Study Schedule

Economics and Finance, M.Sc.

HOCHSCHULE RHEIN-WAAL
Rhine-Waal University of Applied Sciences

Stand: 09.05.2025

Table of Contents

1. Information About Study Programme

The degree programme **Economics and Finance, M.Sc.** at Rhine-Waal University of Applied Sciences is aimed at students who want to learn methods, applications and models of economics and finance as well as the analysis of international financial markets and related topics in a practical and internationally oriented study environment. The course has a strong interdisciplinary focus and enables graduates to analyse issues relating to national or international competitive and financial markets from economic policy and institutional economics perspectives.

The special features of the degree programme lie in

- the close link between economics and business administration in the field of finance,
- the teaching of applied research methods such as game theory experiments, behavioural economic analyses and empirical market analyses in a very well-equipped laboratory environment, supported by extensive software packages,
- the language skills: as an English-language degree programme, students acquire fluent Business English skills including the relevant specialist terminology,
- the broad teaching methodology which places a strong focus on project and group work and formats with greater individual responsibility in addition to traditional knowledge transfer in lectures and accompanying exercises.

The study programme has a curriculum with a sensible structure in terms of content and didactics. The focus in the winter term is on more basic economics subjects, while in the summer term the emphasis is on a stronger application focus in the "Research in Economics and Finance" module, which is dedicated to the design of a research project and prepares students for their final thesis.

Methodological subjects and modules that prepare students for academic work are offered in every semester due to their high relevance and in order to shorten the study duration. When designing the degree programme, emphasis was deliberately placed on the ability to think formally and analytically and on a strong theoretical and research focus that relates to specific practical issues.

As a result, economic and social issues are firmly anchored in the law and economics courses. For example, students are confronted with conflicts between profit-maximising behaviour and potentially negative macroeconomic effects in the subjects of industrial and competition economics as well as competition law. Analysing the macroeconomic consequences of entrepreneurial action on goods markets as well as on financial markets sensitises students to the necessity of value-oriented action. As a consecutive course of study, the Master's programme builds on the foundations of a (Bachelor's) degree in economics and serves to broaden and deepen knowledge with a specialisation in the areas of finance and economics.

Graduates of this Master's programme will be able to work in professional fields related to finance, financing and the analysis of international financial markets. These include, in particular, strategy and corporate development, regulatory departments, management consultancies, expert commissions, investment and commercial banks as well as national and international public institutions.

2. Study Programme

2.1 Recommended Study Plan

SEMESTER 1	Advanced Microeconomics and Managerial Economics	Industrial Organisation	Advanced Public Finance	International Economics and Sustainable Development	Econometrics	Theoretical and Applied Quantitative Methods
SEMESTER 2	Banking and Risk Theory	Applied Corporate Finance	Research in Economics and Finance		Elective Module 1	Elective Module 2
SEMESTER 3	Current Topics in Economics and Finance	Master‘s Thesis				Colloquium

Finance	Economics	Research Methods

No.	Modules	CH	V	S	Ü	Pra	Pro	Ex	CP	CH WT	CH ST	CH WT/ST
M-EF 1 7021	Advanced Microeconomics and Managerial Economics	4	3		1			P	5	4		
M-EF 1 7022	Industrial Organisation	4	3		1			P	5	4		
M-EF 1 7002	Advanced Public Finance	4	2		2			P	5	4		
M-EF 1 7006	International Economics and Sustainable Development	4	2	2				P	5	4		
M-EF 1 7004	Econometrics	4	2		2			P	5			4
M-EF 1 7023	Theoretical and Applied Quantitative Methods	4	2		1	1		P	5			4
M-EF 2 7003	Banking and Risk Theory	4	2		2			P	5		4	
M-EF 2 7007	Applied Corporate Finance	4	2		2			P	5		4	
M-EF 2 7008	Research in Economics and Finance	6		2			4	P	10			6
	Elective Subjects	8	8					P	10	4	4	
M-EF 1 7010	Tax Impact on Financial Decision Making	4						P	5			
M-EF 1 7011	Applied Game Theory and Auctions	4						P	5			
M-EF 1 7012	Incentive Based Regulatory Economics	4						P	5			
M-EF 1 7024	Business Valuation	4						P	5			
M-EF 1 7025	Artificial Intelligence: Reshaping Finance, Economy and Society	4						P	5			
M-EF 2 7014	Economic Analysis of Accounting	4						P	5			
M-EF 2 7026	Financial Markets and Institutions	4						P	5			
M-EF 2 7027	Institutional and Organisational Economics	4						P	5			
M-EF 2 7017	Innovation Management and Investment in Emerging Technologies	4						P	5			
M-EF 2 2028	Behavioural Economics und Mechanism Design	4						P	5			
M-EF 3 7020	Current Topics in Economics and Finance	4		2		1	1	P	5			4
M-EF 3 7121	Master Thesis							P	22			
M-EF 3 7122	Colloquium							P	3			
Total		50	26	6	11	2	5		90	20	12	18

Abbreviations: CH = Contact Hours; V = Lecture; S = Seminar; Ü = Exercise; Pra = Practice, Pro = Project; P = Examination; T = Certificate; CP = Credit Points; WT = Winter Term; ST = Summer Term.

2.2 Description of Modules

Module M-EF 1 7021: Advanced Microeconomics and Managerial Economics

Classification	Study Semester	Offered	Equivalent	Language	Responsible Professor
Required Module	1	Winter Term	-	English	Prof. Dr. Hasan Alkas

Size of Group	Workload	Contact Hours	Self-Study	Credit Points
50	150 h	60 h	90 h	5

Formal Prerequisites	Recommended Prerequisites	Further Information
-	Microeconomics and basic statistics at bachelor level	-

Learning Outcomes

Upon successful completion of this module, students will be able to:

- Outline and identify foundational terminologies and concepts inherent to managerial theory and Microeconomics by providing mechanisms to create incentive situations.
- Describe the significance of theory and tools to formulate strategic economic situations. The module develops an understanding of key aspects of managerial economics and advanced microeconomics.
- Understand the linkages between several economic theories and the managerial decision-making process.
- Use tools needed to make strategic decisions under risk as well as uncertainty.
- Use microeconomic concepts and tools in the process of problem solving and decision making inside and outside the firm.
- Transfer their knowledge to practical topics by applying cases from different areas.

Content

- Advanced Microeconomics and its theoretical and mathematical foundation.
- Managerial Economics is concerned with the application of economic tools and concepts to managerial and administrative decision-making. The course discusses and applies advanced microeconomic principles and tools to managerial decision problems.
- Emphasis will be placed on decision making under information asymmetry within the firm as well as on strategic decisions towards players outside the firm.
- The focus will be on transactions between firms, such the role of pricing, bundling and switching costs for competition and inside the firm by elaborating such as on internal allocation mechanisms and incentive problems among divisions.

Requirements for the Awarding of Credit Points	Possible Examination	Significance of Mark
Examination	Written exam, oral exam, assignment or any combination	5 %

Module M-EF 1 7022: Industrial Organisation

Classification	Study Semester	Offered	Equivalent	Language	Responsible Professor
Required Module	1	Winter Term	-	English	Prof. Dr. Jörn Sickmann

Size of Group	Workload	Contact Hours	Self-Study	Credit Points
50	150 h	60 h	90 h	5

Formal Prerequisites	Recommended Prerequisites	Further Information
-	-	-

Learning Outcomes

Upon successful completion of the module, students will be able to:

- Demonstrate knowledge and understanding of advanced concepts of industrial organization and recent developments in this discipline.
- Use microeconomic and game theoretical concepts to analyse markets and to understand strategic decision-making of firms within these markets.
- Apply these concepts to analyse structure, conduct and performance of real-world industries; evaluate the results critically; and recognize limitations of the different theoretical approaches.
- Learn how to analyse digital markets considering aspects such as network effects and two-sided market theory.
- Transfer theoretical knowledge to practical situations in industrial organisation.
- Understand how industrial organization can help in business decision making.
- Inform policy makers in the fields of competition policy and regulation.

The course helps students understand market structures, business strategies, competition, and regulatory policies, enabling them to analyze and make informed economic and managerial decisions.

Content

The focus of the course lies on the analysis of competitive processes in markets which differ from the idealized textbook forms of "pure monopoly" and "perfect competition". This includes a very wide range of both “traditional” industries (e.g. energy, transport, telecoms) and “modern” industries (e.g. internet platform industries such as online market places and social networks). Among others, the following topics are covered:

- Critical reflection on the traditional Structure, Conduct, and Performance Paradigm of Harvard and its managerial application (Porter`s 5 forces)
- Analysis of market structure (market definition, concentration measures, definitions of market entry barriers, Lerner index etc.)
- Non-cooperative behaviour (e.g. Cournot, Betrand and Stackelberg models, anticompetitive pricing and non-pricing strategies)
- Cooperative strategies (collusion, cartelization, mergers)
- Different forms of price differentiation
- Network effects and two-sided markets
- Innovation, Research & Development
- Industrial Organization as the basis for Competition policy and regulation

Requirements for the Awarding of Credit Points	Possible Examination	Significance of Mark
Examination	Written exam, oral exam, assignment or any combination	5 %

Module M-EF 1 7002: Advanced Public Finance

Classification	Study Semester	Offered	Equivalent	Language	Responsible Professor
Required Module	1	Winter Term	-	English	Prof. Dr. Gregor van der Beek

Size of Group	Workload	Contact Hours	Self-Study	Credit Points
50	150 h	60 h	90 h	5

Formal Prerequisites	Recommended Prerequisites	Further Information
-	-	-

Learning Outcomes

Upon successful completion of the module, students will be able to:

- Describe and summarize the public expenditure and the public revenues in industrialized and developing countries, with a special focus on Germany in order to understand their economic impact.
- Analyze public finances in an international setting and interpret the decision making process of the public budget.to envision the future of international commerce.
- Critically examine and reflect government expenditure and public revenue policies in order to estimate their incentive effects.
- Apply theories of and approaches to public expenditure and public revenues to a variety of policy fields in national and international scenarios in order to formulate rational strategies for balanced and sustainable fiscal systems.

Content

- A brief step-by-step review of the key economic principles necessary for an understanding of public finance concepts
- Government expenditure in industrialized and developing countries
- Public revenues in industrialized and developing countries
- The positive and normative economic approach to government budgets especially to taxes and public debt
- Critical discussions of fiscal government programs
- Selected public re-distribution policies
- Discussion of the role, rationale, objectives, and consequences of government intervention into the economic and social system

Requirements for the Awarding of Credit Points	Possible Examination	Significance of Mark
Examination	Written exam, oral exam, assignment or any combination	5 %

Module M-EF 1 7006: International Economics and Sustainable Development

Classification	Study Semester	Offered	Equivalent	Language	Responsible Professor
Required Module	1	Winter Term	-	English	Prof. Dr. Corinne Lohre

Size of Group	Workload	Contact Hours	Self-Study	Credit Points
50	150 h	60 h	90 h	5

Formal Prerequisites	Recommended Prerequisites	Further Information
-	Bachelor courses in microeconomics and macroeconomics	-

Learning Outcomes

Upon successful completion of the module, students will be able to:

- Analyze the effects of international trade by using different theoretical perspectives.
- Explain and evaluate the consequences of different trade policy measures by applying economic concepts.
- Discuss sustainable development by analysing measures and means in selected policy area.

This will equip students with the micro- and macroeconomic tools and understanding to reflect international economic issues critically and to evaluate economic policy proposals in the context of sustainable development.

Content

- Analyses of driving forces of economic integration and the effects of international trade on national economies (trade theory)
- Analyses of different trade policy instruments and the respective arguments in favor of protectionism (trade policy)
- Analyses of motivations for and effects of international trade agreements
- Discussion of economic globalization specifically with regard to the relation between international (economic) interdependence and sustainable development
- Introduction to sustainability concepts, general strategies and the Sustainable Development Goals (SDGs)
- Analyses of strategies, policies and measures to implement the SDGs (case studies)

Requirements for the Awarding of Credit Points	Possible Examination	Significance of Mark
Examination	Written exam, assignment or any combination	5 %

Module M-EF 1 7004: Econometrics

Classification	Study Semester	Offered	Equivalent	Language	Responsible Professor
Required Module	1	Winter Term + Summer Term	-	English	Prof. Dr. Gernot Müller

Size of Group	Workload	Contact Hours	Self-Study	Credit Points
50	150 h	60 h	90 h	5

Formal Prerequisites	Recommended Prerequisites	Further Information
-	Bachelor courses in mathematics and statistics	-

Learning Outcomes

Upon successful completion of the module, students will be able to:

- Know, understand, select and use econometric concepts and methodologies commonly deployed in quantitative economics and finance.
- Assess the strengths and weaknesses of these tools, and to apply them to real-life problems chosen from economics, business and finance.
- Implement econometric analyses in their research projects and theses with the help of the software expertise to be acquired in the course “Experimental and Statistics Software” (M-EF 1 70232).

The module will familiarize students with econometric tools and techniques relevant for doing quantitative research in the fields of micro- and macroeconomics, business management and corporate finance.

Content

- Systematization of econometrics, definitions and technical terms, econometric models, literature and software
- Simple and multiple univariate regression
- Multivariate regression approaches
- Estimation techniques; structural, OLS and significance tests; regression quality indicators
- Selected univariate time series, forecasting and panel data models
- Modelling of volatility and correlation
- Switching models
- Introduction to simulation techniques

Requirements for the Awarding of Credit Points	Possible Examination	Significance of Mark
Examination	Written exam	5 %

Module M-EF 1 7023: Theoretical and Applied Quantitative Methods

Classification	Study Semester	Offered	Equivalent	Language	Responsible Professor
Required Module	1	Winter Term + Summer Term	-	English	Prof. Dr. Ralf Bauer

Size of Group	Workload	Contact Hours	Self-Study	Credit Points
50	150 h	60 h	90 h	5

Formal Prerequisites	Recommended Prerequisites	Further Information
-	-	-

Learning Outcomes

Upon successful completion of the module, students will be able to:

- Calculate momentums of statistics to analyse random situations and to valuate portfolios of risky assets.
- Understand normal distributed probability functions to argue risk positions caused by financial instruments.
- Apply no arbitrage condition to valuate financial instruments.
- Differ and to valuate the risk positions of financial contracts to determine profitable pricing of financial contracts.
- Valuate new financial instruments via duplication or hedging portfolios by their skills of financial engineering.
- Open a dataset in R, perform basic data preparation, and apply basic statistics in R.
- Design and execute a basic economic experiment using experimental software.

Content

Financial Mathematics:

- Basics of Probability Theory
- Normal Distribution
- Valuation of Bonds (riskless)
- Risk calculation of loans
- Valuation of FX forwards
- Valuation of Floating Rate Notes
- Valuation of plain vanilla Interest Swaps
- Valuation of European style options via binomial model

Experimental and Statistics Software:

- Introduction & Basics
- Dataset & Normal Distribution
- Descriptive Statistic
- Hypothesis Testing
- Linear Regression

Requirements for the Awarding of Credit Points	Possible Examination	Significance of Mark
Examination	Written exam	5 %

Module M-EF 1 7010: Tax Impact on Financial Decision Making

Classification	Study Semester	Offered	Equivalent	Language	Responsible Professor
Elective Module	1	Winter Term	-	English	Prof. Dr. Thomas-Patrick Schmidt

Size of Group	Workload	Contact Hours	Self-Study	Credit Points
up to 25	150 h	60 h	90 h	5

Formal Prerequisites	Recommended Prerequisites	Further Information
-	-	-

Learning Outcomes

Upon successful completion of the module, students will be able to:

- Integrate taxation into general decision settings.
- Identify and quantify key tax effect within investment settings.
- Evaluate the profitability of investments under consideration of taxation.
- Recognize the role of legal form, loss offset rules, and financing choices in tax considerations.
- Analyze how legal entities are taxed without focusing on a single country's tax law.
- Assess the influence of taxation on investment profitability.
- Provide recommendations on the feasibility of investment projects.

This course equips students with the skills to analyze investment projects and provide feasibility recommendations, which is particularly important for finance and accounting professionals.

Content

Introduction to Investment Decision Making

- Introduction to Tax Planning
- Principles of Investment Decisions
- Integrating Taxation into Investment Decision Making
- Integrating Income Taxes into Finance
- Tax Facts
- Neutral Income Tax Systems
- Introduction to Business Taxation
- Extensions of the Standard Model
- Standard Model of Business Valuation
- Taxation and Financing Decisions

Requirements for the Awarding of Credit Points	Possible Examination	Significance of Mark
Examination	Written exam, assignment, or any combination	5 %

Module M-EF 1 7011: Applied Game Theory and Auctions

Classification	Study Semester	Offer	Equivalent	Language	Responsible Professor
Elective Module	1	Winter Term	-	English	Prof. Dr. Hasan Alkas

Size of Group	Workload	Contact Hours	Self-Study	Credit Points
up to 25	150 h	60 h	90 h	5

Formal Prerequisites	Recommended Prerequisites	Further Information
-	-	-

Learning Outcomes*

Upon successful completion of the module, students will be able to:

- Use the methods necessary to analyse economic situations and to understand the linkages between individual decision-making and multi-person interactions. The focus will be on the design, presentation and simulation of various games and auctions in the classroom.
- Apply and assess the taught theoretical game concepts in order to make decisions and develop the best response strategies.
- Evaluate auction designs and the optimal bidding strategy associated with different types of auctions, and thereby apply mechanism design and the revelation principle to find out the optimal auction type.
- Use the revenue equivalence theory to assess the differences between forms of auctions that will be applied to different risk types.

This knowledge equips students with key analytical and strategic skills for real-world decision-making in competitive and interactive environments.

Content

The interdependence of individual decisions will be analysed in a theoretical game framework. Relevant concepts and methods to solve non-cooperative games will be discussed and applied to practical economic and business situations. Main topics to be covered include:

- Types and structures of games
- Strategies and various types of equilibria
- Sequential and simultaneous games
- Extensive-form games
- Parallel and sequential auction types and their simulations
- Mechanism design
- Optimal bidding strategy
- Revelation principle
- Revenue equivalence

Relevant intermediate and advanced level microeconomic concepts will be presented and explained throughout the course. The theory of individual decision-making with particular reference to situations with asymmetrical information and risk will be analysed and applied.

Requirements for the Awarding of Credit Points	Possible Examination	Significance of Mark
Examination	Written exam, assignment, or any combination	5 %

Module M-EF 1 7012: Incentive Based Regulatory Economics

Classification	Study Semester	Offer	Equivalent	Language	Responsible Professor
Elective Module	1	Winter Term	-	English	Prof. Dr. Hasan Alkas

Size of Group	Workload	Contact Hours	Self-Study	Credit Points
up to 25	150 h	60 h	90 h	5

Formal Prerequisites	Recommended Prerequisites	Further Information
-	-	-

Learning Outcomes*

Upon successful completion of the module, students will be able to:

- Better understand the ways in which governments and public authorities intervene in regulated markets.
- Assess regulatory measures and remedies and their impact on the sectors.
- Apply concepts from competition and regulation theory, notably methods associated with regulatory cases at EU level. The focus will be on incentive-based regulation mechanisms.
- Discuss and analyse practical regulation cases under the supervision of the professor and demonstrate that they are able to structure, analyse and apply their knowledge to real cases from network industries by applying simulations such as on co-investment.
- Use and combine the basic methods of regulatory and competition economics and apply them to concrete cases, by designing simulations in the class.
- Understand and predict the economics of regulation and antitrust.
- Demonstrate familiarity with political, legal, and historical aspects and apply industry-specific knowledge, such as insights into network sectors.

Students will be well-equipped to navigate complex regulatory environments, contribute to policy discussions, and make informed decisions in industries where regulation plays a critical role.

Content

- Principles of ex ante and ex post regulation, especially in network industries
- Relationship between supranational and national independent regulatory authorities on one hand and ministries on the other
- Assessment of the changing shift of regulation towards digital dominance and the role of data using case studies.
- Various remedies available to policy makers and national supervisory authorities in relation to the design and structure of national and supranational regulatory institutions and frameworks.
- Critical view on current regulatory developments with the aim to identify the most appropriate regulatory policies and discuss ways to integrate regulatory and industrial policy at EU level.
- The following topics will be assessed and appropriate concepts and methods for their analysis will be selected and applied:
  - Introduction to the theory of regulation and incentive-based structures
  - Institutional setting of regulation in the EU
  - Market entry and replicability in imperfect markets
  - Network effects and dominance
  - Anticompetitive strategies of incumbents
  - Dynamic and static effects of competition in regulated markets
  - Symetric and Asymmetric wholesale obligations
  - Cost concepts, Cost-based regulation vs. incentive regulation
  - Price regulation and margin squeeze tests
  - Digital dominance and the role of data
  - Incentives related to the sunset clause and the investment ladder
  - Risk-sharing and its relevance for infrastructure investments

Requirements for the Awarding of Credit Points	Possible Examination	Significance of Mark
Examination	Written exam, assignment or any combination	5 %

Module M-EF 1 7024: Business Valuation

Classification	Study Semester	Offered	Equivalent	Language	Responsible Professor
Required Module	1	Winter Term	-	English	Prof. Dr. Philipp Schorn

Size of Group	Workload	Contact Hours	Self-Study	Credit Points
50	150 h	60 h	90 h	5

Formal Prerequisites	Recommended Prerequisites	Further Information
-	Knowledge in bookkeeping and Datev	-

Learning Outcomes

Upon successful completion of the module, students will be able to:

- Understand different tools and models to perform a business valuation.
- Apply key equity valuation methods to perform stock valuations.
- Extract key information from financial statements and assess the limits of financial reports for valuation purposes.
- Critically evaluate different valuation tools and identify the limits of different valuation models.
- Improve the credibility of valuations by using a professional and transparent approach.

Content

The module includes the following topics:

- The concept of value
- Strategy and value creation
- Market-based models to valuation
- Financial statement analysis
- Cash-flow-based and earnings-based models of valuation
- Forecasting of cash-flows and earnings
- Determination of discount rates
- Valuation of private firms

Requirements for the Awarding of Credit Points	Possible Examination	Significance of Mark
Examination	Written exam, oral exam, assignment or any combination	5%

Module M-EF 1 7025: Artificial Intelligence: Reshaping Finance, Economy and Society

Classification	Study Semester	Offered	Equivalent	Language	Responsible Professor
Required Module	1	Winter Term	-	English	Prof. Dr. Ulrich Pfeiffer

Size of Group	Workload	Contact Hours	Self-Study	Credit Points
up to 25	150 h	60 h	90 h	5

Formal Prerequisites	Recommended Prerequisites	Further Information
-	-	-

Learning Outcomes

Upon successful completion of the module, students will be able to:

- Trace the evolution of digital transformation by studying historical and current economic data, in order to forecast future economic shifts.
- Distinguish digital business models by dissecting their structures and revenue streams, in order to understand their economic impact.
- Analyse the integration of AI in finance by understanding AI-powered technology, in order to anticipate trends in the financial sector.
- Examine the influence of digitalisation on global trade by analysing trade data and digital platforms to envision the future of international commerce.
- Construct AI-enhanced investment approaches by grasping AI algorithms and financial models, in order to optimize investment outcomes.
- Evaluate the implications of digital currencies by studying blockchain technology and financial regulations, in order to predict their long-term impact on global finance.
- Utilize contemporary digital tools by practicing their application, in order to enhance their professional efficiency and adaptability.
- Maintain ethical standards when deploying AI in finance by recognizing potential pitfalls and ethical concerns to ensure responsible decision-making.
- Appraise AI's impact on global economies and societies by grasping its widespread influence, in order to formulate strategies for balanced AI integration and sustainable growth.

Content

The module provides a comprehensive look into the digital business world. It enables future tax professionals to grasp the intricacies of digital business models, transformative technologies, and the societal challenges they bring – all essential for the modern tax landscape.

- Global impact of digital transformation: An exploration of how digitalisation has reshaped global economies and societies.
- Digital markets and business models: An overview of digital business models based on an understanding of platform economics, customer centricity and digital strategies.
- AI and automation in the financial sector: Delving into how AI and automation technologies such as predictive analytics and robo-advisors are redefining financial services, from banking to asset management.
- Global trade in the digital era: The impact of digital platforms and technologies on global trade dynamics, supply chains, and international economic relations.
- AI-driven investment and trading strategies: AI-powered algorithms and tools shaping modern investment strategies, trading, and risk management.
- Digital currencies and the blockchain: The rise of digital currencies, blockchain technologies, and their potential disruption of traditional financial systems.
- Ethical usage of AI in finance: The moral dimensions of employing AI in finance, considering issues like transparency, bias, and data security.
- Economic and societal challenges: The multifaceted impact of AI and emergent technologies on economies and societies worldwide from disruptive innovations to job displacements, societal norms and the digital divide.

Requirements for the Awarding of Credit Points	Possible Examination	Significance of Mark
Examination	Written exam, assignment or any combination	5 %

Module M-EF 2 7003: Banking and Risk Theory

Classification	Study Semester	Offered	Equivalent	Language	Responsible Professor
Required Module	2	Summer Term	-	English	Prof. Dr. Ralf Bauer

Size of Group	Workload	Contact Hours	Self-Study	Credit Points
50	150 h	90 h	60 h	5

Formal Prerequisites	Recommended Prerequisites	Further Information
none	M-EF 1 7006: Theoretical and Applied Quantitative Methods	

Learning Outcomes

Upon successful completion of the module, students will be able to:

- Apply their knowledge about basics of portfolio theory and banks to understand the importance of banks and portfolio management.
- Apply presented models of portfolio return for the analysis part of an upcoming master's thesis.
- Explain important bank product and to analyse their impact on liquidity and risk position of a bank to understand proper management of banks being profitable.
- Understand the importance of bank regulation for the stability and functioning of financial markets.
- Understand the separation of fund managers' and investors' decisions to find their optimal portfolio.

Content

The lecture comprises two parts:

(Commercial) Banking

- Basics about banks
- Theoretical fundamentals of loans (model of Diamond)
- Deposit business of banks
- Loan business of banks
- Risk measurement and management for good decision making
- Bank regulation
- Portfolio and Risk Theory

Portfolio and Risk Theory

- Fundamentals of portfolio theory: asset classes and return, risk, and diversification
- The concept of "no arbitrage" for financial instrument valuation
- Asset allocation, performance measurement and management
- Minimum variance portfolio
- General portfolio theory and separation by Markowitz
- Capital Asset Pricing Model (CAPM)
- Single Index Model and Arbitrage Pricing Theory (APT)

Requirements for the Awarding of Credit Points	Possible Examination	Significance of Mark
Examination	Written exam	5 %

Module M-EF 2 7007: Applied Corporate Finance

Classification	Study Semester	Offered	Equivalent	Language	Responsible Professor
Required Module	2	Summer Term	-	English	Prof. Dr. Ute Merbecks

Size of Group	Workload	Contact Hours	Self-Study	Credit Points
50	150 h	60 h	90 h	5

Formal Prerequisites	Recommended Prerequisites	Further Information
-	-	-

Learning Outcomes

Upon successful completion of the module, students will be able to evaluate real financial instruments and to verify financial contracts without any cognitive effort. As a prerequisite students will:

- Analyze financial metrics and evaluate financial effects of business transactions.
- Describe financial instruments and explain different types of financing concepts (internal financing, equity financing and debt financing).
- Assess and compare different valuation techniques for financial decision making in models (certainty/uncertainty).
- Evaluate the assumptions of valuation models by understanding the limitations of each approach discussed.
- Explain the limitations of valuation models and interpret the main types of financial risks and of risk management tools.
- Combine different valuation techniques successfully and without any cognitive effort.
- Apply the valuation procedure quickly and consciously without cognitive effort, supported by numerous examples, exercises, and case studies.
- Reconcile disparate elements of valuation techniques to develop a comprehensive understanding of their application.
- Appraise financing decisions by using different valuation techniques.

The interpretation of financial valuation concepts is used in companies to develop a finance strategy and to enhance the performance of the company. Moreover, based on the module students will be able to explain the design of financial contracts to different stakeholders in financial markets.

Content

- Introduction to Corporate Finance
- Definitions and Financial Metrics, Types of Financing, Financial Statement Analysis
- Financial valuation and Decisions Rules:
- Basic Financial Calculations
- Project Valuation under Certainty: Basic Assumptions, Future and Net Present Value, Equivalent Annuity and Payback Period, Internal Rate of Return
- Project Valuation under Uncertainty: Risk Analysis, Sensitivity Analysis, Decision Trees, Analysis of Portfolio Risks, Decision Rules
- Financial Risks: Overview, Information Risks, Agency Risks, Bankruptcy Risks
- Internal Financing: Overview, Financial Instruments
- Equity Financing: Overview, Stock Basics, Equity Valuation
- Debt Financing: Overview, Financial Instruments, Credit Risks

Requirements for the Awarding of Credit Points	Possible Examination	Significance of Mark
Examination	Written exam, oral exam, assignment or any combination	5 %

Module M-EF 2 7008: Research in Economics and Finance

Classification	Study Semester	Offered	Equivalent	Language	Responsible Professor
Required Module	2	Winter Term + Summer Term	-	English	Prof. Dr. Jörn Sickmann

Size of Group	Workload	Contact Hours	Self-Study	Credit Points
50	150 h	90 h	60 h	10

Formal Prerequisites	Recommended Prerequisites	Further Information
-	-	-

Learning Outcomes

Upon successful completion of the module, students will be able to:

- Design and produce a research proposal based on individual research and feedback from supervisors.
- Investigate and critically review relevant literature on a research topic in the fields of economics and finance to establish the need for further research and to summarise the findings and key aspects of the proposed research.
- Apply key methodological skills relevant for conducting and presenting a research project to carry out independently a group piece of work that includes primary and/or secondary research.

This will equip students with the essential tools to conduct rigorous, independent research, critically analyze existing knowledge, and generate meaningful insights that address real-world challenges in economics and finance.

Content

- Fundamental techniques involved in the research process, including:
  - Bibliographic searching
  - Scientific writing skills for research purposes
  - Data collection and data analysis
  - Generating primary data via surveys, vignette studies and economic experiments

Students then independently work in a group on their own research topics, formulated by teachers, in the fields of economics and finance.

During the course the relevant steps in conducting and presenting own research projects are discussed. This includes:

- Planning research activities, defining a research topic and structuring a research proposal
- Composing research problems, questions and objectives
- Drawing up a conceptual framework
- Selecting appropriate qualitative and/or quantitative research methods and procedures; determining relevant theories and models to be used
- Collecting data with the help of surveys or economic experiments
- The layout of presentation slides and presentation techniques

At the end of this module, each group of students is expected to deliver a research proposal, make a presentation about their own project in class and finally submit a complete research paper.

Requirements for the Awarding of Credit Points	Possible Examination	Significance of Mark
Examination	Written exam, oral exam, assignment or any combination	10 %

Module M-EF 2 7014: Economic Analysis of Accounting

Classification	Study Semester	Offered	Equivalent	Language	Responsible Professor
Elective Module	2	Summer Term	-	English	Prof. Dr. Philipp Schorn

Size of Group	Workload	Contact Hours	Self-Study	Credit Points
up to 25	150 h	60 h	90 h	5

Formal Prerequisites	Recommended Prerequisites	Further Information
-	Knowledge in bookkeeping and Datev	-

Learning Outcomes

This course is intended to provide an introduction to accounting theory and an in-depth treatment of contemporary issues and problems in the field of financial reporting / accounting and standard-setting. Upon successful completion of the module, students will be able to:

- Explain the nature of accounting theories in a historical context as well as their relevance to a contemporary business environment characterised by incomplete financial reporting regulation.
- Apply relevant accounting theories to understand how financial accounting aids the functioning of capital markets and why it needs to be regulated.
- Understand and critically evaluate accounting research in the context of capital markets.
- Identify future research opportunities.
- Apply different research tools to analyse current trends and problems in financial reporting.
- Use and reference a broad range of accounting theories and to support decision-making as an accounting professional across a range of business and social contexts.

Content

In this course, fundamental concepts and problems of financial accounting are analysed according to economic theory. Practical recommendations for accounting regulation are also devised. Topics to be discussed include:

- Concept of decision-usefulness
- Positive accounting theory
- Earnings management / accounting choices
- Regulation of financial accounting, i.e. disclosure requirements and possible consequences of regulation
- Non-financial reporting
- Economic impact of financial and non-financial reporting
- Trends and difficulties in standard-setting of financial and non-financial reporting
- Auditing and its impact on financial accounting

Course	Contact Hours
M-EF 2 7014: Economic Analysis of Accounting (Lecture)	4

Requirements for the Awarding of Credit Points	Possible Examination	Significance of Mark
Examination	Written exam, oral exam, assignment or any combination	5 %

Module M-EF 2 7026: Financial Markets and Institutions

Classification	Study Semester	Offered	Equivalent	Language	Responsible Professor
Elective Module	2	Summer Term	-	English	Prof. Dr. Ute Merbecks

Size of Group	Workload	Contact Hours	Self-Study	Credit Points
up to 25	150 h	60 h	90 h	5

Formal Prerequisites	Recommended Prerequisites	Further Information
-	-	-

Learning Outcomes

Upon successful completion of the module, students will be able to reflect regulatory initiatives on real financial markets critically by using different theoretical models of financial markets. As a prerequisite students will:

- Compare different theories for modelling financial markets.
- Categorize different types of market failure.
- Explain the limitations of the models and compare the main types of market failure.
- Evaluate market failures on real financial markets and to find examples for regulatory initiatives.
- Apply valuation procedures quickly and accurately with minimal cognitive effort through numerous examples, exercises, and case studies.
- Gain a deeper understanding of the limitations of various valuation approaches through course discussions and internalize their underlying assumptions.
- Reconcile different valuation techniques to effectively address financial market regulation.
- Discriminate market failures on financial markets and to develop regulatory initiatives.

The different types of market failure are used typically by regulators. Based on the module students will be able to verify instruments used by governments and public authorities to intervene in financial markets. Moreover, students will be able to criticize institutional arrangements on financial markets (e.g., Green Finance, Sustainability Accounting, Bank and Insurance Regulation).

Content

- The premise of the course is an understanding of the economic tools traditionally used in regulating financial markets, which include remedying market failures, and collecting tax revenue.
- Beyond traditional approaches, new insights from psychology and neuroscience will be discussed to explain consumer behaviour on financial markets. This will help students to understand the design of different policy tools that better motivate desired behaviour change or are more cost-effective than traditional financial market policy tools.
- Hence, the course intends to give students a profound understanding of the various choices available to policy makers in relation to the design and structure of national and supranational regulatory institutions and frameworks on financial markets.

Requirements for the Awarding of Credit Points	Possible Examination	Significance of Mark
Examination	Written exam, oral exam, assignment or any combination	5 %

Module M-EF 2 7027: Institutional and Organisational Economics

Classification	Study Semester	Offer	Equivalent	Language	Responsible Professor
Elective Module	2	Summer Term	-	English	Prof. Dr. Hasan Alkas

Size of Group	Workload	Contact Hours	Self-Study	Credit Points
up to 25	150 h	60 h	90 h	5

Formal Prerequisites	Recommended Prerequisites	Further Information
-	-	-

Learning Outcomes*

Upon successful completion of the module, students will be able to:

- Understand the role of institutions and apply advanced concepts from industrial organisation and microeconomics in order to analyse horizontal and vertical organisational problems.
- Theoretically assess employment and promotion schemes, decision-making processes and structural issues in organisation and institutions.
- Students will propose employment and promotion schemes in firms, career concern models, implicit and explicit contracts, hiring decisions and job design to improve efficiency.

Content

The course addresses the following topics:

- Boundaries and roles of institutions and firms
- Transaction cost theory and organisational efficiency
- Property rights and the theory of the firm
- Personnel management and incentives
- Decision-making in organisations
- Structures and processes in multinational firms
- Horizontal and vertical organisational problems and
- Corporate governance and institutions of management control
- Hidden action and LEN Model (Linear-Exponential-Normal Distribution)
- Methods to allocate internal resources and transfer pricing
- Agency theory and influencing activities
- Alternative forms of organisations (partnerships and cooperatives)
- Truth-telling mechanism and payment schemes used to overcome information asymmetry

Requirements for the Awarding of Credit Points	Possible Examination	Significance of Mark
Examination	Written exam, oral exam, assignment or any combination	5 %

Module M-EF 2 7017: Innovation Management and Investment in Emerging Technologies

Classification	Study Semester	Offer	Equivalent	Language	Responsible Professor
Elective Module	2	Summer Term	-	English	Prof. Dr. Hasan Alkas

Size of Group	Workload	Contact Hours	Self-Study	Credit Points
up to 25	150 h	60 h	90 h	5 CP

Formal Prerequisites	Recommended Prerequisites	Further Information
-	-	-

Learning Outcomes*

Upon successful completion of the module, students will be able to:

- Understand different levels of the innovation management process as well as the interdisciplinary and multifunctional dimensions of innovations.
- Apply their knowledge on innovations and Key Enabling Technologies (KETs) to problems arising in the context of innovation management related to high-tech industries.
- Apply and transfer their knowledge to problems arising in the context of innovation management and especially to emerging markets.
- Evaluate problems at the operational as well as the strategic level.
- Apply innovation management tools and assess their shortcomings
- Demonstrate fundamentals in the relevant tools needed to understand emerging technology markets and to discuss their role for increasing competitiveness and productivity.
- Analyse and illustrate the linkage between innovation at micro levels and the impact on economic growth.

Content

The following topics will be assessed and appropriate concepts and methods for their analysis will be selected and applied:

- Innovation management and technical change
- Technology-oriented industrial policy and growth theories
- Economics of patents and performance indicators
- Role of ICT and broadband on productivity and competitiveness
- Tools for analysing investments in emerging markets
- Investment strategies in emerging technologies
- Clustering technology fields (country cases)
- Innovation skills and metrics
- Innovation strategies and firm routines
- Open-source and cooperative innovations
- Innovation and the role of location of production
- Competitiveness of nations and ecosystems
- Technological trajectories
- Managing innovation and technical change

Requirements for the Awarding of Credit Points	Possible Examination	Significance of Mark
Examination	Oral exam, assignment or any combination	5 %

Module M-EF 2 7028: Behavioural Economics and Mechanism Design

Classification	Study Semester	Offered	Equivalent	Language	Responsible Professor
Elective Module	2	Summer Term	-	English	Prof. Dr. Thomas Pitz

Size of Group	Workload	Contact Hours	Self-Study	Credit Points
up to 25	150 h	60 h	90 h	5

Formal Prerequisites	Recommended Prerequisites	Further Information
-	-	-

Learning Outcomes

Upon successful completion of the module, students will be able to:

- Identify foundational terminologies and concepts inherent to game theory, behavioral economics, and mechanism design.
- Describe the significance of game theory in elucidating strategic economic interactions.
- Implement behavioral economic principles to explicate deviations in real-world decision-making from classical economic predictions.
- Distinguish between cooperative and non-cooperative game scenarios, analyzing their respective equilibria.
- Critically evaluate the pertinence of cognitive biases within traditional economic frameworks and their bearing on mechanisms.
- Formulate novel economic strategies or mechanisms by integrating insights from the discussed domains.

Upon mastering these outcomes, students will possess a strategic toolkit to make informed decisions in economic scenarios.

Content

- Game Theory and its mathematical foundation, focusing on strategic interactions and interdependent decision-making.
  - Non-Cooperative Games: Nash equilibrium and its applications.
  - Cooperative Games: Coalitions, the core, the kernel, the nucleolus, and solution concepts like the Shapley value and Banzhaf index.
- Bayesian Games, incorporating incomplete information into game theory.
- Behavioral Economics, highlighting deviations from classical rationality through bounded rationality, prospect theory and cognitive biases
- Behavioral Finance, exploring psychological influences on financial decision-making and market behavior, including:
  - Market anomalies
  - Mental accounting
  - Overconfidence and overreaction
  - Framing in financial contexts
  - Loss aversion
  - Herding behavior
  - Behavioral biases in portfolio construction
- Qualitative scenario bundle method for analyzing crises and strategic conflict scenarios
- Mechanism Design, covering applications such as auctions, trading mechanisms, contract design and mechanisms for financial stability

Requirements for the Awarding of Credit Points	Possible Examination	Significance of Mark
Examination	Written exam, oral exam, assignment or any combination	5 %

Module M-EF 3 7020: Current Topics in Economics and Finance

Classification	Study Semester	Offered	Equivalent	Language	Responsible Professor
Required Module	3	Winter Term + Summer Term	-	English	Prof. Dr. Jörn Sickmann

Size of Group	Workload	Contact Hours	Self-Study	Credit Points
50	150 h	60 h	90 h	5

Formal Prerequisites	Recommended Prerequisites	Further Information
-	-	-

Learning Outcomes

Upon successful completion of the module, students will be able to:

- Deepen their knowledge of the key skills required to initiate and successfully complete a research project.
- Gain familiarity with the different phases of the research process, including:
  - Designing a research proposal
  - Conducting a literature review
  - Formulating research questions and hypotheses
  - Selecting an appropriate methodology
- Understand the "why" and "how" of research in finance and economics, building on prerequisite knowledge.
- Develop the ability to critically reflect on the normative basis and limitations of research.

The course enhances analytical skills, familiarizes students with cutting-edge research, and strengthens their ability to conduct independent research and write a high-quality master's thesis.

Content

- Design of a detailed research proposal on a topic of the student's choosing.
- Focus on establishing a feasible outline for the student's own master's thesis (optional but encouraged).
- Full discretion over theme, topic, and research methodology, with the requirement that it suits a future thesis.
- Presentation of the research topic to colleagues upon course completion.
- Well-argued peer review on the work of other researchers.
- Refresher on critical research-related skills, including:
  - Research methodology
  - Different research strategies
  - Basic statistical skills
  - Academic writing skills
- Introduction to more advanced research methodologies.
- Research proposal content dependent on the selected topic.

Requirements for the Awarding of Credit Points	Possible Examination	Significance of Mark
Examination	Written exam, oral exam, assignment or any combination	5 %

Module M-EF 3 7121: Master's Thesis

Classification	Study Semester	Offered	Equivalent	Language	Responsible Professor
Required Module	3	Winter Term + Summer Term	-	English	Various

Size of Group	Workload	Contact Hours	Self-Study	Credit Points
-	660 h	10 h	650 h	22

Formal Prerequisites	Recommended Prerequisites	Further Information
50 CP	-	-

Learning Outcomes

Upon successful completion of the module, students will be able to:

- Independently plan, structure, and execute a Master's-level research project addressing a relevant topic in Economics and Finance.
- Critically analyze and synthesize academic literature, theories, and empirical findings to develop a well-founded research framework.
- Apply appropriate research methods to collect, evaluate, and interpret data in a structured and academically rigorous manner.
- Develop innovative solutions or strategic insights based on in-depth research and critical reflection.
- Demonstrate advanced analytical and problem-solving skills by formulating clear research questions and deriving sound conclusions.
- Communicate complex ideas effectively in a coherent, structured, and academically sound written thesis.
- Adhere to academic integrity and ethical standards in research and professional writing.
- Reflect on the research process and its implications for academic and professional development.

Content

- Selection and formulation of a research topic relevant to Economics and Finance
- Development of a research proposal, including problem definition, objectives, and methodology
- Review of relevant literature and theoretical frameworks to establish the research context
- Application of qualitative and/or quantitative research methods for data collection and analysis
- Critical discussion and interpretation of findings in relation to existing research and practical implications
- Academic writing and structuring of the thesis according to formal research standards
- Guidance and supervision by faculty members throughout the research process

The master's thesis serves as the capstone of the program, demonstrating students' ability to conduct independent academic work and apply their knowledge to real-world economic, financial and social challenges challenges.

Requirements for the Awarding of Credit Points	Possible Examination	Significance of Mark
Examination	Thesis	30 %

Module M-EF 3 7122: Colloquium

Classification	Study Semester	Offered	Equivalent	Language	Responsible Professor
Required Module	3	Winter Term + Summer Term	-	English	Various

Size of Group	Workload	Contact Hours	Self-Study	Credit Points
-	90 h	8 h	82 h	3

Formal Prerequisites	Recommended Prerequisites	Further Information
87 CP	-	-

Learning Outcomes

Upon successful completion of the module, students will be able to:

- Present and defend the findings of their master's thesis in a structured and academically sound manner.
- Demonstrate a deep understanding of their research topic, including its theoretical foundations, methodologies, and practical implications.
- Engage in critical discussion, responding to questions and feedback from faculty members and peers with well-reasoned arguments.
- Apply academic communication skills to articulate complex ideas clearly and convincingly.
- Reflect on their research process, identifying strengths, limitations, and potential areas for further study.
- Exhibit confidence in presenting research in a professional and academic setting, preparing them for future career or postgraduate opportunities.

Content

Oral presentation of the master's thesis, summarizing key research questions, methodology, findings, and conclusions.

- Defence and discussion of the thesis in a formal academic setting, addressing questions and critiques from faculty members.
- Critical reflection on the research process, including challenges faced and lessons learned.
- Academic discourse and debate, demonstrating subject-matter expertise and analytical thinking.
- Evaluation of research competencies, including methodological rigor, argumentation, and the ability to communicate findings effectively.

The colloquium serves as the final step of the master's program, assessing students' ability to present, defend, and critically engage with their research in a professional setting.

Requirements for the Awarding of Credit Points	Possible Examination	Significance of Mark
Examination	Oral exam	5 %