Module Catalogue
for the Subject
Economathematics
as a Master’s with 1 major
with the degree "Master of Science"
(120 ECTS credits)

Examination regulations version: 2022
Responsible: Faculty of Mathematics and Computer Science
Responsible: Institute of Mathematics
Responsible: Faculty of Business Management and Economics
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### Module Catalogue for the Subject Economathematics

**Master's with 1 major, 120 ECTS credits**

#### Industrial Management 4
- Advanced Operations & Logistics Management
- Global Logistics & Supply Chain Management
- Managerial Analytics & Decision Making
- Seminar: Supply Chain Competition
- Industrial Management 5
- Industrial Management 6

#### Information Systems

**Core**
- IT-Management
- Information Processing within Organizations

**Core Electives**
- Analytical Information Systems
- Business Software 1
- E-Business Strategies
- Topics in Information Systems 1
- Topics in Information Systems 2
- Decision Support Systems
- Topics in Data Science 1
- Topics in Data Science 2

#### Logistics & Supply Chain Management

**Core**
- Advanced Operations & Logistics Management
- Global Logistics & Supply Chain Management

**Core Electives**
- Seminar: Supply Chain Competition
- Industrial Management 2
- Decision Support Systems
- Industrial Management 3
- Managerial Analytics & Decision Making
- Strategic Management of Global Supply Chains

#### Human Resource Management and Organization

**Core**
- Incentives in Organizations
- Human Resource Management and Industrial Relations

**Core Electives**
- Corporate Entrepreneurship
- Advanced Labour Economics
- Coordination, Budgeting and Incentives in Organizations
- Contract Theory
- Empirical HR Research with Stata
- Employment Law

#### Financial Accounting and Business Taxation

**Core**
- Group Accounting
- Economics of Tax Planning

**Core Electives**
- Tax Accounting
- Advanced Financial Accounting
- Financial Statement Analysis and Business Valuation
- Case Studies on Business Taxation
- Accounting and Capital Markets
- International Financial Management
- Portfolio and Capital Market Theory
## Public Finance

**Core**
- Policy of Taxation
- Social Insurance and the Welfare State

**Core Electives**
- Optimal Tax Theory
- European Public Finance
- Advanced Computational Economics
- International Taxation
- Policy Evaluation Methods

## Strategy, Competition and Policy

**Core**
- Strategic Decisions and Competition
- European Competition Policy

**Core Electives**
- Theory of Industrial Organization
- Applied Industrial Organization
- Market Research and Demand Analysis
- Advanced Microeconomics
- Econometrics 3
- European and German Competition Law I for Economists
- European and German Competition Law II for Economists
- Contract Theory
- Econometrics 2

## Corporate Finance and Risk Management

**Core**
- Portfolio and Capital Market Theory
- Risk Management

**Core Electives**
- Selected Topics in Corporate Finance
- Analysis of Financial Market Data
- Accounting and Capital Markets
- Financial Statement Analysis and Business Valuation
- Analytical Information Systems
- Risk Management - Concepts and Systems

## Strategic Corporate Communication

**Core**
- Communication in Business and Economics
- Business Communication in Print, Online and Social Media

**Core Electives**
- Project Modul: Crossmedial Business Communication
- Project Modul: Audiovisual Business Communication
- Mass Media Processes and Effects
- Marketing & Strategic Communication
- Vertical Storytelling

## Monetary Policy

**Core**
- Monetary Policy and the Financial System
- Monetary Policy, Foreign Exchange Markets, and the International Monetary System

**Core Electives**
- DSGE Modelling
- Applied Empirical Macroeconomics
- Business Cycles
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Content and Objectives of the Programme

German contents and learning outcome available but not translated yet.

Das Studienfach Wirtschaftsmathematik wird von der Fakultät für Mathematik und Informatik und der Wirtschaftswissenschaftlichen Fakultät der JMU als forschungsorientierter Studiengang mit dem Abschluss „Master of Science“ (M.Sc.) im Rahmen eines konsekutiven Bachelor- und Master-Studienmodells angeboten. Der Grad des Master of Science stellt einen weiteren berufsqualifizierenden sowie forschungsorientierten Abschluss dar, die im Rahmen des Master-Studiums erworbene Qualifikation entspricht der eines Diplom-Wirtschaftsmathematikers (Universität) bzw. einer Diplom-Wirtschaftsmathematikerin (Universität).

Abbreviations used

Course types: \(E\) = field trip, \(K\) = colloquium, \(O\) = conversatorium, \(P\) = placement/lab course, \(R\) = project, \(S\) = seminar, \(T\) = tutorial, \(Ü\) = exercise, \(V\) = lecture

Term: \(SS\) = summer semester, \(WS\) = winter semester

Methods of grading: \(NUM\) = numerical grade, \(B/NB\) = (not) successfully completed

Regulations: \((L)ASPO\) = general academic and examination regulations (for teaching-degree programmes), \(FSB\) = subject-specific provisions, \(SFB\) = list of modules

Other: \(A\) = thesis, \(LV\) = course(s), \(PL\) = assessment(s), \(TN\) = participants, \(VL\) = prerequisite(s)

Conventions

Unless otherwise stated, courses and assessments will be held in German, assessments will be offered every semester and modules are not creditable for bonus.

Notes

Should there be the option to choose between several methods of assessment, the lecturer will agree with the module coordinator on the method of assessment to be used in the current semester by two weeks after the start of the course at the latest and will communicate this in the customary manner.

Should the module comprise more than one graded assessment, all assessments will be equally weighted, unless otherwise stated below.

Should the assessment comprise several individual assessments, successful completion of the module will require successful completion of all individual assessments.

In accordance with

the general regulations governing the degree subject described in this module catalogue:

\(ASPO2015\)

associated official publications (FSB (subject-specific provisions)/SFB (list of modules)):

\(27-Apr-2022\ (2022-32)\)

This module handbook seeks to render, as accurately as possible, the data that is of statutory relevance according to the examination regulations of the degree subject. However, only the FSB (subject-specific provisions) and SFB (list of modules) in their officially published versions shall be legally binding. In the case of doubt, the provisions on, in particular, module assessments specified in the FSB/SFB shall prevail.
Compulsory Electives Mathematics

(40 ECTS credits)
Module Group Applied Mathematics
(0-40 ECTS credits)
### Module Catalogue for the Subject
Economathematics

#### Master's with 1 major, 120 ECTS credits

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#### Intended learning outcomes

The student is acquainted with the fundamental notions, methods and results of higher analysis. He/She is able to establish a connection between his/her acquired skills and other branches of mathematics and questions in physics and other natural and engineering sciences.

#### Courses

(type, number of weekly contact hours, language — if other than German)

- V (4) + Ü (2)

Module taught in: German and/or English

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#### Additional information

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#### Referred to in LPO I

(examination regulations for teaching-degree programmes)

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**Contents**

Discretisation of elliptic differential equations, classical iteration methods, preconditioners, multigrid methods.

**Intended learning outcomes**

The student is acquainted with the most important methods for solving large systems of equations, and knows the most efficient way to solve a given system of equations.

**Courses** (type, number of weekly contact hours, language — if other than German)

V (4) + Ü (2)

Module taught in: German and/or English

**Method of assessment** (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

a) written examination (approx. 90 to 120 minutes, usually chosen) or b) oral examination of one candidate each (approx. 20 minutes) or c) oral examination in groups (groups of 2, 15 minutes per candidate)

Assessment offered: In the semester in which the course is offered and in the subsequent semester

Language of assessment: German or English

creditable for bonus

**Allocation of places**

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**Additional information**

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**Referred to in LPO I** (examination regulations for teaching-degree programmes)

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<td>Basics in Optimization</td>
<td>10-M=AOPT-161-m01</td>
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**Module coordinator**

Dean of Studies Mathematik (Mathematics)

**Module offered by**

Institute of Mathematics

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**Contents**

Fundamental methods and techniques in continuous optimization, unrestricted optimization, conditions for optimality, restricted optimization, examples and applications in natural and engineering sciences as well as economics.

**Intended learning outcomes**

The student knows the fundamental methods of continuous optimization, can judge their strengths and weaknesses and can decide which method is the most suitable in applications.

**Courses** (type, number of weekly contact hours, language — if other than German)

V (4) + Ü (2)

Module taught in: German and/or English

**Method of assessment** (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

a) written examination (approx. 90 to 120 minutes, usually chosen) or b) oral examination of one candidate each (approx. 20 minutes) or c) oral examination in groups (groups of 2, 15 minutes per candidate)

Assessment offered: In the semester in which the course is offered and in the subsequent semester

Language of assessment: German or English

creditable for bonus

**Allocation of places**

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**Additional information**

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**Referred to in LPO 1** (examination regulations for teaching-degree programmes)

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**Module coordinator**
Dean of Studies Mathematik (Mathematics)

**Module offered by**
Institute of Mathematics

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**Duration**
1 semester

**Module level**
graduate

**Other prerequisites**
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### Contents
Introduction to mathematical systems theory: stability, controllability and observability, state feedback and stability, basics in optimal control.

### Intended learning outcomes
The student is acquainted with the fundamental notions and methods of control theory. He/She is able to establish a connection between these results and broader theories, and learns about the interactions of geometry and other fields of mathematics.

### Courses
(V (4) + Ü (2))
Module taught in: German and/or English

### Method of assessment
a) written examination (approx. 90 to 120 minutes, usually chosen) or b) oral examination of one candidate each (approx. 20 minutes) or c) oral examination in groups (groups of 2, 15 minutes per candidate)
Assessment offered: In the semester in which the course is offered and in the subsequent semester
Language of assessment: German or English
creditable for bonus

### Allocation of places
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### Additional information
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### Referred to in LPO I
(examination regulations for teaching-degree programmes)
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**Module title** | **Abbreviation**
--- | ---
Numeric of Partial Differential Equations | 10-M=VNPE-161-m01

**Module coordinator**
Dean of Studies Mathematik (Mathematics)

**Module offered by**
Institute of Mathematics

**ECTS** | **Method of grading** | **Only after succ. compl. of module(s)**
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10 | numerical grade | --

**Duration** | **Module level** | **Other prerequisites**
--- | --- | ---
1 semester | graduate | --

**Contents**
Types of partial differential equations, qualitative properties, finite differences, finite elements, error estimates (numerical methods for elliptic, parabolic and hyperbolic partial differential equations; finite elements method, discontinuous Gelerkin finite elements method, finite differences and finite volume methods).

**Intended learning outcomes**
The student is acquainted with advanced methods for discretising partial differential equations.

**Courses**
(type, number of weekly contact hours, language — if other than German)
V (4) + Ü (2)
Module taught in: German and/or English

**Method of assessment**
(type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)
a) written examination (approx. 90 to 120 minutes, usually chosen) or b) oral examination of one candidate each (approx. 20 minutes) or c) oral examination in groups (groups of 2, 15 minutes per candidate)
Assessment offered: In the semester in which the course is offered and in the subsequent semester
Language of assessment: German or English
creditable for bonus

**Allocation of places**
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**Additional information**
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</table>

**Contents**

Selected topics in optimization, e.g. inner point methods, semidefinite programs, non-smooth optimization, game theory, optimization with differential equations.

**Intended learning outcomes**

The student is acquainted with advanced methods in continuous optimization. He gains the ability to work on contemporary research questions in continuous optimization.

**Courses**

(V (4) + Ü (2))

Module taught in: German and/or English

**Method of assessment**

a) written examination (approx. 90 to 120 minutes, usually chosen) or b) oral examination of one candidate each (approx. 20 minutes) or c) oral examination in groups (groups of 2, 15 minutes per candidate)

Assessment offered: In the semester in which the course is offered and in the subsequent semester

Language of assessment: German or English

**Allocation of places**

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**Additional information**

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**Referred to in LPO I**

(examination regulations for teaching-degree programmes)

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### Module title
Discrete Mathematics

### Abbreviation
10-M=VDIM-161-m01

### Module coordinator
Dean of Studies Mathematik (Mathematics)

### Module offered by
Institute of Mathematics

### ECTS
5

### Method of grading
numerical grade

### Only after succ. compl. of module(s)
--

### Duration
1 semester

### Module level
graduate

### Other prerequisites
--

## Contents
Advanced methods and results in a selected field of discrete mathematics (e.g. coding theory, cryptography, graph theory or combinatorics)

## Intended learning outcomes
The student is acquainted with advanced results in a selected topic in discrete mathematics.

## Courses
(type, number of weekly contact hours, language — if other than German)

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### Module taught in:
German and/or English

## Method of assessment
(type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

a) written examination (approx. 60 to 90 minutes, usually chosen) or b) oral examination of one candidate each (approx. 15 minutes) or c) oral examination in groups (groups of 2, approx. 10 minutes per candidate)

Assessment offered: In the semester in which the course is offered and in the subsequent semester

Language of assessment: German or English

### Allocation of places
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### Additional information
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### Referred to in LPO I
(examination regulations for teaching-degree programmes)

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## Contents

Fundamentals of dynamical systems, e.g. stability theory, ergodic theory, Hamiltonian systems.

## Intended learning outcomes

The student masters the mathematical methods in the theory of dynamic systems, and is able to analyse their quality.

## Courses

(type, number of weekly contact hours, language — if other than German)

V (3) + Ü (1)

Module taught in: German and/or English

## Method of assessment

(type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

a) written examination (approx. 60 to 90 minutes, usually chosen) or b) oral examination of one candidate each (approx. 15 minutes) or c) oral examination in groups (groups of 2, approx. 10 minutes per candidate)

Assessment offered: In the semester in which the course is offered and in the subsequent semester

Language of assessment: German or English

creditable for bonus

## Allocation of places

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## Additional information

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## Referred to in LPO I

(examination regulations for teaching-degree programmes)

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**Module title**

**Selected Topics in Control Theory**

| Abbreviation | 10-M-VTRT-161-m01 |

**Module coordinator**

Dean of Studies Mathematik (Mathematics)

**Module offered by**

Institute of Mathematics

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**Contents**

Selected topics in linear and non-linear control theory, e.g. networked linear control systems, controllability of bilinear systems.

**Intended learning outcomes**

The student gains insight into contemporary research problems in control theory. He/She masters advanced techniques in this field and can apply them to complex problems.

**Courses** (type, number of weekly contact hours, language — if other than German)

V (4) + Ü (2)

Module taught in: German and/or English

**Method of assessment** (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

a) written examination (approx. 90 to 120 minutes, usually chosen) or b) oral examination of one candidate each (approx. 20 minutes) or c) oral examination in groups (groups of 2, 15 minutes per candidate)

Assessment offered: In the semester in which the course is offered and in the subsequent semester

Language of assessment: German or English creditable for bonus

**Allocation of places**

- -

**Additional information**

- -

**Referred to in LPO I** (examination regulations for teaching-degree programmes)

- -
### Module title

**Inverse Problems 1**

### Abbreviation

10-M=VIPR-222-m01

### Module coordinator

Dean of Studies Mathematik (Mathematics)

### Module offered by

Institute of Mathematics

### ECTS

5

### Method of grading

numerical grade

### Only after succ. compl. of module(s)

--

### Duration

1 semester

### Module level

graduate

### Other prerequisites

--

### Contents

Linear operator equations, ill-posed problems, regularisation theory, Tikhonov regularisation, iterative regularisation methods, examples of ill-posed problems.

### Intended learning outcomes

The student can judge whether a given problem is well posed or ill posed. He/She can apply regularisation methods and examine them regarding stability and convergence, and is familiar with selected inverse problems.

### Courses

V (3) + Ü (1)  
Module taught in: German and/or English

### Method of assessment

(a) written examination (approx. 60 to 90 minutes, usually chosen) or  
(b) oral examination of one candidate each (approx. 15 minutes) or  
(c) oral examination in groups (groups of 2, approx. 10 minutes per candidate)  
Assessment offered: In the semester in which the course is offered and in the subsequent semester  
Language of assessment: German or English  
Creditable for bonus

### Allocation of places

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### Additional information

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### Referred to in LPO I

(examination regulations for teaching-degree programmes)

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**Module coordinator**

Dean of Studies Mathematik (Mathematics)

**Module offered by**

Institute of Mathematics

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<td>1 semester</td>
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</table>

**Contents**

Variational regularisation methods, source conditions, non-linear operator equations.

**Intended learning outcomes**

The students understand the particular difficulties of nonlinear problems and know solution methods for those. They have the ability to apply variational regularisation methods and to examine them with respect to stability and convergence. They gain deeper knowledge in selected inverse problems.

**Courses** (type, number of weekly contact hours, language — if other than German)

V (3) + Ü (1)

Module taught in: German and/or English

**Method of assessment** (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

a) written examination (approx. 60 to 90 minutes, usually chosen) or
b) oral examination of one candidate each (approx. 15 minutes) or
c) oral examination in groups (groups of 2, approx. 10 minutes per candidate)

Assessment offered: In the semester in which the course is offered and in the subsequent semester
Language of assessment: German or English
creditable for bonus

**Allocation of places**

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**Additional information**

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**Referred to in LPO I** (examination regulations for teaching-degree programmes)

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Module title | Abbreviation
---|---
Non-linear Analysis | 10-M=VNAN-161-m01

Module coordinator | Module offered by
Dean of Studies Mathematik (Mathematics) | Institute of Mathematics

ECTS | Method of grading | Only after succ. compl. of module(s)
---|---|---
5 | numerical grade | --

Duration | Module level | Other prerequisites
---|---|---
1 semester | graduate | --

Contents
Methods in nonlinear analysis (e.g. topological methods, monotony and variational methods) with applications.

Intended learning outcomes
The student is acquainted with the concepts of non-linear analysis, can compare them and assess their applicability on practical problems.

Courses (type, number of weekly contact hours, language — if other than German)
V (3) + Ü (1)
Module taught in: German and/or English

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)
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Assessment offered: In the semester in which the course is offered and in the subsequent semester
Language of assessment: German or English
creditable for bonus

Allocation of places
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Additional information
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**Contents**

Basics in optimal control of ordinary and partial differential equations, theory of optimal control, conditions for optimality, methods for numerical solution.

**Intended learning outcomes**

The student is acquainted with advanced methods in optimal control. He gains the ability to work on contemporary research questions in continuous optimization.

**Courses**

(type, number of weekly contact hours, language — if other than German)

V (3) + Ü (1)

Module taught in: German and/or English

**Method of assessment**

(type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

a) written examination (approx. 60 to 90 minutes, usually chosen) or b) oral examination of one candidate each (approx. 15 minutes) or c) oral examination in groups (groups of 2, approx. 10 minutes per candidate)

Assessment offered: In the semester in which the course is offered and in the subsequent semester

Language of assessment: German or English creditable for bonus

**Allocation of places**

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**Additional information**

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**Contents**

Supervising a tutorial or study group in the Bachelor’s programme under guidance of the respective lecturer.

**Intended learning outcomes**

The student gains his/her first experience in teaching university mathematics. He/She knows basic didactical methods and can apply them in practical situations.

**Courses** (type, number of weekly contact hours, language — if other than German)

Ü (2)

**Method of assessment** (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

Assessment of tutoring activities by supervising lecturers or exercise supervisors (1 to 2 teaching units)

Language of assessment: German

**Allocation of places**

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**Additional information**

Application and selection with the teaching coordinator for mathematics

Referred to in LPO I (examination regulations for teaching-degree programmes)

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**Module coordinator**
Dean of Studies Mathematik (Mathematics)  
**Module offered by**
Institute of Mathematics

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**Contents**
Contemporary topics in mathematics for economics, for example in the field of statistics, finance or insurance mathematics.

**Intended learning outcomes**
The student is acquainted with fundamental concepts and methods in a contemporary field of mathematics for economics, and is able to apply these skills to complex questions.

**Courses**
(type, number of weekly contact hours, language — if other than German)

V (4) + Ü (2)
Module taught in: German and/or English

**Method of assessment**
(type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

a) written examination (approx. 90 to 120 minutes, usually chosen) or b) oral examination of one candidate each (approx. 20 minutes) or c) oral examination in groups (groups of 2, 15 minutes per candidate)
Assessment offered: In the semester in which the course is offered and in the subsequent semester
Language of assessment: German or English creditable for bonus

**Allocation of places**
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**Additional information**
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**Contents**

In-depth discussion of a specialised topic in numerical or applied mathematics taking into account recent developments and interrelations with other mathematical concepts.

**Intended learning outcomes**

The student is acquainted with advanced results in a selected topic in numerical or applied mathematics, and is able to apply these to complex problems.

**Courses** (type, number of weekly contact hours, language — if other than German)

V (4) + Ü (2)

Module taught in: German and/or English

**Method of assessment** (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

a) written examination (approx. 90 to 120 minutes, usually chosen) or b) oral examination of one candidate each (approx. 20 minutes) or c) oral examination in groups (groups of 2, 15 minutes per candidate)

Language of assessment: German and/or English

Assessment offered: Only when announced in the semester in which the courses are offered and in the subsequent semester creditable for bonus

**Allocation of places**

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**Additional information**

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**Referred to in LPO I** (examination regulations for teaching-degree programmes)

--
Module Group Stochastics and Statistics
(0-40 ECTS credits)
Module title | Abbreviation
--- | ---
Industrial Statistics 1 | 10-M=AIST-161-m01

Module coordinator
Dean of Studies Mathematik (Mathematics)

Module offered by
Institute of Mathematics

ECTS | Method of grading | Only after succ. compl. of module(s)
--- | --- | ---
10 | numerical grade | --

Duration | Module level | Other prerequisites
--- | --- | ---
1 semester | graduate | --

Contents
Theory of parameter and domain estimates, tests for statistical estimates, distribution models, empirical distribution analysis, comparative analysis, statistical product testing, survey sampling, audit sampling.

Intended learning outcomes
The student masters the fundamental statistical methods for industrial applications.

Courses (type, number of weekly contact hours, language — if other than German)
V (4) + Ü (2)
Module taught in: German and/or English

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)
a) written examination (approx. 90 to 120 minutes, usually chosen) or b) oral examination of one candidate each (approx. 20 minutes) or c) oral examination in groups (groups of 2, 15 minutes per candidate)
Assessment offered: In the semester in which the course is offered and in the subsequent semester
Language of assessment: German or English
creditable for bonus

Allocation of places
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Additional information
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Referred to in LPO I (examination regulations for teaching-degree programmes)
--
### Module Catalogue for the Subject Economathematics

#### Master's with 1 major, 120 ECTS credits

<table>
<thead>
<tr>
<th>Module title</th>
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<tr>
<td>Stochastical Processes</td>
<td>10-M=ASTP-161-m01</td>
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<tr>
<td>1 semester</td>
<td>graduate</td>
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</tbody>
</table>

### Contents

Markov chains, queues, stochastic processes in \( C[0,1] \), Brownian motion, Donsker's theorem, projective limits.

### Intended learning outcomes

The student is acquainted with the fundamental notions and methods of stochastical processes and can apply them to practical problems.

### Courses

(type, number of weekly contact hours, language — if other than German)

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<tr>
<th>Type</th>
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<td>4 + Ü (2)</td>
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Module taught in: German and/or English

### Method of assessment

(type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

a) written examination (approx. 90 to 120 minutes, usually chosen) or b) oral examination of one candidate each (approx. 20 minutes) or c) oral examination in groups (groups of 2, 15 minutes per candidate)

Assessment offered: In the semester in which the course is offered and in the subsequent semester

Language of assessment: German or English

creditable for bonus

### Allocation of places

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### Additional information

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### Referred to in LPO I

(examination regulations for teaching-degree programmes)

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## Module Catalogue for the Subject Economathematics

**Master's with 1 major, 120 ECTS credits**

<table>
<thead>
<tr>
<th>Module title</th>
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<tbody>
<tr>
<td>Time Series Analysis</td>
<td>10-M=AZRA-212-m01</td>
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**Module coordinator**
Dean of Studies Mathematik (Mathematics)

**Module offered by**
Institute of Mathematics

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<td>numerical grade</td>
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</table>

**Duration**
1 semester

**Module level**
graduate

**Contents**
Additive model, linear filters, autocorrelation, moving average, autoregressive processes, Box-Jenkins method.

**Intended learning outcomes**
The student is acquainted with the fundamental methods of time series analysis and can apply them to practical problems.

**Courses**
(V (4) + Ü (2))
Module taught in: German and/or English

**Method of assessment**
(a) written examination (approx. 90 to 120 minutes, usually chosen) or
(b) oral examination of one candidate each (approx. 20 minutes) or
(c) oral examination in groups (groups of 2, 15 minutes per candidate)
Language of assessment: German or English
Assessment offered: Only when announced in the semester in which the courses are offered and in the subsequent semester creditable for bonus

**Allocation of places**
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**Additional information**
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**Referred to in LPO I**
(examination regulations for teaching-degree programmes)

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<table>
<thead>
<tr>
<th>Module title</th>
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<tbody>
<tr>
<td>Industrial Statistics 2</td>
<td>10-M=VIST-161-m01</td>
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<tr>
<th>Module coordinator</th>
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<tr>
<td>1 semester</td>
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</table>

**Contents**

Linear models, regression analysis, nonlinear regression, experimental design, basics in time series modeling, basics in empirical time series analysis, methods of exponential smoothing, predictions and prediction domains, statistical process monitoring.

**Intended learning outcomes**

The student masters advanced statistical methods for industrial applications.

**Courses** (type, number of weekly contact hours, language — if other than German)

V (4) + Ü (2)

Module taught in: German and/or English

**Method of assessment** (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

a) written examination (approx. 90 to 120 minutes, usually chosen) or b) oral examination of one candidate each (approx. 20 minutes) or c) oral examination in groups (groups of 2, 15 minutes per candidate)

Assessment offered: In the semester in which the course is offered and in the subsequent semester

Language of assessment: German or English creditable for bonus

**Allocation of places**

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**Additional information**

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**Referred to in LPO I** (examination regulations for teaching-degree programmes)

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<table>
<thead>
<tr>
<th>Module title</th>
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<tbody>
<tr>
<td>Mathematical Statistics</td>
<td>10-M=VSTA-212-m01</td>
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<td>1 semester</td>
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</table>

**Contents**

Contingency tables, categorical regression, one-factorial variance analysis, two-factorial variance analysis, discriminant function analysis, cluster analysis, principal component analysis, factor analysis.

**Intended learning outcomes**

The student is acquainted with the fundamental methods in statistical analysis and can apply them to practical problems.

**Courses** (type, number of weekly contact hours, language — if other than German)

V (4) + Ü (2)

Module taught in: German and/or English

**Method of assessment** (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

- a) written examination (approx. 90 to 120 minutes, usually chosen) or
- b) oral examination of one candidate each (approx. 20 minutes) or
- c) oral examination in groups (groups of 2, 15 minutes per candidate)

Assessment offered: In the semester in which the course is offered and in the subsequent semester

Language of assessment: German or English

**Allocation of places**

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**Additional information**

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**Referred to in LPO I** (examination regulations for teaching-degree programmes)

--
Module Group Financial and Insurance Mathematics
(0-40 ECTS credits)
Module title: Stochastic Models of Risk Management
Abbreviation: 10-M=ASMR-161-m01

Module coordinator:
Dean of Studies Mathematik (Mathematics)

Module offered by:
Institute of Mathematics

ECTS: 10
Method of grading: numerical grade
Only after succ. compl. of module(s): --

Duration: 1 semester
Module level: graduate
Other prerequisites: --

Contents:
Measure theory, risk diagrams, failure mode and effects analysis, risk assessment in auditing, shortfall measures, value at risk, conditional value at risk, axiomatic of risk measures, modelling of interdependencies, copula, modelling of functional interrelations, regression models, basics in time series modelling, aggregated losses, estimates of shortfall measures, estimates of value at risk and conditional value at risk, basics in empirical time series analysis, methods of exponential smoothing, predictions and prediction domains, estimates of value at risk in time series, elementary empirical regression analysis, simulation methods.

Intended learning outcomes:
The student is acquainted with the fundamental methods of stochastic risk analysis.

Courses:
V (4) + Ü (2)
Module taught in: German and/or English

Method of assessment:
(a) written examination (approx. 90 to 120 minutes, usually chosen) or (b) oral examination of one candidate each (approx. 20 minutes) or (c) oral examination in groups (groups of 2, 15 minutes per candidate)
Assessment offered: In the semester in which the course is offered and in the subsequent semester
Language of assessment: German or English
creditable for bonus

Allocation of places:
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Additional information:
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Referred to in LPO I (examination regulations for teaching-degree programmes):
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<table>
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<th>Module title</th>
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<td>Insurance Mathematics 1</td>
<td>10-M=AVSM-161-m01</td>
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| ECTS | Method of grading | Only after succ. compl. of module(s) | |
|------|-------------------|--------------------------------------|
| 10   | numerical grade   | --                                   |

| Duration | Module level | Other prerequisites | |
|----------|--------------|---------------------|
| 1 semester | graduate   | --                  |

**Contents**

The module discusses policies on one life: distributions of future lifetime, life tables, life table approximations, types of benefits, present value, expectation principle, premium calculation, commutation functions, reserves and policy values, expenses, bonus, recursive methods, Thiele’s differential equation.

**Intended learning outcomes**

The student is acquainted with the fundamental notions and methods of life insurance mathematics and can apply them to practical problems.

**Courses** (type, number of weekly contact hours, language — if other than German)

V (4) + Ü (2)

Module taught in: German and/or English

**Method of assessment** (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

a) written examination (approx. 90 to 120 minutes, usually chosen) or b) oral examination of one candidate each (approx. 20 minutes) or c) oral examination in groups (groups of 2, 15 minutes per candidate)

Assessment offered: In the semester in which the course is offered and in the subsequent semester

Language of assessment: German or English

creditable for bonus

**Allocation of places**

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**Additional information**

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<table>
<thead>
<tr>
<th>Module title</th>
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<tbody>
<tr>
<td>Selected Topics in Financial Mathematics</td>
<td>10-M=VFNM-161-m01</td>
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**Module coordinator**
Dean of Studies Mathematik (Mathematics)

**Module offered by**
Institute of Mathematics

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**Contents**
Selected topics in financial mathematics, e.g. conditional expectation and martingales, fundamental theorem of asset pricing in discrete time for finite spaces, American put, Snell envelope, stopping time, optimal stopping, stochastic integration, stochastic differential equations and Ito calculus, Black-Merton-Scholes model.

**Intended learning outcomes**
The student is acquainted with advanced results in financial mathematics. He/She gains the ability to work on contemporary research questions in financial mathematics and can apply his/her skills to complex problems.

**Courses** (type, number of weekly contact hours, language — if other than German)
V (4) + Ü (2)
Module taught in: German and/or English

**Method of assessment** (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)
a) written examination (approx. 90 to 120 minutes, usually chosen) or b) oral examination of one candidate each (approx. 20 minutes) or c) oral examination in groups (groups of 2, 15 minutes per candidate)
Assessment offered: In the semester in which the course is offered and in the subsequent semester
Language of assessment: German or English
creditable for bonus

**Allocation of places**
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**Additional information**
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**Referred to in LPO I** (examination regulations for teaching-degree programmes)
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# Module Catalogue for the Subject
Economathematics
Master's with 1 major, 120 ECTS credits

<table>
<thead>
<tr>
<th>Module title</th>
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<td>Insurance Mathematics 2</td>
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## Contents

This module discusses modern valuation approaches and multiple decrement models regarding one life or two lives: modern valuation in life insurance mathematics, axiomatic derivation of the product measure approach, Markov chain models, Kolmogorov's differential equations, Thiele's differential equations, numerical applications, joint life policies.

## Intended learning outcomes

The student is acquainted with advanced methods in insurance mathematics. He gains the ability to work on contemporary research questions in insurance mathematics and can apply his/her skills to complex problems.

## Courses

(type, number of weekly contact hours, language — if other than German)

V (4) + Ü (2)

Module taught in: German and/or English

## Method of assessment

(type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

a) written examination (approx. 90 to 120 minutes, usually chosen) or b) oral examination of one candidate each (approx. 20 minutes) or c) oral examination in groups (groups of 2, 15 minutes per candidate)

Assessment offered: In the semester in which the course is offered and in the subsequent semester

Language of assessment: German or English

creditable for bonus

## Allocation of places

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## Additional information

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## Referred to in LPO I

(examination regulations for teaching-degree programmes)

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Compulsory Electives Business Management and Economics
(40 ECTS credits)

Two focuses with 40 ECTS credits
Strategic Marketing Management
(20 ECTS credits)
Core
(10 ECTS credits)
## Module Catalogue for the Subject
### Economathematics
#### Master's with 1 major, 120 ECTS credits

<table>
<thead>
<tr>
<th>Module title</th>
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<td>International Marketing</td>
<td>12-M-IJM-161-m01</td>
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<tbody>
<tr>
<td>Holder of the Chair of Business Management and Marketing</td>
<td>Faculty of Business Management and Economics</td>
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### Contents

**Description:**
The module builds on the knowledge acquired during the Bachelor's degree programme or the Grundstudium (stage I studies). It provides a systematic introduction to strategic marketing decisions in global and international contexts. These are explained mainly by Porter's diamond and cluster models. Another focus is on internationalisation strategies, which require country analyses and decisions on the selection of national markets as well as a timing of the countries market development. In addition, the module discusses different strategies for market entry and market development.

**Outline of syllabus:**
1. Internationalisation of the economy and regional integration processes
   - Globalisation
   - Competitiveness of countries, industries and companies in an international context
2. International strategic marketing decisions
   - Market entry forms
   - Market development strategies
   - Timing strategies
   - International organisation structures
3. Theories and strategies of internationalisation
   - Foreign trade theory
   - Multinational enterprise
   - Internationalisation strategies

**Reading:**

**Intended learning outcomes**
Students acquire in-depth skills in the field of strategic and operational management with particular attention to the international context. Students achieve particular expertise in the analysis, assessment and implementation of international business decisions and gain skills thus guiding the execution of marketing and management positions in globally-active companies.

**Courses** (type, number of weekly contact hours, language — if other than German)
V (2) + Ü (2)

**Method of assessment** (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)
written examination (approx. 60 minutes)
Language of assessment: German and/or English

**Allocation of places**
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### Additional information

<table>
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<th>(examination regulations for teaching-degree programmes)</th>
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## Module title

<table>
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<th>Strategic Marketing</th>
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### Abbreviation

12-M-SM-161-m01

### Module coordinator

Hölder of the Chair of Business Management and Marketing

### Module offered by

Faculty of Business Management and Economics

### ECTS

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### Duration

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</table>

### Contents

**Description:**
The module raises awareness in students of the relevance and necessity of strategic management in a competitive and dynamical competitive process.

**Content:**

Based on the marketing strategies as well as the stakeholder and entrepreneurship approaches, this module discusses the roots of the concept of strategy in marketing based on Drucker, Porter, Ansoff and Mintzberg. The focus of the module is on thinking in competitive advantages, which is directly related to responsible leadership.

**Outline of syllabus:**

1. Competitive dynamics requires strategy and leadership
2. Marketing strategies, stakeholder management and entrepreneurship
3. Objectives and tasks of corporate governance in management practice
4. Competitive forces, strategies and benefits according to Michael Porter
5. Growth strategies and marketing myths
6. Future technologies, new businesses and dynamic capabilities
7. Nature and principles of responsible management

**Reading:**


### Intended learning outcomes

The students have a deeper understanding of the sustainable corporate management and have the basics of the competitive process and competitive dynamics available. In addition, they can use the acquired knowledge, while taking into account the conventional problems of the strategic and sustainable management, to solve business case studies on their own.

### Courses

<table>
<thead>
<tr>
<th>Type</th>
<th>Number of weekly contact hours</th>
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<tr>
<td>V (2)</td>
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### Method of assessment

- **written examination (approx. 60 minutes)**
- Language of assessment: German and/or English

### Allocation of places

- 

### Additional information

- 

### Referred to in LPO I

- (examination regulations for teaching-degree programmes)
Core Electives

(10 ECTS credits)
### Module title

**Strategic Managerial Accounting**

### Abbreviation

12-M-INST-182-m01

### Module coordinator

Holder of the Chair of Business Management, Management Accounting and Control

### Module offered by

Faculty of Business Management and Economics

### ECTS

5

### Method of grading

Numerical grade

### Only after succ. compl. of module(s)

--

### Duration

1 semester

### Module level

Graduate

### Other prerequisites

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### Contents

The module focuses on accounting instruments, which are applied in the context of strategic management of enterprises. First, it addresses important drivers of strategic decisions from a microeconomic perspective, such as the emergence of cost and quality advantages in competition as well as scale and experience curve effects. Second, the module covers analytical and heuristic techniques of planning and control. In the context of these techniques, instruments of target costing, life cycle cost analysis, benchmarking and business wargaming are discussed with regard to their theoretical foundation and fields of application.

### Intended learning outcomes

Initially, knowledge about fundamental requirements concerning instruments of decision-making and behavior control within enterprises is acquired. What is more, the module conveys obtaining knowledge about the strengths and weaknesses and therewith fields of application and limits of prevalent instruments of strategic corporate management used by practitioners.

### Courses

- **V (2) + Ü (2)**

### Method of assessment

- **a)** written examination (approx. 60 minutes) or **b)** term paper (approx. 15 pages)

Language of assessment: German and/or English

### Allocation of places

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### Additional information

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### Referred to in LPO I

(examination regulations for teaching-degree programmes)

--
## Module title

Coordination, Budgeting and Incentives in Organizations

### Abbreviation

12-M-KOBO-182-m01

### Module coordinator

Holder of the Chair of Business Management, Management Accounting and Control

### Module offered by

Faculty of Business Management and Economics

### ECTS

5

### Method of grading

Numerical grade

### Only after succ. compl. of module(s)

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### Duration

1 semester

### Module level

Graduate

### Other prerequisites

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### Contents

This module focuses on accounting-based instruments to control behavior in decentralized enterprises. The course first discusses the role of accounting in the context of decision-making and behavioral controlling as well as informational analyses. Afterwards, the most common instruments of behavioral controlling (budgeting, value-oriented management, transfer prices) are discussed with regard to theory and practice.

### Intended learning outcomes

This module aims to provide knowledge in the context of behavioral control in enterprises. Knowledge about requirements on instruments used for behavioral control are discussed and competences for deployment, structure and development of coordination tools are provided.

### Courses

(type, number of weekly contact hours, language — if other than German)

V (2) + Ü (2)

### Method of assessment

(type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

a) written examination (approx. 60 minutes) or b) term paper (approx. 15 pages)

Language of assessment: German and/or English creditable for bonus

### Allocation of places

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### Additional information

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### Referred to in LPO I

(examination regulations for teaching-degree programmes)

--
Module title: Business Software 1  
Abbreviation: 12-GPU-222-m01

Module coordinator: Holder of the Chair of Business Management and Business Information Systems
Module offered by: Faculty of Business Management and Economics

ECTS: 5  
Method of grading: Only after succ. compl. of module(s)

Duration: 1 semester  
Module level: graduate  
Other prerequisites: --

Contents:
Content: This module provides students with an overview of the structure of a business information system (SAP Business ByDesign) in depth.

Outline of syllabus:
1. Integrated information systems: integration, standard software, system architecture
2. Working with standard business software
3. Consulting in integrated information systems: project management, project organisation, presentation skills

Description:
The lecture will be accompanied by an exercise that will present students with an opportunity to access, in small groups, the enterprise resource planning system operated by the Chair in its ERP laboratory and to work with the software, dealing with a wide variety of business processes.

If you would like to register for this course, please submit an application to the consultants (cover letter, CV, certificates; please also specify your degree programme and student ID number).

Intended learning outcomes:
After completing the course "Business Software 1", students will be able to
(i) understand an ERP system in its depth;
(ii) understand the interaction of business processes;
(iii) execute business tasks and processes in an ERP system independently (after participation in the practice lessons).

Courses:
(type, number of weekly contact hours, language — if other than German)
V (2) + Ü (2)

Method of assessment:
(type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

a) written examination (approx. 60 minutes) or
b) oral examination (one candidate each: 10 to 15 minutes, groups of 2: approx. 20 minutes, groups of 3: approx. 30 minutes) or
c) term paper (15 to 20 pages)

Language of assessment: German and/or English
Assessment offered: Once a year, winter semester creditable for bonus

Allocation of places:
20 places.
Should the number of applications exceed the number of available places, places will be allocated as follows:
(1) Master’s students of Information Systems will be given preferential consideration.
(2) The remaining places will be allocated to students of other subjects.
(3) When places are allocated in accordance with (1) and (2) and the number of applications exceeds the number of available places, places will be allocated by lot among applicants from this group.

If you would like to register for this course, please submit an application to the consultants (cover letter, CV, certificates; please also specify your degree programme and student ID number).
### Additional Information

- Referred to in LPO I (examination regulations for teaching-degree programmes)
Module title | Abbreviation
---|---
E-Business Strategies | 12-M-IBS-192-m01

Module coordinator | Module offered by
Holder of the Chair of Information Systems Engineering | Faculty of Business Management and Economics

<table>
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<th>Only after succ. compl. of module(s)</th>
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<tr>
<td>5</td>
<td>numerical grade</td>
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</table>

Duration | Module level | Other prerequisites
1 semester | graduate | --

Contents
The module provides an overview of strategic implications of digital technologies at the level of organisations, industries and value networks. To this end, concepts and frameworks from strategic technology management are applied to digital innovations and illustrated with numerous examples. In the accompanying exercise, case studies of well-known digital companies and their business models are analysed and discussed.

Intended learning outcomes
- Understand theoretical concepts of strategy development and implementation in the context of digital technologies.
- Apply different frames of reference and understand their strengths and weaknesses in the context of practical application.
- Transfer the concepts to real business situations

Courses (type, number of weekly contact hours, language — if other than German)
V (2) + Ü (2)

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)
a) Written examination (approx. 60 minutes) or
b) oral examination (one candidate each: approx. 10 to 15 minutes, groups of 2: approx. 20 minutes, groups of 3: approx. 30 minutes) or
Creditable for bonus
Language of assessment: German and/or English

Allocation of places
30 places.
Should the number of applications exceed the number of available places, places will be allocated as follows:
(1) Master’s students of Information Systems will be given preferential consideration.
(2) The remaining places will be allocated to students of other subjects.
(3) When places are allocated in accordance with (1) and (2) and the number of applications exceeds the number of available places, places will be allocated by lot among applicants from this group.

Additional information
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Referred to in LPO I (examination regulations for teaching-degree programmes)
--
### Module: Digital Marketing I

<table>
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<th>Abbreviation</th>
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<td>Digital Marketing I</td>
<td>12-M-DM1-182-m01</td>
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<th>Module coordinator</th>
<th>Module offered by</th>
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<tbody>
<tr>
<td>Holder of the Junior Professorship of Digital Marketing and E-Commerce</td>
<td>Faculty of Business Management and Economics</td>
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<tr>
<th>Duration</th>
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<tr>
<td>1 semester</td>
<td>graduate</td>
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</table>

### Contents

Digitalization is rapidly changing our lives, including all types of business relationships. Therefore, new opportunities and approaches have emerged in all areas of the marketing mix: Managers can choose from a wide variety of new communication channels, such as social media networks, blogs, or messengers, and can engage in influencer marketing and search engine optimization. They increasingly rely on online customer co-creation or crowd-sourcing and create a wide variety of new digital products and services, often related to completely new business models. Through price crawlers and price setting tools customers' price search behaviors have significantly changed, requiring new price setting techniques. Artificial intelligence enables managers to automize and optimize many of these marketing processes, thus offering new opportunities and challenges for companies. Overall, digital marketing offers a tremendous variety of concepts and approaches to seize respective opportunities and deal with related challenges, which will be largely highlighted and discussed in this course.

### Intended learning outcomes

This course provides a broad overview about these new approaches of digital marketing. It explains the underlying concepts of digital marketing and illustrates these approaches and concepts along numerous case studies. After attending this course, students will have a broad as well as in-depth understanding of digital marketing and its tools. Moreover, they will understand of how to implement these tools successfully in business practice.

### Courses

<table>
<thead>
<tr>
<th>Type</th>
<th>Number of weekly contact hours, language — if other than German</th>
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<tbody>
<tr>
<td>V (2) + Ü (2)</td>
<td>English</td>
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### Method of assessment

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<th>Type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus</th>
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<tbody>
<tr>
<td>a) written examination (approx. 60 to 120 minutes) or b) term paper (15 to 20 pages) Language of assessment: English creditable for bonus</td>
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### Allocation of places

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### Additional information

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### Referred to in LPO I

(examination regulations for teaching-degree programmes)
Module title | Abbreviation
--- | ---
Digital Marketing II | 12-M-DM2-182-m01

Module coordinator | Module offered by
--- | ---
Holder of the Junior Professorship of Digital Marketing and E-Commerce | Faculty of Business Management and Economics

ECTS | Method of grading | Only after succ. compl. of module(s)
--- | --- | ---
5 | numerical grade | --

Duration | Module level | Other prerequisites
--- | --- | ---
1 semester | graduate | --

Contents

Students are required to put themselves in the following business situation:

A large corporation has just recruited you and your team members as the new heads of the marketing department in one of the firm’s divisions in order to manage its general and digital marketing activities. Specifically, it is your task to manage the corporation’s digital product portfolio, segmentation and positioning as well as its marketing mix strategy over a period of 10 years.

Structure of the class:

- Long-term business simulation game (details see below) that students will play in groups
- Lectures and discussion rounds on strategic approaches to succeed over a duration of 10 periods

Intended learning outcomes

Studierende lernen in diesem Kurs, zentrale Konzepte des Online- und Offline-Marketings gezielt und bezogen auf die jeweilige Unternehmenssituation anzuwenden. Der Kurs bildet somit die Brücke zwischen Theorievermittlung und entsprechende Anwendung in der Unternehmenspraxis.

Courses (type, number of weekly contact hours, language — if other than German)

V (2) + Ü (2)
Module taught in: English

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

a) written examination (approx. 60 to 120 minutes) or b) term paper (15 to 20 pages)
Assessment offered: In the semester in which the course is offered
Language of assessment: English creditable for bonus

Allocation of places

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Additional information

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Referred to in LPO I (examination regulations for teaching-degree programmes)

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<table>
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<th>Module title</th>
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<td>12-M-EC1-182-m01</td>
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**Contents**

E-commerce is a highly relevant field for almost all types of companies. However, the ecommerce approaches and strategies applied by companies differ strongly depending on the respective firm context (e.g., in terms of industry, types of customers, types of products). In this seminar, students analyze the specific e-commerce strategy of a selected firm. In doing so, they evaluate the strategies’ current and future potential and make suggestions for improvements and for addressing future trends. Furthermore, each lecture session will contain short presentations where the students (in groups) will either apply selected lecture topics to real-world business cases or present the core aspects of research articles dealing with e-commerce topics in general.

**Intended learning outcomes**

This class enables students to gain insights into real-life e-commerce strategies and to train their abilities in assessing business strategies.

**Courses** (type, number of weekly contact hours, language — if other than German)

V (2) + Ü (2)  
Module taught in: English

**Method of assessment** (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

a) written examination (approx. 60 to 120 minutes) or b) term paper (15 to 20 pages)  
Language of assessment: English  
creditable for bonus

**Allocation of places**

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**Additional information**

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**Referred to in LPO I** (examination regulations for teaching-degree programmes)

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Industrial Management
(20 ECTS credits)
Core
(10 ECTS credits)
### Module Title

**Industrielle Management 1**

<table>
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<tr>
<th>Abbreviation</th>
<th>12-M-SBM-182-m01</th>
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### Module Coordinator

Holder of the Chair of Business Management and Industrial Management

### Module Offered by

Faculty of Business Management and Economics

### ECTS

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### Duration

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<td>Graduate</td>
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</table>

### Contents

The course addresses central issues of strategic supply management. The supply function of the company (purchasing, materials management, procurement logistics) and its strategic importance is analysed and basic methods are developed that are relevant in this area.

### Intended Learning Outcomes

Students learn the principles of performance-oriented optimization of all procurement activities to develop long-term, competitively sensitive potential for success. After completion of the module students are able to prepare structured, to goal-oriented analyze and to respond to performance-oriented issues of strategic procurement based on key instruments. Students are able to accurately classify the tasks of the procurement and to describe and discuss their strategic importance and dominate essential methods and procedures used in this area to apply.

### Method of Assessment

- Written examination (approx. 40 to 60 minutes) or
- Presentation (approx. 20 minutes) and term paper (15 to 20 pages), weighted 1:1 or
- Term paper (approx. 30 to 40 pages) or
- Entirely or partly computerised written examination (approx. 60 minutes) or
- Portfolio (approx. 20 pages)

Language of Assessment: German and/or English

### Allocation of Places

20 places. (1) Should the number of applications exceed the number of available places, places will be allocated by lot among all applicants irrespective of their subjects. (2) Places on all courses of the module with a restricted number of places will be allocated in the same procedure. (3) A waiting list will be maintained and places re-allocated by lot as they become available.

### Additional Information

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### Referred to in LPO I

(examination regulations for teaching-degree programmes)

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**Module title**

**Industrial Management 2**

**Abbreviation**

12-M-LA-182-m01

---

**Module coordinator**

Holder of the Chair of Business Management and Industrial Management

**Module offered by**

Faculty of Business Management and Economics

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**ECTS**

5

**Method of grading**

Only after succ. compl. of module(s)

**Numerical grade**

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**Duration**

1 semester

**Module level**

graduate

**Other prerequisites**

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**Contents**

This module analyses and classifies approaches of production planning and control. In addition, it develops methods and models of lot sizing and scheduling. The focus is on the determination of optimal production and transport volumes as well as the planning of orders and manufacturing orders.

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**Intended learning outcomes**

Students learn essential concepts, principles and methods of production planning and control with emphasis on the determination of optimal production and transport volumes as well as the planning of production and order sequences. Then, based on this expertise related knowledge broadening and deepening, essential competencies are conveyed, which allow the imaging of realistic situations and problems using mathematical and quantitative models for the derivation and assessment of alternative courses of action. After completion of the module students can answer, analyze and structure questions of production planning and control, goal-oriented. They can also arrange the planning areas in the overall business context and have an in-depth overview of the production planning and control.

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**Courses**

(type, number of weekly contact hours, language — if other than German)

V (2) + Ü (2)

Course type: might also be offered as eLearning, seminary, workshop, etc.

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**Method of assessment**

(type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

a) written examination (approx. 40 to 60 minutes) or b) presentation (approx. 20 minutes) and term paper (15 to 20 pages), weighted 1:1 or c) term paper (approx. 30 to 40 pages) or d) entirely or partly computerised written examination (approx. 60 minutes) or e) portfolio (approx 20 pages)

Language of assessment: German and/or English creditable for bonus

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**Allocation of places**

20 places. (1) Should the number of applications exceed the number of available places, places will be allocated by lot among all applicants irrespective of their subjects. (2) Places on all courses of the module with a restricted number of places will be allocated in the same procedure. (3) A waiting list will be maintained and places re-allocated by lot as they become available.

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**Additional information**

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**Referred to in LPO I** (examination regulations for teaching-degree programmes)

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Core Electives

(10 ECTS credits)
## Module Catalogue for the Subject Economathematics
### Master's with 1 major, 120 ECTS credits

<table>
<thead>
<tr>
<th>Module title</th>
<th>Abbreviation</th>
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<td>Industrial Management 3</td>
<td>12-M-SPM-182-m01</td>
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<tr>
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<th>Other prerequisites</th>
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<tr>
<td>1 semester</td>
<td>graduate</td>
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</table>

### Contents

This module will discuss contents and procedures of strategic production management and, in particular, planning and control concepts. Students will become familiar with the essentials of strategic production management. Theoretical and analytical models will be used for analysing both economic and ecological issues. In addition, the module will discuss principles of value structure optimisation and will develop competences regarding the development of integrated mathematical models.

### Intended learning outcomes

After completion of the module students are able to process, to analyze and answer questions of operations strategy structured and goal-oriented in a global context using appropriate methods. Furthermore, they know the main strategic tasks and objectives in production management and evaluate and apply planning and control concepts for the production in realistic application situations.

### Courses

(type, number of weekly contact hours, language — if other than German)

V (2) + Ü (2)
Course type: might also be offered as eLearning, seminary, workshop, etc.

### Method of assessment

(type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

- a) written examination (approx. 40 to 60 minutes) or b) presentation (approx. 20 minutes) and term paper (15 to 20 pages), weighted 1:1 or c) term paper (approx. 30 to 40 pages) or d) entirely or partly computerised written examination (approx. 60 minutes) or e) portfolio (approx 20 pages)

Language of assessment: German and/or English creditable for bonus

### Allocation of places

20 places. (1) Should the number of applications exceed the number of available places, places will be allocated by lot among all applicants irrespective of their subjects. (2) Places on all courses of the module with a restricted number of places will be allocated in the same procedure. (3) A waiting list will be maintained and places re-allocated by lot as they become available.

### Additional information

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### Referred to in LPO I
(examination regulations for teaching-degree programmes)

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Module title | Abbreviation
---|---
Industrial Management 4 | 12-M-BE-192-m01

Module coordinator | Module offered by
---|---
Holder of the Chair of Business Management and Industrial Management | Faculty of Business Management and Economics

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<td>1 semester</td>
<td>graduate</td>
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</table>

Contents

This course will develop the objectives, principles and structure of electronically supported procurement processes with a special focus on catalogue-based procurement systems, electronic tendering systems, electronic (reverse) auctions, e-marketplaces, supplier relationship management systems and eSupply chain management systems.

Intended learning outcomes

The students will be able to describe and evaluate both the potentials and goals of electronic supported procurement systems and will be able to design appropriate systems for real-life applications. Students will get insight into the essentials of operational procurement management, especially e-procurement with a focus on catalog-based procurement systems, electronic tendering systems, electronic (reverse) auctions, e-marketplaces, supplier relationship management systems and eSupply chain management systems. After completing this module, students can define and analyze the related tasks and processes and show or develop theory-based and application-oriented possible solutions at a high professional level.

Courses (type, number of weekly contact hours, language — if other than German)

V (2) + Ü (2)

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

a) Written examination (approx. 40 to 60 minutes) or
b) Presentation (approx. 20 Minutes) and term paper (15 to 20 pages), weighted 1:1 or
c) Term paper (30 to 40 pages) or
d) entirely or partly computerised written examination (approx. 60 minutes) or
e) Portfolio (approx. 20 pages)
Creditable for bonus
Language of assessment: German and/or English

Allocation of places

20 places.
(1) A total of 15 places will be allocated to students of the Master's degree programmes Management as well as International Economic Policy.
Should the number of applications exceed 15, these places will be allocated by lot. A waiting list will be maintained and places re-allocated by lot as they become available.
(2) A total of 5 places will be allocated to students of the Master’s degree programme Information Systems.
Should the number of applications exceed 5, these places will be allocated by lot. A waiting list will be maintained and places re-allocated by lot as they become available.
(3) When places are allocated in accordance with (1) and (2) and the number of applications exceeds the number of available places, places will be allocated by lot among applicants from this group.

Additional information

Module can be taught in form of E Learning course, seminar, workshop etc.

Referred to in LPO I (examination regulations for teaching-degree programmes)

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## Module title

**Advanced Operations & Logistics Management**

### Abbreviation

12-M-AOLM-182-m01

### Module coordinator

Holder of the Chair of Logistics and Quantitative Methods in Business Administration

### Module offered by

Faculty of Business Management and Economics

### ECTS

5

### Method of grading

Numerical grade

### Duration

1 semester

### Module level

Graduate

### Other prerequisites

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### Contents

The course "Advanced Operations & Logistics Management" acquaints students with advanced methods for the planning of integrated production and logistics systems and demonstrates the application of these with the help of multiple case studies.

### Intended learning outcomes

After completing this course students can:

(i) analyze and evaluate integrated production and logistics systems;

(ii) develop and apply appropriate methods to plan complex production and logistics systems;

(iii) evaluate the consequences of uncertainties in processes, and

(iv) apply concepts and methods to plan uncertainties processes.

### Courses

(V 2) + Ü (2)

Module taught in: English

### Method of assessment

(a) written examination (approx. 60 minutes) or

(b) term paper (approx. 15 to 20 pages)

Language of assessment: English

### Allocation of places

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### Additional information

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### Referred to in LPO I

(examination regulations for teaching-degree programmes)

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## Module Catalogue for the Subject Economathematics

### Master's with 1 major, 120 ECTS credits

<table>
<thead>
<tr>
<th>Module title</th>
<th>Abbreviation</th>
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<td>Global Logistics &amp; Supply Chain Management</td>
<td>12-M-GLSC-182-m01</td>
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<td>Faculty of Business Management and Economics</td>
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<tbody>
<tr>
<td>1 semester</td>
<td>graduate</td>
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</tbody>
</table>

### Contents

The course "Global Logistics & Supply Chain Management" acquaints students with advanced methods for the planning of global production networks and demonstrates the application of these with the help of multiple case studies.

### Intended learning outcomes

After completing this course students can
(i) analyze and evaluate global production networks;
(ii) develop and apply appropriate methods to plan production networks;
(iii) evaluate the consequences of uncertainties in processes and apply concepts and methods to plan uncertain processes.

### Courses

<table>
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<th>(type, number of weekly contact hours, language — if other than German)</th>
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Module taught in: English

### Method of assessment

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<tr>
<td>a) written examination (approx. 60 minutes) or b) term paper (approx. 15 to 20 pages)</td>
</tr>
</tbody>
</table>

Language of assessment: English

creditable for bonus

### Allocation of places

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### Additional information

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### Referred to in LPO I

(examination regulations for teaching-degree programmes)

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## Module Catalogue for the Subject Economathematics

### Master's with 1 major, 120 ECTS credits

<table>
<thead>
<tr>
<th>Module title</th>
<th>Abbreviation</th>
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</thead>
<tbody>
<tr>
<td>Managerial Analytics &amp; Decision Making</td>
<td>12-M-MADM-182-m01</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Module coordinator</th>
<th>Module offered by</th>
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</thead>
<tbody>
<tr>
<td>Holder of the Chair of Logistics and Quantitative Methods in Business Administration</td>
<td>Faculty of Business Management and Economics</td>
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<th>Duration</th>
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<td>1 semester</td>
<td>graduate</td>
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</table>

### Contents

The course "Managerial Analytics & Decision Making" discusses quantitative methods to structure and solve a diverse set of management problems and demonstrates the application of modern methods with the help of multiple case studies.

### Intended learning outcomes

After completing this course students can
(i) better understand and structure problems;
(ii) apply important theoretical and empirical frameworks to practical problems that evaluate good and bad decision making;
(iii) implement advanced analytical methods to support decision making under risk.

### Courses

<table>
<thead>
<tr>
<th>Type</th>
<th>Number of weekly contact hours</th>
<th>Language</th>
<th>Module taught in:</th>
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</thead>
<tbody>
<tr>
<td>V (2) + Ü (2)</td>
<td></td>
<td>English</td>
<td>English</td>
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### Method of assessment

a) written examination (approx. 60 minutes) or b) term paper (approx. 15 to 20 pages)
Language of assessment: English
creditable for bonus

### Allocation of places

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### Additional information

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### Referred to in LPO I

(examination regulations for teaching-degree programmes)

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<table>
<thead>
<tr>
<th>Module title</th>
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<tr>
<td>Seminar: Supply Chain Competition</td>
<td>12-M-SCC-161-m01</td>
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</table>

**Contents**

In the seminar "Supply Chain Competition", students participate in an online multi-round simulation and apply methods of operations and supply chain management.

**Intended learning outcomes**

After completing this seminar students

i. selected and applied quantitative models for procurement, production, sales and supply chain management,

ii. faced the practical problems when using real data to feed models,

iii. and understand the challenges to reach a coordinated decision in a company.

**Courses**

(type, number of weekly contact hours, language — if other than German)

S (2)

**Method of assessment**

(type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

term paper (approx. 15 to 20 pages) and presentation (approx. 10 minutes), weighted 2:1

Assessment offered: Once a year, winter semester

Language of assessment: German and/or English

**Allocation of places**

12 places. Should the number of applications exceed the number of available places, places will be allocated as follows:

1. Students who already have successfully completed courses offered by the Chair of Logistics and Quantitative Methods will be given preferential consideration.

2. Among applicants with the same number of successfully completed modules, places will be allocated according to the total number of ECTS credits achieved in mandatory courses of the focus Logistik und Supply Chain Management (Logistics and Supply Chain Management) or Value Chain Management or another specialisation the applicant has selected which includes courses offered by the Chair.

3. Among applicants with the same number of ECTS credits, places will be allocated by lot.

**Additional information**

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**Referred to in LPO I**

(examination regulations for teaching-degree programmes)

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## Industrial Management 5

<table>
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<th>Module title</th>
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<tr>
<td>Industrial Management 5</td>
<td>12-M-NMA-221-m01</td>
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### Module coordinator
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### Module offered by
Faculty of Business Management and Economics

### ECTS
5

### Method of grading
numerical grade

### Only after succ. compl. of module(s)
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### Duration
1 semester

### Module level
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### Other prerequisites
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### Contents
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### Intended learning outcomes
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### Courses (type, number of weekly contact hours, language — if other than German)

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<th>Type</th>
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</table>

**Module taught in:** German and/or English

### Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

- a) written examination (approx. 40 to 60 minutes) or
- b) presentation (approx. 20 minutes) and term paper (15 to 20 pages), weighted 1:1 or
- c) term paper (approx. 30 to 40 pages) or
- d) portfolio (approx. 50 hours)

Language of assessment: German and/or English

Assessment offered: Only when announced in the semester in which the courses are offered creditable for bonus

### Allocation of places

20 places.

Should the number of applications exceed the number of available places, places will be allocated as follows:

1. Students who already have successfully completed courses offered by the Chair of Business Economics and Industrial Management will be given preferential consideration.
2. Among applicants with the same number of successfully completed modules, places will be allocated according to the total number of ECTS credits achieved in courses of BWL und Industriebetriebslehre (Business Economics and Industrial Management).
3. Among applicants with the same number of ECTS credits, places will be allocated according to the average grade in courses mentioned in (2).
4. Among applicants with the same average grade, places will be allocated by lot.

### Additional information

Module can be taught in form of E Learning course or as a block.

**Referred to in LPO I** (examination regulations for teaching-degree programmes)

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<table>
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<th>Module title</th>
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<th>Courses (type, number of weekly contact hours, language — if other than German)</th>
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<td>S (4) Module taught in: German and/or English</td>
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<th>Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)</th>
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| a) written examination (approx. 40 to 60 minutes) or  
b) presentation (approx. 20 minutes) and term paper (15 to 20 pages), weighted 1:1 or  
c) term paper (approx. 30 to 40 pages) or  
d) portfolio (approx. 50 hours)  
Language of assessment: German and/or English  
Assessment offered: Only when announced in the semester in which the courses are offered  
creditable for bonus |

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<td>(3) Among applicants with the same number of ECTS credits, places will be allocated according to the average grade in courses mentioned in (2).</td>
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<tr>
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Information Systems
(20 ECTS credits)
Core

(10 ECTS credits)
# Module Catalogue for the Subject Economathematics

## Master's with 1 major, 120 ECTS credits

<table>
<thead>
<tr>
<th>Module title</th>
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<tr>
<td>IT-Management</td>
<td>12-M-ITM-161-m01</td>
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<th>Module coordinator</th>
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<tr>
<td>Holder of the Chair of Information Systems Engineering</td>
<td>Faculty of Business Management and Economics</td>
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<td>1 semester</td>
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</table>

## Contents

**Content:**
This course provides students with an in-depth overview of aims, tasks and appropriate methods of IT management.

**Outline of syllabus:**
1. Organisation and distinction
2. IT strategy
3. IT organisation
4. Management of IT systems
5. Enterprise Architecture Management
6. IT project management
7. IT security
8. IT law
9. IT controlling

**Reading:**
- Tiemeyer: Handbuch IT-Management, Munich.
- Hanschke: Strategisches Management der IT-Landschaft, Munich.

## Intended learning outcomes

After completing the course "IT Management", students will be able to
1. overview the different aspects to be considered regarding a purposeful IT management;
2. understand and apply appropriate methods and tools;
3. independently perform system search and selection in a team project (only after participation in the practice lessons).

## Courses

**V (2) + Ü (2)**

## Method of assessment

**Type, scope, language — if other than German**

- a) written examination (approx. 60 minutes) or b) oral examination (one candidate each: approx. 15 to 20 minutes; groups of 2: approx. 20 minutes; groups of 3: approx. 30 minutes)

**Language of assessment:** German and/or English

**Creditable for bonus**

## Allocation of places

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## Additional information

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**Referred to in LPO I**
(examination regulations for teaching-degree programmes)

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# Module Catalogue for the Subject Economathematics

## Master's with 1 major, 120 ECTS credits

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<tr>
<th>Module title</th>
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<tbody>
<tr>
<td>Information Processing within Organizations</td>
<td>12-IV-161-m01</td>
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## Contents

### Content:

This course provides students with an in-depth overview of the structure and the application areas of business management information systems in enterprises and public institutions.

### Outline of syllabus:

1. What is software: concepts, categories, application
2. Software life cycle: duration, phases, steps
3. As-is analysis: tasks, problems
4. To-be concept: system design, data design, dialog design, function design
5. Object orientation: paradigm shift
6. Change management: meaning, methodologies, project management
7. Office automation: tasks, areas of application

## Intended learning outcomes

After completing the course “Integrated Information Processing”, students will be able to

(i) understand the importance of integration in enterprises, especially in information systems;

(ii) assess the progress of development of a software project, estimate cycle costs, know and consider requirements, which brings a software implementation with;

(iii) select the correct procedures or practices in an as-is analysis and target conception and practically apply (with participation in the exercise);

(iv) understand the importance of change management and project management and know the appropriate methods for specific applications.

## Courses

(type, number of weekly contact hours, language — if other than German)

V (2) + Ü (2)

## Method of assessment

(type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

written examination (approx. 60 minutes)

Language of assessment: German and/or English
creditable for bonus

## Allocation of places

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## Additional information

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## Referred to in LPO I (examination regulations for teaching-degree programmes)

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Core Electives
(10 ECTS credits)
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<th>Module title</th>
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<tbody>
<tr>
<td>Analytical Information Systems</td>
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Contents

The course provides an overview of the structure and applications of analytical information systems. A special focus is on individual quantitative methods of data analysis. On the one hand, methods from the areas of data preparation and data manipulation as well as their practical application are introduced. On the other hand, an introduction to methods and the application of machine learning methods for predictive analytics, in particular neural networks and deep learning, is given.

Intended learning outcomes

The module provides students with knowledge of:
- Data Manipulation
- Data Engineering
- Descriptive Analytics
- Predictive Analytics and Data Mining
- Supervised Learning
- Unsupervised Learning
- Neural Networks and Deep Learning
- Text Mining
- Big Data Technologies

Courses (type, number of weekly contact hours, language — if other than German)

V (2) + Ü (2)

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

Written examination (approx. 60 Minutes)
Creditable for bonus
Language of assessment: German and/or English

Allocation of places

40 places.
WM1:
Should the number of applications exceed the number of available places, places will be allocated as follows:
(1) Master’s students of Information Systems will be given preferential consideration.
(2) The remaining places will be allocated to students of other subjects.
(3) When places are allocated in accordance with (1) and (2) and the number of applications exceeds the number of available places, places will be allocated by lot among applicants from this group.

Additional information

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Referred to in LPO I (examination regulations for teaching-degree programmes)

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Module title: Business Software 1
Abbreviation: 12-GPU-222-m01

Module coordinator: Holder of the Chair of Business Management and Business Information Systems
Module offered by: Faculty of Business Management and Economics

ECTS: 5
Method of grading: Only after succ. compl. of module(s)
Duration: 1 semester
Module level: graduate
Other prerequisites: --

Contents:

Content:
This module provides students with an overview of the structure of a business information system (SAP Business ByDesign) in depth.

Outline of syllabus:
1. Integrated information systems: integration, standard software, system architecture
2. Working with standard business software
3. Consulting in integrated information systems: project management, project organisation, presentation skills

Description:
The lecture will be accompanied by an exercise that will present students with an opportunity to access, in small groups, the enterprise resource planning system operated by the Chair in its ERP laboratory and to work with the software, dealing with a wide variety of business processes.
If you would like to register for this course, please submit an application to the consultants (cover letter, CV, certificates; please also specify your degree programme and student ID number).

Intended learning outcomes:
After completing the course "Business Software 1", students will be able to
(i) understand an ERP system in its depth;
(ii) understand the interaction of business processes;
(iii) execute business tasks and processes in an ERP system independently (after participation in the practice lessons).

Courses (type, number of weekly contact hours, language — if other than German):
V (2) + Ü (2)

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus):
a) written examination (approx. 60 minutes) or
b) oral examination (one candidate each: 10 to 15 minutes, groups of 2: approx. 20 minutes, groups of 3: approx. 30 minutes) or
c) term paper (15 to 20 pages)
Language of assessment: German and/or English
Assessment offered: Once a year, winter semester creditable for bonus

Allocation of places:
20 places.
Should the number of applications exceed the number of available places, places will be allocated as follows:
(1) Master's students of Information Systems will be given preferential consideration.
(2) The remaining places will be allocated to students of other subjects.
(3) When places are allocated in accordance with (1) and (2) and the number of applications exceeds the number of available places, places will be allocated by lot among applicants from this group.
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<tr>
<td>Module title</td>
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</tr>
<tr>
<td>E-Business Strategies</td>
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Module coordinator

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ECTS | Method of grading | Only after succ. compl. of module(s) |
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Contents

The module provides an overview of strategic implications of digital technologies at the level of organisations, industries and value networks. To this end, concepts and frameworks from strategic technology management are applied to digital innovations and illustrated with numerous examples. In the accompanying exercise, case studies of well-known digital companies and their business models are analysed and discussed.

Intended learning outcomes

- Understand theoretical concepts of strategy development and implementation in the context of digital technologies.
- Apply different frames of reference and understand their strengths and weaknesses in the context of practical application.
- Transfer the concepts to real business situations

Courses (type, number of weekly contact hours, language — if other than German)

V (2) + Ü (2)

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

a) Written examination (approx. 60 minutes) or
b) oral examination (one candidate each: approx. 10 to 15 minutes, groups of 2: approx. 20 minutes, groups of 3: approx. 30 minutes) or

Creditable for bonus

Language of assessment: German and/or English

Allocation of places

40 places.
Should the number of applications exceed the number of available places, places will be allocated as follows:
(1) Master’s students of Information Systems will be given preferential consideration.
(2) The remaining places will be allocated to students of other subjects.
(3) When places are allocated in accordance with (1) and (2) and the number of applications exceeds the number of available places, places will be allocated by lot among applicants from this group.

Additional information

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<tr>
<td>Dean of the Faculty of Business Mgmt and Economics</td>
<td>Faculty of Business Management and Economics</td>
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<th>Module level</th>
<th>Other prerequisites</th>
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<tbody>
<tr>
<td>1 semester</td>
<td>graduate</td>
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</table>

**Contents**

This module serves the purpose of transferring credits from
- courses taken at other German or non-German universities
- additional courses offered on a short-term basis
- courses offered by new Chairs that are yet to be included in the FSB (subject-specific provisions)

The holders of the respective Chairs will ensure that the courses are eligible for credit transfer.

**Intended learning outcomes**

As a result of accrediting multiple kinds of modules, a description of acquired skills cannot be given.

**Courses** (type, number of weekly contact hours, language — if other than German)

V (2) + Ü (2)

**Method of assessment** (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

a) written examination (approx. 60 minutes) or b) oral examination (one candidate each: 10 to 15 minutes; groups of 2: approx. 20 minutes; groups of 3: approx. 30 minutes) or c) term paper (approx. 15 to 20 pages)

Assessment offered: In the semester in which the course is offered

Language of assessment: German and/or English

creditable for bonus

**Allocation of places**

--

**Additional information**

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**Referred to in LPO I** (examination regulations for teaching-degree programmes)

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<table>
<thead>
<tr>
<th>Module title</th>
<th>Topics in Information Systems 2</th>
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<tr>
<td>Abbreviation</td>
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<td>Module coordinator</td>
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**Contents**

This module serves the purpose of transferring credits from:
- courses taken at other German or non-German universities
- additional courses offered on a short-term basis
- courses offered by new Chairs that are yet to be included in the FSB (subject-specific provisions)

The holders of the respective Chairs will ensure that the courses are eligible for credit transfer.

**Intended learning outcomes**

As a result of accrediting multiple kinds of modules, a description of acquired skills cannot be given.

**Courses** (type, number of weekly contact hours, language — if other than German)

V (2) + Ü (2)

**Method of assessment** (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

a) written examination (approx. 60 minutes) or b) oral examination (one candidate each: 10 to 15 minutes; groups of 2: approx. 20 minutes; groups of 3: approx. 30 minutes) or c) term paper (approx. 15 to 20 pages)

Assessment offered: In the semester in which the course is offered

Language of assessment: German and/or English
creditable for bonus

**Allocation of places**

--

**Additional information**

--

**Referred to in LPO I** (examination regulations for teaching-degree programmes)

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## Module Catalogue for the Subject
### Economathematics
#### Master's with 1 major, 120 ECTS credits

<table>
<thead>
<tr>
<th>Module title</th>
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<tr>
<td>Decision Support Systems</td>
<td>12-M-DSS-192-m01</td>
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<tbody>
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</table>

### Contents
The course discusses advanced approaches for modelling and solving decision problems in business settings. The acquired insights are used to design and implement decision support systems using standard software tools (Python).

### Intended learning outcomes
After successfully completing the course, students should be able to
- Understand the structure of classic business decision problems
- Isolate key elements from general problem descriptions and convert them to quantitative decision models
- Solve different classes of optimization problems (linear, network, integer, multi-objective, non-linear, stochastic)
- Implement decision support systems

### Courses
(type, number of weekly contact hours, language — if other than German)
V (2) + Ü (2)

### Method of assessment
(type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)
a) Written examination (approx. 60 minutes) or
b) oral examination (one candidate each: approx. 10 to 15 minutes, groups of 2: approx. 20 minutes, groups of 3: approx. 30 minutes)
Creditable for bonus
Language of assessment: German and/or English

### Allocation of places
40 places.
Should the number of applications exceed the number of available places, places will be allocated as follows:
(1) Master’s students of Information Systems will be given preferential consideration.
(2) The remaining places will be allocated to students of other subjects.
(3) When places are allocated in accordance with (1) and (2) and the number of applications exceeds the number of available places, places will be allocated by lot among applicants from this group.

### Additional information
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Referred to in LPO I (examination regulations for teaching-degree programmes)
--
Module title | Abbreviation
---|---
Topics in Data Science 1 | 12-M-TDS-222-m01

Module coordinator | Module offered by
Holder of the Chair of Business Analytics | Faculty of Business Management and Economics

<table>
<thead>
<tr>
<th>ECTS</th>
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</table>

Contents
Data science is concerned with extracting knowledge and valuable insights from data assets. It is an emerging field that is currently in high demand in both academia and industry. This course provides a practical introduction to the full spectrum of data science techniques spanning data acquisition and processing, data visualization and presentation, creation and evaluation of machine learning models.

The course focuses on the practical aspects of data science, with emphasis on the implementation and use of the above techniques. Students will complete programming homework assignments that emphasize practical understanding of the methods described in the course.

Intended learning outcomes
Topics covered include:
- Data acquisition and processing
- Graph and network models
- Text analysis
- Working with geospatial data
- Usage of machine learning models (supervised and unsupervised)

Courses (type, number of weekly contact hours, language — if other than German)
V (2) + Ü (2)
Module taught in: English

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)
a) written examination (approx. 60 minutes) or
b) term paper (approx. 15 pages)
Language of assessment: German and/or English
Assessment offered: In the semester in which the course is offered creditable for bonus

Allocation of places
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Additional information
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Referred to in LPO I (examination regulations for teaching-degree programmes)
--
Module title | Abbreviation
--- | ---
Topics in Data Science 2 | 12-M-ATDS-222-m01

Module coordinator | Module offered by
--- | ---
Holder of the Chair of Business Analytics | Faculty of Business Management and Economics

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</table>

Duration | Module level | Other prerequisites
--- | --- | ---
1 semester | graduate | --

Contents
In this course, students work on advanced data science projects. The course covers the entire data science workflow from data collection to data preparation to modeling, evaluation and deployment. By following a top-down teaching approach, students are enabled to apply complex machine learning models from the beginning.

Intended learning outcomes
As part of the course work, students will acquire knowledge and skills in the following areas:
1. Becoming familiar with the principles and frameworks in the research area of Data Science.
2. Apply machine learning and deep learning frameworks to structured and unstructured data
3. Design, implementation and evaluation of key algorithms within an end-to-end workflow in the field of Data Science
4. Application of Jupyter notebooks and their infrastructure (collection, storage, retrieval, and analysis of data)
5. Understanding of a data-driven & analytical approach to decision problems

Courses (type, number of weekly contact hours, language — if other than German)

V (2) + Ü (2)
Module taught in: English

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

a) written examination (approx. 60 minutes) or
b) term paper (approx. 15 pages)
Language of assessment: German and/or English
Assessment offered: Only when announced in the semester in which the courses are offered creditable for bonus

Allocation of places
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Additional information
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Referred to in LPO I (examination regulations for teaching-degree programmes)
--
Logistics & Supply Chain Management
(20 ECTS credits)
Core

(10 ECTS credits)
Module title: Advanced Operations & Logistics Management
Abbreviation: 12-M-AOLM-182-m01

Module coordinator: Holder of the Chair of Logistics and Quantitative Methods in Business Administration
Module offered by: Faculty of Business Management and Economics

ECTS: 5
Method of grading: numerical grade
Only after succ. compl. of module(s):

Duration: 1 semester
Module level: graduate
Other prerequisites:

Contents:
The course "Advanced Operations & Logistics Management" acquaints students with advanced methods for the planning of integrated production and logistics systems and demonstrates the application of these with the help of multiple case studies.

Intended learning outcomes:
After completing this course students can
(i) analyze and evaluate integrated production and logistics systems;
(ii) develop and apply appropriate methods to plan complex production and logistics systems;
(iii) evaluate the consequences of uncertainties in processes, and
(iv) apply concepts and methods to plan uncertainties processes.

Courses (type, number of weekly contact hours, language — if other than German):
V (2) + Ü (2)
Module taught in: English

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus):
a) written examination (approx. 60 minutes) or b) term paper (approx. 15 to 20 pages)
Language of assessment: English
creditable for bonus

Allocation of places:

Additional information:

Referred to in LPO I (examination regulations for teaching-degree programmes):

<table>
<thead>
<tr>
<th>Module title</th>
<th>Abbreviation</th>
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<td>Global Logistics &amp; Supply Chain Management</td>
<td>12-M-GLSC-182-m01</td>
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**Contents**

The course "Global Logistics & Supply Chain Management" acquaints students with advanced methods for the planning of global production networks and demonstrates the application of these with the help of multiple case studies.

**Intended learning outcomes**

After completing this course students can
(i) analyze and evaluate global production networks;
(ii) develop and apply appropriate methods to plan production networks;
(iii) evaluate the consequences of uncertainties in processes and apply concepts and methods to plan uncertain processes.

**Courses**

(type, number of weekly contact hours, language — if other than German)

V (2) + Ü (2)
Module taught in: English

**Method of assessment**

(type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

a) written examination (approx. 60 minutes) or b) term paper (approx. 15 to 20 pages)

Language of assessment: English

 créditable for bonus

**Allocation of places**

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**Additional information**

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**Referred to in LPO I**

(examination regulations for teaching-degree programmes)

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Core Electives
(10 ECTS credits)
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<td>Seminar: Supply Chain</td>
<td>12-M-SCC-161-m01</td>
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<tr>
<td>Competition</td>
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**Contents**

In the seminar "Supply Chain Competition", students participate in an online multi-round simulation and apply methods of operations and supply chain management.

**Intended learning outcomes**

After completing this seminar students

- i. selected and applied quantitative models for procurement, production, sales and supply chain management,
- ii. faced the practical problems when using real data to feed models,
- iii. and understand the challenges to reach a coordinated decision in a company.

**Courses** (type, number of weekly contact hours, language — if other than German)

- S (2)

**Method of assessment** (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

- term paper (approx. 15 to 20 pages) and presentation (approx. 10 minutes), weighted 2:1
- Assessment offered: Once a year, winter semester
- Language of assessment: German and/or English

**Allocation of places**

12 places. Should the number of applications exceed the number of available places, places will be allocated as follows: (1) Students who already have successfully completed courses offered by the Chair of Logistics and Quantitative Methods will be given preferential consideration. (2) Among applicants with the same number of successfully completed modules, places will be allocated according to the total number of ECTS credits achieved in mandatory courses of the focus Logistik und Supply Chain Management (Logistics and Supply Chain Management) or Value Chain Management or another specialisation the applicant has selected which includes courses offered by the Chair. (3) Among applicants with the same number of ECTS credits, places will be allocated by lot.

**Additional information**

--

**Referred to in LPO I** (examination regulations for teaching-degree programmes)

--
## Module title
Industrial Management 2

## Abbreviation
12-M-LA-182-m01

## Module coordinator
Holder of the Chair of Business Management and Industrial Management

## Module offered by
Faculty of Business Management and Economics

<table>
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### Contents
This module analyses and classifies approaches of production planning and control. In addition, it develops methods and models of lot sizing and scheduling. The focus is on the determination of optimal production and transport volumes as well as the planning of orders and manufacturing orders.

### Intended learning outcomes
Students learn essential concepts, principles and methods of production planning and control with emphasis on the determination of optimal production and transport volumes as well as the planning of production and order sequences. Then, based on this expertise related knowledge broadening and deepening, essential competencies are conveyed, which allow the imaging of realistic situations and problems using mathematical and quantitative models for the derivation and assessment of alternative courses of action. After completion of the module students can answer, analyze and structure questions of production planning and control, goal-oriented. They can also arrange the planning areas in the overall business context and have an in-depth overview of the production planning and control.

### Courses

<table>
<thead>
<tr>
<th>Type, number of weekly contact hours, language — if other than German</th>
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<td>V (2) + Ü (2)</td>
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Course type: might also be offered as eLearning, seminar, workshop, etc.

### Method of assessment

<table>
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<tbody>
<tr>
<td>a) written examination (approx. 40 to 60 minutes) or b) presentation (approx. 20 minutes) and term paper (15 to 20 pages), weighted 1:1 or c) term paper (approx. 30 to 40 pages) or d) entirely or partly computerised written examination (approx. 60 minutes) or e) portfolio (approx 20 pages)</td>
</tr>
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</table>

Language of assessment: German and/or English creditable for bonus

### Allocation of places

20 places. (1) Should the number of applications exceed the number of available places, places will be allocated by lot among all applicants irrespective of their subjects. (2) Places on all courses of the module with a restricted number of places will be allocated in the same procedure. (3) A waiting list will be maintained and places re-allocated by lot as they become available.

### Additional information

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### Referred to in LPO I (examination regulations for teaching-degree programmes)

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Module title | Abbreviation
---|---
Decision Support Systems | 12-M-DSS-192-m01

Module coordinator | Module offered by
Holder of the Chair of Business Analytics | Faculty of Business Management and Economics

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Contents
The course discusses advanced approaches for modelling and solving decision problems in business settings. The acquired insights are used to design and implement decision support systems using standard software tools (Python).

Intended learning outcomes
After successfully completing the course, students should be able to
- Understand the structure of classic business decision problems
- Isolate key elements from general problem descriptions and convert them to quantitative decision models
- Solve different classes of optimization problems (linear, network, integer, multi-objective, non-linear, stochastic)
- Implement decision support systems

Courses
V (2) + Ü (2)

Method of assessment
(a) Written examination (approx. 60 minutes) or
(b) oral examination (one candidate each: approx. 10 to 15 minutes, groups of 2: approx. 20 minutes, groups of 3: approx. 30 minutes)
Creditable for bonus
Language of assessment: German and/or English

Allocation of places
40 places.
Should the number of applications exceed the number of available places, places will be allocated as follows:
(1) Master’s students of Information Systems will be given preferential consideration.
(2) The remaining places will be allocated to students of other subjects.
(3) When places are allocated in accordance with (1) and (2) and the number of applications exceeds the number of available places, places will be allocated by lot among applicants from this group.

Additional information
--

Referred to in LPO I (examination regulations for teaching-degree programmes)
--
Module title: Industrial Management 3
Abbreviation: 12-M-SPM-182-m01

Module coordinator: Holder of the Chair of Business Management and Industrial Management
Module offered by: Faculty of Business Management and Economics

ECTS: 5
Method of grading: numerical grade
Only after succ. compl. of module(s): --
Duration: 1 semester
Module level: graduate
Other prerequisites: --

Contents:
This module will discuss contents and procedures of strategic production management and, in particular, planning and control concepts. Students will become familiar with the essentials of strategic production management. Theoretical and analytical models will be used for analysing both economic and ecological issues. In addition, the module will discuss principles of value structure optimisation and will develop competences regarding the development of integrated mathematical models.

Intended learning outcomes:
After completion of the module students are able to process, to analyze and answer questions of operations strategy structured and goal-oriented in a global context using appropriate methods. Furthermore, they know the main strategic tasks and objectives in production management and evaluate and apply planning and control concepts for the production in realistic application situations.

Courses:
V (2) + Ü (2)
Course type: might also be offered as eLearning, seminar, workshop, etc.

Method of assessment:
(a) written examination (approx. 40 to 60 minutes) or (b) presentation (approx. 20 minutes) and term paper (15 to 20 pages), weighted 1:1 or (c) term paper (approx. 30 to 40 pages) or (d) entirely or partly computerised written examination (approx. 60 minutes) or (e) portfolio (approx 20 pages)
Language of assessment: German and/or English
Creditable for bonus:

Allocation of places:
20 places. (1) Should the number of applications exceed the number of available places, places will be allocated by lot among all applicants irrespective of their subjects. (2) Places on all courses of the module with a restricted number of places will be allocated in the same procedure. (3) A waiting list will be maintained and places re-allocated by lot as they become available.

Additional information:
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Referred to in LPO I (examination regulations for teaching-degree programmes):
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### Managerial Analytics & Decision Making

**Module title**  
Managerial Analytics & Decision Making

**Abbreviation**  
12-M-MADM-182-m01

<table>
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**Duration**  
1 semester

**Module level**  
graduate

**Other prerequisites**  
--

### Contents

The course "Managerial Analytics & Decision Making" discusses quantitative methods to structure and solve a diverse set of management problems and demonstrates the application of modern methods with the help of multiple case studies.

### Intended learning outcomes

After completing this course students can

1. better understand and structure problems;
2. apply important theoretical and empirical frameworks to practical problems that evaluate good and bad decision making;
3. implement advanced analytical methods to support decision making under risk.

### Courses

**Type, number of weekly contact hours, language — if other than German**

V (2) + Ü (2)  
Module taught in: English

### Method of assessment

**Type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus**

a) written examination (approx. 60 minutes) or b) term paper (approx. 15 to 20 pages)  
Language of assessment: English  
creditable for bonus

### Allocation of places

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### Additional information

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### Referred to in LPO I

(examination regulations for teaching-degree programmes)

--
### Module title
Strategic Management of Global Supply Chains

### Abbreviation
12-M-SMGS-182-m01

### Module coordinator
Holder of the Chair of Logistics and Quantitative Methods in Business Administration

### Module offered by
Faculty of Business Management and Economics

### ECTS
5

### Method of grading
numerical grade

### Only after succ. compl. of module(s)
--

### Duration
1 semester

### Module level
graduate

### Other prerequisites
--

### Contents
**Description:**
In the course "Strategic Management of Global Supply Chains", students will become familiar with the basic principles of building an efficient global supply chain and will apply what they have learned working on multiple case studies.

**Intended learning outcomes**
After completing this course students (i) can apply the basic methods and concepts of supply chain management to practical settings and evaluate the results, and (ii) understand the effects of global value chains onto strategic company decisions.

### Courses
**V (2) + Ü (2)**
Module taught in: English

### Method of assessment
**written examination (approx 60 minutes)**
Language of assessment: German and/or English
creditable for bonus

### Allocation of places
--

### Additional information
--

### Referred to in LPO I
(examination regulations for teaching-degree programmes)
--
Human Resource Management and Organization
(20 ECTS credits)
Core

(10 ECTS credits)
Module title | Abbreviation
---|---
Incentives in Organizations | 12-M-AO-222-m01

Module coordinator | Module offered by
---|---
Holder of the Chair of Human Resource Management and Organisation | Faculty of Business Management and Economics

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Contents

Based on the classical principal-agent theory, this course discusses methodological and empirical aspects of incentives in organisations. It uses contents from advanced text books and original (mainly empirical) research articles.

Outline of syllabus

1. Principal-agent theory
2. Do top managers earn too much? (application)
3. Performance-based payment
4. Implementation of performance-based payment in companies (application)
5. Seniority payment (with application)
6. Financial incentives to work after retirement (with application)
7. Efficiency wages (with case study)
8. Team incentives (with case study)

Intended learning outcomes

Students acquire a working knowledge of key incentive models, selected empirical applications and the necessary econometric background. This enables them to identify the advantages and disadvantages of different incentive systems that are applied in the enterprise context, to make informed management analyses and to critically evaluate current controversies and developments as well as to conduct their own research.

Courses (type, number of weekly contact hours, language — if other than German)

V (2) + Ü (2)
Module taught in: English

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

a) written examination (approx. 60 minutes) or
b) term paper (approx. 15 pages)
Language of assessment: English

Allocation of places

--

Additional information

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Referred to in LPO I (examination regulations for teaching-degree programmes)

--
Module title | Abbreviation
---|---
Human Resource Management and Industrial Relations | 12-M-HRM-222-m01

| Holder of the Chair of Human Resource Management and Organisation | Module offered by |
---|---
Faculty of Business Management and Economics |

| ECTS | Method of grading | Only after succ. compl. of module(s) |
---|---|---
5 | numerical grade | -- |

| Duration | Module level | Other prerequisites |
---|---|---
1 semester | graduate | -- |

Contents
The lecture "Human Resource Management and Industrial Relations" introduces advanced theories, estimation techniques and empirical results from the areas of human resources management and institutional frameworks such as the different actors in industrial relations.

Syllabus
Introduction: Human Resource Management & Industrial Relationships

Chapter 1: The employment contract [formal model]

Chapter 2: Motivation [formal model]

Chapter 3: Employee resistance against reorganisations [empirical study]

Chapter 4: The role of works councils [formal model]

Chapter 5: Works councils and the employer wage structure [empirical study]

Chapter 6: The behaviour of labour unions [formal model]

Chapter 7: Learning process of employers [formal model and empirical study]

Chapter 8: Demographic challenges of HRM [formal model and empirical study]

Intended learning outcomes
The aim of the lectures is to enable students to understand and apply advanced theories, estimation techniques and empirical results in the area human resource management and industrial relations on the basis of scientific literature.

Courses (type, number of weekly contact hours, language — if other than German)
V (2) + Ü (2)
Module taught in: English

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)
a) written examination (approx. 60 minutes) or
b) term paper (approx. 15 pages)
Language of assessment: English

Allocation of places
There are no restrictions with regard to available places for students of the Master’s degree programmes Management, International Economic Policy, Information Systems, Wirtschaftsmathematik (Mathematics for Economics) and Chinese and Economics as well as China Business and Economics. A total of 20 places will be allocated to students of other subjects; should the number of applications exceed the number of available places, these places will be allocated by lot.
## Additional Information

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**Referred to in LPO I** (examination regulations for teaching-degree programmes)

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Core Electives

(10 ECTS credits)
Module title | Abbreviation
---|---
Corporate Entrepreneurship | 12-M-UGF1-182-m01

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Contents

This module is a theory-led and practice-oriented primer on corporate entrepreneurship. It provides you with knowledge useful for anyone aiming at working (or researching) in the field of corporate innovation and entrepreneurship or at pursuing an 'intrapreneurial' or entrepreneurial career.

1. Introduction to corporate entrepreneurship
2. Antecedents and forms of corporate entrepreneurship
3. Corporate strategy and corporate entrepreneurship
4. Organizational structure and corporate entrepreneurship
5. Human resource management and corporate entrepreneurship
6. Building supportive organizational cultures
7. Entrepreneurial control systems
8. Entrepreneurial leadership
9. The corporate entrepreneur as a champion and diplomat
10. The pay-off from corporate entrepreneurship
11. Corporate venture capital
12. Corporate entrepreneurship in nonprofit and government organizations
13. Universities and academic spin-offs
14. Wrap-up and Q&A

Intended learning outcomes

Educational aims

- Clarify the role of corporate entrepreneurship
- Explain theoretical concepts and mechanisms behind corporate entrepreneurship
- Enable students to critically appraise alternative approaches to corporate entrepreneurship
- Enable students to evaluate the boundaries and risks of corporate entrepreneurship

Learning outcomes

On successful completion of this module students will be able to:

- Create and evaluate concepts related to corporate entrepreneurship
- Assess the role of corporate entrepreneurship for creating and sustaining competitive advantage
- Make judgements about the organizational and managerial implications of corporate entrepreneurship
- Systematically choose between different routes of action
**Courses** (type, number of weekly contact hours, language — if other than German)

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Module taught in: English

**Method of assessment** (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

a) written examination (approx. 60 to 120 minutes) or b) term paper (15 to 20 pages) or c) oral examination of one candidate each (approx. 10 to 15 minutes) or oral examination in groups (groups of 2 approx. 20 minutes, groups of 3 approx. 30 minutes)

Language of assessment: English

**Allocation of places**

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**Additional information**

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**Referred to in LPO I** (examination regulations for teaching-degree programmes)

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Module title | Abbreviation
---|---
Advanced Labour Economics | 12-M-OEA-222-m01

Module coordinator | Module offered by
---|---
Holder of the Chair of Labor Economics | Faculty of Business Management and Economics

ECTS | Method of grading | Only after succ. compl. of module(s)
---|---|---
5 | numerical grade | --

Duration | Module level | Other prerequisites
---|---|---
1 semester | graduate | --

Contents
This course provides an overview of the field of modern labor economics. The course will cover the following topics:
1. Labor supply
2. Labor demand
3. Human capital formation
4. Compensating wage differentials
5. Discrimination

The course will consist of frontal teaching of the basic theoretical as well as empirical tools as well as a careful reading of some of the key scientific articles related to the outlined topics. Students are expected to read the scientific articles in advance and will be asked to discuss them in small groups during class. In addition, a discussion of the articles will help illustrating how established scholars approach the core questions in modern labor economics and giving students an understanding of high quality empirical research.

The main reference for the lecture is Cahuc and Zylberberg. (2004): "Labor Economics", 1st edition, Massachusetts Institute of Technology. In addition, we will discuss well-published economic articles related to the single topics discussed in class.

Intended learning outcomes
The aim of this course is to acquaint students with classical as well as modern topics in labor economics and to encourage the development of research interest in this field. As such, the course's objective is to familiarize students with both the core theoretical models of labor economics as well as the main econometric methods used to provide empirical evidence.

Courses (type, number of weekly contact hours, language — if other than German)
V (2) + Ü (2)
Module taught in: English

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)
a) written examination (approx. 60 minutes) or
b) term paper (approx. 15 pages)
Language of assessment: English

Allocation of places
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Additional information
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Referred to in LPO I (examination regulations for teaching-degree programmes)
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<td>12-M-KOBO-182-m01</td>
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<td>Incentives in Organizations</td>
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<td>Holder of the Chair of Business Management, Management Accounting and Control</td>
<td>Faculty of Business Management and Economics</td>
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**Contents**

This module focuses on accounting-based instruments to control behavior in decentralized enterprises. The course first discusses the role of accounting in the context of decision-making and behavioral controlling as well as informational analyses. Afterwards, the most common instruments of behavioral controlling (budgeting, value-oriented management, transfer prices) are discussed with regard to theory and practice.

**Intended learning outcomes**

This module aims to provide knowledge in the context of behavioral control in enterprises. Knowledge about requirements on instruments used for behavioral control are discussed and competences for deployment, structure and development of coordination tools are provided.

**Courses** (type, number of weekly contact hours, language — if other than German)

V (2) + Ü (2)

**Method of assessment** (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

a) written examination (approx. 60 minutes) or b) term paper (approx. 15 pages)

Language of assessment: German and/or English creditable for bonus

**Allocation of places**

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**Additional information**

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**Referred to in LPO I** (examination regulations for teaching-degree programmes)

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Module title
Contract Theory

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Contents
During the 1960/70s, microeconomic theory came to acknowledge that many (if not most) economic transactions are characterized by asymmetric distribution of information – i.e., at least one of the parties participating in a transaction usually is privy to information that the remaining parties do not have access to. This asymmetric distribution of information subsequently was recognized to be a major impediment for transactions to be economically efficient. Contract theory addresses the question how the inefficiencies arising from asymmetric distribution of information can best be mitigated by appropriate design of the contractual (or, more generally, institutional) framework that governs the transaction under consideration. This lecture covers the baseline models of “moral hazard” (i.e., situations where one party has private knowledge after a contract has been signed) and “adverse selection” (i.e., situations where one party has private knowledge before a contract is signed). As applications we will address questions discussed in organizational, personnel or industrial economics, such as incentive design within organizations or the design of labor law regulations and competition laws.

Even though we will work with precise mathematical formalizations of the ideas that we want to think and talk about, this course requires little more than a solid understanding of basic differential calculus. More important than having a solid mathematical background is having a strong interest in formal economic analysis and fun with logical thinking and puzzle solving.

The exposition is primarily based on the following textbook:

Intended learning outcomes
After completing the course students will be able to
- explain essential findings of contract theory,
- apply the involved methods to given stylized examples on their own,
- interpret the properties of real-life contracts as the outcome of the interaction between two or more contracting parties in the presence of asymmetric information,
- evaluate government interventions with regard to their effect on the efficiency properties of the interaction between the contracting parties.

Courses (type, number of weekly contact hours, language — if other than German)
V (2) + Ü (2)
Module taught in: English

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)
a) written examination (approx. 60 minutes) or
b) term paper (approx. 15 pages)
Language of assessment: German and/or English
creditable for bonus

Allocation of places
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## Additional information

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### Referred to in LPO I
(examination regulations for teaching-degree programmes)

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### Module title
Empirical HR Research with Stata

### Abbreviation
12-M-EPF-161-m01

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### Contents
The seminar "Empirische Personalforschung" ("Empirical Personnel Economics") introduces and discusses the most important estimation problems and their application in the software package STATA. In addition, students learn, with the help of basic problems of personnel economics, how estimation programs are programmed in STATA. Reading list to be provided in class.

### Intended learning outcomes
The aim of the seminar is to enable students to understand and apply the most important estimation programs and their application in STATA with a focus on problems in personnel economics.

### Courses (type, number of weekly contact hours, language — if other than German)
Ü (2)

### Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)
term paper (approx. 10 pages)
Assessment offered: Once a year as announced
Language of assessment: German and/or English

### Allocation of places
12 places. (1) Should the number of applications exceed the number of available places, places will be allocated by lot among all applicants irrespective of their subjects. (2) Places on all courses of the module with a restricted number of places will be allocated in the same procedure. (3) A waiting list will be maintained and places re-allocated by lot as they become available.

### Additional information
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### Referred to in LPO I (examination regulations for teaching-degree programmes)
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Module Catalogue for the Subject Economathematics
Master's with 1 major, 120 ECTS credits

<table>
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Contents

Contents: employment and labour law and works constitution law incl. collective agreement law

**Employment and Labour law**

Legal sources of employment and labour law

Definitions, employment and labour law, employees

The employment contract

- Job application, permissible and impermissible questions in job interviews, consequences of lying, contesting the employment contract
- General Equal Treatment Act, claims for damages by applicants
- Conclusion of an employment contract, form, evidence under the Law of Proof of Substantial Conditions Applicable to the Employment Relationship
- Contents of the employment contract, company practice, overall commitment, reservation of the right of voluntariness and revocation
- General terms and conditions of business and control of terms and conditions of employment, invalid clauses and their consequences
- Limitation of the term of the employment contract, fixed term employment contracts

Rights and duties arising from the employment relationship

- Primary and secondary duties
- Employer's right to issue instructions, permissible and impermissible instructions
- Sickness, obligations to report and provide evidence under the Continued Remuneration Act
- Secondary employment, prohibition of competition, duty of confidentiality, occupational health and safety
- Granting of holiday leave
- Continued payment of wages in the event of illness, restrictions

Severe disability, special rights and protection against dismissal

Working hours and the Working Hours Act

The warning, formal and material requirements, consequences

Termination of employment

- Termination agreement
- Termination of employment
- Formal requirements
- Ordinary and extraordinary termination by the employer
- Behavioral termination
- Person-related (illness-related) dismissal
• Dismissal for operational reasons
• Special protection against dismissal

**Works constitution law incl. collective bargaining law**

Legal sources of works constitution law

Definitions, company, works council, employee

The works council and its role

• Works council elections
• Start, end, duration of term of office
• Legal status of members, honorary office, leave of absence, special protection against dismissal
• Entitlement for training, works council costs
• Works meetings
• General works council, group works council, youth/apprentice representation

Material co-determination of the works council, participation

• Information rights (access to gross pay roll, expert advice)
• Consultation rights (consultation before each dismissal, right to object)
• Consultation rights (involvement of the economic committee, changes in operations)

Co-determination in the narrower sense

• Rights of consent and objection (staff questionnaire, selection guidelines, recruitment, transfers)
• Refusal of consent, legal proceedings Substitution of consent

Co-determination rights

• Enforceable co-determination, conciliation board, composition, procedure, decision
• Mandatory co-determination rights of works council, e.g. regarding
• Conduct of the workplace (smoking and alcohol bans, formalized sick leave talks, occupational integration management)
• Working hours, breaks, shift and flexi-time models, overtime, short-time work
• Holidays, company holidays
• Technical equipment for monitoring (time recording, access systems, video surveillance, telephone and internet use, skills database)
• Occupational health and safety
• Social facilities (canteen, company kindergarten)
• Company wage structure, remuneration (piece rates, bonuses)
• Company changes, reconciliation of interests and social plan

**Collective bargaining law**

Definition, contractual and normative part, legal effect

Application of collective agreements, parties of collective agreements

Dynamic and static clauses referring to a collective agreement

Collective agreement and company agreements, blocking effect of collective agreement

Collective arbitration board in cases of compulsory works council co-determination

**Intended learning outcomes**

At the end of this course, students will have the following competences:
Students gain solid basic knowledge of employment and labour law, the works council and its tasks and an overview of collective agreement law. At the same time, methodically and substantively sound legal knowledge is conveyed and practical relevance is established with case studies and current case law.

By working on an exam in the form of a legal opinion, the students are taught to solve a demanding legal issue with legal problems in a given time. Within a narrow thematic field and a time-limited framework, they are able to work on a legal issue in a well-founded and largely independent manner.

Within the framework of the term paper on a judgement of the Federal Labour Court, the students deal with a concrete case and the case law of the highest German labour court. They are familiarised with the methods of legal work and are enabled to work independently in a problem-solving manner. In addition to understanding the facts of the case and the legal problems, they will focus primarily on the consequences of the judgement for their practice. Here, the legal knowledge imparted will be implemented with a practical approach and the opportunity to creatively develop their own recommendations on how to deal with the judgement. In addition, the students present the case and their own conclusions for practice. In the group discussion, the other students have the opportunity to gather further knowledge and actively participate in the exchange of opinions on current judgements and case law.

The knowledge imparted is relevant for a wide range of professional fields of activity and is especially valuable for students who will work in the field of human resources or are interested in the field of employee management.

Courses
(type, number of weekly contact hours, language — if other than German)

| S (2) |

Method of assessment
(type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

[a) written examination (approx. 120 minutes) and b) talk (approx. 30 minutes), weighted 3:2] or [a) written examination (approx. 120 minutes) and b) presentation (approx. 15 minutes) and c) written elaboration of presentation (approx. 10 pages), weighted 3:1:1]

Allocation of places

30 places. (1) Should the number of applications exceed the number of available places, places will be allocated by lot among all applicants irrespective of their subjects. (2) Places on all courses of the module with a restricted number of places will be allocated in the same procedure. (3) A waiting list will be maintained and places re-allocated by lot as they become available.

Additional information

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Referred to in LPO I (examination regulations for teaching-degree programmes)

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Financial Accounting and Business Taxation
(20 ECTS credits)
Core
(10 ECTS credits)
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<td>Group Accounting</td>
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**Contents**

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**Allocation of places**

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<tr>
<td>Economics of Tax Planning</td>
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<td>Holder of the Chair of Business Taxation</td>
<td>Faculty of Business Management and Economics</td>
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**Contents**

This course deals with tax effects on fundamental economic decisions. Taxes are integrated into standard models for investment decisions, financing decisions, firm valuation, dividend policy and remuneration of employees. Therefore, the interaction of corporate and personal income taxes is analysed. A reading list in English is available on request.

**Intended learning outcomes**

This course enables students to
(i) combine their knowledge of tax law with microeconomic analyses in the areas of corporate and personal finance;
(ii) analyze the effect of taxes on fundamental economic decisions, e.g. investment and financing decisions, evaluation of investment, financial assets, forms of remuneration for employees including managing and assessing;
(iii) read and discuss research and policy papers in the field of taxation.

**Courses** (type, number of weekly contact hours, language — if other than German)

V (2) + Ü (2)

**Method of assessment** (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

a) written examination (approx. 60 minutes) or b) term paper (approx. 15 pages) or c) oral examination of one candidate each (approx. 20 minutes)

Language of assessment: German and/or English creditable for bonus

**Allocation of places**

--

**Additional information**

--

**Referred to in LPO I** (examination regulations for teaching-degree programmes)

--
Core Electives

(10 ECTS credits)
Module title | Abbreviation
---|---
Tax Accounting | 12-M-STB-161-m01

Module coordinator | Module offered by
Holder of the Chair of Business Taxation | Faculty of Business Management and Economics

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Contents
This module introduces the various methods of income recognition in the German Income Tax Code (*Einkommensteuergesetz*, EStG). It discusses the main reporting and valuation provisions as well as the specific problems and techniques of income calculation for partnerships.

Intended learning outcomes
Students have in-depth knowledge of tax accounting of companies and are able to solve moderate to complex problems of tax accounting in particular of sole proprietorships and partnerships using legal source.

Courses
(type, number of weekly contact hours, language — if other than German)

V (2) + Ü (2)

Method of assessment
(type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

a) written examination (approx. 60 minutes) or b) term paper (approx. 15 pages) or c) oral examination of one candidate each (approx. 20 minutes)
Language of assessment: German and/or English creditable for bonus

Allocation of places
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Additional information
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Referred to in LPO I (examination regulations for teaching-degree programmes)
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<table>
<thead>
<tr>
<th>Module title</th>
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<tr>
<td>Advanced Financial Accounting</td>
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**Module coordinator**

**Module offered by**

- Faculty of Business Management and Economics

**ECTS** | **Method of grading** | **Only after succ. compl. of module(s)** |
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**Duration** | **Module level** | **Other prerequisites** |
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**Contents**

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**Intended learning outcomes**

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**Courses** (type, number of weekly contact hours, language — if other than German)

- V (2) + Ü (2)

**Method of assessment** (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

- written examination (approx. 60 minutes)
- Language of assessment: German and/or English
- creditable for bonus

**Allocation of places**

- 

**Additional information**

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**Referred to in LPO I** (examination regulations for teaching-degree programmes)

- 

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Module title: Financial Statement Analysis and Business Valuation

Abbreviation: 12-M-UA-161-m01

Module coordinator: Holder of the Chair of Financial Accounting

Module offered by: Faculty of Business Management and Economics

ECTS: 5

Method of grading: numerical grade

Duration: 1 semester

Module level: graduate

Other prerequisites: --

Contents:
Fundamental investing involves valuation, and much of the information for valuation is contained in financial statements. This module provides a basic understanding of financial statement analysis, particularly on how to extract value-relevant information from financial statements, carry out financial statement analysis, and use financial data to value corporations. The module also provides the necessary tools to gain insights into what generates value in a corporation.

Intended learning outcomes:
Students can understand publicly traded companies' financial statements (US GAAP/IFRS), identify value-relevant information in financial statements, and use this information for valuation. They know the relevant techniques to evaluate financial statements and understand the fundamental role of financial information in the valuation process. Students can apply valuation techniques to real-world cases and recommend investment decisions.

Courses:
V (2) + Ü (2)

Method of assessment:
written examination (approx. 60 to 120 minutes)
Language of assessment: German and/or English creditable for bonus

Allocation of places:
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Additional information:
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Referred to in LPO I (examination regulations for teaching-degree programmes)
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<td>Case Studies on Business Taxation</td>
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**Module coordinator**

Holder of the Chair of Business Taxation

**Module offered by**

Faculty of Business Management and Economics

**Contents**

This module offers a cross-sectional view of business taxation by means of case studies which will be prepared by participants in advance and will be discussed in class. The focus will be on German income taxation, income calculation for tax purposes, taxation of partnerships as well as tax problems of foreign activities of German companies.

**Intended learning outcomes**

Students deepen their knowledge of the German tax law. They are enabled to solve complex tax problems on their own.

**Courses** (type, number of weekly contact hours, language — if other than German)

S (2)

**Method of assessment** (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

written examination (approx. 120 minutes)

Language of assessment: German and/or English creditable for bonus

**Allocation of places**

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**Additional information**

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**Referred to in LPO I** (examination regulations for teaching-degree programmes)

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## Module Catalogue for the Subject Economathematics

<table>
<thead>
<tr>
<th>Module title</th>
<th>Abbreviation</th>
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<tr>
<td>Accounting and Capital Markets</td>
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<td>Holder of the Chair of Business Management, Management Accounting and Control</td>
<td>Faculty of Business Management and Economics</td>
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</table>

### Contents

The module focuses on financial and management accounting, their functions, possible configurations as well as their impact on internal and external recipients under consideration of the institutional setting. In this context, an economic perspective has priority over detailed legal arrangements and regulations by the standard setters. Based on the theoretical foundations of information economics as well as decision-making and balance sheet theories, typical issues concerning cost and managerial accounting as well as financial accounting and publicity are discussed.

### Intended learning outcomes

Initially, a fundamental knowledge about the conception and impact of management and financial accounting as information systems is acquired. In the following, the module mainly sharpens the understanding of the economic impacts of the configuration of management and financial accounting. What is more, extensive knowledge about possible impacts of changes in institutional general frameworks is covered. For example, changes in valuation standards, publicity rules or regulations about the distribution of profits in enterprises and on capital markets are considered.

### Courses

**Type, number of weekly contact hours, language — if other than German**

- V (2) + Ü (2)

### Method of assessment

**Type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus**

- a) written examination (approx. 60 minutes) or b) term paper (approx. 15 pages)
- Language of assessment: German and/or English creditable for bonus

### Allocation of places

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### Additional information

- --

### Referred to in LPO I

- (examination regulations for teaching-degree programmes)
- --
Module title | Abbreviation
---|---
International Financial Management | 12-M-IFM-222-m01

Module coordinator | Module offered by
Holder of the Chair of Monetary Policy and International Economics | Faculty of Business Management and Economics

ECTS | Method of grading | Only after succ. compl. of module(s)
---|---|---
5 | numerical grade | --

Duration | Module level | Other prerequisites
---|---|---
1 semester | graduate | --

Contents
The module introduces students to the financial management of firms engaged in a globalized business environment. Topics include the foreign exchange market, the international monetary system as well as the determination of exchange rates and foreign currency risk. The module also covers international capital markets and familiarizes students with methods and data sources required for the analysis of international financial markets.

Format of the module: lectures and exercise sessions

Prerequisites: Basic knowledge of microeconomics and macroeconomics as taught in Bachelor programs in Economics, Business or similar fields.

Usability: Master International Economic Policy, Master Management

Requirements for getting credit points according to the European Credit Transfer System (ECTS): Passing the final exam.

ECTS and grading: 5 ECTS, Grading on a scale from 1-5 based on the final exam.

Frequency of the module: Each summer term

Workload: 150 hours (Lecture + Exercise Session + Self Study)

Duration: 1 Semester

Intended learning outcomes
Students who complete the module will have a basic understanding of the theoretical and practical aspects of international financial management. Moreover, they should also be able to understand current developments in financial markets and interpret them using the theoretical foundations and practical examples covered in the module.

Courses (type, number of weekly contact hours, language — if other than German)
V (2) + Ü (2)
Module taught in: English

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)
written examination (approx. 60 minutes)
Language of assessment: English
creditable for bonus

Allocation of places
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Additional information
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Referred to in LPO I (examination regulations for teaching-degree programmes)

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Module title | Abbreviation
---|---
Portfolio and Capital Market Theory | 12-M-CF2-182-m01

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<td>1 semester</td>
<td>graduate</td>
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</table>

**Contents**

This module conveys profound knowledge of individual portfolio choices and on this basis the most important capital market theory (namely capital asset pricing model) is introduced, including its assumptions, implications and extensions.

**Syllabus:**

1. Modern Portfolio Selection
   1. 2 Asset-Case
   2. Multiple-Asset-Case
   3. Critique of Portfolio Theory
2. Capital Asset Pricing Model
   1. Assumptions and Derivation
   2. Implications
   3. Empirical Aspects, Extensions and Alternatives

**Intended learning outcomes**

This module enables the students

(i) to explain and to determine the optimal capital market position of an investor given the different investment opportunities and individual utility function;

(ii) to understand and use the central CAPM propositions for valuating risky assets.

**Courses** (type, number of weekly contact hours, language — if other than German)

V (2) + Ü (2)

**Method of assessment** (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

a) written examination (approx. 60 to 90 minutes) or b) term paper (approx. 15 pages)

Language of assessment: German and/or English creditable for bonus

**Allocation of places**

--

**Additional information**

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**Referred to in LPO I** (examination regulations for teaching-degree programmes)

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Public Finance
(20 ECTS credits)
Core

(10 ECTS credits)
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<tr>
<td>Policy of Taxation</td>
<td>12-M-F1-182-m01</td>
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<td>Holder of the Chair of Public Finance</td>
<td>Faculty of Business Management and Economics</td>
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**Contents**

- Description:
  - In this module, students will acquire a basic understanding of the tax system and structure applied to households in Germany. In addition, the course will include simple tax incidence analyses of specific tax policies. Reading: lecture notes provided by Chair.
  
- Contents:
  1. Fiscal harmonisation system in Germany
  2. Mechanics and problems of the VAT system
  3. Tax incidence analysis
  4. Income tax code
  5. Taxation of married couples and families
  6. Taxation and household decisions

**Intended learning outcomes**

- After completing the course "Tax Policy" students know the most important tax revenues in Germany and how they are divided between the Federation and the federal provinces. They are able to explain the incidence of specific taxes using simple case studies. Finally they can discuss tax induced distortions of individual decisions using simple partial equilibrium models.

**Courses**

- (type, number of weekly contact hours, language — if other than German)
  
  V (2) + Ü (2)

**Method of assessment**

- (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)
  
  a) written examination (approx. 60 minutes) or b) term paper (approx. 15 pages)
  
  Language of assessment: German and/or English
  
  creditable for bonus

**Allocation of places**

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**Additional information**

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**Referred to in LPO I**

- (examination regulations for teaching-degree programmes)
  
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<table>
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| Abbreviation                      | 12-M-F3-182-m01 |

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| Module offered by                | Faculty of Business Management and Economics |

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### Contents

**Description:**
This module discusses the economic justification for implementing social security systems in a market economy and provides students with deeper insights into this topic with the help of specific issues of public health and retirement policy.

Reading: lecture notes provided by Chair.

Contents:
1. Public intervention in insurance markets
2. The insurance function of social security
3. Social security and social morale
4. The optimal health insurance contract
5. Why do we need a public pension system?
6. Funding vs pay-as-you-go financing of public pensions

**Intended learning outcomes**
After completing the module "Theorie der Sozialversicherung" students are able to explain the theoretical foundation of the social security system in a market economy. Using simple partial equilibrium models they can discuss the financing and contract structure of the public health and pension system. Finally they are able to analyze the consequences of policy reforms.

**Courses**
(type, number of weekly contact hours, language — if other than German)

| V (2) + Ü (2) |

**Method of assessment**
(type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

a) written examination (approx. 60 minutes) or b) term paper (approx. 15 pages)
Language of assessment: German and/or English
creditable for bonus

**Allocation of places**
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**Additional information**
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**Referred to in LPO I** (examination regulations for teaching-degree programmes)
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Core Electives

(10 ECTS credits)
## Module Catalogue for the Subject
### Economathematics
#### Master's with 1 major, 120 ECTS credits

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<td>graduate</td>
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</table>

### Contents

**Description:**
The course will discuss the design of an optimal tax system. First, students will learn what criteria have to be met for a tax system to be optimal. Lectures will introduce key rules for taxing commodities as well as income and capital.

Examining specific taxation issues such as eco-tax, family taxation and the taxation of international enterprises, students will then gain more in-depth insights into these rules.

**Reading:** Lecture notes will be provided.

**Outline of syllabus:**
1. Optimal commodity taxation
2. Optimal income taxation
3. Optimal taxation of families
4. International tax competition

### Intended learning outcomes

After completing this module students have a basic understanding of what is meant with "optimal taxation". They are able to apply this concept to specific normative questions of tax policy in practice. Students also learn to prepare and present short papers, where they discuss specific normative policy issues in groups.

### Courses

<table>
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Module taught in: English

### Method of assessment

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### Allocation of places

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### Additional information

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### Referred to in LPO I

(examination regulations for teaching-degree programmes)

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Module title: European Public Finance

Abbreviation: 12-M-EFP-222-m01

Module coordinator: Holder of the Chair of Public Finance

Module offered by: Faculty of Business Management and Economics

ECTS: 5

Method of grading: numerical grade

Only after succ. compl. of module(s): --

Duration: 1 semester

Module level: graduate

Other prerequisites: --

Contents:

The course aims at introducing the main public finance issues in the European Union. Students will learn how the revenues of the Union are generated and how they are spent. We will discuss the motivation and implications of the Brexit decision and various coordination problems with respect to public debt, taxation and environmental policy. Economic policy is discussed with simple models, which highlight the central problems.

Course contents:

1. The European Union: History and Institutions
2. The Budget of the European Union
3. Economic Analysis of the Brexit Process
4. Sovereign Debt, Financial Crisis and Fiscal Integration in the EMU
5. Tax Competition or Tax Coordination in Europe?
6. European Climate Policy: Emission Trading and Green Deal

Intended learning outcomes:

After completing the course students are introduced to the central public finance policy issues, institutions and rules of conduct in the EU. They are able to apply simple theoretical models to to discuss and analyze more specific policy problems.

Courses:

(type, number of weekly contact hours, language — if other than German)

V (2) + Ü (2)

Module taught in: English

Method of assessment:

(type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

a) written examination (approx. 60 minutes) or
b) term paper (approx. 15 pages)

Language of assessment: English

creditable for bonus

Allocation of places:

There are no restrictions with regard to available places for students of the Master’s degree programmes Business Management, International Economic Policy or Economics, Information Systems, Wirtschaftsmathematik (Mathematics for Economics) and Chinese and Economics as well as China Business and Economics. A total of 20 places will be allocated to students of other subjects; should the number of applications exceed the number of available places, these places will be allocated by lot.

Additional information:

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Referred to in LPO I (examination regulations for teaching-degree programmes)

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### Module title

**Advanced Computational Economics**

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### Method of grading

Only after success completion of module(s)

### Duration

1 semester

### Module level

Graduate

### Other prerequisites

--

### Contents

**Description:**
This course will mostly be concerned with the analysis of public policy (in areas such as taxation, social security etc.). Providing students with state-of-the-art techniques for quantitative macroeconomic research in this very field and familiarising them with the relevant literature, this course will teach students how such policies redistribute between different generations and also within generations, how they may improve risk sharing when markets are incomplete and how they can trigger distortions and therefore hurt the aggregate economy.

**Outline of syllabus:**
1. Programming with FORTRAN and application of numerical methods
2. Solution techniques for dynamic programming problems
3. Policy analysis with stochastic growth and life cycle models

**Reading:**
Lecture notes will be provided.

### Intended learning outcomes

After completing the course “Advanced Computational Economics” students will be able to

(i) edit and solve stochastic economic problems using advanced numerical techniques;
(ii) implement small scale economic models on the computer;
(iii) simulate tax and social security policy reforms and interpret the quantitative results in economic terms.

### Courses

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<tr>
<th>Type</th>
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<tbody>
<tr>
<td>V (2) + Ü (2)</td>
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<td>English</td>
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</table>

Module taught in: English

### Method of assessment

(type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

(a) written examination (approx. 60 minutes) or (b) term paper (approx. 15 pages)

Language of assessment: English

### Allocation of places

--

### Additional information

Research track module in Master’s programme IEP

### Referred to in LPO I
(examination regulations for teaching-degree programmes)

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### Module Catalogue for the Subject
**Economathematics**

#### Master's with 1 major, 120 ECTS credits

<table>
<thead>
<tr>
<th>Module title</th>
<th>Abbreviation</th>
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<td>International Taxiation</td>
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<td>Holder of the Chair of Business Taxation</td>
<td>Faculty of Business Management and Economics</td>
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<tbody>
<tr>
<td>1 semester</td>
<td>graduate</td>
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</table>

### Contents

The module discusses tax aspects (legal facts as well as economic effects) of cross-border business activities. Students become familiar with the principles of international taxation, relevant aspects of German income tax law, the function of double taxation treaties as well as recent developments of taxation within the European Union (mostly triggered by the Court of Justice of the European Union). The topics are introduced in the form of lectures. Complex case studies are used for an in-depth discussion of selected aspects.

### Intended learning outcomes

After completion of the module students are able

(i) to assess tax issues of cross-border business activities and develop structured solutions;
(ii) to assess the economic effects of rules of international tax law on its own;
(iii) systematically apply double tax treaties.

The students have knowledge of the basics of international taxation and the German international tax law. They are able to judge and to analyze, using the relevant sources of law complex, case studies on the taxation of cross-border business activities independently and to develop design proposals for the solution.

### Courses

- **S (2)**

### Method of assessment

- a) written examination (approx. 60 minutes) or b) term paper (approx. 15 pages), presentation of term paper (approx. 20 minutes), weighted 3:2

Assessment offered: To be announced

Language of assessment: German and/or English

creditable for bonus

### Allocation of places

12 places. (1) Should the number of applications exceed the number of available places, places will be allocated by lot among all applicants irrespective of their subjects. (2) Places on all courses of the module with a restricted number of places will be allocated in the same procedure. (3) A waiting list will be maintained and places re-allocated by lot as they become available.

### Additional information

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**Referred to in LPO I** (examination regulations for teaching-degree programmes)

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Module title | Abbreviation
--- | ---
Policy Evaluation Methods | 12-M-PEM-182-m01

Module coordinator | Module offered by
Holder of the Chair of Labor Economics | Faculty of Business Management and Economics

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Contents

This course offers an introduction to the fundamentals of causal inference and to widely used research designs in the social sciences. In the first part a framework for understanding causality is introduced. Specifically, the epistemological differences between association, intervention and counterfactuals are explained. Then it is shown why experiments are paramount in generating causal knowledge and which assumptions are needed for which level of the causal hierarchy. Finally, we will discuss two widely used approaches to causality in the social sciences, i.e. potential outcomes and directed acyclic graphs.

The second part is devoted to the research designs regression analysis, difference-in-differences, instrumental variables, and regression discontinuity. The emphasis is how these research designs are for example applied to answer important questions in labour economics such as the effects of a minimum wage increase on employment or the effect of children on female labour supply and wages.

The assumptions each research design requires in order to identify a causal effect will be at center stage of the lecture. Therefore the emphasis is to teach students what one needs to estimate in order to answer a given question. Further, the research designs are discussed such that students will be able to evaluate and apply these research designs to other questions and fields.

Intended learning outcomes

At the end of the course, students should be able to understand basic concepts and methods of causal inference, as well as read, interpret, and assess the credibility of scientific publications. In addition, the course serves as preparation for advanced statistics and econometrics courses.

Courses (type, number of weekly contact hours, language — if other than German)

V (2) + Ü (2)
Module taught in: English

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

a) written examination (approx. 60 minutes) or b) term paper (approx. 15 pages)
Language of assessment: English
creditable for bonus

Allocation of places
--

Additional information

Research track module in Master's programme IEP

Referred to in LPO I (examination regulations for teaching-degree programmes)
--
Strategy, Competition and Policy
(20 ECTS credits)
Core
(10 ECTS credits)
Module title | Abbreviation
--- | ---
Strategic Decisions and Competition | 12-M-SDC-182-m01

Module coordinator | Module offered by
Holder of the Chair of Industrial Economics | Faculty of Business Management and Economics

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Duration | Module level | Other prerequisites
1 semester | graduate | --

Contents
1. Strategic situations and decision making
2. Analyzing strategic situations with game theory
   1. Noncooperative simultaneous move games
   2. Nash equilibrium
   3. Models of oligopoly markets
   3. Dynamic Games
   1. Two(-multi) stage games and subgame perfect equilibrium
   2. Role of commitment in dynamic situations
   3. Models of advertising
   4. Wage bargaining and unions
   4. Repeated Games
   1. Emergence of coordination in long interactions
   2. Collusion between competing firms
   3. Time consistent monetary policy
   5. Static games of incomplete Information
   1. Bayesian Nash equilibrium
   2. Auctions
   6. Dynamic games of incomplete information
   1. Moral hazard and nonlinear pricing
   2. Perfect Bayesian equilibrium
   3. Signalling games
   4. Job-market signalling
   5. Corporate investment and capital structure

Intended learning outcomes
After successful completion of this class, the students should be familiar with economic models that can be used to shape managerial strategy and aid in making decisions in strategic situations. Especially, by making use of simple two stage games, they should be able to formulate dynamic policies in a wide variety of strategic situations. The students will acquire an intuitive understanding of the underlying economic mechanisms which emerge from the analysis of game theoretic models for a wide variety of strategic situations arising in industrial economics, marketing, organization, finance, trade and labor. Moreover, they will acquire skills which enable them to make predictions in strategic situations by making use of simple mathematical models. By means of completing case based exercises, they will learn to transform real life business situations to an appropriate economic model. Based on an analysis of this model, they will be able to devise optimal strategies and derive the corresponding managerial implications.
The course will be taught in English.

**Courses** (type, number of weekly contact hours, language — if other than German)

V (2) + Ü (2)
Module taught in: English

**Method of assessment** (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

a) written examination (approx. 60 to 120 minutes) or b) term paper (15 to 20 pages)
Language of assessment: English
creditable for bonus

**Allocation of places**

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**Additional information**

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**Referred to in LPO I** (examination regulations for teaching-degree programmes)

--
Module title: European Competition Policy

Abbreviation: 12-M-WPE-192-m01

Module coordinator:
Holder of the Chair of Industrial Economics

Module offered by:
Faculty of Business Management and Economics

ECTS: 5

Method of grading: numerical grade

Only after succ. compl. of module(s): --

Duration: 1 semester

Module level: graduate

Other prerequisites: --

Contents:

Outline of syllabus:
1. Legal environment, competition laws
2. Market definition
   - Qualitative methods
   - Simple quantitative methods
   - Hypothetical monopoly test
3. Horizontal agreements and collusion: repeated games and factors affecting likelihood of collusion
4. Horizontal mergers and collusion
   - Economic theory
   - Efficiency effects
   - Coordinated effects
5. Vertical relations and contracts
   - Economic analysis of contracts
   - "More economic approach"
6. Abuse of dominant position
   - Classification of abusive conduct
   - Economic analysis of abusive conduct and theory of harm

The course will be taught in English.

Intended learning outcomes:

After completion of the module students can use the advanced concepts introduced in the lecture of competition policy, including the legal framework, the trace models and methods for the study of competition policy issues, as well as understand the approach of European competition policy in high profile cases. When they are confronted with practical problems, they can refer to these cases, and the same logic to practical examples apply by draining the relevant economic theories that identify variables to be measured and methodologies for assessing, and based on that adequate conclusions for appropriate cases. They will sufficiently understand the subject in order to open up that build upon literature in journals and being able to think critically.

Courses:

(type, number of weekly contact hours, language — if other than German)

V (2)

Module taught in: English

Method of assessment:

(type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

a) Written examination (approx. 60 to 120 minutes) or
b) Term paper (15 to 20 pages)

Creditable for bonus

Language of assessment: English

Allocation of places:

There are no restrictions with regard to available places for students of the Master's degree programmes Management, International Economic Policy, Information Systems, Wirtschaftsmathematik (Mathematics for Economics) and Chinese and Economics as well as China Business and Economics. A total of 20 places will be alloc-
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| **Referred to in LPO I** (examination regulations for teaching-degree programmes) |
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Admitted to students of other subjects; should the number of applications exceed the number of available places, these places will be allocated by lot.
Core Electives

(10 ECTS credits)
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<td>Theory of Industrial Organization</td>
<td>12-M-TI1-182-m01</td>
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**Contents**

Theory of industrial organisation:
1. Monopoly pricing
   - Nonlinear pricing and mechanism design
   - Dynamic pricing: experience goods, durable goods
2. Oligopoly pricing
   - Static price and quantity competition in homogeneous and differentiated goods markets
   - Comparative statics
   - Equilibrium market structure
3. Dynamic competition in oligopoly markets
   - Subgame perfect equilibrium and models of dynamic competition
   - Repeated games and collusion
4. Strategic behaviour by incumbent firms
   - Entry deterrence and predation
   - Signalling and reputation
5. Behavioral Industrial Organization
   - Reference Dependent Preferences and Framing Effects
   - Time inconsistent behavior

The course will be taught in English.

**Intended learning outcomes**

Students which complete this class will acquire a working knowledge of advanced theoretical models of competition in oligopoly markets as well as sophisticated pricing techniques in monopoly markets. They will learn the conditions under which the predictions of these models are valid. They will become familiar with applications of advanced game theoretic tools, such as dynamic models of competition, for studying interactions between firms in markets. By means of comprehensive exercises, they will apply the methods they learn in class to practically relevant problems. They will be in a position to read academic papers on related topics, assess the strengths and weaknesses of an approach, summarize and comment on these papers and suggest possible extensions.

**Courses**

(7, number of weekly contact hours, language — if other than German)

V (2) + Ü (2)

Module taught in: English

**Method of assessment**

(7, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

a) written examination (approx. 60 to 120 minutes) or b) term paper (15 to 20 pages)

Language of assessment: English

creditable for bonus

**Allocation of places**

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**Additional information**

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Referred to in LPO I (examination regulations for teaching-degree programmes)

--
Module title: Applied Industrial Organization

Abbreviation: 12-M-TI2-182-m01

Module coordinator: Holder of the Chair of Industrial Economics

Module offered by: Faculty of Business Management and Economics

ECTS: 5

Method of grading: numerical grade

Duration: 1 semester

Module level: graduate

Contents:

Description:
This course discusses vertical contracts in supply chains and their impact on competition.

Outline of syllabus:
1. The classic problem of double marginalisation and its solution by nonstandard contracts (resale price maintenance, nonlinear pricing (rebates), exclusive territories, exclusive dealing etc.)
2. Contracts for service
3. Common agency
4. The delegation principle
5. The commitment problem
6. Interlocking relationships
7. Foreclosure by vertical contracts or mergers

Intended learning outcomes

After completing the course students are able to
(i) explain the results of theoretical industrial economics on vertical contracts;
(ii) apply the involved methods to given simple examples on their own;
(iii) recognize, in which real life situations (and how) the results can be applied;
(iv) analyze the impact of certain vertical contracts on competition.

Courses

(type, number of weekly contact hours, language — if other than German)

V (2)

Module taught in: English

Method of assessment
(type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

a) written examination (approx. 60 to 120 minutes) or b) term paper (15 to 20 pages)

Assessment offered: In the semester in which the course is offered

Language of assessment: English

creditable for bonus

Allocation of places

Additional information

Referred to in LPO I (examination regulations for teaching-degree programmes)
## Module Catalogue for the Subject
### Economathematics
#### Master's with 1 major, 120 ECTS credits

<table>
<thead>
<tr>
<th>Module title</th>
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<tr>
<td>Market Research and Demand Analysis</td>
<td>12-M-EIO-182-m01</td>
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### Contents
1. **(Recap of) Econometric methods**
   - Ordinary Least Squares (OLS)
   - Endogeneity and how to deal with it (Instrumental Variables)
2. **Estimation of demand**
   - Representative consumer models
   - Multinomial Logit Model (ML) and extensions
   - Discrete choice models with individual data
   - Discrete choice models with aggregate data
3. **Further applications**
   - Demand and Supply estimation
   - Inferring marginal costs
   - Using structural models for counterfactual policy analysis

### Intended learning outcomes
The students taking this class will learn modern empirical methods in studying questions related to industry outcomes. They will become familiar with methods used in estimating demand and during exercises will learn how one can implement these methods in practice using statistical software. The lectures will help students to have a thorough understanding of the so-called New Empirical Industrial Organization (NEIO) methodology. The students will become familiar with methods used in estimating demand and imperfect competition models among firms. They will learn how to use such models to infer marginal costs as well as constructing policy simulations based on the estimated models to evaluate the effects of changes in the competitive environment, such as mergers. A student that successfully completes this course will not only be able to read empirical academic papers but will also implement a few important models in computer exercises. Furthermore, students will be able to draw implications of empirical studies for economic policy in areas such as antitrust and regulation.

### Courses

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### Method of assessment

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### Allocation of places

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### Additional information

- Research track module in Master's programme IEP
- Referred to in LPO I (examination regulations for teaching-degree programmes)
### Module title
Advanced Microeconomics

### Abbreviation
12-M-AM-182-m01

### Module coordinator
Holder of the Chair of Contract Theory and Information Economics

### Module offered by
Faculty of Business Management and Economics

### ECTS
5

### Method of grading
Numerical grade

### Only after succ. compl. of module(s)
--

### Duration
1 semester

### Module level
Graduate

### Other prerequisites
--

## Contents
In a nutshell, microeconomic theory considers the behavior of individual economic agents and builds from this foundation to a theory of aggregate economic outcomes, which then can be applied for conducting welfare analysis and giving policy advice. This lecture addresses the core building block of this thought complex: individual decision making and behavior. Specifically, students will come to understand in detail the standard models of riskless consumer choice, choice under risk and intertemporal choice and learn about the empirical challenges and limitations of these models.

Throughout the lecture, we will work with precise mathematical formalizations of the ideas that we want to think and talk about. In consequence, a solid understanding of the mathematical toolbox of standard microeconomics (e.g., differential calculus and constrained optimization; basic set theory; integration by parts) will be helpful as it will allow to focus on the underlying economic intuition. However, every required mathematical concept will be introduced and explained along the way, such that a strong interest in formal economic analysis is more important than an advanced mathematical background.

The exposition is primarily based on the standard graduate textbooks


### Intended learning outcomes
After completing the course students will be able to
- explain essential findings of microeconomic theory,
- apply the involved methods to given stylized examples on their own,
- recognize in which real life situations and how the results can be applied.

### Courses (type, number of weekly contact hours, language — if other than German)
V (2) + Ü (2)

Module taught in: English

### Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)
a) written examination (approx. 60 minutes) or b) term paper (approx. 15 pages)
Language of assessment: English
creditable for bonus

### Allocation of places
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### Additional information
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### Referred to in LPO I (examination regulations for teaching-degree programmes)
--
Module title | Abbreviation
---|---
Econometrics 3 | 12-M-OE3-182-m01

**Module coordinator**

Holder of the Chair of Econometrics

**Module offered by**

Faculty of Business Management and Economics

**ECTS** | **Method of grading** | **Only after succ. compl. of module(s)**
---|---|---
5 | numerical grade | --

**Duration** | **Module level** | **Other prerequisites**
---|---|---
1 semester | graduate | --

### Contents

**Description:**

This module deals with advanced econometric methods and concepts based on the classical and the generalized least squares estimator discussed in Ökonometrie I and II (Econometrics I and II). In particular, this includes the instrumental variable (IV) estimator, the generalized method of moments (GMM) estimator, distributed lag models as well as basic methods and concepts used in univariate and multivariate econometric time series analysis, including (non)stationarity, integration and cointegration. Linear algebra is used as formal aid.

**Syllabus:**

1. Error-in-variables
2. IV estimation
3. Generalized least squares estimation
4. Distributed lag models
5. Stationary univariate and multivariate processes
6. Deterministic and stochastic trends
7. Integrated and cointegrated processes

### Intended learning outcomes

The students acquire thorough understanding of advanced methods and concepts in econometrics. They get familiarized with diverse error-in-variables issues and will be capable of handling them appropriately. After the course, students understand the generalized method of moments (GMM) and the instrumental variable (IV) estimator to the extent that they can discuss their pros and cons, apply these to selected questions in quantitative economics and understand scientific papers using these methods. Furthermore, they become acquainted with selected time series issues, such as distributed lag models, non-stationarity, spurious correlation and cointegrated processes, enabling them to conduct a comprehensive time series analysis. In brief, the course enables students to apply the above mentioned methods and concepts to real life questions, assess their appropriateness and address their theoretical and practical benefits and shortcomings.

### Courses

(type, number of weekly contact hours, language — if other than German)

V (2) + Ü (2)

### Method of assessment

(type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

a) written examination (approx. 60 minutes) or b) term paper (approx. 15 pages)

Language of assessment: German and/or English creditable for bonus

### Allocation of places

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### Additional information

Research track module in Master's programme IEP

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</table>
**Module title**  
Contract Theory

**Abbreviation**  
12-M-CT-222-m01

**Module coordinator**  
Holder of the Chair of Contract Theory and Information Economics

**Module offered by**  
Faculty of Business Management and Economics

**ECTS**  
5

**Method of grading**  
Only after succ. compl. of module(s)

**Numerical grade**  
--

**Duration**  
1 semester

**Module level**  
graduate

**Other prerequisites**  
--

**Contents**

During the 1960/70s, microeconomic theory came to acknowledge that many (if not most) economic transactions are characterized by asymmetric distribution of information – i.e., at least one of the parties participating in a transaction usually is privy to information that the remaining parties do not have access to. This asymmetric distribution of information subsequently was recognized to be a major impediment for transactions to be economically efficient. Contract theory addresses the question how the inefficiencies arising from asymmetric distribution of information can best be mitigated by appropriate design of the contractual (or, more generally, institutional) framework that governs the transaction under consideration. This lecture covers the baseline models of “moral hazard” (i.e., situations where one party has private knowledge after a contract has been signed) and “adverse selection” (i.e., situations where one party has private knowledge before a contract is signed). As applications we will address questions discussed in organizational, personnel or industrial economics, such as incentive design within organizations or the design of labor law regulations and competition laws.

Even though we will work with precise mathematical formalizations of the ideas that we want to think and talk about, this course requires little more than a solid understanding of basic differential calculus. More important than having a solid mathematical background is having a strong interest in formal economic analysis and fun with logical thinking and puzzle solving.

The exposition is primarily based on the following textbook:


**Intended learning outcomes**

After completing the course students will be able to

- explain essential findings of contract theory,
- apply the involved methods to given stylized examples on their own,
- interpret the properties of real-life contracts as the outcome of the interaction between two or more contracting parties in the presence of asymmetric information,
- evaluate government interventions with regard to their effect on the efficiency properties of the interaction between the contracting parties.

**Courses** (type, number of weekly contact hours, language — if other than German)

V (2) + Ü (2)  
Module taught in: English

**Method of assessment** (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

a) written examination (approx. 60 minutes) or
b) term paper (approx. 15 pages)

Language of assessment: German and/or English  
creditable for bonus

**Allocation of places**  
--
### Additional information

- [Referred to in LPO I](#) (examination regulations for teaching-degree programmes)

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Master's with 1 major Economathematics (2022)  
JMU Würzburg • generated 19-Jul-2022 • exam. reg. data record Master (120 ECTS) Wirtschaftsmathematik - 2022
### Description:
This module deals with the basics, concepts and methods of the generalized least squares (GLS) framework. Partly as a motivation for the GLS model and partly for its own right, different specification and data problems as well as violations of model assumptions of the OLS estimator (as introduced in "Ökonometrie I" ("Econometrics I")) are discussed. This includes multicollinearity, a test for structural breaks, heteroskedasticity and autocorrelation. Linear algebra is used as formal aid.

### Syllabus:
1. Specification analysis
2. Multicollinearity
3. Heteroskedasticity
4. Autocorrelated disruptive terms
5. Generalized least squares (GLS)

### Intended learning outcomes
Students acquire essential knowledge of the fundamentals, methods and concepts for estimating the generalized linear regression model (GLS) and can apply and interpret it. They are sensitized for specification problems, data problems and violations of the assumptions of the classical linear model (OLS) in order to be able to recognize, to assess and therefore adequately deal with these problems in theory and practice. This enables them to critically assess the use of the estimation methods in scientific work, to work independently on adequate implementation of empirical analyzes and to answer selected (economic) scientific issues if available data with the above-mentioned involved problems. The competences acquired in this course serve as a prerequisite for "Econometrics III", "Microeconometrics" und "Financial Econometrics".

### Courses
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<tr>
<th>Type</th>
<th>Number of Weekly Contact Hours</th>
<th>Language — if other than German</th>
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<tbody>
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<td>Ü</td>
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### Method of assessment
a) written examination (approx. 60 minutes) or b) term paper (approx. 15 pages)
Language of assessment: German and/or English creditable for bonus

### Allocation of places
—

### Additional information
Research track module in Master's programme IEP
Referred to in LPO I (examination regulations for teaching-degree programmes)
Corporate Finance and Risk Management
(20 ECTS credits)
Core
(10 ECTS credits)
<table>
<thead>
<tr>
<th>Module title</th>
<th>Abbreviation</th>
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<tbody>
<tr>
<td>Portfolio and Capital Market Theory</td>
<td>12-M-CF2-182-m01</td>
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<tr>
<th>Module coordinator</th>
<th>Module offered by</th>
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<tbody>
<tr>
<td>Holder of the Chair of Corporate Finance</td>
<td>Faculty of Business Management and Economics</td>
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<th>ECTS</th>
<th>Method of grading</th>
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<td>numerical grade</td>
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<tr>
<th>Duration</th>
<th>Module level</th>
<th>Other prerequisites</th>
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<tr>
<td>1 semester</td>
<td>graduate</td>
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### Contents

This module conveys profound knowledge of individual portfolio choices and on this basis the most important capital market theory (namely capital asset pricing model) is introduced, including its assumptions, implications and extensions.

**Syllabus:**

1. Modern Portfolio Selection
   1. 2 Asset-Case
   2. Multiple-Asset-Case
   3. Critique of Portfolio Theory
2. Capital Asset Pricing Model
   1. Assumptions and Derivation
   2. Implications
   3. Empirical Aspects, Extensions and Alternatives

### Intended learning outcomes

This module enables the students

(i) to explain and to determine the optimal capital market position of an investor given the different investment opportunities and individual utility function;

(ii) to understand and use the central CAPM propositions for valuating risky assets.

### Courses

(type, number of weekly contact hours, language — if other than German)

V (2) + Ü (2)

### Method of assessment

(type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

a) written examination (approx. 60 to 90 minutes) or b) term paper (approx. 15 pages)

Language of assessment: German and/or English

credible for bonus

### Allocation of places

--

### Additional information

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### Referred to in LPO I

(examination regulations for teaching-degree programmes)

--
Module title: Risk Management
Abbreviation: 12-M-CF3-222-m01

Module coordinator: Holder of the Chair of Corporate Finance
Module offered by: Faculty of Business Management and Economics

ECTS: 5
Method of grading: numerical grade
Only after succ. compl. of module(s): --

Duration: 1 semester
Module level: graduate
Other prerequisites: --

Contents:
This module deals with the valuation and use of classical derivatives in financial markets. In particular, futures, swaps and options are considered as well as their possible applications in the context of financial risk management. In particular, students will be introduced to the theory involved in pricing options, as well as important valuation parameters. In addition, some established risk measures such as value-at-risk are discussed.

1. Introduction
2. Futures & Forwards
3. Swaps
4. Options
5. Measures of risk

Intended learning outcomes:
Upon completion of this module students will be able to,

(i) independently determine the fair value of the derivatives discussed, as well as
(ii) to understand and evaluate common capital market hedging strategies.

Courses (type, number of weekly contact hours, language — if other than German): V (2) + Ü (2)

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus):

a) written examination (approx. 60 to 90 minutes) or
b) term paper (approx. 15 pages)
Language of assessment: German and/or English creditable for bonus

Allocation of places: --

Additional information: --

Referred to in LPO I (examination regulations for teaching-degree programmes): --
Core Electives

(10 ECTS credits)
### Module title

**Selected Topics in Corporate Finance**

### Abbreviation

12-M-CF4-182-m01

### Module coordinator

Holder of the Chair of Corporate Finance

### Module offered by

Faculty of Business Management and Economics

### ECTS

5

### Method of grading

numerical grade

### Only after succ. compl. of module(s)

--

### Duration

1 semester

### Module level

graduate

### Other prerequisites

--

### Contents

This module serves the purpose of transferring credits from:
- courses taken at other German or non-German universities
- additional courses offered on a short-term basis
- courses offered by new chairs that are not yet included in the regular curriculum.

The chair holder will ensure that the courses are eligible for credit transfer.

### Intended learning outcomes

As a result of accrediting multiple kinds of modules, a description of acquired skills cannot be given.

### Courses

(type, number of weekly contact hours, language — if other than German)

V (2) + Ü (2)

### Method of assessment

(type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

a) written examination (approx. 60 to 90 minutes) or b) term paper (approx. 15 pages)

Assessment offered: In the semester in which the course is offered

Language of assessment: German and/or English

creditable for bonus

### Allocation of places

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### Additional information

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### Referred to in LPO I

(examination regulations for teaching-degree programmes)

--
## Analysis of Financial Market Data

### Module title
Analysis of Financial Market Data

### Abbreviation
12-M-FMO-182-m01

### Module coordinator
Holder of the Chair of Econometrics

### Module offered by
Faculty of Business Management and Economics

### ECTS
5

### Method of grading
Numerical grade

### Duration
1 semester

### Module level
Graduate

### Other prerequisites

### Contents

**Description:**
The module covers the fundamentals, methods and concepts for the empirical analysis of financial market data. The concept of market efficiency is explained and critically examined with reference to the random walk hypothesis. To test this hypothesis, a number of parametric and non-parametric methods are proposed and applied in practice. Based on the findings, market microstructure models that can explain some important empirical findings will be discussed. In addition, the course describes event studies for testing the significant impact of corporate news on the share price and discusses issues of univariate time series analysis such as AR(1)MA and ARCH / GARCH models that are indispensable for modelling financial market data. In the final part of the course, CAPM is discussed and examined, in particular with regard to its empirical applicability.

**Syllabus:**
1. Information efficiency
2. Random walk
3. Theoretical market models
4. Event studies
5. Univariate modelling of time series data
6. Models to explain volatility (ARCH and GARCH)
7. Estimation of the capital asset pricing model

**Reading:**

### Intended learning outcomes

Students have significant knowledge of the fundamentals, methods and concepts that are needed for the empirical analysis of financial market data. They can autonomously perform statistical test decisions with statistic programs such as R and critically analyze their economic importance. In addition, the students learn the independent handling of empirical capital market data and at the end of the course, they will have the ability to develop own functions and routines, for example for R.

### Courses

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<td>German and/or English creditable for bonus</td>
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<td>Additional information</td>
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<td>Research track module in Master's programme IEP</td>
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<td><strong>Referred to in LPO I</strong> (examination regulations for teaching-degree programmes)</td>
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</table>
## Module title

Accounting and Capital Markets

### Abbreviation

12-M-REKA-182-m01

### Module coordinator

Holder of the Chair of Business Management, Management Accounting and Control

### Module offered by

Faculty of Business Management and Economics

### ECTS

5

### Method of grading

Only after succ. compl. of module(s)

### Duration

1 semester

### Module level

graduate

### Other prerequisites

--

### Contents

The module focuses on financial and management accounting, their functions, possible configurations as well as their impact on internal and external recipients under consideration of the institutional setting. In this context, an economic perspective has priority over detailed legal arrangements and regulations by the standard setters. Based on the theoretical foundations of information economics as well as decision-making and balance sheet theories, typical issues concerning cost and managerial accounting as well as financial accounting and publicity are discussed.

### Intended learning outcomes

Initially, a fundamental knowledge about the conception and impact of management and financial accounting as information systems is acquired. In the following, the module mainly sharpens the understanding of the economic impacts of the configuration of management and financial accounting. What is more, extensive knowledge about possible impacts of changes in institutional general frameworks is covered. For example, changes in valuation standards, publicity rules or regulations about the distribution of profits in enterprises and on capital markets are considered.

### Courses

(type, number of weekly contact hours, language — if other than German)

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<th>Type</th>
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<th>Language</th>
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<tr>
<td>V (2)</td>
<td>+ Ü (2)</td>
<td>German/English</td>
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### Method of assessment

(type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

- a) written examination (approx. 60 minutes) or b) term paper (approx. 15 pages)

Language of assessment: German and/or English

creditable for bonus

### Allocation of places

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### Additional information

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### Referred to in LPO I

(examination regulations for teaching-degree programmes)

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<table>
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<tr>
<th>Module title</th>
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<tbody>
<tr>
<td>Financial Statement Analysis and Business Valuation</td>
<td>12-M-UA-161-m01</td>
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**Module coordinator**

Holder of the Chair of Financial Accounting

**Module offered by**

Faculty of Business Management and Economics

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**Duration**

1 semester

**Contents**

Fundamental investing involves valuation, and much of the information for valuation is contained in financial statements. This module provides a basic understanding of financial statement analysis, particularly on how to extract value-relevant information from financial statements, carry out financial statement analysis, and use financial data to value corporations. The module also provides the necessary tools to gain insights into what generates value in a corporation.

**Intended learning outcomes**

Students can understand publicly traded companies’ financial statements (US GAAP/IFRS), identify value-relevant information in financial statements, and use this information for valuation. They know the relevant techniques to evaluate financial statements and understand the fundamental role of financial information in the valuation process. Students can apply valuation techniques to real-world cases and recommend investment decisions.

**Courses**

(type, number of weekly contact hours, language — if other than German)

V (2) + Ü (2)

**Method of assessment**

(type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

written examination (approx. 60 to 120 minutes)
Language of assessment: German and/or English creditable for bonus

**Allocation of places**

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**Additional information**

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**Referred to in LPO I**

(examination regulations for teaching-degree programmes)

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<table>
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<th>Module title</th>
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<tr>
<td>Analytical Information Systems</td>
<td>12-BI-192-m01</td>
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<th>Module coordinator</th>
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<tbody>
<tr>
<td>Holder of the Chair of Business Analytics</td>
<td>Faculty of Business Management and Economics</td>
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<td>1 semester</td>
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</table>

**Contents**

The course provides an overview of the structure and applications of analytical information systems. A special focus is on individual quantitative methods of data analysis. On the one hand, methods from the areas of data preparation and data manipulation as well as their practical application are introduced. On the other hand, an introduction to methods and the application of machine learning methods for predictive analytics, in particular neural networks and deep learning, is given.

**Intended learning outcomes**

The module provides students with knowledge of:

- Data Manipulation
- Data Engineering
- Descriptive Analytics
- Predictive Analytics and Data Mining
- Supervised Learning
- Unsupervised Learning
- Neural Networks and Deep Learning
- Text Mining
- Big Data Technologies

**Courses** (type, number of weekly contact hours, language — if other than German)

V (2) + Ü (2)

**Method of assessment** (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

Written examination (approx. 60 Minutes)
Creditable for bonus
Language of assessment: German and/or English

**Allocation of places**

40 places.
WM1:
Should the number of applications exceed the number of available places, places will be allocated as follows:
1) Master's students of Information Systems will be given preferential consideration.
2) The remaining places will be allocated to students of other subjects.
3) When places are allocated in accordance with (1) and (2) and the number of applications exceeds the number of available places, places will be allocated by lot among applicants from this group.

**Additional information**

--

**Referred to in LPO I** (examination regulations for teaching-degree programmes)

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Module title | Abbreviation
---|---
Risk Management - Concepts and Systems | 12-RM-KS-161-m01

Module coordinator | Module offered by
holder of the Chair of Business Management and Account- | Faculty of Business Management and Economics

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<td>1 semester</td>
<td>graduate</td>
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Contents

**Concepts:** The course will provide students with an overview of the main goals, contents, methods and instruments of opportunity and risk management in industrial and commercial enterprises. **Systems:** The course will provide students with an overview of the design and functionality of essential information systems for risk management.

Intended learning outcomes

**Concepts:** After completion of the module students have a sound understanding of basic concepts, processes, methods and tools of risk management. They are able to justify the duties and functions of risk management in the company in theory and practice. They can also evaluate proposed solutions for the design of a risk management system, analyze selected issues of risk management and building on that, develop their own solutions. **Systems:** After completing this module, students can

(i) judge legal, organizational and methodological requirements for the implementation of risk management processes in a risk management information system (RMIS);
(ii) understand the technical basis for RMIS;
(iii) estimate the different characteristics of various information systems for the RM;
(iv) understand the workings of RMIS.

Courses (type, number of weekly contact hours, language — if other than German)

V (2)

Method of assessment (type, scope, language — if other than German, examination offered — If not every semester, information on whether module is creditable for bonus)

a) written examination (approx. 60 minutes) or b) oral examination (one candidate each: approx. 15 to 20 minutes; groups of 2: approx. 20 minutes; groups of 3: approx. 30 minutes)

Language of assessment: German and/or English creditable for bonus

Allocation of places

25 places. (1) Should the number of applications exceed the number of available places, places will be allocated by lot among all applicants irrespective of their subjects. (2) Places on all courses of the module with a restricted number of places will be allocated in the same procedure. (3) A waiting list will be maintained and places re-allocated by lot as they become available.

Additional information

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Referred to in LPO I (examination regulations for teaching-degree programmes)

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Strategic Corporate Communication
(20 ECTS credits)
Core

(10 ECTS credits)
Module title | Abbreviation
---|---
Communication in Business and Economics | 12-M-BUC-222-m01

<table>
<thead>
<tr>
<th>Module coordinator</th>
<th>Module offered by</th>
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<tbody>
<tr>
<td>Holder of the Professorship of Economic Journalism</td>
<td>Faculty of Business Management and Economics</td>
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Contents

The lecture names introductory relevant communication models. Furthermore, the theoretical models of PR are discussed. The added value of communication for companies, business, politics, and science is explained. The discrepancy between journalism and PR is discussed, as well as the basic elements, instruments, goals, and forms of PR. The preparation and implementation of press meetings, conferences, campaigns, and events will be systematically explained, and the central aspects of corporate communications will be outlined. The exercise deals with the practical implementation of journalistic styles in the various media and provides an overview of the possibilities and concepts of PR work across different media and target groups.

Intended learning outcomes

After participating in the module courses, students are able to understand and apply PR and its forms, elements as well as methods and in a holistic context. Students learn professional competencies in the field of (business) communication with regard to reflection, argumentation, and exchange as a PR consultant in different areas. In addition, students will be able to apply concrete PR instruments in practice and prepare them professionally.

Courses

(type, number of weekly contact hours, language — if other than German)

V (2) + Ü (2)

Module taught in: English

Method of assessment

(type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

written examination (approx. 60 minutes)

Language of assessment: English

creditable for bonus

Allocation of places

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Additional information

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Referred to in LPO I (examination regulations for teaching-degree programmes)

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<table>
<thead>
<tr>
<th>Module title</th>
<th>Abbreviation</th>
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<tbody>
<tr>
<td>Business Communication in Print, Online and Social Media</td>
<td>12-M-ECC-182-m01</td>
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<tr>
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<td>Faculty of Business Management and Economics</td>
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**Contents**

This module focuses on the relationship of offer characteristics with benefit aspects for the end consumer and the business models on the part of the providers. Starting from the basics of editorial work and professional text management, the new forms of communication management in social networks are presented. The focus of the lecture is on the use of social media in campaigns (Facebook, Twitter, Instagram, Tiktok). There will also be exercises on various Web 2.0 applications (e.g. online social networks) and on the collection and interpretation of online market research data. However, crisis communication of companies will also be covered in particular opinion-makers on the web as well as protest culture on the web.

**Intended learning outcomes**

By participating in the module courses, students acquire job-specific skills in research and interviewing. Students are able to collect and organize information according to criteria of topicality and relevance. In addition, students are taught journalistic expertise so that they are able to recognize the forms of presentation of news, reports, and background reports with their media characteristics and communicative functions in different media genres and create them themselves. Students will be able to prototype and design a social media campaign, describe the editorial and technical approach including feedback, response, and customer engagement. In addition, students will be able to design counter-strategies for corporate communication crises.

**Courses**

(type, number of weekly contact hours, language — if other than German)

V (2) + Ü (2)

**Method of assessment**

(type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

written examination (approx. 60 minutes)

Language of assessment: German and/or English creditable for bonus

**Allocation of places**

--

**Additional information**

--

**Referred to in LPO I**

(examination regulations for teaching-degree programmes)

--
Core Electives
(10 ECTS credits)
## Project Modul: Crossmedial Business Communication

**Abbreviation**: 12-M-PCW-182-m01

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<thead>
<tr>
<th>Module title</th>
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<tr>
<td>Project Modul: Crossmedial Business Communication</td>
<td>12-M-PCW-182-m01</td>
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<thead>
<tr>
<th>Module coordinator</th>
<th>Faculty of Business Management and Economics</th>
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<tbody>
<tr>
<td>Holder of the Professorship of Economic Journalism</td>
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<th>ECTS</th>
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<td>numerical grade</td>
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**Duration**: 1 semester

**Module level**: graduate

**Other prerequisites**: --

### Contents

Online and cross-media journalism takes into account the current media convergence. This seminar focuses on the individual elements and phases of production for the website, Facebook, Instagram, Twitter, and Tiktok against the background of current trends and developments. In addition, the seminar covers current trends in journalism. In addition to content-related topics, the focus is also on new methods (e.g. of storytelling), as well as technical developments.

### Intended learning outcomes

After successful completion, students will be able to name the individual phases of online and cross-media journalism and carry them out on sample projects, explain and go through the individual production stages, use methods and tools for the individual steps.

### Courses

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<th>type</th>
<th>number of weekly contact hours</th>
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**Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)**

portfolio (approx. 3 items with a duration of 3 minutes each, audio/video format): e.g. record of research activities, commentary, text analyses of different types of media

Assessment offered: In the semester in which the course is offered

Language of assessment: German and/or English

creditable for bonus

### Allocation of places

--

### Additional information

--

### Referred to in LPO I (examination regulations for teaching-degree programmes)

--
### Module title
Project Modul: Audiovisual Business Communication

### Abbreviation
12-M-PACW-182-m01

### Module coordinator
Holder of the Professorship of Economic Journalism

### Module offered by
Faculty of Business Management and Economics

### ECTS
10

### Method of grading
numerical grade

### Other prerequisites
--

### Duration
1 semester

### Module level
graduate

### Contents
In this seminar, students learn the basics of audiovisual forms of presentation (news, background report, reportage). They are first introduced to the use of cameras and editing. Students learn how to set news and stories in the picture and how to organize shoots. Television-specific journalistic basics such as the structure and design of a television report, organization, and handling of different filming situations, creating storyboards, copywriting, and speaking are learned.

### Intended learning outcomes
Upon completion of the seminar, students will be able to apply editorial and technical knowledge and skills (including teamwork) to the production of television features.

### Courses
(type, number of weekly contact hours, language — if other than German)

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<th>Type</th>
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### Method of assessment
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portfolio (approx. 3 items with a duration of 3 minutes each, audio/video format): e.g. record of research activities, commentary, text analyses of different types of media

Assessment offered: In the semester in which the course is offered

Language of assessment: German and/or English

creditable for bonus

### Allocation of places
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### Additional information
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### Referred to in LPO I
(examination regulations for teaching-degree programmes)

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<td>Mass Media Processes and Effects</td>
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<tr>
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<tbody>
<tr>
<td>1 semester</td>
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### Contents

No information on contents available.

### Intended learning outcomes

No information on intended learning outcomes available.

### Courses

(type, number of weekly contact hours, language — if other than German)

V (2) + Ü (2)

### Method of assessment

(type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

a) written examination (approx. 50 minutes) or b) oral examination of one candidate each (approx. 20 minutes)

Language of assessment: German and/or English

creditable for bonus

### Allocation of places

12 places. (1) Should the number of applications exceed the number of available places, places will be allocated by lot among all applicants irrespective of their subjects. (2) Places on all courses of the module with a restricted number of places will be allocated in the same procedure. (3) A waiting list will be maintained and places re-allocated by lot as they become available.

### Additional information

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### Referred to in LPO I

(examination regulations for teaching-degree programmes)

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**Contents**
No information on contents available.

**Intended learning outcomes**
No information on intended learning outcomes available.

**Courses** (type, number of weekly contact hours, language — if other than German)
V (2) + Ü (2)

**Method of assessment** (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)
a) written examination (approx. 100 minutes) or b) oral examination of one candidate each (approx. 30 minutes)
Language of assessment: German and/or English
creditable for bonus

**Allocation of places**
12 places. (1) Should the number of applications exceed the number of available places, places will be allocated by lot among all applicants irrespective of their subjects. (2) Places on all courses of the module with a restricted number of places will be allocated in the same procedure. (3) A waiting list will be maintained and places re-allocated by lot as they become available.

**Additional information**
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<td>portfolio (approx. 5 pages) Assessment offered: every year, summer semester</td>
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Monetary Policy
(20 ECTS credits)
Core

(10 ECTS credits)
Module title
Monetary Policy and the Financial System

Abbreviation
12-M-EG1-222-m01

Module coordinator
Holder of the Chair of Monetary Policy and International Economics

Module offered by
Faculty of Business Management and Economics

ECTS
5

Method of grading
Numerical grade

Only after succ. compl. of module(s)
--

Duration
1 semester

Module level
Graduate

Other prerequisites
--

Contents
This module is a thorough introduction to monetary policy. The course is divided into four sections. The first one repeats macroeconomic concepts. The second one deals with core topics on monetary policy and theory. In the third one, monetary policy with the zero lower bound on nominal interest rates constraint is analyzed. The fourth section deals with linkages between monetary and fiscal policy.

Format of the module: lectures and exercise sessions

Prerequisites: Basic knowledge of microeconomics and macroeconomics as taught in Bachelor programs in Economics, Business or similar fields.

Usability: Master International Economic Policy

Requirements for getting credit points according to the European Credit Transfer System (ECTS): Passing the final exam.

ECTS and grading: 5 ECTS, Grading on a scale from 1-5 based on the final exam.

Frequency of the module: Each winter term

Workload: 150 hours (Lecture + Exercise Session + Self Study)

Duration: 1 Semester

Intended learning outcomes
Students will acquire a thorough understanding of the theory and practice of monetary policy. Students gain expertise on institutional aspects and theoretical monetary models. Having completed the module, students will be able to understand current developments in monetary policy and apply models and theories to analyze and evaluate these.

Courses (type, number of weekly contact hours, language — if other than German)
V (2) + Ü (2)
Module taught in: English

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)
a) written examination (approx. 60 minutes) or
b) term paper (approx. 15 pages)
Language of assessment: German and/or English creditable for bonus

Allocation of places
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Additional information
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<th>Referred to in LPO I</th>
<th>(examination regulations for teaching-degree programmes)</th>
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Module title | Abbreviation
--- | ---
Monetary Policy, Foreign Exchange Markets, and the International Monetary System | 12-M-EG2-182-m01

Module coordinator | Module offered by
--- | ---
Holder of the Chair of Monetary Policy and International Economics | Faculty of Business Management and Economics

ECTS | Method of grading | Only after succ. compl. of module(s)
--- | --- | ---
5 | numerical grade | --

Duration | Module level | Other prerequisites
--- | --- | ---
1 semester | graduate | --

Contents

The course deals with the following topics:

The foreign exchange market:
- Functioning of foreign exchange markets; market structure, players and evolution; FX transactions; hedging and speculation with FX.

Exchange rate economics:
- Theoretical background and empirical validity of covered interest parity (CIP), uncovered interest rate parity (UIP) and purchasing power parity (PPP);
- Monetary approach: Flexible price monetary model and sticky price (Dornbusch-) overshooting model; Balassa-Samuelson effect;
- FX valuation via the PPP and the macroeconomic balance approach; Real effective exchange rates; Empirical validity of the exchange rate theories; Exchange rates and the current account.

Exchange rate regimes and monetary policy in open economies:
- Classification of exchange rate regimes; the policy trilemma in open economies; historical development of the international monetary system; central bank interventions on the FX market.

Modelling open economy macroeconomics at the intermediate level:
- Implications of the Mundell-Fleming model for monetary and fiscal policy under fixed and flexible exchange rates.
- The BMW (IS-MP-PC) model of the open economy and its implication for monetary and fiscal policy under fixed and flexible exchange rates; optimum currency areas in the BMW model and in practice.

Currency crises:
- International experience with currency crises since the 1970s; modelling currency crises within the Mundell-Fleming framework.

Managed-floating as a solution for the policy trilemma.

Intended learning outcomes

By completing this course, students receive a profound understanding of the functioning of foreign exchange markets, the drivers of exchange rate movements and some exchange rate valuation methods used in practice. Next to a profound knowledge of exchange rate theory the course highlights its practical applicability, e.g. as an investment strategy. In the second part of the course students learn the principles of monetary policy in open economies, including its trade-offs and risks like currency crises. Students will be able to analyze these issues based on theoretical models as well as the international historical experience.

Courses (type, number of weekly contact hours, language — if other than German)

V (2) + Ü (2)

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

a) written examination (approx. 60 minutes) or b) term paper (approx. 15 pages)

Language of assessment: German and/or English
creditable for bonus

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<th>Allocation of places</th>
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<td>30 places. (1) Should the number of applications exceed the number of available places, places will be allocated by lot among all applicants irrespective of their subjects. (2) Places on all courses of the module with a restricted number of places will be allocated in the same procedure. (3) A waiting list will be maintained and places re-allocated by lot as they become available.</td>
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Core Electives

(10 ECTS credits)
### Module title
DSGE Modelling

### Abbreviation
12-M-DMM-222-m01

### Module coordinator
Head of the Work Group of Empirical Economics

### Module offered by
Faculty of Business Management and Economics

### ECTS
5

### Method of grading
numerical grade

### Only after succ. compl. of module(s)
--

### Duration
1 semester

### Module level
graduate

### Other prerequisites
--

### Contents
The course offers an introduction to "Dynamic Stochastic General Equilibrium Modelling" (DSGE). These models are designed to describe the business cycle at the macro level. In a first step, we analyse the behaviour of a representative household. In particular, we describe how consumption, asset allocation and labour supply plans are formulated. In a second step, we focus on the firm sector and address how firms solve for optimal production plans. In a third step, we explain what role the central bank plays in stabilising the business cycle. Thereby, we show how changes in interest rates interact with optimal decisions taken by households and firms. We also discuss hot topics such as CAPM models and monetary policy in the euro area.

### Intended learning outcomes
The course offers analytical tools designed to solve DSGE models. These analytical skills encompass:

- Solving of intertemporal optimization problems (e.g., consumption Euler-equations).
- Linearization methods (e.g., Taylor-expansions).
- Solving linear difference expectations by minimum state variable techniques (MSV-solution).
- Basic time series concepts such as impulse response functions, variance decompositions.
- Basic insights in MATLAB/ Dynare programming: specifying, solving and estimating DSGE models.

Based on the course students are able themselves to design and implement DSGE models.

### Courses
(type, number of weekly contact hours, language — if other than German)

V (2) + Ü (2)

Module taught in: English

### Method of assessment
(type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

a) written examination (approx. 60 minutes) or
b) term paper (approx. 15 pages)

Language of assessment: German and/or English

### Allocation of places
--

### Additional information
Research track module in Master's programme IEP

### Referred to in LPO I
(examination regulations for teaching-degree programmes)

--
Module title: Applied Empirical Macroeconomics
Abbreviation: 12-M-AEM-211-m01

Module coordinator: Holder of the Chair of Monetary Policy and International Economics
Module offered by: Faculty of Business Management and Economics

ECTS: 5
Method of grading: Numerical grade
Only after successful completion of module(s): --

Duration: 1 semester
Module level: Graduate
Other prerequisites: --

Contents:
The module introduces students to current topics and methods in applied empirical macroeconomics. This includes an overview of topical macroeconomic issues and empirical regularities as well as multivariate time series methods that are widely used in empirical applications.

Format of the module: Lectures and exercise sessions

Prerequisites: Basic knowledge of microeconomics and macroeconomics as taught in Bachelor programs in Economics, Business or similar fields.

Usability: Master International Economic Policy

Requirements for getting credit points according to the European Credit Transfer System (ECTS): Passing the final exam.

ECTS and grading: 5 ECTS, Grading on a scale from 1-5 based on the final exam.

Frequency of the module: Each winter term

Workload: 150 hours (Lecture + Exercise Session + Self Study)

Duration: 1 Semester

Intended learning outcomes:
After completing the module, students have obtained an overview of empirical methods used in applied empirical macroeconomic analysis. Besides a theoretical knowledge of commonly used empirical models and a critical discussion of their limitations, students should also be able to conduct empirical analyses themselves.

Courses (type, number of weekly contact hours, language — if other than German)
V (2) + Ü (2)
Module taught in: English

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)
a) written examination (approx. 60 minutes) or
b) term paper (approx. 15 pages) or
c) oral examination (one candidate each: approx. 10 to 15 minutes, groups of 2: approx. 20 minutes, groups of 3: approx. 30 minutes)
Language of assessment: English
Creditable for bonus

Allocation of places:
--

Additional information:
--
Referred to in LPO I (examination regulations for teaching-degree programmes)
Module title | Abbreviation
---|---
Business Cycles | 12-M-BC-211-m01

Module coordinator | Module offered by
---|---
Holder of the Chair of Monetary Policy and International Economics | Faculty of Business Management and Economics

ECTS | Method of grading | Only after succ. compl. of module(s)
---|---|---
5 | numerical grade | --

Duration | Module level | Other prerequisites
---|---|---
1 semester | graduate | --

Contents
This module is an introduction to dynamic macroeconomic models with microeconomic foundations with a focus on modern business cycle theories. The course is divided into several sections. Following an introduction to empirical facts on business cycles, the students are introduced to microeconomic foundations of macroeconomic models. Afterwards, the real business cycle model and the New Keynesian model and their connections are covered. Finally, the models are applied to current macroeconomic topics.

Format of the module: lectures and exercise sessions

Prerequisites: Basic knowledge of microeconomics and macroeconomics as taught in Bachelor programs in Economics, Business or similar fields.

Usability: Master International Economic Policy

Requirements for getting credit points according to the European Credit Transfer System (ECTS): Passing the final exam.

ECTS and grading: 5 ECTS, Grading on a scale from 1-5 based on the final exam.

Frequency of the module: Each summer term

Workload: 150 hours (Lecture + Exercise Session + Self Study)

Duration: 1 Semester

Intended learning outcomes
Students will acquire a basic understanding of modern business cycle theory. Students gain expertise on business cycle theory as well as on macroeconomic modeling. Having completed the module, students will be able to understand current business cycle development, apply business cycle models to analyze these and to develop appropriate policy measures.

Courses
(type, number of weekly contact hours, language — if other than German)

V (2) + Ü (2)

Module taught in: English

Method of assessment
(type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)
a) written examination (approx. 60 minutes) or
b) term paper (approx. 15 pages) or
c) oral examination (one candidate each: approx. 10 to 15 minutes, groups of 2: approx. 20 minutes, groups of 3: approx. 30 minutes)

Language of assessment: English

Creditable for bonus

Allocation of places
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### Contents

This module conveys profound knowledge of individual portfolio choices and on this basis the most important capital market theory (namely capital asset pricing model) is introduced, including its assumptions, implications and extensions.

**Syllabus:**

1. Modern Portfolio Selection
   1. 2 Asset-Case
   2. Multiple-Asset-Case
   3. Critique of Portfolio Theory
2. Capital Asset Pricing Model
   1. Assumptions and Derivation
   2. Implications
   3. Empirical Aspects, Extensions and Alternatives

### Intended learning outcomes

This module enables the students

(i) to explain and to determine the optimal capital market position of an investor given the different investment opportunities and individual utility function;

(ii) to understand and use the central CAPM propositions for valuating risky assets.

### Courses (type, number of weekly contact hours, language — if other than German)

V (2) + Ü (2)

### Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

a) written examination (approx. 60 to 90 minutes) or b) term paper (approx. 15 pages)

Language of assessment: German and/or English creditable for bonus

### Allocation of places

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### Additional information

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### Referred to in LPO I (examination regulations for teaching-degree programmes)

--
Module title: Econometrics 1
Abbreviation: 12-M-OE1-182-m01

Module coordinator: Holder of the Chair of Econometrics
Module offered by: Faculty of Business Management and Economics

ECTS: 5
Method of grading: numerical grade
Duration: 1 semester
Module level: graduate

Description:
This module deals with the basic concept and methodology of the ordinary least squares (OLS) regression model. In particular, model assumptions and properties are discussed and formally motivated. In addition, the module examines linear restrictions on the model's explanatory variables as well as dummy variables and introduces tests to verify simple and multiple linear restrictions.

Linear algebra is used as formal aid.

Outline of syllabus:
1. Random variables
2. Important distributions
3. Point estimates
4. Simple linear regression model
5. Model assumptions
6. Model properties
7. Simple hypothesis tests
8. Multiple linear regression model
9. Linear restrictions
10. Dummy variables
11. Multiple hypothesis tests

Intended learning outcomes
The students acquire knowledge of the basics, concepts and methods used in the classical linear regression model and understand the role of econometrics in science and data analysis. In particular, they learn how to analytically derive, calculate and interpret the coefficients, standard errors and p-values of a classic regression output of the multiple regression model. Furthermore, they are able to formally state and motivate the assumptions and properties of OLS and know how to deal with transformed and dummy variables. Additionally, students will be able to test multiple linear restrictions on the parameters and will be able to apply these tests to real economic, business and social science questions.

The competences acquired in this course serve as a prerequisite for "Econometrics II", "Econometrics III", "Microeconomics," and "Financial Econometrics".

Courses
(type, number of weekly contact hours, language — if other than German)
V (2) + Ü (2)
Module taught in: German (winter semester), English (summer semester)

Method of assessment
(type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)
a) written examination (approx. 60 minutes) or b) term paper (approx. 15 pages)
Language of assessment: German and/or English

Allocation of places
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<td>Referred to in LPO I</td>
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Module title: Advanced Macroeconomics
Abbreviation: 12-M-MFF-182-m01

Module coordinator: Holder of the Chair of International Economics
Module offered by: Faculty of Business Management and Economics

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<th>Duration</th>
<th>Module level</th>
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Contents:

Content

The course covers long-run aspects of macroeconomics. We start with a review of the facts of long-run growth and a review of the Solow-growth model. The lecture then focuses on the infinite-horizon Ramsey-Cass-Koopmans model, on endogenous growth theory and it puts the roles of human capital and institutions under scrutiny. Applications of this framework involving urban and regional growth, resources and the environment will be taken up, time permitting.

Outline

I Facts and the Solow Growth Model
II Infinite-Horizon Ramsey-Cass-Koopmans model
III Endogenous Growth
IV Human Capital, Social Infrastructure and Beyond
V Applications (Urban and regional growth; Growth, resources and the environment)

Literature:

The course draws strongly on the textbook:


We will use journal articles and research papers at several parts of the lecture.

Intended learning outcomes

Students acquire a working knowledge of the key models and analytical tools of advanced macroeconomics. This enables them to identify the key forces that determine the determinants of income levels and growth rates of incomes, to make informed policy analysis and statements and to critically evaluate current controversies and developments as well as to conduct their own research.

Courses (type, number of weekly contact hours, language — if other than German)

V (2) + Ü (2)

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

a) written examination (approx. 60 to 90 minutes) or b) term paper (approx. 15 pages)

Language of assessment: English creditable for bonus

Allocation of places

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Module Catalogue for the Subject Economathematics
Master's with 1 major, 120 ECTS credits

Additional information

Referred to in LPO I (examination regulations for teaching-degree programmes)
Econometrics
(20 ECTS credits)
Core
(10 ECTS credits)
Module title: Econometrics 1  
Abbreviation: 12-M-OE1-182-m01

Module coordinator: Holder of the Chair of Econometrics  
Module offered by: Faculty of Business Management and Economics

ECTS: 5
Method: numerical grade
Duration: 1 semester
Module level: graduate
Other prerequisites: --

Contents

Description:
The module deals with the basic concept and methodology of the ordinary least squares (OLS) regression model. In particular, model assumptions and properties are discussed and formally motivated. In addition, the module examines linear restrictions on the model's explanatory variables as well as dummy variables and introduces tests to verify simple and multiple linear restrictions.

Linear algebra is used as formal aid.

Outline of syllabus:
1. Random variables
2. Important distributions
3. Point estimates
4. Simple linear regression model
5. Model assumptions
6. Model properties
7. Simple hypothesis tests
8. Multiple linear regression model
9. Linear restrictions
10. Dummy variables
11. Multiple hypothesis tests

Intended learning outcomes

The students acquire knowledge of the basics, concepts, and methods used in the classical linear regression model and understand the role of econometrics in science and data analysis. In particular, they learn how to analytically derive, calculate, and interpret the coefficients, standard errors, and p-values of a regression output of the multiple regression model. Furthermore, they are able to formally state and motivate the assumptions and properties of OLS and know how to deal with transformed and dummy variables. Additionally, students will be able to test multiple linear restrictions on the parameters and will be able to apply these tests to real economic, business, and social science questions.

The competences acquired in this course serve as a prerequisite for "Econometrics II", "Econometrics III", "Microeconomics" and "Financial Econometrics".

Courses (type, number of weekly contact hours, language — if other than German)

V (2) + Ü (2)
Module taught in: German (winter semester), English (summer semester)

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

a) written examination (approx. 60 minutes) or b) term paper (approx. 15 pages)
Language of assessment: German and/or English

Creditable for bonus: --

Allocation of places

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## Additional information

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<tr>
<td>Econometrics 2</td>
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<td>Holder of the Chair of Econometrics</td>
<td>Faculty of Business Management and Economics</td>
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**Contents**

**Description:**
This module deals with the basics, concepts and methods of the generalized least squares (GLS) framework. Partly as a motivation for the GLS model and partly for its own right, different specification and data problems as well as violations of model assumptions of the OLS estimator (as introduced in "Ökonometrie I" ("Econometrics I")) are discussed. This includes multicollinearity, a test for structural breaks, heteroskedasticity and autocorrelation. Linear algebra is used as formal aid.

**Syllabus:**
1. Specification analysis
2. Multicollinearity
3. Heteroskedasticity
4. Autocorrelated disruptive terms
5. Generalized least squares (GLS)

**Intended learning outcomes**
Students acquire essential knowledge of the fundamentals, methods and concepts for estimating the generalized linear regression model (GLS) and can apply and interpret it. They are sensitized for specification problems, data problems and violations of the assumptions of the classical linear model (OLS) in order to be able to recognize, to assess and therefore adequately deal with these problems in theory and practice. This enables them to critically assess the use of the estimation methods in scientific work, to work independently on adequate implementation of empirical analyzes and to answer selected (economic) scientific issues if available data with the above-mentioned involved problems. The competences acquired in this course serve as a prerequisite for "Econometrics III", "Microeconometrics" und "Financial Econometrics".

**Courses** (type, number of weekly contact hours, language — if other than German)
V (2) + Ü (2)

**Method of assessment** (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)
a) written examination (approx. 60 minutes) or b) term paper (approx. 15 pages)
Language of assessment: German and/or English creditable for bonus

**Allocation of places**
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**Additional information**
Research track module in Master's programme IEP

**Referred to in LPO I** (examination regulations for teaching-degree programmes)
--
Core Electives
(10 ECTS credits)
Module title
Econometrics 3

Abbreviation
12-M-OE3-182-m01

Module coordinator
Holder of the Chair of Econometrics

Module offered by
Faculty of Business Management and Economics

ECTS
5

Method of grading
Only after succ. compl. of module(s)
numerical grade

Duration
1 semester

Module level
graduate

Other prerequisites
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Contents
Description:
This module deals with advanced econometric methods and concepts based on the classical and the generalized least squares estimator discussed in Ökonometrie I and II (Econometrics I and II). In particular, this includes the instrumental variable (IV) estimator, the generalized method of moments (GMM) estimator, distributed lag models as well as basic methods and concepts used in uni- and multivariate econometric time series analysis, including (non)stationarity, integration and cointegration. Linear algebra is used as formal aid.

Syllabus:
1. Error-in-variables
2. IV estimation
3. Generalized least squares estimation
4. Distributed lag models
5. Stationary uni- and multivariate processes
6. Deterministic and stochastic trends
7. Integrated and cointegrated processes

Intended learning outcomes
The students acquire thorough understanding of advanced methods and concepts in econometrics. They get familiarized with diverse error-in-variables issues and will be capable of handling them appropriately. After the course, students understand the generalized method of moments (GMM) and the instrumental variable (IV) estimator to the extent that they can discuss their pros and cons, apply these to selected questions in quantitative economics and understand scientific papers using these methods. Furthermore, they become acquainted with selected time series issues, such as distributed lag models, non-stationarity, spurious correlation and cointegrated processes, enabling them to conduct a comprehensive time series analysis. In brief, the course enables students to apply the above mentioned methods and concepts to real life questions, assess their appropriateness and address their theoretical and practical benefits and shortcomings.

Courses (type, number of weekly contact hours, language — if other than German)
V (2) + Ü (2)

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)
a) written examination (approx. 60 minutes) or b) term paper (approx. 15 pages)
Language of assessment: German and/or English
creditable for bonus

Allocation of places
--

Additional information
Research track module in Master's programme IEP

Referred to in LPO I (examination regulations for teaching-degree programmes)
--
Module title: Analysis of Financial Market Data
Abbreviation: 12-M-FMO-182-m01

Holder of the Chair of Econometrics
Faculty of Business Management and Economics

ECTS: 5
Method of grading: numerical grade
Only after succ. compl. of module(s)

Duration: 1 semester
Module level: graduate
Other prerequisites: --

Contents

Description:
The module covers the fundamentals, methods and concepts for the empirical analysis of financial market data. The concept of market efficiency is explained and critically examined with reference to the random walk hypothesis. To test this hypothesis, a number of parametric and non-parametric methods are proposed and applied in practice. Based on the findings, market microstructure models that can explain some important empirical findings will be discussed. In addition, the course describes event studies for testing the significant impact of corporate news on the share price and discusses issues of univariate time series analysis such as AR(1)MA and ARCH / GARCH models that are indispensable for modelling financial market data. In the final part of the course, CAPM is discussed and examined, in particular with regard to its empirical applicability.

Syllabus:
1. Information efficiency
2. Random walk
3. Theoretical market models
4. Event studies
5. Univariate modelling of time series data
6. Models to explain volatility (ARCH and GARCH)
7. Estimation of the capital asset pricing model

Reading:

Intended learning outcomes
Students have significant knowledge of the fundamentals, methods and concepts that are needed for the empirical analysis of financial market data. They can autonomously perform statistical test decisions with statistic programs such as R and critically analyze their economic importance. In addition, the students learn the independent handling of empirical capital market data and at the end of the course, they will have the ability to develop own functions and routines, for example for R.

Courses (type, number of weekly contact hours, language — if other than German)
V (2) + Ü (2)

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)
a) written examination (approx. 60 minutes) or b) term paper (approx. 15 pages)
Language of assessment: German and/or English
creditable for bonus
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### Module Catalogue for the Subject Economathematics

Master's with 1 major, 120 ECTS credits

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<th>Module title</th>
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<td>Microeconometrics</td>
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<td>Faculty of Business Management and Economics</td>
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### Contents

The course teaches basics, methods and concepts for the analysis of individual data. The scaling of observed data is adequately addressed. The maximum likelihood method, which is important for this type of data, is explained in detail.

### Outline

- What is microeconometrics?
- Models for qualitatively dependent variables
- Models for limited dependent variables
- Time-dependent models

### References


### Intended learning outcomes

Students have significant knowledge of the maximum likelihood method and the most important models for qualitatively and limited dependent variables. They can autonomously perform estimations with statistic programs such as R and interpret the results meaningfully.

### Courses (type, number of weekly contact hours, language — if other than German)

Ü (2) + Ü (2)

### Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

- a) written examination (approx. 60 minutes) or b) term paper (approx. 15 pages)
- Language of assessment: German and/or English creditable for bonus

### Allocation of places

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### Additional information

Research track module in Master's programme IEP

Referred to in LPO I (examination regulations for teaching-degree programmes)

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## Module Catalogue for the Subject Economathematics

# Master's with 1 major

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<td>Empirical HR Research with Stata</td>
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<td>Holder of the Chair of Human Resource Management and Organisation</td>
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### Contents

The seminar “Empirische Personalforschung” (“Empirical Personnel Economics”) introduces and discusses the most important estimation problems and their application in the software package STATA. In addition, students learn, with the help of basic problems of personnel economics, how estimation programs are programmed in STATA.

Reading list to be provided in class.

### Intended learning outcomes

The aim of the seminar is to enable students to understand and apply the most important estimation programs and their application in STATA with a focus on problems in personnel economics.

### Courses

**Type, number of weekly contact hours, language — if other than German**

| Ü (2) |

**Method of assessment**

**Type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus**

- term paper (approx. 10 pages)
- Assessment offered: Once a year as announced
- Language of assessment: German and/or English

### Allocation of places

12 places. (1) Should the number of applications exceed the number of available places, places will be allocated by lot among all applicants irrespective of their subjects. (2) Places on all courses of the module with a restricted number of places will be allocated in the same procedure. (3) A waiting list will be maintained and places re-allocated by lot as they become available.

### Additional information

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### Referred to in LPO I

(examination regulations for teaching-degree programmes)

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## Market Research and Demand Analysis

### Module title
Market Research and Demand Analysis

### Abbreviation
12-M-EO-182-m01

### Module coordinator
Holder of the Chair of Industrial Economics

### Module offered by
Faculty of Business Management and Economics

### ECTS
5

### Method of grading
Only after succ. compl. of module(s)

### Numerical grade
--

### Duration
1 semester

### Module level
graduate

### Other prerequisites
--

### Contents
1. (Recap of) Econometric methods
   - Ordinary Least Squares (OLS)
   - Endogeneity and how to deal with it (Instrumental Variables)
2. Estimation of demand
   - Representative consumer models
   - Multinomial Logit Model (ML) and extensions
   - Discrete choice models with individual data
   - Discrete choice models with aggregate data
3. Further applications
   - Demand and Supply estimation
   - Inferring marginal costs
   - Using structural models for counterfactual policy analysis

### Intended learning outcomes
The students taking this class will learn modern empirical methods in studying questions related to industry outcomes. They will become familiar with methods used in estimating demand and during exercises will learn how one can implement these methods in practice using statistical software. The lectures will help students to have a thorough understanding of the so-called New Empirical Industrial Organization (NEIO) methodology. The students will become familiar with methods used in estimating demand and imperfect competition models among firms. They will learn how to use such models to infer marginal costs as well as constructing policy simulations based on the estimated models to evaluate the effects of changes in the competitive environment, such as mergers. A student that successfully completes this course will not only be able to read empirical academic papers but will also implement a few important models in computer exercises. Furthermore, students will be able to draw implications of empirical studies for economic policy in areas such as antitrust and regulation.

### Courses
(V (2) + Ü (2))
Module taught in: English

### Method of assessment
(a) written examination (approx. 60 to 120 minutes) or (b) term paper (15 to 20 pages)
Language of assessment: English
creditable for bonus

### Allocation of places
--

### Additional information
Research track module in Master's programme IEP

### Referred to in LPO I
(examination regulations for teaching-degree programmes)

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Module title: Advanced Computational Economics
Abbreviation: 12-M-NGM-182-m01

Module coordinator: Holder of the Chair of Public Finance
Module offered by: Faculty of Business Management and Economics

ECTS: 5
Method of grading: numerical grade
Duration: 1 semester
Module level: graduate
Other prerequisites: --

Contents
Description:
This course will mostly be concerned with the analysis of public policy (in areas such as taxation, social security etc.). Providing students with state-of-the-art techniques for quantitative macroeconomic research in this very field and familiarising them with the relevant literature, this course will teach students how such policies redistribute between different generations and also within generations, how they may improve risk sharing when markets are incomplete and how they can trigger distortions and therefore hurt the aggregate economy.

Outline of syllabus:
1. Programming with FORTRAN and application of numerical methods
2. Solution techniques for dynamic programming problems
3. Policy analysis with stochastic growth and life cycle models

Reading:
Lecture notes will be provided.

Intended learning outcomes
After completing the course "Advanced Computational Economics" students will be able to
(i) edit and solve stochastic economic problems using advanced numerical techniques;
(ii) implement small scale economic models on the computer;
(iii) simulate tax and social security policy reforms and interpret the quantitative results in economic term.

Courses (type, number of weekly contact hours, language — if other than German)
V (2) + Ü (2)
Module taught in: English

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)
a) written examination (approx. 60 minutes) or b) term paper (approx. 15 pages)
Language of assessment: English

Allocation of places
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Additional information
Research track module in Master’s programme IEP

Referred to in LPO I (examination regulations for teaching-degree programmes)
--
Applied Economic Policy
(20 ECTS credits)
Core

(10 ECTS credits)
**Module title** | **Abbreviation**
--- | ---
Advanced Labour Economics | 12-M-OEA-222-m01

**Module coordinator**
Holder of the Chair of Labor Economics

**Module offered by**
Faculty of Business Management and Economics

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**Duration**
1 semester

**Module level**
graduate

**Other prerequisites**
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### Contents
This course provides an overview of the field of modern labor economics. The course will cover the following topics:
1. Labor supply
2. Labor demand
3. Human capital formation
4. Compensating wage differentials
5. Discrimination

The course will consist of frontal teaching of the basic theoretical as well as empirical tools as well as a careful reading of some of the key scientific articles related to the outlined topics. Students are expected to read the scientific articles in advance and will be asked to discuss them in small groups during class. In addition, a discussion of the articles will help illustrating how established scholars approach the core questions in modern labor economics and giving students an understanding of high quality empirical research.

The main reference for the lecture is Cahuc and Zylberberg. (2004): "Labor Economics", 1st edition,Massachusetts Institute of Technology. In addition, we will discuss well-published economic articles related to the single topics discussed in class.

### Intended learning outcomes
The aim of this course is to acquaint students with classical as well as modern topics in labor economics and to encourage the development of research interest in this field. As such, the course's objective is to familiarize students with both the core theoretical models of labor economics as well as the main econometric methods used to provide empirical evidence.

### Courses (type, number of weekly contact hours, language — if other than German)
V (2) + Ü (2)
Module taught in: English

### Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

a) written examination (approx. 60 minutes) or
b) term paper (approx. 15 pages)
Language of assessment: English

### Allocation of places
--

### Additional information
--

### Referred to in LPO I (examination regulations for teaching-degree programmes)
--
Policy Evaluation Methods

Module title: Policy Evaluation Methods
Abbreviation: 12-M-PEM-182-m01

Module coordinator: Holder of the Chair of Labor Economics
Module offered by: Faculty of Business Management and Economics

Module offered by: Faculty of Business Management and Economics

ECTS: 5
Method of grading: numerical grade
Only after succ. compl. of module(s): --

Duration: 1 semester
Module level: graduate
Other prerequisites: --

Contents

This course offers an introduction to the fundamentals of causal inference and to widely used research designs in the social sciences. In the first part a framework for understanding causality is introduced. Specifically, the epistemological differences between association, intervention and counterfactuals are explained. Then it is shown why experiments are paramount in generating causal knowledge and which assumptions are needed for which level of the causal hierarchy. Finally, we will discuss two widely used approaches to causality in the social sciences, i.e. potential outcomes and directed acyclic graphs.

The second part is devoted to the research designs regressions analysis, difference-in-differences, instrumental variables, and regression discontinuity. The emphasis is how these research designs are for example applied to answer important questions in labour economics such as the effects of a minimum wage increase on employment or the effect of children on female labour supply and wages.

The assumptions each research design requires in order to identify a causal effect will be at center stage of the lecture. Therefore the emphasis is to teach students what one needs to estimate in order to answer a given question. Further, the research designs are discussed such that students will be able to evaluate and apply these research designs to other questions and fields.

Intended learning outcomes

At the end of the course, students should be able to understand basic concepts and methods of causal inference, as well as read, interpret, and assess the credibility of scientific publications. In addition, the course serves as preparation for advanced statistics and econometrics courses.

Courses (type, number of weekly contact hours, language — if other than German)

V (2) + Ü (2)
Module taught in: English

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

a) written examination (approx. 60 minutes) or b) term paper (approx. 15 pages)
Language of assessment: English
creditable for bonus: --

Allocation of places

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Additional information

Research track module in Master's programme IEP

Referred to in LPO I (examination regulations for teaching-degree programmes)

--
Core Electives
(10 ECTS credits)
### Module title
Design of Field Experiments and Studies

### Abbreviation
12-M-DFES-182-m01

### Module coordinator
Holder of the Chair of Labor Economics

### Module offered by
Faculty of Business Management and Economics

### ECTS
5

### Method of grading
Numerical grade

### Only after succ. compl. of module(s)
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### Duration
1 semester

### Module level
Graduate

### Other prerequisites
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### Contents
No information on contents available.

### Intended learning outcomes
No information on intended learning outcomes available.

### Courses (type, number of weekly contact hours, language — if other than German)

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### Module taught in: English

### Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

- a) written examination (approx. 60 minutes) or b) term paper (approx. 15 pages)
- Assessment offered: In the semester in which the course is offered
- Language of assessment: English
- Creditable for bonus

### Allocation of places
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### Additional information

- Research track module in Master's programme IEP
- **Referred to in LPO I** (examination regulations for teaching-degree programmes)
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### Module title
Topics in Human Capital Development

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<tr>
<th>Abbreviation</th>
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<tr>
<td>12-M-THC-182-m01</td>
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### Module coordinator
Holder of the Chair of Labor Economics

### Module offered by
Faculty of Business Management and Economics

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<tr>
<td>1 semester</td>
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### Contents
This module serves the purpose of transferring credits from
- courses taken at other German or non-German universities
- additional courses offered on a short-term basis
- courses offered by new Chairs that are yet to be included in the FSB (subject-specific provisions)

The holders of the respective Chairs will ensure that the courses are eligible for credit transfer.

### Intended learning outcomes
Due to the crediting of different modules, no competence description can be given.

### Courses
(type, number of weekly contact hours, language — if other than German)

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<th>Type</th>
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Module taught in: English

### Method of assessment
(type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

a) written examination (approx. 60 minutes) or b) term paper (approx. 15 pages)
Assessment offered: In the semester in which the course is offered
Language of assessment: English
creditable for bonus

### Allocation of places
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### Additional information
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### Referred to in LPO I
(examination regulations for teaching-degree programmes)
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<table>
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<td>Topics in Migration</td>
<td>12-M-TIM-182-m01</td>
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### Contents

Migration has become a key issue in the political and public debate all over the world. Thus, economists increasingly engaged in studying determinants and consequences of migration as it has a substantial impact on receiving and sending countries. This course offers an introduction to the key concepts of migration economics and will cover the following topics:

1. Migration Decision and Forms of Migration
2. Effects on Migration on Employment and Wages
3. Effects of Migration on Attitudes and Political Economy
4. Integration and Integration Policies
5. Refugee Migration
6. Impacts of Emigration

At the end of the course students are familiar with the basic theoretical and empirical concepts in the area of economics of migration. A special focus will be on the understanding of the identification of causal effects and the ability to connect links between the different areas of analysis.

The course will consist of frontal teaching of the basic theoretical as well as empirical tools as well as a careful reading of some of the key scientific articles related to the outlined topics (a reading list will be provided at the beginning of the semester).

### Intended learning outcomes

Solid knowledge of microeconomics and econometrics is reinforced. At the end of the semester, students will have the opportunity to present their term papers.

### Courses
(type, number of weekly contact hours, language — if other than German)

- V (2) + Ü (2)
  - Module taught in: English

### Method of assessment
(type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

- a) written examination (approx. 60 minutes) or b) term paper (approx. 15 pages)
  - Assessment offered: In the semester in which the course is offered
  - Language of assessment: English
  - Creditable for bonus

### Allocation of places

- --

### Additional information

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### Referred to in LPO I
(examination regulations for teaching-degree programmes)

- --
Module title | Abbreviation  
---|---
Experimental Economics | 12-M-EE-182-m01

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**ECTS** | **Method of grading** | **Other prerequisites** |
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</table>

**Duration** | **Module level** | **Contents**
|---|---|---|
| 1 semester | graduate | **Aim and outline of the course:**

The Nobel Prizes for Daniel Kahneman and Vernon Smith 2002 and for Richard Thaler 2017 have underlined the increasing importance of experimental methods in economics. Experimental methods are used to collect data using randomization or a highly controlled environment. This course offers an introduction to the methodology of experimental economics and economic laboratory experiments.

In the methodology part it is shown why experiments are a good tool to generate scientific knowledge. Furthermore, widely used techniques in economic experiments are explained and how economic experiments differ from experiments in other social sciences. This part also deals with methods of reasoning, i.e. how inferences can be drawn from evidence that is generated by experiments.

The unifying theme of all laboratory experiments that will be covered is, understanding the behavior of agents, who produce and/or distribute goods by interacting with each other. The first topic is about markets and it includes experiments that shown under which conditions and institutions markets work very efficient and under which conditions and institutions they fail to yield a desirable outcome. The second topic includes experiments that look at the behavior of two agents, who bargain about the distribution of a common pie. On the basis of these results we will discuss experiments that try to explain bargaining behavior and show how agents deviate systematically from the neoclassical framework, i.e. the “homo oeconomicus”. The third topic deals with cooperation and institutions that support cooperation in the long run as equilibrium. Further, systematic evidence will be presented on how individuals can be classified in different cooperative types and how these types can explain economic outcomes in natural environments. The forth topic concerns reciprocity, a strong determining factor of human behavior that is nearly universal. We will cover experiments that show how reciprocity can enforce relational contracts in the absence of third party enforcement. Moreover, there will be a special emphasis on how reciprocity affects labor markets.

When time permits up to two additional topics will be covered. The first topic is about gender differences in competitiveness, risk-aversion and overconfidence. The second topic is about the elicitation of social norms.

**Prerequisites:** Participants should have a basic knowledge about microeconomics, game theory and econometrics.

**Literature:**

The course will be mainly paper based but the following books provide a good overview and complement the discussed papers.


In addition lecture slides will be provided.

**Grading:** Grading will be based on a presentation and a term paper.
### Intended learning outcomes

The aim of the course is to familiarize students with the methodology experimental economics. Further, students will be enabled to understand how causal evidence can be obtained using controlled variation and how to generalize from results that are derived in artificial laboratory setting to more natural environments. Moreover, the course shall deepen students’ understanding of human decision making in multi-agent settings and to make them aware of systematic heterogeneous human behavior in the production and distribution of goods.

### Courses

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Module taught in: English

### Method of assessment

- a) written examination (approx. 60 minutes)
- b) term paper (approx. 15 pages)

Assessment offered: In the semester in which the course is offered

Language of assessment: English

### Allocation of places

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### Additional information

- Research track module in Master’s programme IEP
- Referred to in LPO I (examination regulations for teaching-degree programmes)

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Module Catalogue for the Subject
Economathematics
Master's with 1 major, 120 ECTS credits

<table>
<thead>
<tr>
<th>Module title</th>
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<td>Econometrics 1</td>
<td>12-M-OE1-182-m01</td>
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Contents

Description:
This module deals with the basic concept and methodology of the ordinary least squares (OLS) regression model. In particular, model assumptions and properties are discussed and formally motivated. In addition, the module examines linear restrictions on the model's explanatory variables as well as dummy variables and introduces tests to verify simple and multiple linear restrictions.

Linear algebra is used as formal aid.

Outline of syllabus:
1. Random variables
2. Important distributions
3. Point estimates
4. Simple linear regression model
5. Model assumptions
6. Model properties
7. Simple hypothesis tests
8. Multiple linear regression model
9. Linear restrictions
10. Dummy variables
11. Multiple hypothesis tests

Intended learning outcomes

The students acquire knowledge of the basics, concepts and methods used in the classical linear regression model and understand the role of econometrics in science and data analysis. In particular, they learn how to analytically derive, calculate and interpret the coefficients, standard errors and p-values of a classic regression output of the multiple regression model. Furthermore, they are able to formally state and motivate the assumptions and properties of OLS and know how to deal with transformed and dummy variables. Additionally, students will be able to test multiple linear restrictions on the parameters and will be able to apply these tests to real economic, business and social science questions.

The competences acquired in this course serve as a prerequisite for "Econometrics II", "Econometrics III", "Microeconometrics" and "Financial Econometrics".

Courses (type, number of weekly contact hours, language — if other than German)

V (2) + Ü (2)

Module taught in: German (winter semester), English (summer semester)

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

a) written examination (approx. 60 minutes) or b) term paper (approx. 15 pages)

Language of assessment: German and/or English creditable for bonus

Allocation of places

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Module title: Advanced Computational Economics  
Abbreviation: 12-M-NGM-182-m01

Module coordinator: Holder of the Chair of Public Finance  
Module offered by: Faculty of Business Management and Economics

ECTS: 5  
Method of grading: numerical grade  
Only after succ. compl. of module(s):

Duration: 1 semester  
Module level: graduate  
Other prerequisites: --

Contents

Description:
This course will mostly be concerned with the analysis of public policy (in areas such as taxation, social security etc.). Providing students with state-of-the-art techniques for quantitative macroeconomic research in this very field and familiarising them with the relevant literature, this course will teach students how such policies redistribute between different generations and also within generations, how they may improve risk sharing when markets are incomplete and how they can trigger distortions and therefore hurt the aggregate economy.

Outline of syllabus:
1. Programming with FORTRAN and application of numerical methods
2. Solution techniques for dynamic programming problems
3. Policy analysis with stochastic growth and life cycle models

Reading:
Lecture notes will be provided.

Intended learning outcomes

After completing the course “Advanced Computational Economics” students will be able to
(i) edit and solve stochastic economic problems using advanced numerical techniques;
(ii) implement small scale economic models on the computer;
(iii) simulate tax and social security policy reforms and interpret the quantitative results in economic term.

Courses (type, number of weekly contact hours, language — if other than German)

V (2) + Ü (2)
Module taught in: English

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

a) written examination (approx. 60 minutes) or b) term paper (approx. 15 pages)
Language of assessment: English

Allocation of places

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Additional information

Research track module in Master’s programme IEP

Referred to in LPO I (examination regulations for teaching-degree programmes)

--
International Economics
(20 ECTS credits)
Core

(10 ECTS credits)
Module title | Abbreviation
--- | ---
International Trade and the Multinational Firm | 12-M-ITMF-182-m01

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Contents

Content

The lecture starts out with theories of international trade based on comparative advantage (Ricardo and Heckscher-Ohlin) followed by theories based on monopolistic and oligopolistic competition to explain intra-industry trade. The final part covers firm heterogeneity and multinational firms. [If time permits the Armington model and the standard neoclassical model will be addressed.]

Outline

I Ricardian Trade Theory

II Heckscher-Ohlin Trade Theory

III New Trade Theory: Intra-Industry Trade, Increasing Returns to Scale, Imperfect Competition

IV Firm Heterogeneity, Trade and FDI

V The Multinational Firm

Literature:

The module draws heavily on articles from scholarly journals and handbooks. A detailed list of references with further references, notably journal articles, is provided with each chapter of the lecture. Material from the following books is also used:


Intended learning outcomes

The students acquire the ability to critically understand the causes and drivers of world trade and the developments of specialization patterns in the global economy. They learn to analyze, discuss and defend these developments and to apply the tools and methods to evaluate controversies associated with the ongoing deepening
of the international division of labor, in particular the repercussions of the global economy on national econom-
ies.

Courses (type, number of weekly contact hours, language — if other than German)

V (2) + Ü (2)
Module taught in: English

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether
module is creditable for bonus)

a) written examination (approx. 60 to 90 minutes) or b) term paper (approx. 15 pages)
Language of assessment: English
creditable for bonus

Allocation of places

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Additional information

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Referred to in LPO I (examination regulations for teaching-degree programmes)

--
Module title: Trade Policy and the World Trading System

Abbreviation: 12-M-TP-182-m01

Module coordinator: Holder of the Chair of International Economics
Module offered by: Faculty of Business Management and Economics

ECTS: 5
Method of grading: numerical grade
Duration: 1 semester
Module level: graduate
Other prerequisites: --

Contents

Content
The module starts out with a sketch of key facts and the evolution of the world trading system as well as current trade policy controversies. The main part of the lecture deals with trade policy instruments (e.g. tariffs and quotas) and arguments in favor of trade policy interventions (the terms of trade, strategic trade policy, infant industries, industrial policy, environmental policy). Political economy issues are also addressed.

Outline
1. The evolution of the world trading system and current issues
2. Trade policy instruments and their effects under perfect competition
3. The competition effect of trade opening
4. Domestic distortions
5. International market power and trade policy
6. Political economy and the world trading system

Literatur:
The main text used is:

The following monographs cover the evolution of the world trading system and the evolution of ideas in trade policy making:

Basic refreshers are:
This literature is complemented by papers from scholarly journals.

**Intended learning outcomes**

Students acquire the ability to critically understand the effects and issues associated with the use of trade policy instruments. They are enabled to understand and evaluate the causes and consequences of interventions in international trade on the aggregate economy, producers and consumers, the foreign trading partners and the world trading system both analytically as well as in an intuitive manner. Students also acquire the scientific knowledge to grasp the factors determining the structure and dynamics of the world trading order.

**Courses** (type, number of weekly contact hours, language — if other than German)

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**Method of assessment** (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

- a) written examination (approx. 60 to 120 minutes) or b) term paper (15 to 20 pages)
- Language of assessment: German and/or English
- Creditable for bonus

**Allocation of places**

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**Additional information**

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**Referred to in LPO I** (examination regulations for teaching-degree programmes)

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Core Electives

(10 ECTS credits)
Module title | Advanced Macroeconomics
---|---
Abbreviation | 12-M-MFF-182-m01

Module coordinator | Holder of the Chair of International Economics
Module offered by | Faculty of Business Management and Economics

ECTS | 5
Method of grading | numerical grade
Only after succ. compl. of module(s) | --

Duration | 1 semester
Module level | graduate
Other prerequisites | English

Contents

Content

The course covers long-run aspects of macroeconomics. We start with a review of the facts of long-run growth and a review of the Solow-growth model. The lecture then focuses on the infinite-horizon Ramsey-Cass-Koopmans model, on endogenous growth theory and it puts the roles of human capital and institutions under scrutiny. Applications of this framework involving urban and regional growth, resources and the environment will be taken up, time permitting.

Outline

I Facts and the Solow Growth Model
II Infinite-Horizon Ramsey-Cass-Koopmans model
III Endogenous Growth
IV Human Capital, Social Infrastructure and Beyond
V Applications (Urban and regional growth; Growth, resources and the environment)

Literature:

The course draws strongly on the textbook:


We will use journal articles and research papers at several parts of the lecture.

Intended learning outcomes

Students acquire a working knowledge of the key models and analytical tools of advanced macroeconomics. This enables them to identify the key forces that determine the determinants of income levels and growth rates of incomes, to make informed policy analysis and statements and to critically evaluate current controversies and developments as well as to conduct their own research.

Courses (type, number of weekly contact hours, language — if other than German)

V (2) + Ü (2)

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

a) written examination (approx. 60 to 90 minutes) or b) term paper (approx. 15 pages)
Language of assessment: English
credible for bonus

Allocation of places | --
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Module title | Abbreviation
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Economic Geography | 12-M-EG-182-m01

Module coordinator | Module offered by
Holder of the Chair of International Economics | Faculty of Business Management and Economics

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Contents

Der Kurs wird in Englisch gelesen

Content

The lecture starts with a brief motivation of the core issues and a short overview over key forces driving the allocation of economic activity in space. The main parts of the lecture cover the functioning and evolution of cities and city systems, and the economic geography of regions and countries.

I Motivation and Facts

II Location Basics
- Forces Shaping the Location of Economic Activity in Space
- Some Intellectual Background

III Urban and Regional Economics
- The Spatial Structure of Cities
- City Systems

III New Economic Geography
- From the New Trade Theory to the New Economic Geography
- Footloose Capital Model and Policy Applications
- Core Periphery Models and Policy Applications
- Empirics

Literature:

The course uses a combination of textbooks and journal articles. Articles from the Handbook of Urban and Regional Economics (current and previous volumes) are heavily used. Useful books are:

Brakman, W., H. Garretsen and Ch. van Marrewijk, 2009, The New Introduction to Geographical Economics, Cambridge University Press


Fujita, M., P.R. Krugman and A.J. Venables, 1999: The Spatial Economy, MIT Press

**Krugman, P.R., 1991, Geography and Trade, MIT Press**

### Intended learning outcomes

Students acquire a knowledge of the forces which determine the allocation of economic activity in space and they learn to apply fundamental models of cities, city systems and of regional agglomerations to understand and analyze policy issues involving local, regional and international policy questions both analytically and in an economic intuitive way.

### Courses

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Module taught in: English

### Method of assessment

- a) written examination (approx. 60 to 90 minutes)
- b) term paper (approx. 15 pages)

Language of assessment: English

creditable for bonus

### Allocation of places

--

### Additional information

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### Referred to in LPO I

(examination regulations for teaching-degree programmes)

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Module title | Abbreviation
---|---
European Competition Policy | 12-M-WPE-192-m01

Module coordinator | Module offered by
---|---
Holder of the Chair of Industrial Economics | Faculty of Business Management and Economics

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Contents
Outline of syllabus:
1. Legal environment, competition laws
2. Market definition
   - Qualitative methods
   - Simple quantitative methods
   - Hypothetical monopoly test
3. Horizontal agreements and collusion: repeated games and factors affecting likelihood of collusion
4. Horizontal mergers and collusion
   - Economic theory
   - Efficiency effects
   - Coordinated effects
5. Vertical relations and contracts
   - Economic analysis of contracts
   - "More economic approach"
6. Abuse of dominant position
   - Classification of abusive conduct
   - Economic analysis of abusive conduct and theory of harm

The course will be taught in English.

Intended learning outcomes
After completion of the module students can use the advanced concepts introduced in the lecture of competition policy, including the legal framework, the trace models and methods for the study of competition policy issues, as well as understand the approach of European competition policy in high profile cases. When they are confronted with practical problems, they can refer to these cases, and the same logic to practical examples apply by draining the relevant economic theories that identify variables to be measured and methodologies for assessing, and based on that adequate conclusions for appropriate cases. They will sufficiently understand the subject in order to open up that build upon literature in journals and being able to think critically.

Courses (type, number of weekly contact hours, language — if other than German)

V (2)
Module taught in: English

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

a) Written examination (approx. 60 to 120 minutes) or
b) Term paper (15 to 20 pages)
Creditable for bonus
Language of assessment: English

Allocation of places
There are no restrictions with regard to available places for students of the Master's degree programmes Management, International Economic Policy, Information Systems, Wirtschaftsmathematik (Mathematics for Economics) and Chinese and Economics as well as China Business and Economics. A total of 20 places will be alloca-
Module Catalogue for the Subject Economathematics
Master’s with 1 major, 120 ECTS credits

...ted to students of other subjects; should the number of applications exceed the number of available places, these places will be allocated by lot.

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</table>
Module title: European Public Finance

Abbreviation: 12-M-EFP-222-m01

Module coordinator: Holder of the Chair of Public Finance

Module offered by: Faculty of Business Management and Economics

ECTS: 5

Method of grading: numerical grade

Duration: 1 semester

Module level: graduate

Other prerequisites: --

Contents:
The course aims at introducing the main public finance issues in the European Union. Students will learn how the revenues of the Union are generated and how they are spent. We will discuss the motivation and implications of the Brexit decision and various coordination problems with respect to public debt, taxation and environmental policy. Economic policy is discussed with simple models, which highlight the central problems.

Course contents:
1. The European Union: History and Institutions
2. The Budget of the European Union
3. Economic Analysis of the Brexit Process
4. Sovereign Debt, Financial Crisis and Fiscal Integration in the EMU
5. Tax Competition or Tax Coordination in Europe?
6. European Climate Policy: Emission Trading and Green Deal

Intended learning outcomes:
After completing the course students are introduced to the central public finance policy issues, institutions and rules of conduct in the EU. They are able to apply simple theoretical models to to discuss and analyze more specific policy problems.

Courses:
(type, number of weekly contact hours, language — if other than German)
V (2) + Ü (2)
Module taught in: English

Method of assessment:
(type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)
a) written examination (approx. 60 minutes) or
b) term paper (approx. 15 pages)
Language of assessment: English
creditable for bonus

Allocation of places:
There are no restrictions with regard to available places for students of the Master’s degree programmes Business Management, International Economic Policy or Economics, Information Systems, Wirtschaftsmathematik (Mathematics for Economics) and Chinese and Economics as well as China Business and Economics. A total of 20 places will be allocated to students of other subjects; should the number of applications exceed the number of available places, these places will be allocated by lot.

Additional information:
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Referred to in LPO I (examination regulations for teaching-degree programmes)
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<td>1 semester</td>
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</table>

### Contents

#### Content

Current topics in international economics and economic geography [e.g. Urbanization and Inequality; Tasks, Trade, and Cities; Outsourcing, Offshoring and Multinational Firms; Competition of Locations, Jurisdictions and Systems; Globalization and the Environment; Trade, Multinational Firms and Labor Markets; Triumph of the City]

#### Literature:

Peer-reviewed articles and/or monographs.

### Intended learning outcomes

Drawing on current cutting-edge research, students are enabled to analyze current research questions and to learn and apply research methods. The seminar style of the course teaches them to present their own seminar papers and research both in written and in oral form. Students are enabled to critically analyze and discuss the work of their peers.

### Courses

(type, number of weekly contact hours, language — if other than German)

- S (2)

### Method of assessment

(type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

- Term paper (approx. 15 pages) and presentation (approx. 40 minutes) with thesis paper (1 page) (weighted 3:1)
  
  Language of assessment: German and/or English

### Allocation of places

10 places.

1. Should the number of applications exceed the number of available places, places will be allocated by lot among all applicants irrespective of their subjects.

2. Places on all courses of the module with a restricted number of places will be allocated in the same procedure.

3. A waiting list will be maintained and places re-allocated by lot as they become available.

### Additional information

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### Referred to in LPO I

(examination regulations for teaching-degree programmes)

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Strategic Entrepreneurship
(20 ECTS credits)
Core
(10 ECTS credits)
Module title | Abbreviation
---|---
Corporate Entrepreneurship | 12-M-UGF1-182-m01

| Module coordinator | Module offered by |
---|---
Holder of the Chair of Entrepreneurship and Strategy | Faculty of Business Management and Economics

| ECTS | Method of grading | Other prerequisites |
---|---|---
5 | numerical grade | -- |

| Duration | Module level |
---|---
1 semester | graduate |

**Contents**

This module is a theory-led and practice-oriented primer on corporate entrepreneurship. It provides you with knowledge useful for anyone aiming at working (or researching) in the field of corporate innovation and entrepreneurship or at pursuing an 'intrapreneurial' or entrepreneurial career.

(1) Introduction to corporate entrepreneurship
(2) Antecedents and forms of corporate entrepreneurship
(3) Corporate strategy and corporate entrepreneurship
(4) Organizational structure and corporate entrepreneurship
(5) Human resource management and corporate entrepreneurship
(6) Building supportive organizational cultures
(7) Entrepreneurial control systems
(8) Entrepreneurial leadership
(9) The corporate entrepreneur as a champion and diplomat
(10) The pay-off from corporate entrepreneurship
(11) Corporate venture capital
(12) Corporate entrepreneurship in nonprofit and government organizations
(13) Universities and academic spin-offs
(14) Wrap-up and Q&A

**Intended learning outcomes**

*Educational aims*
- Clarify the role of corporate entrepreneurship
- Explain theoretical concepts and mechanisms behind corporate entrepreneurship
- Enable students to critically appraise alternative approaches to corporate entrepreneurship
- Enable students to evaluate the boundaries and risks of corporate entrepreneurship

*Learning outcomes*

On successful completion of this module students will be able to:

- Create and evaluate concepts related to corporate entrepreneurship
- Assess the role of corporate entrepreneurship for creating and sustaining competitive advantage
- Make judgements about the organizational and managerial implications of corporate entrepreneurship
- Systematically choose between different routes of action
### Courses

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Module taught in: English

### Method of Assessment

a) written examination (approx. 60 to 120 minutes) or b) term paper (15 to 20 pages) or c) oral examination of one candidate each (approx. 10 to 15 minutes) or oral examination in groups (groups of 2 approx. 20 minutes, groups of 3 approx. 30 minutes)

Language of assessment: English

### Additional Information

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### Referred to in LPO I

(examination regulations for teaching-degree programmes)

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Module title: Corporate Strategy
Abbreviation: 12-M-UGf2-182-m01

Module coordinator: Holder of the Chair of Entrepreneurship and Strategy
Module offered by: Faculty of Business Management and Economics

ECTS: 5
Method of grading: numerical grade
Duration: 1 semester
Module level: graduate

Contents:
This theory-led and application-oriented module provides you with critical knowledge and skills related to corporate strategy—essential for anyone aspiring to take on leadership roles in their future career, may it be in the private or public sector. The module goes beyond basic knowledge about strategic management provided by bachelor-level modules.

1. Developing strategies in pursuit of competitive advantage
2. Corporate diversification
3. Vertical integration and outsourcing
4. Mergers & acquisitions
5. Dynamic strategies
6. Cooperative strategies
7. Corporate spin-offs and spin-outs
8. Internationalization strategies (I)
9. Internationalization strategies (II)
10. Strategic change
11. Corporate strategies and new technologies
12. Corporate governance and corporate social responsibility
13. Corporate communication and crisis management
14. Wrap-up and Q&A

Intended learning outcomes

Educational aims:
- Clarify the role of corporate strategy
- Explain theoretical concepts and mechanisms behind corporate strategy
- Enable students to critically appraise alternative approaches to corporate strategy
- Enable students to evaluate the boundaries and risks of corporate strategy

Learning outcomes:
On successful completion of this module students will be able to:
- Assess the role of corporate strategy for creating and sustaining competitive advantage
- Create and evaluate concepts related to corporate strategy
- Make judgements about the organizational and managerial implications of corporate strategy
- Systematically choose between different routes of action

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| Allocation of places | -- |

| Additional information | -- |

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Core Electives

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<td>Incentives in Organizations</td>
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**Module coordinator**

Holden of the Chair of Human Resource Management and Organisation

**Module offered by**

Faculty of Business Management and Economics

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**Contents**

Based on the classical principal-agent theory, this course discusses methodological and empirical aspects of incentives in organisations. It uses contents from advanced text books and original (mainly empirical) research articles.

**Outline of syllabus**

1. Principal-agent theory
2. Do top managers earn too much? (application)
3. Performance-based payment
4. Implementation of performance-based payment in companies (application)
5. Seniority payment (with application)
6. Financial incentives to work after retirement (with application)
7. Efficiency wages (with case study)
8. Team incentives (with case study)

**Intended learning outcomes**

Students acquire a working knowledge of key incentive models, selected empirical applications and the necessary econometric background. This enables them to identify the advantages and disadvantages of different incentive systems that are applied in the enterprise context, to make informed management analyses and to critically evaluate current controversies and developments as well as to conduct their own research.

**Courses**

(V (2) + Ü (2))

Module taught in: English

**Method of assessment**

(a) written examination (approx. 60 minutes) or
(b) term paper (approx. 15 pages)

Language of assessment: English

**Allocation of places**

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**Additional information**

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**Referred to in LPO I**

(examination regulations for teaching-degree programmes)
## Digital Marketing I

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**Contents**

Digitalization is rapidly changing our lives, including all types of business relationships. Therefore, new opportunities and approaches have emerged in all areas of the marketing mix: Managers can choose from a wide variety of new communication channels, such as social media networks, blogs, or messengers, and can engage in influencer marketing and search engine optimization. They increasingly rely on online customer co-creation or crowdsourcing and create a wide variety of new digital products and services, often related to completely new business models. Through price crawlers and price setting tools customers' price search behaviors have significantly changed, requiring new price setting techniques. Artificial intelligence enables managers to automate and optimize many of these marketing processes, thus offering new opportunities and challenges for companies. Overall, digital marketing offers a tremendous variety of concepts and approaches to seize respective opportunities and deal with related challenges, which will be largely highlighted and discussed in this course.

**Intended learning outcomes**

This course provides a broad overview about these new approaches of digital marketing. It explains the underlying concepts of digital marketing and illustrates these approaches and concepts along numerous case studies. After attending this course, students will have a broad as well as in-depth understanding of digital marketing and its tools. Moreover, they will understand of how to implement these tools successfully in business practice.

**Courses** (type, number of weekly contact hours, language — if other than German)

V (2) + Ü (2)

Module taught in: English

**Method of assessment** (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

a) written examination (approx. 60 to 120 minutes) or b) term paper (15 to 20 pages)

Language of assessment: English

creditable for bonus

**Allocation of places**

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**Additional information**

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**Referred to in LPO I** (examination regulations for teaching-degree programmes)

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### Contents

Students are required to put themselves in the following business situation:

A large corporation has just recruited you and your team members as the new heads of the marketing department in one of the firm’s divisions in order to manage its general and digital marketing activities. Specifically, it is your task to manage the corporation’s digital product portfolio, segmentation and positioning as well as its marketing mix strategy over a period of 10 years.

### Structure of the class:

- Long-term business simulation game (details see below) that students will play in groups
- Lectures and discussion rounds on strategic approaches to succeed over a duration of 10 periods

### Intended learning outcomes

Studierende lernen in diesem Kurs, zentrale Konzepte des Online- und Offline-Marketings gezielt und bezogen auf die jeweilige Unternehmenssituation anzuwenden. Der Kurs bildet somit die Brücke zwischen Theorievermittlung und entsprechende Anwendung in der Unternehmenspraxis.

### Courses

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Module taught in: English

### Method of assessment

- a) written examination (approx. 60 to 120 minutes) or b) term paper (15 to 20 pages)
- Assessment offered: In the semester in which the course is offered
- Language of assessment: English
  - creditable for bonus

### Allocation of places

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### Additional information

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### Referred to in LPO I

- (examination regulations for teaching-degree programmes)
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**Contents**

E-commerce is a highly relevant field for almost all types of companies. However, the ecommerce approaches and strategies applied by companies differ strongly depending on the respective firm context (e.g., in terms of industry, types of customers, types of products). In this seminar, students analyze the specific e-commerce strategy of a selected firm. In doing so, they evaluate the strategies' current and future potential and make suggestions for improvements and for addressing future trends. Furthermore, each lecture session will contain short presentations where the students (in groups) will either apply selected lecture topics to real-world business cases or present the core aspects of research articles dealing with e-commerce topics in general.

**Intended learning outcomes**

This class enables students to gain insights into real-life e-commerce strategies and to train their abilities in assessing business strategies.

**Courses** (type, number of weekly contact hours, language — if other than German)

V (2) + Ü (2)

Module taught in: English

**Method of assessment** (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

A) written examination (approx. 60 to 120 minutes) or b) term paper (15 to 20 pages)

Language of assessment: English

creditable for bonus

**Allocation of places**

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**Additional information**

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**Referred to in LPO I** (examination regulations for teaching-degree programmes)

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Module title | Abbreviation
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Digital Entrepreneurship | 12-M-UGF3-182-m01

Module coordinator | Module offered by
Holder of the Chair of Entrepreneurship and Strategy | Faculty of Business Management and Economics

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Contents


Intended learning outcomes

Educational aims: Clarify the role of digital entrepreneurship and digital transformation. Explain theoretical concepts and mechanisms behind digital entrepreneurship and digital transformation. Enable students to critically appraise alternative approaches to digital entrepreneurship and digital transformation. Enable students to evaluate the boundaries and risks of digital entrepreneurship and digital transformation.

Learning outcomes: On successful completion of this module students will be able to (1) Assess the role of digital entrepreneurship and digital transformation for creating and sustaining competitive advantage, (2) Create and evaluate concepts related to digital entrepreneurship and digital transformation, (3) Make judgements about the organizational and managerial implications of digital entrepreneurship and digital transformation, (4) Systematically choose between different routes of action.

Courses (type, number of weekly contact hours, language — if other than German)

V (2) + Ü (2)

Module taught in: English

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

a) written examination (approx. 60 to 120 minutes) or b) log (15 to 20 pages) or c) oral examination (one candidate each: approx. 10 to 15 minutes; groups of 2: approx. 20 minutes; groups of 3: approx. 30 minutes)

Language of assessment: English

Allocation of places

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Additional information

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Referred to in LPO I (examination regulations for teaching-degree programmes)

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### Contents

This seminar is a primer on academic research. It has been designed to effectively prepare students for conducting empirical research as part of their master thesis projects. The module starts with a crash course on research methods and advanced academic writing. Participants will then choose or otherwise be assigned a research question. Beyond this background, they select an appropriate research design to address the question at hand. This also includes collecting and analyzing primary and/or secondary data, with various datasets being available via our Chair and the University Library. In a final step, participants document their research in the form of a smaller-scale academic article and present the approach and essential insights of their research, thereby providing an excellent opportunity for mutual learning.

### Intended learning outcomes

#### Educational aims

- Help students understand the role of positioning studies and theoretical modelling
- Help students understand the role of different research strategies
- Enable students to critically appraise alternative approaches to collecting and analyzing data

#### Learning outcomes

On successful completion of this module students will be able to:

- Formulate an adequate research question
- Build tentative theoretical models
- Choose an appropriate research design to test the model
- Document the research in the form of an academic manuscript

### Courses

(type, number of weekly contact hours, language — if other than German)

S (2)

### Method of assessment

(type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

term paper (approx. 15 pages) and presentation (one candidate: approx 10 to 15 minutes; groups of 2: approx 20 minutes; groups of 3: approx. 30 minutes), weighted 2:1

Assessment offered: In the semester in which the course is offered

Language of assessment: German and/or English

### Allocation of places

12 places. (1) Should the number of applications exceed the number of available places, places will be allocated by lot among all applicants irrespective of their subjects. (2) Places on all courses of the module with a restricted number of places will be allocated in the same procedure. (3) A waiting list will be maintained and places re-allocated by lot as they become available.

### Additional information

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### Referred to in LPO I

(examination regulations for teaching-degree programmes)

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### Contents

The module provides an overview of strategic implications of digital technologies at the level of organisations, industries and value networks. To this end, concepts and frameworks from strategic technology management are applied to digital innovations and illustrated with numerous examples. In the accompanying exercise, case studies of well-known digital companies and their business models are analysed and discussed.

### Intended learning outcomes

- Understand theoretical concepts of strategy development and implementation in the context of digital technologies.
- Apply different frames of reference and understand their strengths and weaknesses in the context of practical application.
- Transfer the concepts to real business situations

### Courses (type, number of weekly contact hours, language — if other than German)

| V (2) + Ü (2) |

### Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

- a) Written examination (approx. 60 minutes) or
- b) oral examination (one candidate each: approx. 10 to 15 minutes, groups of 2: approx. 20 minutes, groups of 3: approx. 30 minutes) or

Creditable for bonus

Language of assessment: German and/or English

### Allocation of places

40 places.

 Should the number of applications exceed the number of available places, places will be allocated as follows:

1. Master’s students of Information Systems will be given preferential consideration.
2. The remaining places will be allocated to students of other subjects.
3. When places are allocated in accordance with (1) and (2) and the number of applications exceeds the number of available places, places will be allocated by lot among applicants from this group.

### Additional information

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### Referred to in LPO I (examination regulations for teaching-degree programmes)

--
### Module title
Project Management and Control

### Abbreviation
12-M-PROM-182-m01

### Module coordinator
Holder of the Chair of Business Management, Management Accounting and Control

### Module offered by
Faculty of Business Management and Economics

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### Contents
The module focuses on the discussion and critical examination of instruments and methods used in the context of project management and control within enterprises. Both classic and agile approaches to project management are considered. It covers characteristic features and structures of projects, their possible success factors, methods and instruments of control and management of projects in various project phases. The theoretical basis as well as potential applications of these instruments are discussed.

### Intended learning outcomes
Initially, knowledge about fundamental requirements concerning instruments of project management and control is acquired. What is more, the module conveys knowledge about strengths and weaknesses and therewith fields of application and limits of commonly used instruments and methods of practitioners. Competences within the configuration and development of the project management and control as well as skills within the practical use are obtained.

### Courses
(type, number of weekly contact hours, language — if other than German)

S (2)

### Method of assessment
(type, scope, language — if other than German, examination offered — If not every semester, information on whether module is creditable for bonus)

written examination (approx. 60 minutes)
Language of assessment: German and/or English creditable for bonus

### Allocation of places
--

### Additional information
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### Referred to in LPO 1
(examination regulations for teaching-degree programmes)

--
Strategic Incentive Design
(20 ECTS credits)
Core
(10 ECTS credits)
### Module title
**Advanced Microeconomics**

| Abbreviation | 12-M-AM-182-m01 |

### Module coordinator
Holder of the Chair of Contract Theory and Information Economics

### Module offered by
Faculty of Business Management and Economics

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### Contents
In a nutshell, microeconomic theory considers the behavior of individual economic agents and builds from this foundation to a theory of aggregate economic outcomes, which then can be applied for conducting welfare analysis and giving policy advice. This lecture addresses the core building block of this thought complex: individual decision making and behavior. Specifically, students will come to understand in detail the standard models of riskless consumer choice, choice under risk and intertemporal choice and learn about the empirical challenges and limitations of these models.

Throughout the lecture, we will work with precise mathematical formalizations of the ideas that we want to think and talk about. In consequence, a solid understanding of the mathematical toolbox of standard microeconomics (e.g., differential calculus and constrained optimization; basic set theory; integration by parts) will be helpful as it will allow to focus on the underlying economic intuition. However, every required mathematical concept will be introduced and explained along the way, such that a strong interest in formal economic analysis is more important than an advanced mathematical background.

The exposition is primarily based on the standard graduate textbooks


### Intended learning outcomes
After completing the course students will be able to

- explain essential findings of microeconomic theory,
- apply the involved methods to given stylized examples on their own,
- recognize in which real life situations and how the results can be applied.

### Courses (type, number of weekly contact hours, language — if other than German)
V (2) + Ü (2)
Module taught in: English

### Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)
a) written examination (approx. 60 minutes) or b) term paper (approx. 15 pages)
Language of assessment: English
creditable for bonus

### Allocation of places
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### Additional information
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### Referred to in LPO I (examination regulations for teaching-degree programmes)
--
Module title | Abbreviation
--- | ---
Contract Theory | 12-M-CT-222-m01

Module coordinator | Module offered by
Holder of the Chair of Contract Theory and Information Economics | Faculty of Business Management and Economics

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<th>ECTS</th>
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Contents
During the 1960/70s, microeconomic theory came to acknowledge that many (if not most) economic transactions are characterized by asymmetric distribution of information – i.e., at least one of the parties participating in a transaction usually is privy to information that the remaining parties do not have access to. This asymmetric distribution of information subsequently was recognized to be a major impediment for transactions to be economically efficient. Contract theory addresses the question how the inefficiencies arising from asymmetric distribution of information can best be mitigated by appropriate design of the contractual (or, more generally, institutional) framework that governs the transaction under consideration. This lecture covers the baseline models of “moral hazard” (i.e., situations where one party has private knowledge after a contract has been signed) and “adverse selection” (i.e., situations where one party has private knowledge before a contract is signed). As applications we will address questions discussed in organizational, personnel or industrial economics, such as incentive design within organizations or the design of labor law regulations and competition laws.

Even though we will work with precise mathematical formalizations of the ideas that we want to think and talk about, this course requires little more than a solid understanding of basic differential calculus. More important than having a solid mathematical background is having a strong interest in formal economic analysis and fun with logical thinking and puzzle solving.

The exposition is primarily based on the following textbook:


Intended learning outcomes
After completing the course students will be able to
- explain essential findings of contract theory,
- apply the involved methods to given stylized examples on their own,
- interpret the properties of real-life contracts as the outcome of the interaction between two or more contracting parties in the presence of asymmetric information,
- evaluate government interventions with regard to their effect on the efficiency properties of the interaction between the contracting parties.

Courses (type, number of weekly contact hours, language — if other than German)
V (2) + Ü (2)
Module taught in: English

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)
a) written examination (approx. 60 minutes) or
b) term paper (approx. 15 pages)
Language of assessment: German and/or English
creditable for bonus

Allocation of places
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## Additional information

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Core Electives
(10 ECTS credits)
# Strategic Decisions and Competition

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## Duration

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## Contents

1. Strategic situations and decision making
2. Analyzing strategic situations with game theory
3. Noncooperative simultaneous move games
4. Nash equilibrium
5. Models of oligopoly markets

### Dynamic Games

1. Two(-multi) stage games and subgame perfect equilibrium
2. Role of commitment in dynamic situations
3. Models of advertising
4. Wage bargaining and unions
5. Repeated Games
6. Emergence of coordination in long interactions
7. Collusion between competing firms
8. Time consistent monetary policy

### Static games of incomplete Information

1. Bayesian Nash equilibrium
2. Auctions
3. Moral hazard and nonlinear pricing
4. Perfect Bayesian equilibrium
5. Signalling games
6. Job-market signalling
7. Corporate investment and capital structure

### Dynamic games of incomplete information

1. Moral hazard and nonlinear pricing
2. Perfect Bayesian equilibrium
3. Signalling games
4. Job-market signalling
5. Corporate investment and capital structure

## Intended learning outcomes

After successful completion of this class, the students should be familiar with economic models that can be used to shape managerial strategy and aid in making decisions in strategic situations. Especially, by making use of simple two stage games, they should be able to formulate dynamic policies in a wide variety of strategic situations. The students will acquire an intuitive understanding of the underlying economic mechanisms which emerge from the analysis of game theoretic models for a wide variety of strategic situations arising in industrial economics, marketing, organization, finance, trade and labor. Moreover, they will acquire skills which enable them to make predictions in strategic situations by making use of simple mathematical models. By means of completing case based exercises, they will learn to transform real life business situations to an appropriate economic model. Based on an analysis of this model, they will be able to devise optimal strategies and derive the corresponding managerial implications.
The course will be taught in English.

**Courses** (type, number of weekly contact hours, language — if other than German)

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Module taught in: English

**Method of assessment** (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

- a) written examination (approx. 60 to 120 minutes) or b) term paper (15 to 20 pages)
- Language of assessment: English
- Creditable for bonus

**Allocation of places**

--

**Additional information**

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**Referred to in LPO I** (examination regulations for teaching-degree programmes)

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Module title: Behavioral Economics  
Abbreviation: 12-M-BEC-222-m01

Module coordinator: Holder of the Chair of Contract Theory and Information Economics
Module offered by: Faculty of Business Management and Economics

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Duration: 1 semester
Module level: graduate
Other prerequisites: --

Contents:
Behavioral economics refers to the field of research which, inspired by numerous documented deviations from the rational behavior assumed in neoclassical analysis, tries to improve the psychological realism of the idea of man in economics by incorporating insights from psychology into traditional economic analysis. In this course students will become familiar with several of the most influential behavioral-economic theories of individual decision making, which allows to explain a plethora of empirically documented deviations from the neoclassical model. These behavioral-economic theories usually contain the neoclassical standard model as special case and therefore are to be considered as an extensions of rather than alternatives to the neoclassical model. While the focus of this lecture is on theories of individual decision making, we will explore the implications of these theories also in the context of market settings.

As behavioral economics represents an extension of the neoclassical model, a solid understanding of the latter is required for this course. In consequence, the course is intended in particular for advanced students who completed the class “Advanced Microeconomics”.

While the exposition is primarily based on research articles, some topics of the lecture can be reviewed in the following textbooks:

- Wakker (2010): “Prospect Theory for Risk and Ambiguity”

Intended learning outcomes:
After completing the course students will be able to
- explain essential findings of behavioral economic theory,
- apply the involved methods to given stylized examples on their own,
- recognize in which real life situations and how the results can be applied.

Courses (type, number of weekly contact hours, language — if other than German)
V (2) + Ü (2)
Module taught in: English

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)
a) written examination (approx. 60 minutes) or
b) term paper (15 pages)
Language of assessment: English
Assessment offered: In the semester in which the course is offered creditable for bonus

Allocation of places:
--

Additional information:
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Referred to in LPO I (examination regulations for teaching-degree programmes)
Incentives in Organizations

Module title
Module coordinator
Holder of the Chair of Human Resource Management and Organisation
Module offered by
Faculty of Business Management and Economics

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Duration: 1 semester

Module level: graduate

Other prerequisites: --

Contents

Based on the classical principal-agent theory, this course discusses methodological and empirical aspects of incentives in organisations. It uses contents from advanced text books and original (mainly empirical) research articles.

Outline of syllabus

1. Principal-agent theory
2. Do top managers earn too much? (application)
3. Performance-based payment
4. Implementation of performance-based payment in companies (application)
5. Seniority payment (with application)
6. Financial incentives to work after retirement (with application)
7. Efficiency wages (with case study)
8. Team incentives (with case study)

Intended learning outcomes

Students acquire a working knowledge of key incentive models, selected empirical applications and the necessary econometric background. This enables them to identify the advantages and disadvantages of different incentive systems that are applied in the enterprise context, to make informed management analyses and to critically evaluate current controversies and developments as well as to conduct their own research.

Courses (type, number of weekly contact hours, language — if other than German)

V (2) + Ü (2)
Module taught in: English

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

a) written examination (approx. 60 minutes) or
b) term paper (approx. 15 pages)
Language of assessment: English

Allocation of places

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Additional information

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Referred to in LPO I (examination regulations for teaching-degree programmes)

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### Module Catalogue for the Subject Economathematics

#### Master's with 1 major, 120 ECTS credits

<table>
<thead>
<tr>
<th>Module title</th>
<th>Abbreviation</th>
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<tbody>
<tr>
<td>Coordination, Budgeting and Incentives in Organizations</td>
<td>12-M-KOBO-182-m01</td>
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<td>Holder of the Chair of Business Management, Management Accounting and Control</td>
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### Contents

This module focuses on accounting-based instruments to control behavior in decentralized enterprises. The course first discusses the role of accounting in the context of decision-making and behavioral controlling as well as informational analyses. Afterwards, the most common instruments of behavioral controlling (budgeting, value-oriented management, transfer prices) are discussed with regard to theory and practice.

### Intended learning outcomes

This module aims to provide knowledge in the context of behavioral control in enterprises. Knowledge about requirements on instruments used for behavioral control are discussed and competences for deployment, structure and development of coordination tools are provided.

### Courses

(type, number of weekly contact hours, language — if other than German)

| V (2) + Ü (2) |

### Method of assessment

(type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

- a) written examination (approx. 60 minutes) or b) term paper (approx. 15 pages)

Language of assessment: German and/or English creditable for bonus

### Allocation of places

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### Additional information

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### Referred to in LPO I

(examination regulations for teaching-degree programmes)

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## Module title

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<tr>
<td>Optimal Tax Theory</td>
<td>12-M-F4-182-m01</td>
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## Module coordinator

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<tr>
<td>Holder of the Chair of Public Finance</td>
<td>Faculty of Business Management and Economics</td>
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## ECTS

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## Method of grading

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<td>1 semester</td>
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## Contents

**Description:**
The course will discuss the design of an optimal tax system. First, students will learn what criteria have to be met for a tax system to be optimal. Lectures will introduce key rules for taxing commodities as well as income and capital.

Examining specific taxation issues such as eco-tax, family taxation and the taxation of international enterprises, students will then gain more in-depth insights into these rules.

Reading: Lecture notes will be provided.

Outline of syllabus:
1. Optimal commodity taxation
2. Optimal income taxation
3. Optimal taxation of families
4. International tax competition

## Intended learning outcomes

After completing this module students have a basic understanding of what is meant with "optimal taxation". They are able to apply this concept to specific normative questions of tax policy in practice. Students also learn to prepare and present short papers, where they discuss specific normative policy issues in groups.

## Courses

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## Allocation of places

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## Additional information

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## Referred to in LPO I

(examination regulations for teaching-degree programmes)

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<table>
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<td>European Competition Policy</td>
<td>12-M-WPE-192-m01</td>
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<td>Holder of the Chair of Industrial Economics</td>
<td>Faculty of Business Management and Economics</td>
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### Contents

Outline of syllabus:
1. Legal environment, competition laws
2. Market definition
   - Qualitative methods
   - Simple quantitative methods
   - Hypothetical monopoly test
3. Horizontal agreements and collusion: repeated games and factors affecting likelihood of collusion
4. Horizontal mergers and collusion
   - Economic theory
   - Efficiency effects
   - Coordinated effects
5. Vertical relations and contracts
   - Economic analysis of contracts
   - "More economic approach"
6. Abuse of dominant position
   - Classification of abusive conduct
   - Economic analysis of abusive conduct and theory of harm

The course will be taught in English.

### Intended learning outcomes

After completion of the module students can use the advanced concepts introduced in the lecture of competition policy, including the legal framework, the trace models and methods for the study of competition policy issues, as well as understand the approach of European competition policy in high profile cases. When they are confronted with practical problems, they can refer to these cases, and the same logic to practical examples apply by draining the relevant economic theories that identify variables to be measured and methodologies for assessing, and based on that adequate conclusions for appropriate cases. They will sufficiently understand the subject in order to open up that build upon literature in journals and being able to think critically.

### Courses

(type, number of weekly contact hours, language — if other than German)

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Module taught in: English

### Method of assessment

(type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

- a) Written examination (approx. 60 to 120 minutes) or
- b) Term paper (15 to 20 pages)

Creditable for bonus
Language of assessment: English

### Allocation of places

There are no restrictions with regard to available places for students of the Master's degree programmes Management, International Economic Policy, Information Systems, Wirtschaftsmathematik (Mathematics for Economics) and Chinese and Economics as well as China Business and Economics. A total of 20 places will be alloca-
Admitted to students of other subjects; should the number of applications exceed the number of available places, these places will be allocated by lot.

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**Referred to in LPO I** (examination regulations for teaching-degree programmes)

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Managerial Accounting
(20 ECTS credits)
Core

(10 ECTS credits)
### Module title
Coordination, Budgeting and Incentives in Organizations

### Abbreviation
12-M-KOBO-182-m01

### Module coordinator
Holder of the Chair of Business Management, Management Accounting and Control

### Module offered by
Faculty of Business Management and Economics

### ECTS
5

### Method of grading
numerical grade

### Only after succ. compl. of module(s)
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### Duration
1 semester

### Module level
graduate

### Other prerequisites
--

## Contents
This module focuses on accounting-based instruments to control behavior in decentralized enterprises. The course first discusses the role of accounting in the context of decision-making and behavioral controlling as well as informational analyses. Afterwards, the most common instruments of behavioral controlling (budgeting, value-oriented management, transfer prices) are discussed with regard to theory and practice.

## Intended learning outcomes
This module aims to provide knowledge in the context of behavioral control in enterprises. Knowledge about requirements on instruments used for behavioral control are discussed and competences for deployment, structure and development of coordination tools are provided.

## Courses
(type, number of weekly contact hours, language — if other than German)

V (2) + Ü (2)

## Method of assessment
(type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

a) written examination (approx. 60 minutes) or b) term paper (approx. 15 pages)

Language of assessment: German and/or English creditable for bonus

## Allocation of places
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## Additional information
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## Referred to in LPO I
(examination regulations for teaching-degree programmes)

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# Strategic Managerial Accounting

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<th>Abbreviation</th>
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</thead>
<tbody>
<tr>
<td>Strategic Managerial Accounting</td>
<td>12-M-INST-182-m01</td>
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</table>

<table>
<thead>
<tr>
<th>Module coordinator</th>
<th>Module offered by</th>
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<tbody>
<tr>
<td>Holder of the Chair of Business Management, Management Accounting and Control</td>
<td>Faculty of Business Management and Economics</td>
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<tr>
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<th>Other prerequisites</th>
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</thead>
<tbody>
<tr>
<td>1 semester</td>
<td>graduate</td>
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</tbody>
</table>

## Contents

The module focuses on accounting instruments, which are applied in the context of strategic management of enterprises. First, it addresses important drivers of strategic decisions from a microeconomic perspective, such as the emergence of cost and quality advantages in competition as well as scale and experience curve effects. Second, the module covers analytical and heuristic techniques of planning and control. In the context of these techniques, instruments of target costing, life cycle cost analysis, benchmarking and business wargaming are discussed with regard to their theoretical foundation and fields of application.

## Intended learning outcomes

Initially, knowledge about fundamental requirements concerning instruments of decision-making and behavior control within enterprises is acquired. What is more, the module conveys obtaining knowledge about the strengths and weaknesses and therewith fields of application and limits of prevalent instruments of strategic corporate management used by practitioners.

## Courses

<table>
<thead>
<tr>
<th>(type, number of weekly contact hours, language — if other than German)</th>
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<tr>
<td>V (2) + Ü (2)</td>
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## Method of assessment

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<tbody>
<tr>
<td>a) written examination (approx. 60 minutes) or b) term paper (approx. 15 pages) Language of assessment: German and/or English creditable for bonus</td>
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## Allocation of places

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## Additional information

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## Referred to in LPO I

( examination regulations for teaching-degree programmes)

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Core Electives
(10 ECTS credits)
<table>
<thead>
<tr>
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<tr>
<td>Incentives in Organizations</td>
<td>12-M-AO-222-m01</td>
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</table>

**Module coordinator**

Holder of the Chair of Human Resource Management and Organisation

**Module offered by**

Faculty of Business Management and Economics

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</table>

**Duration**

1 semester

**Contents**

Based on the classical principal-agent theory, this course discusses methodological and empirical aspects of incentives in organisations. It uses contents from advanced text books and original (mainly empirical) research articles.

Outline of syllabus

1. Principal-agent theory
2. Do top managers earn too much? (application)
3. Performance-based payment
4. Implementation of performance-based payment in companies (application)
5. Seniority payment (with application)
6. Financial incentives to work after retirement (with application)
7. Efficiency wages (with case study)
8. Team incentives (with case study)

**Intended learning outcomes**

Students acquire a working knowledge of key incentive models, selected empirical applications and the necessary econometric background. This enables them to identify the advantages and disadvantages of different incentive systems that are applied in the enterprise context, to make informed management analyses and to critically evaluate current controversies and developments as well as to conduct their own research.

**Courses** (type, number of weekly contact hours, language — if other than German)

V (2) + Ü (2)

Module taught in: English

**Method of assessment** (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

a) written examination (approx. 60 minutes) or
b) term paper (approx. 15 pages)

Language of assessment: English

**Allocation of places**

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**Additional information**

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**Referred to in LPO I** (examination regulations for teaching-degree programmes)

--
### Module title

| Project Management and Control | 12-M-PROM-182-m01 |

### Module coordinator

| Holder of the Chair of Business Management, Management Accounting and Control |
| Faculty of Business Management and Economics |

### ECTS

| 5 |

### Method of grading

| numerical grade |

### Only after succ. compl. of module(s)

| -- |

### Duration

| 1 semester |

### Module level

| graduate |

### Other prerequisites

| -- |

### Contents

The module focuses on the discussion and critical examination of instruments and methods used in the context of project management and control within enterprises. Both classic and agile approaches to project management are considered. It covers characteristic features and structures of projects, their possible success factors, methods and instruments of control and management of projects in various project phases. The theoretical basis as well as potential applications of these instruments are discussed.

### Intended learning outcomes

Initially, knowledge about fundamental requirements concerning instruments of project management and control is acquired. What is more, the module conveys knowledge about strengths and weaknesses and therewith fields of application and limits of commonly used instruments and methods of practitioners. Competences within the configuration and development of the project management and control as well as skills within the practical use are obtained.

### Courses

| (type, number of weekly contact hours, language — if other than German) |
| S (2) |

### Method of assessment

| (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus) |
| written examination (approx. 60 minutes) |
| Language of assessment: German and/or English creditable for bonus |

### Allocation of places

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### Additional information

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### Referred to in LPO I

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### Module Catalogue for the Subject Economathematics

**Master's with 1 major, 120 ECTS credits**

#### Module title

<table>
<thead>
<tr>
<th>Module title</th>
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<td>Accounting and Capital Markets</td>
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</table>

#### Contents

The module focuses on financial and management accounting, their functions, possible configurations as well as their impact on internal and external recipients under consideration of the institutional setting. In this context, an economic perspective has priority over detailed legal arrangements and regulations by the standard setters. Based on the theoretical foundations of information economics as well as decision-making and balance sheet theories, typical issues concerning cost and managerial accounting as well as financial accounting and publicity are discussed.

#### Intended learning outcomes

Initially, a fundamental knowledge about the conception and impact of management and financial accounting as information systems is acquired. In the following, the module mainly sharpens the understanding of the economic impacts of the configuration of management and financial accounting. What is more, extensive knowledge about possible impacts of changes in institutional general frameworks is covered. For example, changes in valuation standards, publicity rules or regulations about the distribution of profits in enterprises and on capital markets are considered.

#### Courses

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</table>

#### Allocation of places

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#### Additional information

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#### Referred to in LPO I (examination regulations for teaching-degree programmes)

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Module title | Abbreviation
--- | ---
Decision Support Systems | 12-M-DSS-192-m01

Module coordinator | Module offered by

Holder of the Chair of Business Analytics | Faculty of Business Management and Economics

ECTS | Method of grading | Only after succ. compl. of module(s)
--- | --- | ---
5 | numerical grade | --

Duration | Module level | Other prerequisites
--- | --- | ---
1 semester | graduate | --

Contents
The course discusses advanced approaches for modelling and solving decision problems in business settings. The acquired insights are used to design and implement decision support systems using standard software tools (Python).

Intended learning outcomes
After successfully completing the course, students should be able to
- Understand the structure of classic business decision problems
- Isolate key elements from general problem descriptions and convert them to quantitative decision models
- Solve different classes of optimization problems (linear, network, integer, multi-objective, non-linear, stochastic)
- Implement decision support systems

Courses (type, number of weekly contact hours, language — if other than German)
V (2) + Ü (2)

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)
a) Written examination (approx. 60 minutes) or
b) oral examination (one candidate each: approx. 10 to 15 minutes, groups of 2: approx. 20 minutes, groups of 3: approx. 30 minutes)
Creditable for bonus
Language of assessment: German and/or English

Allocation of places
40 places.
Should the number of applications exceed the number of available places, places will be allocated as follows:
(1) Master’s students of Information Systems will be given preferential consideration.
(2) The remaining places will be allocated to students of other subjects.
(3) When places are allocated in accordance with (1) and (2) and the number of applications exceeds the number of available places, places will be allocated by lot among applicants from this group.

Additional information
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Referred to in LPO I (examination regulations for teaching-degree programmes)
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<table>
<thead>
<tr>
<th>Module title</th>
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<tbody>
<tr>
<td>Group Accounting</td>
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<tr>
<td>Module taught in: English</td>
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<td>written examination (approx. 60-120 minutes)</td>
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<td>Allocation of places</td>
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<td>Additional information</td>
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<td>Change Management</td>
<td>12-M-CIU-222-m01</td>
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</table>

Contents

Within the module, theoretical basics of change management are covered. In addition, we present and jointly analyze existing change projects in detail. We try to answer related questions, too. For example, the module discusses how to involve stakeholders in change, what motivates them to embrace change, and whether participation is a universal principle. The module covers projects like merging two departments, restarting a department with team building, conducting an employee survey, or developing a new mission statement. The majority of the projects are taken from the social sector, but can be transferred to industry and SMEs.

Intended learning outcomes

After participating the lecture, students will be able to understand the occurrence of resistance and massive emotional reactions in change processes. Change processes can be critically analyzed and the use of typical instruments in change processes can be questioned. Students are able to identify the typical pitfalls and hurdles in these processes and are able to use their knowledge for own future projects as well as to create their own solutions in change processes.

Courses (type, number of weekly contact hours, language — if other than German)

V (2) + Ü (2)

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

a) written examination (approx. 60 minutes) or
b) term paper (approx. 15 pages)

Language of assessment: German and/or English

Assessment offered: In the semester in which the course is offered creditable for bonus

Allocation of places

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Additional information

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Referred to in LPO I (examination regulations for teaching-degree programmes)

--
Interdisciplinary Seminars and Workshops
(10 ECTS credits)
### Module Catalogue for the Subject

#### Economathematics

**Master's with 1 major, 120 ECTS credits**

<table>
<thead>
<tr>
<th>Module title</th>
<th>Abbreviation</th>
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<tbody>
<tr>
<td>Research in Groups - Dynamical Systems and Control Theory</td>
<td>10-M=GDS-161-m01</td>
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**Module coordinator**
Dean of Studies Mathematik (Mathematics)

**Module offered by**
Institute of Mathematics

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</table>

**Duration**
1 semester

**Module level**
graduate

**Other prerequisites**
--

**Contents**
Selected modern topics in dynamical systems and control theory.

**Intended learning outcomes**
The student gains insight into contemporary research problems in dynamical systems and control theory. He/She masters advanced techniques in this field and can apply them to complex problems.

**Courses**
(type, number of weekly contact hours, language — if other than German)
V (2) + S (2)
Module taught in: German and/or English

**Method of assessment**
(type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)
talk (60 to 120 minutes)
Assessment offered: In the semester in which the course is offered and in the subsequent semester
Language of assessment: German or English

**Allocation of places**
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**Additional information**
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**Referred to in LPO I**
(examination regulations for teaching-degree programmes)
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<table>
<thead>
<tr>
<th>Module title</th>
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<tr>
<td>Research in Groups - Measure and</td>
<td>10-M=GMAI-161-m01</td>
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<td>Integral</td>
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</table>

### Contents

Aspects of measure and integration theory: sigma algebras and Borel sets, volume and measure, measurable functions and Lebesgue integrals, selected applications, e.g. product measures (with Fubini’s theorem and the transformation rule), Lp spaces and absolute continuity, measures on topological spaces.

### Intended learning outcomes

The student gains insight into contemporary research problems in measure and integration theory. He/She masters advanced techniques in this field and can apply them to complex problems.

### Courses

<table>
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Module taught in: German and/or English

### Method of assessment

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### Allocation of places

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### Additional information

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### Referred to in LPO I (examination regulations for teaching-degree programmes)

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### Module title
Research in Groups - Numerical Mathematics and Applied Analysis

### Abbreviation
10-M=GNMA-161-m01

### Module coordinator
Dean of Studies Mathematik (Mathematics)

### Module offered by
Institute of Mathematics

### ECTS
10

### Method of grading
numerical grade

### Only after succ. compl. of module(s)
--

### Duration
1 semester

### Module level
graduate

### Other prerequisites
--

### Contents
Selected topics in numerical mathematics, applied analysis or scientific computing.

### Intended learning outcomes
The student gains insight into a contemporary research problems in numerical mathematics or applied analysis. He/She masters advanced techniques in this field and can apply them to complex problems.

### Courses
(type, number of weekly contact hours, language — if other than German)

V (2) + S (2)

Module taught in: German and/or English

### Method of assessment
(type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

talk (60 to 120 minutes)

Assessment offered: In the semester in which the course is offered and in the subsequent semester

Language of assessment: German or English

### Allocation of places
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### Additional information
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<table>
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<td>Research in Groups - Robotics, Optimization and Control Theory</td>
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**Contents**

Selected modern topics in robotics, optimisation and control theory.

**Intended learning outcomes**

The student gains insight into contemporary research problems in robotics, optimization and control theory. He/She masters advanced techniques in this field and can apply them to complex problems.

**Courses** (type, number of weekly contact hours, language — if other than German)

V (2) + S (2)

Module taught in: German and/or English

**Method of assessment** (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

Talk (60 to 120 minutes)

Assessment offered: In the semester in which the course is offered and in the subsequent semester

Language of assessment: German or English

**Allocation of places**

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**Additional information**

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**Referred to in LPO I** (examination regulations for teaching-degree programmes)

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### Module title

Research in Groups - Time Series Analysis

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</table>

### Contents

Selected modern topics in time series analysis.

### Intended learning outcomes

The student gains insight into contemporary research problems in time series analysis. He/She masters advanced techniques in this field and can apply them to complex problems.

### Courses

<table>
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Module taught in: German and/or English

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Language of assessment: German or English

### Allocation of places

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### Additional information

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### Referred to in LPO I

(examination regulations for teaching-degree programmes)

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### Module Catalogue for the Subject
### Economathematics

#### Master's with 1 major, 120 ECTS credits

<table>
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<tr>
<th>Module title</th>
<th>Abbreviation</th>
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<tbody>
<tr>
<td>Research in Groups - Statistics</td>
<td>10·M=GSTA-161-m01</td>
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**Module coordinator**

Dean of Studies Mathematik (Mathematics)

**Module offered by**

Institute of Mathematics

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<td>1 semester</td>
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**Contents**

Selected modern topics in statistics.

**Intended learning outcomes**

The student gains insight into contemporary research problems in statistics. He/She masters advanced techniques in this field and can apply them to complex problems.

**Courses** (type, number of weekly contact hours, language — if other than German)

V (2) + S (2)

Module taught in: German and/or English

**Method of assessment** (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

talk (60 to 120 minutes)

Assessment offered: In the semester in which the course is offered and in the subsequent semester

Language of assessment: German or English

**Allocation of places**

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**Additional information**

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**Referred to in LPO I** (examination regulations for teaching-degree programmes)

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<th>Module title</th>
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<tr>
<td>Seminar in Dynamical Systems and Control</td>
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**Contents**

A modern topic in dynamical systems and control.

**Intended learning outcomes**

The student is able to elaborate a contemporary research topic. This includes comprehending and structuring of the topic and the available literature, preparing a talk and the ability to participate in a scientific discussion.

**Courses** (type, number of weekly contact hours, language — if other than German)

S (2)  
Module taught in: German and/or English

**Method of assessment** (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

Talk (60 to 120 minutes)  
Assessment offered: In the semester in which the course is offered and in the subsequent semester  
Language of assessment: German or English

**Allocation of places**

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**Additional information**

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**Referred to in LPO I** (examination regulations for teaching-degree programmes)

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<table>
<thead>
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<th>Module title</th>
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<tbody>
<tr>
<td>Seminar in Financial and Insurance Mathematics</td>
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**Module coordinator**

Dean of Studies Mathematik (Mathematics)

**Module offered by**

Institute of Mathematics

**ECTS** | **Method of grading** | **Only after succ. compl. of module(s)** |
---|---|---|
5 | numerical grade | -- |

**Duration** | **Module level** | **Other prerequisites** |
---|---|---|
1 semester | graduate | -- |

**Contents**

A modern topic in financial and insurance mathematics.

**Intended learning outcomes**

The student is able to elaborate a contemporary research topic. This includes comprehending and structuring of the topic and the available literature, preparing a talk and the ability to participate in a scientific discussion.

**Courses** (type, number of weekly contact hours, language — if other than German)

S (2)
Module taught in: German and/or English

**Method of assessment** (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

Talk (60 to 120 minutes)
Assessment offered: In the semester in which the course is offered and in the subsequent semester
Language of assessment: German or English

**Allocation of places**

--

**Additional information**

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**Referred to in LPO I** (examination regulations for teaching-degree programmes)

--
### Module Catalogue for the Subject Economathematics

**Master's with 1 major, 120 ECTS credits**

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<thead>
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<tbody>
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<td>Giovanni Prodi Seminar (Master)</td>
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<table>
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<tbody>
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</table>

**Contents**

A modern topic in the research expertise of the current holder of the Giovanni Prodi Chair.

**Intended learning outcomes**

The student is able to elaborate a contemporary research topic. This includes comprehending and structuring of the topic and the available literature, preparing a talk and the ability to participate in a scientific discussion.

**Courses**

(type, number of weekly contact hours, language — if other than German)

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<th>S (2)</th>
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**Method of assessment**

(type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

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**Allocation of places**

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**Additional information**

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**Referred to in LPO I** (examination regulations for teaching-degree programmes)

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## Module Catalogue for the Subject
### Economathematics
#### Master's with 1 major, 120 ECTS credits

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### Contents

A modern topic in mathematics with interdisciplinary aspects.

### Intended learning outcomes

The student is able to elaborate a contemporary research topic. This includes comprehending and structuring of the topic and the available literature, preparing a talk and the ability to participate in a scientific discussion.

### Courses (type, number of weekly contact hours, language — if other than German)

| S (2) | Module taught in: German and/or English |

### Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

- **talk (60 to 120 minutes)**

  Assessment offered: In the semester in which the course is offered and in the subsequent semester

  Language of assessment: German or English

### Allocation of places

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### Additional information

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### Referred to in LPO I (examination regulations for teaching-degree programmes)

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<th>Module title</th>
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**Contents**

A modern topic in mathematics in the sciences.

**Intended learning outcomes**

The student is able to elaborate a contemporary research topic. This includes comprehending and structuring of the topic and the available literature, preparing a talk and the ability to participate in a scientific discussion.

**Courses** (type, number of weekly contact hours, language — if other than German)

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<tr>
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**Method of assessment** (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

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**Allocation of places**

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**Additional information**

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**Referred to in LPO I** (examination regulations for teaching-degree programmes)

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## Seminar in Numerical Mathematics and Applied Analysis

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<td>Seminar in Numerical Mathematics and Applied Analysis</td>
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<table>
<thead>
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</thead>
<tbody>
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</table>

### Contents

A modern topic in numerical mathematics or applied analysis.

### Intended learning outcomes

The student is able to elaborate a contemporary research topic. This includes comprehending and structuring of the topic and the available literature, preparing a talk and the ability to participate in a scientific discussion.

### Courses

<table>
<thead>
<tr>
<th>Type</th>
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### Method of assessment

- **talk (60 to 120 minutes)**
  - Assessment offered: In the semester in which the course is offered and in the subsequent semester
  - Language of assessment: German or English

### Allocation of places

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### Additional information

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### Referred to in LPO I

(examination regulations for teaching-degree programmes)

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Module title: Seminar in Optimization
Abbreviation: 10-M=SOPM-161-m01

Module coordinator: Dean of Studies Mathematik (Mathematics)
Module offered by: Institute of Mathematics

ECTS: 5
Method of grading: numerical grade
Duration: 1 semester
Module level: graduate
Other prerequisites: --

Contents: A modern topic in optimisation.

Intended learning outcomes:
The student is able to elaborate a contemporary research topic. This includes comprehending and structuring of the topic and the available literature, preparing a talk and the ability to participate in a scientific discussion.

Courses (type, number of weekly contact hours, language — if other than German):
S (2)
Module taught in: German and/or English

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus):
talk (60 to 120 minutes)
Assessment offered: In the semester in which the course is offered and in the subsequent semester
Language of assessment: German or English

Allocation of places:
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Additional information:
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Referred to in LPO I (examination regulations for teaching-degree programmes):
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## Seminar in Statistics

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<td>Seminar in Statistics</td>
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### Module coordinator

Dean of Studies Mathematik (Mathematics)

### Module offered by

Institute of Mathematics

### ECTS

5

### Method of grading

Only after succ. compl. of module(s)

### Duration

1 semester

### Module level

graduate

### Other prerequisites

--

### Contents

A modern topic in statistics.

### Intended learning outcomes

The student is able to elaborate a contemporary research topic. This includes comprehending and structuring of the topic and the available literature, preparing a talk and the ability to participate in a scientific discussion.

### Courses

(type, number of weekly contact hours, language — if other than German)

S (2)
Module taught in: German and/or English

### Method of assessment

(type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

Talk (60 to 120 minutes)
Assessment offered: In the semester in which the course is offered and in the subsequent semester
Language of assessment: German or English

### Allocation of places

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### Additional information

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### Referred to in LPO I

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<td>Seminar in Non-linear Analysis</td>
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**Contents**

A modern topic in non-linear analysis.

**Intended learning outcomes**

The student is able to elaborate a contemporary research topic. This includes comprehending and structuring of the topic and the available literature, preparing a talk and the ability to participate in a scientific discussion.

**Courses** (type, number of weekly contact hours, language — if other than German)

S (2)

Module taught in: German and/or English

**Method of assessment** (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

Talk (60 to 120 minutes)

Assessment offered: In the semester in which the course is offered and in the subsequent semester

Language of assessment: German or English

**Allocation of places**

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**Additional information**

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**Referred to in LPO I** (examination regulations for teaching-degree programmes)

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<td>Seminar Applied Mathematics</td>
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**Module coordinator**  
Dean of Studies Mathematik (Mathematics)  
Institute of Mathematics

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**Contents**
A modern topic in applied mathematics.

**Intended learning outcomes**
The student is able to elaborate a contemporary research topic. This includes comprehending and structuring of the topic and the available literature, preparing a talk and the ability to participate in a scientific discussion.

**Courses**
(type, number of weekly contact hours, language — if other than German)

S (2)  
Module taught in: German and/or English

**Method of assessment**
(type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

talk (approx. 60 to 120 minutes)  
Language of assessment: German or English  
Assessment offered: Only when announced in the semester in which the courses are offered and in the subsequent semester

**Allocation of places**
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**Additional information**
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**Referred to in LPO I**
(examination regulations for teaching-degree programmes)
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<table>
<thead>
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</table>

**Contents**

Selected modern topics in inverse problems.

**Intended learning outcomes**

The student gains insight into contemporary research problems in inverse problems. He/She masters advanced techniques in this field and can apply them to complex problems.

**Courses** (type, number of weekly contact hours, language — if other than German)

V (2) + S (2)

Module taught in: German and/or English

**Method of assessment** (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

Talk (60 to 120 minutes)

Assessment offered: In the semester in which the course is offered and in the subsequent semester

Language of assessment: German or English

**Allocation of places**

---

**Additional information**

---

**Referred to in LPO I** (examination regulations for teaching-degree programmes)

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Module title: Advanced Seminar: Marketing Strategy

Abbreviation: 12-M-MSS-161-m01

Module coordinator: Holder of the Junior Professorship of Digital Marketing and E-Commerce

Module offered by: Faculty of Business Management and Economics

ECTS: 10

Method of grading: numerical grade

Only after succ. compl. of module(s): --

Duration: 1 semester

Module level: graduate

Other prerequisites: --

Contents:
In this course, students will acquire important knowledge and skills that will enable them to prepare a well-structured paper and to present the results of their work with the help of relevant topics in the fields of strategic marketing and strategic management.

Reading:
will vary according to topic

Intended learning outcomes:
After completing the course "Marketing Strategie", students will be able to
1. understand the fundamentals of scientific literature reviews;
2. integrate elaborated content in a scientific thesis;
3. create presentations independently.

Courses (type, number of weekly contact hours, language — if other than German):
S (2)

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus):
term paper (approx. 20 to 25 pages) and presentation (approx. 20 minutes), weighted 2:1
Language of assessment: German and/or English

Allocation of places:
10 places. (1) Should the number of applications exceed the number of available places, places will be allocated by lot among all applicants irrespective of their subjects. (2) Places on all courses of the module with a restricted number of places will be allocated in the same procedure. (3) A waiting list will be maintained and places re-allocated by lot as they become available.

Additional information:
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Referred to in LPO I (examination regulations for teaching-degree programmes):
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### Module Catalogue for the Subject Economathematics

**Master’s with 1 major, 120 ECTS credits**

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<td>Faculty of Business Management and Economics</td>
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</table>

### Contents

In the seminar, students will write seminar papers on selected topics in the field of industrial management. The central issues and findings of these papers will have to be presented in class.

### Intended learning outcomes

The students have acquired in-depth knowledge in key application areas of industrial management and learned by taking care of the seminar to deepen their knowledge for making scientific work, to research literature necessary, to filter, to evaluate, to critically analyze and to ask each other. On this basis, and, where appropriate, with introduction of own scientifically based further developments, the participants will learn to prepare a written contribution to the topic of Industrial Management, which complies with the principles of scientific work. Through the lecture, students learn to present selected content of their housework in a suitable form and a predetermined time frame and to defend the findings in the course of a critical, scientific discussion.

### Courses

- **S (2)**

### Method of assessment

The method of assessment is as follows:

- **a)** term paper (approx. 20 to 25 pages) and presentation (approx. 20 minutes), weighted 2:1
- **b)** term paper (approx. 15 to 20 pages) and presentation (approx. 45 minutes), weighted 1:1

Language of assessment: German and/or English

### Allocation of places

10 places. (1) Should the number of applications exceed the number of available places, places will be allocated by lot among all applicants irrespective of their subjects. (2) Places on all courses of the module with a restricted number of places will be allocated in the same procedure. (3) A waiting list will be maintained and places re-allocated by lot as they become available.

### Additional information

- --

### Referred to in LPO I

Referenced in the examination regulations for teaching-degree programmes.

--
Module title: Seminar: Financial Accounting
Abbreviation: 12-M-SER-222-m01

Module coordinator: Holder of the Chair of Financial Accounting
Module offered by: Faculty of Business Management and Economics

ECTS: 10
Method of grading: numerical grade
Only after succ. compl. of module(s): --

Duration: 1 semester
Module level: graduate
Other prerequisites: --

Contents:
The module provides students with more in-depth insights into current problems of external accounting and auditing, usually using scientific primary literature in English or German language.

Intended learning outcomes:
After completion of the module, participants have
(i) consolidated the learned issues and possibly applied additional techniques of scientific work;
(ii) created and defended a qualifying level relevant scientific work;
(iii) conducted a scientific examination of the work results of other seminar participants;
(iv) the ability to present and develop solution-oriented their own performance adequately considering communicative aspects.

Courses:
(type, number of weekly contact hours, language — if other than German)
S (2) + S (2)

Method of assessment:
(type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)
term paper (approx. 20 to 25 pages) and presentation (approx. 20 minutes) (weighted 2:1)
Language of assessment: German and/or English
Assessment offered: Once a year, winter semester

Allocation of places:
20 places.
(1) Should the number of applications exceed the number of available places, places will be allocated by lot among all applicants irrespective of their subjects.
(2) Places on all courses of the module with a restricted number of places will be allocated in the same procedure.
(3) A waiting list will be maintained and places re-allocated by lot as they become available.

Additional information:
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Referred to in LPO I (examination regulations for teaching-degree programmes)
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<table>
<thead>
<tr>
<th>Module title</th>
<th>Abbreviation</th>
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<tbody>
<tr>
<td>Advanced Seminar: Corporate Finance</td>
<td>12-M-SBL-182-m01</td>
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<tr>
<th>Module coordinator</th>
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<tbody>
<tr>
<td>Holder of the Chair of Corporate Finance</td>
<td>Faculty of Business Management and Economics</td>
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<tr>
<th>Duration</th>
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<tr>
<td>1 semester</td>
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</table>

**Contents**

This seminar deals with current topics in investment and finance. Students are required to independently analyze a selected topic and to write a seminar thesis. Moreover, they are required to present, discuss and defend their thesis. The seminar may be largely literature based or empirical or may be based on independent work with formal models.

**Intended learning outcomes**

Students will gain in-depth knowledge in recent application areas of investment and finance. They are able to transport their knowledge in a written seminar thesis, and to present and defend it in a final talk.

**Courses** (type, number of weekly contact hours, language — if other than German)

S (2)

**Method of assessment** (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

term paper (15 to 20 pages) and presentation (approx. 20 minutes), weighted 2:1
Language of assessment: German and/or English

**Allocation of places**

15 places. (1) Should the number of applications exceed the number of available places, places will be allocated by lot among all applicants irrespective of their subjects. (2) Places on all courses of the module with a restricted number of places will be allocated in the same procedure. (3) A waiting list will be maintained and places re-allocated by lot as they become available.

**Additional information**

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**Referred to in LPO I** (examination regulations for teaching-degree programmes)

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<table>
<thead>
<tr>
<th>Module title</th>
<th>Abbreviation</th>
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</thead>
<tbody>
<tr>
<td><strong>Advanced Seminar: Selected Problems in Analytical Tax Research</strong></td>
<td>12-M-SSL-161-m01</td>
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<tr>
<th>Module coordinator</th>
<th>Module offered by</th>
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<tbody>
<tr>
<td>Holder of the Chair of Business Taxation</td>
<td>Faculty of Business Management and Economics</td>
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<td>1 semester</td>
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</table>

**Contents**

In this seminar, current problems of tax research will be analysed. Usually, students will read and discuss research papers in German and/or English language. Although the seminar will be held in German, individual seminar papers may be written and discussed in English if a participant prefers this to German.

**Intended learning outcomes**

After the seminar, students are able
- to analyze a complex issue in taxation using research methods,
- to identify problems and to suggest solutions,
- to formulate and to defend their analysis and suggested solutions.

**Courses** (type, number of weekly contact hours, language — if other than German)

S (2)

**Method of assessment** (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

term paper (approx. 20 to 25 pages) and presentation (approx. 20 minutes), weighted 2:1
Language of assessment: German and/or English

**Allocation of places**

10 places. (1) Should the number of applications exceed the number of available places, places will be allocated by lot among all applicants irrespective of their subjects. (2) Places on all courses of the module with a restricted number of places will be allocated in the same procedure. (3) A waiting list will be maintained and places re-allocated by lot as they become available.

**Additional information**

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**Referred to in LPO I** (examination regulations for teaching-degree programmes)

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<table>
<thead>
<tr>
<th><strong>Module title</strong></th>
<th><strong>Abbreviation</strong></th>
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<tbody>
<tr>
<td>Advanced Seminar: Enterprise Systems</td>
<td>12-M-ES-161-m01</td>
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</table>

**Module coordinator**

Holder of the Chair of Business Management and Business Information Systems

**Module offered by**

Faculty of Business Management and Economics

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<tr>
<th><strong>ECTS</strong></th>
<th><strong>Method of grading</strong></th>
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<td>1 semester</td>
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</table>

**Contents**

In this course, students will acquire important knowledge and skills that will enable them to prepare a well-structured term paper and to present the results of their work with the help of relevant topics in the fields of information systems and enterprise systems.

**Reading:**

will vary according to topic

**Intended learning outcomes**

After completing the course "Enterprise Systems", students will be able to
1. understand the fundamentals of scientific literature reviews;
2. integrate elaborated content in a scientific thesis;
3. create presentations independently.

**Courses** (type, number of weekly contact hours, language — if other than German)

S (2)

**Method of assessment** (type, scope, language — if other than German, examination offered — If not every semester, information on whether module is creditable for bonus)

term paper (approx. 20 to 25 pages) and presentation (approx. 20 minutes), weighted 2:1

Language of assessment: German and/or English

**Allocation of places**

20 places. (1) Should the number of applications exceed the number of available places, places will be allocated by lot among all applicants irrespective of their subjects. (2) Places on all courses of the module with a restricted number of places will be allocated in the same procedure. (3) A waiting list will be maintained and places re-allocated by lot as they become available.

**Additional information**

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**Referred to in LPO I** (examination regulations for teaching-degree programmes)

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<table>
<thead>
<tr>
<th>Module title</th>
<th>Abbreviation</th>
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<tbody>
<tr>
<td>Advanced Seminar: Topics in Personnel Economics and Organizational Theory</td>
<td>12-M-SPO-182-m01</td>
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<thead>
<tr>
<th>Module coordinator</th>
<th>Module offered by</th>
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<tbody>
<tr>
<td>Holder of the Chair of Human Resource Management and Organisation</td>
<td>Faculty of Business Management and Economics</td>
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<td>1 semester</td>
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</table>

### Contents
Students will write a seminar paper on, deliver a talk on and discuss current issues in the field of human resources management and organisation.

### Intended learning outcomes
The students learn to handle, write in own words, present, and discuss current research literature in the area human resource management and organisation.

### Courses
(type, number of weekly contact hours, language — if other than German)

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<th>S (2)</th>
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<tr>
<td>Module taught in: English</td>
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### Method of assessment
(type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

| term paper (approx. 20 pages) and presentation with sub-presentation including discussion (approx. 50 minutes), weighted 1:1 |
| Language of assessment: German and/or English |

### Allocation of places
20 places. (1) Should the number of applications exceed the number of available places, places will be allocated by lot among all applicants irrespective of their subjects. (2) Places on all courses of the module with a restricted number of places will be allocated in the same procedure. (3) A waiting list will be maintained and places re-allocated by lot as they become available.

### Additional information
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### Referred to in LPO I
(examination regulations for teaching-degree programmes)

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## Module Catalogue for the Subject
**Economathematics**

**Master's with 1 major, 120 ECTS credits**

<table>
<thead>
<tr>
<th>Module title</th>
<th>Abbreviation</th>
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</thead>
<tbody>
<tr>
<td>Advanced Seminar: Entrepreneurship and Management</td>
<td>12-M-SAS-182-m01</td>
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### Module coordinator
Holder of the Chair of Entrepreneurship and Strategy

### Module offered by
Faculty of Business Management and Economics

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<th>ECTS</th>
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<td>1 semester</td>
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</table>

### Contents
Students develop seminar papers on varying topics in the domain of entrepreneurship, strategy, and innovation and present the key insights from their work.

### Intended learning outcomes


### Educational aims
- Enable students to position their research
- Enable students to critically review a substantial body of literature in short time
- Enable students to develop a sound theoretical framework
- Enable students to create a research paper fully meeting academic standards

### Learning outcomes
On successful completion of this module students will be able to:

- Differentiate their research from previous work
- Adopt theoretical perspectives to understand complex phenomena
- Engage in comprehensive academic reasoning
- Articulate abstract and complex phenomena and relationships in written and oral form

### Courses
(type, number of weekly contact hours, language — if other than German)

| S (2) |

### Method of assessment
(type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

| term paper (approx. 20 pages) and presentation (15 to 30 minutes), weighted 2:1 |
| Assessment offered: Once a year, winter semester |
| Language of assessment: German and/or English |

### Allocation of places
20 places. (1) Should the number of applications exceed the number of available places, places will be allocated by lot among all applicants irrespective of their subjects. (2) Places on all courses of the module with a restricted number of places will be allocated in the same procedure. (3) A waiting list will be maintained and places re-allocated by lot as they become available.

### Additional information

- Referred to in LPO I (examination regulations for teaching-degree programmes)

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# Module Catalogue for the Subject
Economathematics
Master’s with 1 major, 120 ECTS credits

<table>
<thead>
<tr>
<th>Module title</th>
<th>Abbreviation</th>
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<tbody>
<tr>
<td>Advanced Seminar: Selected Aspects of Managerial Accounting</td>
<td>12-M-AUAS-182-m01</td>
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<tr>
<th>Module coordinator</th>
<th>Module offered by</th>
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<tbody>
<tr>
<td>Holder of the Chair of Business Management, Management Accounting and Control</td>
<td>Faculty of Business Management and Economics</td>
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</table>

## Contents
In this course, students will acquire important knowledge and skills that will enable them to prepare a well-structured paper and to present the results of their work by means of relevant topics in the field of managerial accounting.

### Intended learning outcomes
After completion of the seminar, students will be able to answer complex questions from the field of managerial accounting at a scientific level. They are able to conduct scientific literature research in a targeted manner and understand its contents as well as apply further scientific methods to answer questions, integrate acquired results into scientific papers and, building on this, independently prepare presentations and lectures.

## Courses
(type, number of weekly contact hours, language — if other than German)

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<th>Type</th>
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<th>Language</th>
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## Method of assessment
(type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

term paper (15 to 20 pages) and presentation (approx. 20 minutes), weighted 2:1
Assessment offered: Once a year, summer semester
Language of assessment: German and/or English
creditable for bonus

## Allocation of places
20 places. (1) Should the number of applications exceed the number of available places, places will be allocated by lot among all applicants irrespective of their subjects. (2) Places on all courses of the module with a restricted number of places will be allocated in the same procedure. (3) A waiting list will be maintained and places re-allocated by lot as they become available.

## Additional information
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## Referred to in LPO I
(examination regulations for teaching-degree programmes)

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<table>
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<th>Module title</th>
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<tr>
<td>Business Analytics</td>
<td>12-M-BUA-161-m01</td>
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<th>Module coordinator</th>
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<tbody>
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<td>Faculty of Business Management and Economics</td>
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**Contents**

In this course, students will acquire important knowledge and skills that will enable them to prepare a well-structured term paper and to present the results of their work with the help of relevant topics in the field of business management decision models and methods and their application in the development of decision-support systems as well as analytical information systems and quantitative methods of data analysis.

Students work on current topics using methods from machine learning, mathematical optimization and simulation.

**Intended learning outcomes**

The module provides students with knowledge of:
- Scientific literature
- Implementation of methods in code
- Integration of developed results in scientific papers
- Creating presentations and lectures

**Courses** (type, number of weekly contact hours, language — if other than German)

S (2)

**Method of assessment** (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

Term paper (approx. 20 to 25 pages) and presentation (approx. 20 minutes), weighted 2:1

Assessment offered: Once a year, winter semester

Language of assessment: German and/or English

**Allocation of places**

20 places. (1) Should the number of applications exceed the number of available places, places will be allocated by lot among all applicants irrespective of their subjects. (2) Places on all courses of the module with a restricted number of places will be allocated in the same procedure. (3) A waiting list will be maintained and places re-allocated by lot as they become available.

**Additional information**

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**Referred to in LPO I** (examination regulations for teaching-degree programmes)

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**Module title**

Seminar: Applied Analytics in Logistics & Supply Chain Management

**Abbreviation**

12-M-LSCM-222-m01

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**Module coordinator**

Holder of the Chair of Logistics and Quantitative Methods in Business Administration

**Module offered by**

Faculty of Business Management and Economics

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**ECTS**

10

**Method of grading**

numerical grade

**Only after succ. compl. of module(s)**

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**Duration**

1 semester

**Module level**

graduate

**Other prerequisites**

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**Contents**

Quantitative planning approaches are particularly valuable for designing logistics systems and supply chains. They support decision makers in taking important strategic, tactical, and operational decisions by providing well-founded and relevant information. Many of these decisions have significant impact on the competitiveness of companies because they considerably influence today's as well as tomorrow's costs and revenues. The adoption of quantitative planning methods has been strongly supported by the development of information and communication systems: Advanced tools are available at low costs, versatile methods to model and solve planning problems have been integrated in standard software, the user friendliness has improved, and last but not least: the access to necessary data has substantially progressed (i.e. through ERP systems).

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**Intended learning outcomes**

The main objective of this seminar is to familiarize participants with diverse quantitative planning problems and potential solutions. Planning procedures are applied to solve real problems in companies. Participants in this seminar learn about actual planning problems in Logistics and Supply Chain Management; they analyze and understand how companies address these problems.

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**Courses**

(type, number of weekly contact hours, language — if other than German)

S (2)

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**Method of assessment**

(type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

term paper (approx. 20 to 25 pages) and presentation (approx. 20 minutes) (weighted 2:1)

Language of assessment: German and/or English

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**Allocation of places**

20 places.

Should the number of applications exceed the number of available places, places will be allocated as follows:

1. Students who already have successfully completed courses offered by the Chair of Logistics and Quantitative Methods will be given preferential consideration.

2. Among applicants with the same number of successfully completed modules, places will be allocated according to the total number of ECTS credits achieved in mandatory courses of the focus Logistik und Supply Chain Management (Logistics and Supply Chain Management) or Value Chain Management or another specialisation the applicant has selected which includes courses offered by the Chair.

3. Among applicants with the same number of ECTS credits, places will be allocated by lot.

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**Additional information**

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**Referred to in LPO I**

(examination regulations for teaching-degree programmes)

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<th>Module title</th>
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<td>Economic and Business Ethics</td>
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<tr>
<td>Holder of the Chair of Financial Accounting</td>
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<td>1 semester</td>
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### Contents
In this seminar, students will gain an overview of different ethical aspects in business and economy, e.g. leadership ethics, corruption, ethical theories, consumer ethics, CSR.

### Intended learning outcomes
Using common scientific methods the student should be able to write a seminar paper dealing with a selected ethical problem in business and/or economy. He/she should be able to present a complex problem in a clear and understandable way and he/she should discuss the arguments with other participants in the class.

### Courses
(type, number of weekly contact hours, language — if other than German)

S (2)

**Method of assessment**
(type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

- term paper (approx. 20 to 25 pages) and presentation (approx. 20 minutes), weighted 2:1
- Language of assessment: German and/or English

### Allocation of places
12 places. (1) Should the number of applications exceed the number of available places, places will be allocated by lot among all applicants irrespective of their subjects. (2) Places on all courses of the module with a restricted number of places will be allocated in the same procedure. (3) A waiting list will be maintained and places re-allocated by lot as they become available.

### Additional information
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**Referred to in LPO I** (examination regulations for teaching-degree programmes)

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<table>
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<th>Module title</th>
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<tr>
<td>Practical Seminar: Economic Journalism</td>
<td>12-M-SWJ-182-m01</td>
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<tr>
<th>Module coordinator</th>
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<tbody>
<tr>
<td>Holder of the Professorship of Economic Journalism</td>
<td>Faculty of Business Management and Economics</td>
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<tr>
<td>1 semester</td>
<td>graduate</td>
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**Contents**

Students will acquire an in-depth insight into the practical side of economics journalism. They must complete their placements at company or other institution at which they will have an opportunity to gain an in-depth knowledge of economics journalism. Students will be required to prepare a practical report on the placement module as well as to submit proof of regular attendance and participation. In addition, a certificate issued by the placement company is to be submitted.

**Intended learning outcomes**

The module strengthens practical competences and encourages work experiences. So it prepares for the career start in economics journalism.

**Courses** (type, number of weekly contact hours, language — if other than German)

| V (2) + Ü (2) |

**Method of assessment** (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

portfolio on observation visit, including work samples (approx 40 pages)

Language of assessment: German and/or English

**Allocation of places**

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**Additional information**

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**Referred to in LPO I** (examination regulations for teaching-degree programmes)

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### Module title

**Project Modul: Journalism in Economic Policy**

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<tr>
<td>12-M-WPJ-182-m01</td>
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### Module coordinator

Holder of the Professorship of Economic Journalism

### Module offered by

Faculty of Business Management and Economics

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### Contents

Economic journalism is often regarded as unwieldy, but the reporting usually revolves around content that many media users can relate to: The focus is on market developments and (economic) political conditions. How can these topics be presented in a way that is clear, easy to understand, and yet as precise as possible? What makes for good economic reporting? What research options and forms of presentation are available? Such questions will first be answered using examples from various media. Subsequently, the students will work on the main topic themselves. The seminar is thematically oriented towards current research projects/projects of the Chair of Business Journalism and Business Communication and can therefore vary thematically per semester.

### Intended learning outcomes

Students learn the terminology, topics, and framework of economic journalism. After completing the seminar, they will have an overview of selected areas of application. They master the research and the different forms of presentation of economic journalism. The students learn scientific methods to break down complex economic topics in reporting. After completing the seminar, students are able to independently examine journalistic products in response to previously generated research questions and thus evaluate journalistic work. Therefore, students acquire subject as well as specific methodological competencies in this seminar.

### Courses

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### Method of assessment

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<tr>
<td>portfolio (approx. 3 items with a duration of 3 minutes each, audio/video format): e.g. record of research activities, commentary, text analyses of different types of media</td>
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<td>Assessment offered: In the semester in which the course is offered</td>
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<td>Language of assessment: German and/or English</td>
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### Allocation of places

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### Additional information

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### Referred to in LPO I (examination regulations for teaching-degree programmes)

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Module title | Abbreviation
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Project: Selected Topics in Business Management and Economics I | 12-M-APS-182-m01

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**Contents**

This module serves the purpose of transferring credits from
- courses taken at other German or non-German universities
- additional courses offered on a short-term basis
- courses offered by new Chairs that are yet to be included in the FSB (subject-specific provisions)

The holders of the respective Chairs will ensure that the courses are eligible for credit transfer.

**Intended learning outcomes**

As a result of accrediting multiple kinds of modules, a description of acquired skills cannot be given.

**Courses** (*type, number of weekly contact hours, language — if other than German*)

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**Method of assessment** (*type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus*)

term paper (approx. 20 pages) and presentation (approx. 20 minutes), weighted 2:1

Assessment offered: In the semester in which the course is offered
Language of assessment: German and/or English creditable for bonus

**Allocation of places**

15 places. (1) Should the number of applications exceed the number of available places, places will be allocated by lot among all applicants irrespective of their subjects. (2) Places on all courses of the module with a restricted number of places will be allocated in the same procedure. (3) A waiting list will be maintained and places re-allocated by lot as they become available.

**Additional information**

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**Referred to in LPO I** (*examination regulations for teaching-degree programmes*)

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### Module title

Project: Selected Topics in Business Management and Economics II

### Abbreviation

12-M-APS2-182-m01

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## Contents

This module serves the purpose of transferring credits from
- courses taken at other German or non-German universities
- additional courses offered on a short-term basis
- courses offered by new Chairs that are yet to be included in the FSB (subject-specific provisions)

The holders of the respective Chairs will ensure that the courses are eligible for credit transfer.

## Intended learning outcomes

As a result of accrediting multiple kinds of modules, a description of acquired skills cannot be given.

### Courses

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Assessment offered: In the semester in which the course is offered
Language of assessment: German and/or English creditable for bonus

### Allocation of places

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### Additional information

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### Referred to in LPO I

(examination regulations for teaching-degree programmes)

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Module title | Abbreviation
---|---
Seminar: Current Topics in Macroeconomics | 12-M-SV1-222-m01

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<td>Holder of the Chair of Monetary Policy and International Economics</td>
<td>Faculty of Business Management and Economics</td>
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**Contents**

Gaining a more in-depth understanding of specific problems of macroeconomics and, in particular, monetary policy.

Format of the module: seminar

Prerequisites: Basic knowledge of macroeconomics as taught in Bachelor programs in Economics, Business or similar fields.

Usability: Master International Economic Policy

Requirements for getting credit points according to the European Credit Transfer System (ECTS): Passing the seminar

ECTS and grading: 10 ECTS, Grading on a scale from 1-5 based on a seminar presentation and a seminar paper

Frequency of the module: Each term

Workload: 300 hours

Duration: 1 Semester

**Intended learning outcomes**

Students are able to independently investigate and classify scientific publications on their relevance to a given theme. In addition, they are able to present the results orally and in writing by conventional scientific standards.

**Courses** (type, number of weekly contact hours, language — if other than German)

- S (2)
  - Module taught in: English

**Method of assessment** (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

- term paper (approx. 20 to 25 pages) and presentation (approx. 20 minutes) (weighted 2:1)
  - Language of assessment: English

**Allocation of places**

- 10 places.
  1. Should the number of applications exceed the number of available places, places will be allocated by lot among all applicants irrespective of their subjects.
  2. Places on all courses of the module with a restricted number of places will be allocated in the same procedure.
  3. A waiting list will be maintained and places re-allocated by lot as they become available.

**Additional information**

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Module Catalogue for the Subject
Economathematics
Master’s with 1 major, 120 ECTS credits

Referred to in LPO I (examination regulations for teaching-degree programmes)

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### Module Catalogue for the Subject Economathematics

Master's with 1 major, 120 ECTS credits

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### Contents

**Content**

Current topics in international economics and economic geography [e.g. Urbanization and Inequality; Tasks, Trade, and Cities; Outsourcing, Offshoring and Multinational Firms; Competition of Locations, Jurisdictions and Systems; Globalization and the Environment; Trade, Multinational Firms and Labor Markets; Triumph of the City]

**Literature:**

Peer-reviewed articles and/or monographs.

### Intended learning outcomes

Drawing on current cutting-edge research, students are enabled to analyze current research questions and to learn and apply research methods. The seminar style of the course teaches them to present their own seminar papers and research both in written and in oral form. Students are enabled to critically analyze and discuss the work of their peers.

### Courses (type, number of weekly contact hours, language — if other than German)

| S (2) |

### Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

Term paper (approx. 15 pages) and presentation (approx. 40 minutes) with thesis paper (1 page) (weighted 3:1). Language of assessment: German and/or English

### Allocation of places

10 places.

1. Should the number of applications exceed the number of available places, places will be allocated by lot among all applicants irrespective of their subjects.
2. Places on all courses of the module with a restricted number of places will be allocated in the same procedure.
3. A waiting list will be maintained and places re-allocated by lot as they become available.

### Additional information

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### Referred to in LPO I (examination regulations for teaching-degree programmes)

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**Contents**

Content

Current topics in international economics and economic geography [e.g. Urbanization and Inequality; Tasks, Trade, and Cities; Outsourcing, Offshoring and Multinational Firms; Competition of Locations, Jurisdictions and Systems; Globalization and the Environment; Trade, Multinational Firms and Labor Markets; Triumph of the City]

**Literature:**

Peer-reviewed articles and/or monographs.

**Intended learning outcomes**

Drawing on current cutting-edge research, students are enabled to analyze current research questions and to learn and apply research methods. The seminar style of the course teaches them to present their own seminar papers and research both in written and in oral form. Students are enabled to critically analyze and discuss the work of their peers.

**Courses** (type, number of weekly contact hours, language — if other than German)

- S (2)

**Method of assessment** (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

- Term paper (approx. 15 pages) and presentation (approx. 40 minutes) with thesis paper (1 page) (weighted 3:1)

  Language of assessment: German and/or English

**Allocation of places**

- 10 places.
  1. Should the number of applications exceed the number of available places, places will be allocated by lot among all applicants irrespective of their subjects.
  2. Places on all courses of the module with a restricted number of places will be allocated in the same procedure.
  3. A waiting list will be maintained and places re-allocated by lot as they become available.

**Additional information**

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**Referred to in LPO I** (examination regulations for teaching-degree programmes)

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JMU Würzburg • generated 19-Jul-2022 • exam. data record Master (120 ECTS) Wirtschaftsmathematik - 2022
## Module title

**International Economics 3**

| Abbreviation | 12-M-ATII3-222-m01 |

## Module coordinator

Holder of the Chair of International Economics

## Module offered by

Faculty of Business Management and Economics

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## Contents

**Content**

Current topics in international economics and economic geography [e.g. Urbanization and Inequality; Tasks, Trade, and Cities; Outsourcing, Offshoring and Multinational Firms; Competition of Locations, Jurisdictions and Systems; Globalization and the Environment; Trade, Multinational Firms and Labor Markets; Triumph of the City]

**Literature:**

Peer-reviewed articles and/or monographs.

## Intended learning outcomes

Drawing on current cutting-edge research, students are enabled to analyze current research questions and to learn and apply research methods. The seminar style of the course teaches them to present their own seminar papers and research both in written and in oral form. Students are enabled to critically analyze and discuss the work of their peers.

## Courses

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## Method of assessment

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## Allocation of places

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1. Should the number of applications exceed the number of available places, places will be allocated by lot among all applicants irrespective of their subjects.
2. Places on all courses of the module with a restricted number of places will be allocated in the same procedure.
3. A waiting list will be maintained and places re-allocated by lot as they become available.

## Additional information

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**Contents**

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**Intended learning outcomes**

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**Courses** (type, number of weekly contact hours, language — if other than German)

S (2)

**Method of assessment** (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

Term paper (approx. 15 pages) and presentation (approx. 40 minutes) with thesis paper (1 page) (weighted 3:1)

Language of assessment: German and/or English

**Allocation of places**

10 places.

1. Should the number of applications exceed the number of available places, places will be allocated by lot among all applicants irrespective of their subjects.
2. Places on all courses of the module with a restricted number of places will be allocated in the same procedure.
3. A waiting list will be maintained and places re-allocated by lot as they become available.

**Additional information**

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**Referred to in LPO I** (examination regulations for teaching-degree programmes)

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## Module title

**Advanced Seminar: Industrial Organization**

### Abbreviation

12-M-SIO-161-m01

## Module coordinator

Holder of the Chair of Industrial Economics

## Module offered by

Faculty of Business Management and Economics

## ECTS

10

## Method of grading

numerical grade

## Only after succ. compl. of module(s)

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## Duration

1 semester

## Module level

graduate

## Other prerequisites

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## Contents

This course covers selected advanced topics from the field of industrial economics. Students, with the help of their advisor, will choose a topic and formulate a research question. Then they are expected to conduct research and write a paper on this research question. At the end of the semester the students will present their findings orally to an audience.

## Intended learning outcomes

After completing the course “Seminar: Industrieökonomik”, students will be able to:

1. perform a survey of the scientific literature on a given topic;
2. critically assess the economic models and their findings in the literature;
3. describe the economic mechanisms underlying important economic observations;
4. suggest future research directions;
5. present their findings to an audience.

## Courses

(type, number of weekly contact hours, language — if other than German)

S (2)

## Method of assessment

(type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

term paper (approx. 20 pages) and presentation (approx. 20 minutes), weighted 2:1

Language of assessment: German and/or English

## Allocation of places

10 places. (1) Should the number of applications exceed the number of available places, places will be allocated by lot among all applicants irrespective of their subjects. (2) Places on all courses of the module with a restricted number of places will be allocated in the same procedure. (3) A waiting list will be maintained and places re-allocated by lot as they become available.

## Additional information

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## Referred to in LPO I (examination regulations for teaching-degree programmes)

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Module title: Advanced Seminar: Labour Economics

Abbreviation: 12-M-SWOSP-182-m01

Module coordinator: Holder of the Chair of Labor Economics
Module offered by: Faculty of Business Management and Economics

ECTS: 10
Method of grading: numerical grade
Only after succ. compl. of module(s): --

Duration: 1 semester
Module level: graduate
Other prerequisites: --

Contents:
This seminar targets any students interested in acquiring the skills to conduct an empirical study to understand people's social behavior and social preferences. We will read and discuss scientific methodological papers that allow students to acquire the necessary empirical tools to conduct an empirical thesis.

The recurring topic will be related to the origins of social cohesion and social preferences, the role of the family and the school in shaping children’s social behavior and preferences.

Intended learning outcomes:
This seminar is designed to acquire the skills to write a master thesis at the Chair of Labour Economics. It focuses on the acquisition of empirical tools - mostly related to experimental empirical tools - in order to understand the determinants of social behavior and preferences.

Courses:
(type, number of weekly contact hours, language — if other than German)
S (2)

Method of assessment:
(type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)
term paper (15 to 20 pages) and presentation (approx. 20 minutes), weighted 2:1
Language of assessment: German and/or English

Allocation of places:
10 places. (1) Should the number of applications exceed the number of available places, places will be allocated by lot among all applicants irrespective of their subjects. (2) Places on all courses of the module with a restricted number of places will be allocated in the same procedure. (3) A waiting list will be maintained and places re-assigned by lot as they become available.

Additional information:
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<td>graduate</td>
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</tbody>
</table>

**Contents**

Gaining a more in-depth understanding of specific problems discussed in lectures on public finance using scientific economic journal articles in German and English language.

**Intended learning outcomes**

After the seminar, students can
(i) consolidate acquired knowledge and if necessary apply additional techniques of scientific work;
(ii) create, present and defend a scientific paper;
(iii) deal with the working papers of other participants;
(iv) prepare better for the processing of the master’s thesis.

**Courses** (type, number of weekly contact hours, language — if other than German)

S (2)

**Method of assessment** (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

Term paper (approx. 20 to 25 pages) and presentation (approx. 20 minutes), weighted 2:1
Assessment offered: Once a year, summer semester
Language of assessment: German and/or English

**Allocation of places**

20 places. (1) Should the number of applications exceed the number of available places, places will be allocated by lot among all applicants irrespective of their subjects. (2) Places on all courses of the module with a restricted number of places will be allocated in the same procedure. (3) A waiting list will be maintained and places re-allocated by lot as they become available.

**Additional information**

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**Referred to in LPO I** (examination regulations for teaching-degree programmes)

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Module title
Advanced Seminar: Econometrics

Abbreviation
12-M-SOE-182-m01

Module coordinator
Holder of the Chair of Econometrics

Module offered by
Faculty of Business Management and Economics

ECTS
10

Method of grading
numerical grade

Only after succ. compl. of module(s)
--

Duration
1 semester

Module level
graduate

Other prerequisites
--

Contents
This module will take the form of a seminar and will cover advanced topics in econometrics. Students will be required to independently familiarise themselves with the respective topics and to present the results of their work both in a seminar paper and orally during a seminar session.

Intended learning outcomes
Students are able to analyze independently academic publications on their relevance for a given theme. They can present the results orally and in writing by conventional scientific standards.

Courses
(term, number of weekly contact hours, language — if other than German)

S (2)

Method of assessment
(term, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)
term paper (approx. 15 pages) and presentation (approx. 25 minutes), weighted 2:1
Language of assessment: German and/or English

Allocation of places
10 places. (1) Should the number of applications exceed the number of available places, places will be allocated by lot among all applicants irrespective of their subjects. (2) Places on all courses of the module with a restricted number of places will be allocated in the same procedure. (3) A waiting list will be maintained and places re-allocated by lot as they become available.

Additional information
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Referred to in LPO I
(examination regulations for teaching-degree programmes)
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<table>
<thead>
<tr>
<th>Module title</th>
<th>Abbreviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seminar: Macroeconomics and Quantitative Economic Research</td>
<td>12-M-MEW-161-m01</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Module coordinator</th>
<th>Module offered by</th>
</tr>
</thead>
<tbody>
<tr>
<td>Head of the Work Group of Empirical Economics</td>
<td>Faculty of Business Management and Economics</td>
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</tbody>
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<table>
<thead>
<tr>
<th>ECTS</th>
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<tbody>
<tr>
<td>10</td>
<td>numerical grade</td>
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<table>
<thead>
<tr>
<th>Duration</th>
<th>Module level</th>
<th>Other prerequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 semester</td>
<td>graduate</td>
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</tbody>
</table>

**Contents**

This course will provide students with a more in-depth understanding of specific problems of macroeconomics and quantitative economic research. A current list of topics, from which students may select one, is available on my website.

**Intended learning outcomes**

After the seminar, students can

(i) consolidate acquired knowledge and if necessary apply additional techniques of scientific work;

(ii) create, present and defend a scientific paper;

(iii) deal with the working papers of other participants;

(iv) prepare better for the processing of the master’s thesis.

**Courses** (type, number of weekly contact hours, language — if other than German)

S (2)

**Method of assessment** (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

Term paper (approx. 20 to 25 pages) and presentation (approx. 20 minutes), weighted 2:1

Language of assessment: German and/or English

**Allocation of places**

10 places. (1) Should the number of applications exceed the number of available places, places will be allocated by lot among all applicants irrespective of their subjects. (2) Places on all courses of the module with a restricted number of places will be allocated in the same procedure. (3) A waiting list will be maintained and places re-allocated by lot as they become available.

**Additional information**

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**Referred to in LPO I** (examination regulations for teaching-degree programmes)

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<table>
<thead>
<tr>
<th>Module title</th>
<th>Abbreviation</th>
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</thead>
<tbody>
<tr>
<td>Seminar: Strategic Incentive Design</td>
<td>12-M-ATC-222-m01</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Module coordinator</th>
<th>Module offered by</th>
</tr>
</thead>
<tbody>
<tr>
<td>Holder of the Chair of Contract Theory and Information Economics</td>
<td>Faculty of Business Management and Economics</td>
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</table>

<table>
<thead>
<tr>
<th>ECTS</th>
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<tbody>
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<table>
<thead>
<tr>
<th>Duration</th>
<th>Module level</th>
<th>Other prerequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 semester</td>
<td>graduate</td>
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</table>

### Contents

This module covers varying classical or recent topics from microeconomics, usually with a focus on decision theory, contract theory or behavioral economics. As a solid understanding of the corresponding basics will be helpful, the course is intended in particular for advanced students who completed the classes “Advanced Microeconomics” and “Contract Theory”.

### Intended learning outcomes

After completing the course students will have gathered experience in:

- reading and understanding theoretical or experimental research articles,
- critically analyzing and discussing the results of research articles,
- relating the results of different research articles to each other,
- conveying their insights both verbally and in writing in accordance with common scientific standards.

### Courses

<table>
<thead>
<tr>
<th>Type</th>
<th>Number of weekly contact hours</th>
<th>Language</th>
</tr>
</thead>
<tbody>
<tr>
<td>S</td>
<td>(2)</td>
<td>English</td>
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</table>

**Module taught in:** English

### Method of assessment

<table>
<thead>
<tr>
<th>Type</th>
<th>Scope</th>
<th>Language</th>
<th>Examination offered</th>
<th>Module is creditable for bonus</th>
</tr>
</thead>
<tbody>
<tr>
<td>term paper</td>
<td>(20 to 25 pages) and presentation (approx. 20 minutes)</td>
<td>English</td>
<td>weighted 2:1</td>
<td></td>
</tr>
</tbody>
</table>

Language of assessment: English

### Allocation of places

15 places.

1. Should the number of applications exceed the number of available places, places will be allocated by lot among all applicants irrespective of their subjects.
2. Places on all courses of the module with a restricted number of places will be allocated in the same procedure.
3. A waiting list will be maintained and places re-allocated by lot as they become available.

### Additional information

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### Referred to in LPO I

(examination regulations for teaching-degree programmes)

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<table>
<thead>
<tr>
<th>Module title</th>
<th>Abbreviation</th>
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</thead>
<tbody>
<tr>
<td>Seminar: E-Business Strategies</td>
<td>12-M-SEBS-161-m01</td>
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</table>

<table>
<thead>
<tr>
<th>Module coordinator</th>
<th>Module offered by</th>
</tr>
</thead>
<tbody>
<tr>
<td>Holder of the Chair of Information Systems Engineering</td>
<td>Faculty of Business Management and Economics</td>
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<th>ECTS</th>
<th>Method of grading</th>
<th>Only after succ. compl. of module(s)</th>
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<table>
<thead>
<tr>
<th>Duration</th>
<th>Module level</th>
<th>Other prerequisites</th>
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</thead>
<tbody>
<tr>
<td>1 semester</td>
<td>graduate</td>
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</tbody>
</table>

**Contents**

In this course, students will acquire important knowledge and skills that will enable them to prepare a well-structured term paper and to present the results of their work with the help of relevant topics in the fields of web-based platforms (electronic markets, Web 2.0 etc.) and strategic management of a company.

**Intended learning outcomes**

- Academic literature review
- Integration of developed results in scientific papers
- Creating presentations and talks

**Courses (type, number of weekly contact hours, language — if other than German)**

S (2)

**Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)**

term paper (approx. 20 to 25 pages) and presentation (approx. 20 minutes), weighted 2:1

Assessment offered: Once a year, winter semester

Language of assessment: German and/or English

**Allocation of places**

20 places. (1) Should the number of applications exceed the number of available places, places will be allocated by lot among all applicants irrespective of their subjects. (2) Places on all courses of the module with a restricted number of places will be allocated in the same procedure. (3) A waiting list will be maintained and places re-allocated by lot as they become available.

**Additional information**

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**Referred to in LPO I (examination regulations for teaching-degree programmes)**

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Thesis
(30 ECTS credits)
Module title | Abbreviation
---|---
Master Thesis Mathematics for Economics | 10-M=MAAW-161-m01

Module coordinator | Module offered by
Dean of Studies Mathematik (Mathematics) | Institute of Mathematics

<table>
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<th>ECTS</th>
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<td>numerical grade</td>
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<table>
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<tr>
<th>Duration</th>
<th>Module level</th>
<th>Other prerequisites</th>
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<tbody>
<tr>
<td>graduate</td>
<td></td>
<td>The supervisor may make the successful completion of certain modules that are relevant for the respective topic a prerequisite for the assignment of the topic.</td>
</tr>
</tbody>
</table>

### Contents

Independently researching and writing on a (potentially interdisciplinary) topic in mathematics and/or economics selected in consultation with the supervisor.

### Intended learning outcomes

The student is able to work independently on a given topic in business mathematics and apply the skills and methods obtained during his/her studies in the master programme. He/She can write down the result of his/her work in a suitable form.

### Courses

<table>
<thead>
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<th>type, number of weekly contact hours, language — if other than German</th>
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<tr>
<td>No courses assigned to module</td>
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### Method of assessment

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<tbody>
<tr>
<td>Master's thesis (750 to 900 hours total)</td>
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</table>

Registration and assignment of topic in consultation with supervisor.

Language of assessment: German or English

### Allocation of places

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### Additional information

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### Referred to in LPO 1 (examination regulations for teaching-degree programmes)

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