science will decide on the basis of the following criteria:

1. Only examinations, tests and study points can be taken into consideration which were acquired in the course of academic studies. Both completed modules or individual courses from modules may be taken, in as much as the regulations of the respective course of studies allow this. In particular, academic achievements, examinations and study points for language courses, sports courses and courses taken at the Career Centre, as well as study points for courses which were not acquired within a degree programme cannot be taken into account.

2. Only those study points from courses which were successfully completed with coursework or an examination can be taken into consideration. Those courses for which the student received study points only on the basis of attendance cannot be taken into consideration.

3. Only examinations, tests and study points, can be taken into consideration, which are documented by a Transcript of Records or by a certificate of achievement. The certificate verifying this must contain the following information:

    - Title and form of the course or courses
    - Level of these courses (Master, diploma - main studies, Ph.D. program)
    - Form of the coursework done in the course and/or of the examinations
    - Grade
    - SP or ECTS-points (if in the regulations or stipulations of the respective course of studies nothing is said regarding SP or ECTS-points, then alternately proof of the semester week hours will suffice).

4. Those study points which were acquired in one and the same course, cannot be divided among different modules.

5. Examinations, tests and study points which were acquired outside of the Humboldt University, will be accredited according to the stipulations of the ASSP. In addition, numbers 1 – 4 (see above) still apply. Those examinations, tests and study points which were acquired in courses, the basic and essential content of which were already successfully completed in courses taken at the Economics Department cannot be taken into consideration.

Module examinations	The examination regulations of the other departments apply in regard to the examinations.

Außerhalb der Wirtschaftswissenschaftlichen Fakultät frei wählbare Lehrveranstaltungen	Studienpunkte: 3 - 24

Lern- und Qualifikationsziele:

Gemäß § 6 Abs. 2 Studienordnung können im Umfang bis zu 24 SP auch außerhalb der Wirtschaftswissenschaftlichen Fakultät Lehrveranstaltungen frei gewählt werden. Ziel ist es, fachspezifische, fachfremde oder fächerübergreifende Qualifikationen im Hinblick auf die weitere berufliche Orientierung zu erwerben.

Voraussetzungen für die Teilnahme: gemäß Bestimmungen der jeweiligen Fächer

Über die Berücksichtigung der Studienleistungen, Prüfungen und SP entscheidet der Prüfungsausschuss Economics and Management Science nach folgenden Maßgaben:

Berücksichtigt werden Studienleistungen, Prüfungen und SP, die in Studiengängen erworben wurden. Es können ganze Module oder einzelne Lehrveranstaltungen aus Modulen belegt werden, sofern die Bestimmungen des jeweiligen Studienganges dies zulassen. Nicht berücksichtigungsfähig sind insbesondere Studienleistungen, Prüfungen und SP aus Sprachkursen, Sportkursen und Kursen des Career Centers sowie aus Kursen, die nicht in Studiengängen erworben wurden.

Berücksichtigt werden nur SP aus Lehrveranstaltungen, die mit einer Arbeitsleistung oder Prüfung abgeschlossen wurden. Nicht berücksichtigt werden SP, die ausschließlich für die Anwesenheit in Lehrveranstaltungen erworben wurden.

Berücksichtigt werden nur Studienleistungen, Prüfungen und SP, die in einem Transcript of Records bzw. Leistungsnachweis dokumentiert wurden. Der Nachweis muss folgende Angaben enthalten:

Titel und Art der Lehrveranstaltung(en)
Studienniveau (Master, Diplom Hauptstudium, Doktorandenprogramme)
Form der Arbeits- und/oder Prüfungsleistung(en)
Note
SP bzw. ECTS-Punkte (falls in den Bestimmungen des jeweiligen Studienganges keine SP oder ECTS-Punkte ausgewiesen sind, alternativ Nachweis der Semesterwochenstunden).

4. Bei der Berücksichtigung sind SP, die in ein und derselben Lehrveranstaltung erworben wurden, nicht auf mehrere Module aufteilbar.

5. Studienleistungen, Prüfungen und SP, die außerhalb der Humboldt-Universität zu Berlin erworben wurden, werden nach Maßgabe der ASSP anerkannt. Ergänzend gelten die Ziffern 1 bis 4. Nicht berücksichtigt werden Studienleistungen, Prüfungsleistungen und SP aus Lehrveranstaltungen, deren Inhalte im Wesentlichen bereits erfolgreich an der Wirtschaftswissenschaftlichen Fakultät absolviert wurden.

Modulprüfungen	Für die Prüfungen gelten die Prüfungsbestimmungen der anderen Fächer.

Master's Thesis	**Study Points: 18**

Competency targets:

At the end of their studies, students will be able, as a result of their coursework, both basic and advanced, to plan and conduct research, and to write up this research in an academic text. In their thesis students will demonstrate that they are aware of and able to use the most important theories and methods within their chosen field, and to apply them to the topic being investigated.
In the course of conducting their research and in writing their Master's thesis, students will demonstrate that they are able to think both subject-specific and interdisciplinary and that they are able to find, to apply and to use the appropriate scientific methods for solving problems.
Students will make use of internal and external resources.
In the course of writing the thesis, students will expand and deepen their individually acquired profiles.
Students will demonstrate their ability to apply various perspectives and techniques of analysis to a concrete problem or question and to implement these in a sustained academic text.
Students prove with the completion of the Master's Thesis that they have successfully completed the Master program Economics and Management Science (MEMS). They demonstrate that they have a solid command of the content, the self-understanding and the methodology of their chosen subjects.

Prerequisite to qualify to write the Master's Thesis: Successful completion of two mandatory modules

Master's thesis	A written paper of approximately 200,000 characters, that is approximately 80 pages
Length of time	3 Months after the topic is approved
Beginning of the module	☐ WS ☒ SS