Julius-Maximilians-
UNIVERSITÄT
WÜRZBURG

# Subdivided Module Catalogue

for the Subject

# Economathematics

as a Bachelor's with 1 major

with the degree "Bachelor of Science"

(180 ECTS credits)

Examination regulations version: 2026
Responsible: Faculty of Mathematics and Computer Science
Responsible: Faculty of Management and Economics

# Learning Outcomes

German contents and learning outcome available but not translated yet.

**Wissenschaftliche Befähigung**

- Die Absolventinnen und Absolventen sind vertraut mit den Arbeitsweisen und der zugehörigen Fachsprache der Mathematik und beherrschen die Methoden mathematischen Denkens und Beweisens.
- Die Absolventinnen und Absolventen besitzen grundlegende Kenntnisse der Stochastik, der Finanzmathematik und mindestens eines weiteren Gebiets der Mathematik und können sicher mit den Methoden dieser Gebiete umgehen.
- Die Absolventinnen und Absolventen besitzen einen umfassenden Überblick über die verschiedenen Disziplinen der Betriebs- und Volkswirtschaftslehre und können die zugrundeliegenden quantitativen, juristischen und theoretischen Methoden und Sichtweisen einordnen und anwenden.
- Die Absolventinnen und Absolventen kennen die Grundlagen der Informatik und sind in der Lage, kleinere und mittlere Projekte in mindestens einer modernen Programmiersprache selbständig zu entwickeln.
- Die Absolventinnen und Absolventen sind geschult in analytischem Denken, besitzen ein hohes Abstraktionsvermögen, universell einsetzbare Problemlösungskompetenz und die Fähigkeit, komplexe ökonomische Zusammenhänge zu strukturieren.
- Die Absolventinnen und Absolventen sind in der Lage, sich selbständig mithilfe von Fachliteratur in weitere Gebiete der Mathematik und Wirtschaftswissenschaften einzuarbeiten.
- Die Absolventinnen und Absolventen sind in der Lage, ihre Kenntnisse, Ideen und Problemlösungen verständlich zu präsentieren.
- Die Absolventinnen und Absolventen besitzen die für ein weiterführendes, insbesondere Master-Studium, erforderlichen Grundkenntnisse, Denk- und Arbeitsweisen und Methodenkenntnisse.
- Die Absolventinnen und Absolventen kennen die Regeln guter wissenschaftlicher Praxis und sind in der Lage, sie in ihrer eigenen Arbeit zu beachten.

**Befähigung zur Aufnahme einer Erwerbstätigkeit**

- Die Absolventinnen und Absolventen sind geschult in analytischem Denken, besitzen ein hohes Abstraktionsvermögen, universell einsetzbare Problemlösungskompetenz und die Fähigkeit, komplexe ökonomische Zusammenhänge zu strukturieren.
- Die Absolventinnen und Absolventen sind in der Lage, ihre Kenntnisse, Ideen und Problemlösungen zielgruppenorientiert verständlich zu formulieren und zu präsentieren.
- Die Absolventinnen und Absolventen sind in der Lage, konkrete Probleme aus anderen Gebieten, insbesondere der Wirtschaftswissenschaften, zu erkennen, strukturieren modellieren und mit mathematischen Methoden Lösungswege zu entwickeln.
- Die Absolventinnen und Absolventen besitzen ein ausgeprägtes Durchhaltevermögen bei der Lösung komplexer Probleme innerhalb eines vorgegeben Zeitrahmens.
- Die Absolventinnen und Absolventen sind in der Lage, konstruktiv und zielorientiert in Teams zu arbeiten.
- Die Absolventinnen und Absolventen sind in der Lage, sich weitere Wissensgebiete selbständig, effizient und systematisch zu erschließen.
- Die Absolventinnen und Absolventen sind vertraut mit mindestens einer modernen Programmiersprache und können kleinere und mittlere Projekte selbständig entwickeln.
- Die Absolventinnen und Absolventen besitzen die Fähigkeit, in interdisziplinär zusammengesetzten Teams im Bereich der Mathematik, Informatik und Wirtschaftswissenschaften gestaltend mitzuwirken.

- Die Absolventinnen und Absolventen kennen Unternehmensstrukturen und besitzen die Fähigkeit, Probleme aus der wirtschaftlichen Praxis selbständig zu bearbeiten.

**Persönlichkeitsentwicklung**

- Die Absolventinnen und Absolventen sind geschult in analytischem Denken, besitzen ein hohes Abstraktionsvermögen, universell einsetzbare Problemlösungskompetenz und die Fähigkeit, komplexe ökonomische Zusammenhänge zu strukturieren.
- Die Absolventinnen und Absolventen sind in der Lage, volks- und betriebswirtschaftliche, sowie gesellschaftliche Entwicklungen und Prozesse kritisch zu reflektieren und zu bewerten.
- Die Absolventinnen und Absolventen sind in der Lage, in partizipativen Prozessen gestaltend mitzuwirken.
- Die Absolventinnen und Absolventen besitzen ein ausgeprägtes Durchhaltevermögen bei der Lösung komplexer Probleme innerhalb eines vorgegeben Zeitrahmens.
- Die Absolventinnen und Absolventen sind in der Lage, Ideen und Lösungsvorschläge allgemeinverständlich zu formulieren und präsentieren.

# 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)):

**11-Mar-2026 (2026-32)**

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.

# The subject is divided into

| Abbreviation | Module title | ECTS credits | Method of grading | page |
|---|---|---|---|---|
| **Compulsory Courses (90 ECTS credits)** | | | | |
| **Subfield Mathematics (45 ECTS credits)** | | | | |
| 10-M-ANB-Ü-222-m01 | Overview Analysis for Economathematics | 13 | NUM | 14 |
| 10-M-LNB-Ü-222-m01 | Overview Linear Algebra for Economathematics | 13 | NUM | 26 |
| 10-M-STB1-152-m01 | Stochastics 1 for Economathematics | 10 | NUM | 32 |
| 10-M-EFM-152-m01 | Introduction to Stochastic Financial Mathematics | 9 | NUM | 20 |
| **Subfield Computer Science (10 ECTS credits)** | | | | |
| 10-I-GADW-172-m01 | Basics in Algorithms and Data Structures for Economathematics | 10 | NUM | 8 |
| **Subfield Economics (35 ECTS credits)** | | | | |
| 12-EWIWI-262-m01 | Introduction to Management and Economics | 5 | B/NB | 49 |
| 12-EBWL-G-262-m01 | Introduction to Management | 5 | NUM | 45 |
| 12-EVWL-262-m01 | Introduction to Economics | 5 | NUM | 46 |
| 12-Risk-262-m01 | Economic Principles of Risk Management | 5 | NUM | 63 |
| 12-Mik1-G-262-m01 | Microeconomics | 5 | NUM | 61 |
| 12-BPL-G-262-m01 | Operations Management | 5 | NUM | 41 |
| 12-Mak1-G-262-m01 | Macroeconomics | 5 | NUM | 56 |
| **Compulsory Electives Economathematics (50 ECTS credits)** | | | | |
| **Subfield Mathematics (10-30 ECTS credits)** | | | | |
| 10-M-NUB1-152-m01 | Numerical Mathematics 1 for Economathematics | 10 | NUM | 29 |
| 10-M-STB2-152-m01 | Stochastics 2 for Economathematics | 10 | NUM | 33 |
| 10-M-VAB-152-m01 | Advanced Analysis for Economathematics | 10 | NUM | 35 |
| 10-M-DGB-152-m01 | Ordinary Differential Equations for Economathematics | 10 | NUM | 19 |
| 10-M-FAB-152-m01 | Introduction to Functional Analysis for Economathematics | 10 | NUM | 22 |
| 10-M-OML-222-m01 | Optimization for Machine Learning | 10 | NUM | 30 |
| **Subfield Practice in Programming (5-10 ECTS credits)** | | | | |
| 10-I-PPW-222-m01 | Practical Course in Programming for Economathematics | 5 | B/NB | 10 |
| 10-M-ASLW-252-m01 | Applied Stochastics Lab for Economathematics | 5 | NUM | 15 |
| 10-M-MNL-222-m01 | Machine Learning and Numerics Lab | 6 | NUM | 27 |
| **Subfield Economics (10-35 ECTS credits)** | | | | |
| 12-EWiinf-G-262-m01 | Business Informatics | 5 | NUM | 47 |
| 12-ACC-262-m01 | Accounting | 5 | NUM | 39 |
| 12-Mark-G-262-m01 | Marketing | 5 | NUM | 58 |
| 12-I&F-G-262-m01 | Finance | 5 | NUM | 50 |
| 12-IntÖk-262-m01 | Globalization and International Economics | 5 | NUM | 53 |
| 12-WiPo-G-262-m01 | Economics of Public Policy | 5 | NUM | 75 |
| 12-Ebus-F-262-m01 | E-Business | 5 | NUM | 44 |
| 12-MDT-262-m01 | Management & Digital Transformation | 5 | NUM | 60 |
| 12-KR-262-m01 | Controlling | 5 | NUM | 55 |
| 12-S&W1-F-262-m01 | Games and Strategies | 5 | NUM | 64 |
| 12-PEBI-262-m01 | Planning and Decision Making in Business Information Systems | 5 | NUM | 62 |

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|---|---|---|---|---|
| 12-STME1-262-m01 | Selected Topics in Management & Economics 1 | 5 | NUM | 67 |
| 12-STME2-262-m01 | Selected Topics in Management & Economics 2 | 5 | NUM | 68 |
| 12-STME3-262-m01 | Selected Topics in Management & Economics 3 | 5 | NUM | 69 |
| 12-STME4-262-m01 | Selected Topics in Management & Economics 4 | 5 | NUM | 70 |
| **Subfield Computer Science** | | | | |
| 10-I-SE-252-m01 | Software Engineering | 5 | NUM | 11 |
| 10-I-GdP-172-m01 | Fundamentals of Programming | 5 | NUM | 9 |
| **Compulsory Electives Analysis (5 ECTS credits)** | | | | |
| 10-M-ANB1-222-m01 | Analysis 1 for Economathematics | 5 | B/NB | 12 |
| 10-M-ANB2-222-m01 | Analysis 2 for Economathematics | 5 | B/NB | 13 |
| **Compulsory Electives Linear Algebra (5 ECTS credits)** | | | | |
| 10-M-LNB1-222-m01 | Linear Algebra 1 for Economathematics | 5 | B/NB | 24 |
| 10-M-LNB2-222-m01 | Linear Algebra 2 for Economathematics | 5 | B/NB | 25 |
| **Key Skills Area (20 ECTS credits)** | | | | |
| **General Key Skills (5 ECTS credits)**<br>In addition to the modules listed below, students may also take modules offered by JMU as part of the pool of general transferable skills (ASQ). | | | | |
| **General Key Skills (subject-specific)** | | | | |
| 10-M-TuKo-152-m01 | Exercise tutor or proof-reading in Mathematics | 5 | B/NB | 34 |
| 10-M-VHB1-152-m01 | E-Learning and Blended Learning Mathematics 1 | 2 | B/NB | 36 |
| 10-M-VHB2-152-m01 | E-Learning and Blended Learning Mathematics 2 | 2 | B/NB | 37 |
| **Subject-specific Key Skills (15 ECTS credits)** | | | | |
| **Subject-specific Key Skills, Compulsory Courses (12 ECTS credits)** | | | | |
| 10-M-GBM-152-m01 | Basic Notions and Methods of Mathematical Reasoning | 2 | B/NB | 23 |
| 10-M-ASM-152-m01 | Reasoning and Writing in Mathematics | 2 | B/NB | 16 |
| 10-M-EPW-152-m01 | External Internship Business Mathematics | 8 | B/NB | 21 |
| **Subject-specific Key Skills, Compulsory Electives (3 ECTS credits)** | | | | |
| 10-M-COM-152-m01 | Computational Mathematics | 4 | B/NB | 18 |
| 10-M-PRG-152-m01 | Programming course for students of Mathematics and other subjects | 3 | B/NB | 31 |
| 10-M-VHB-EQRA-222-m01 | Elementary Quantitative Risk Assessment | 3 | B/NB | 38 |
| 10-M-MuN-262-m01 | Mathematics and Sustainability | 5 | B/NB | 28 |
| 12-WIA-262-m01 | Introduction to Scientific Work | 5 | NUM | 74 |
| 12-BNE-262-m01 | Management, Economics, and Sustainability | 5 | NUM | 40 |
| 12-Tut1-262-m01 | Student (Teaching) Assistant | 5 | B/NB | 71 |
| 12-VGP-262-m01 | Managerial Practice Lectures | 5 | NUM | 72 |
| 12-VWP-262-m01 | Economist Practice Lectures | 5 | NUM | 73 |
| 12-St5-262-m01 | Testimonials from tax experts | 5 | NUM | 65 |
| 12-CC-KPBK-262-m01 | Career planning and professional skills for students of Management and Economics | 5 | NUM | 42 |
| 12-IK-262-m01 | Training of Intercultural Competences | 5 | NUM | 51 |
| 12-IKG-262-m01 | Intercultural Competence | 5 | NUM | 52 |
| 12-STKC1-262-m01 | Selected Topics in Subject-Specific Transferable Skills 1 | 5 | NUM | 66 |
| **Thesis Area (10 ECTS credits)**<br>Students may write their theses in Mathematik (Mathematics), Wirtschaftsmathematik (Mathematics for Economics) or Informatik (Computer Science) or may write an interdisciplinary thesis within these three subjects. | | | | |

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|---|---|---|---|---|
| 10-M-BAW-152-m01 | Thesis Economathematics | 10 | NUM | 17 |

| Module title | | | Abbreviation |
|---|---|---|---|
| **Basics in Algorithms and Data Structures for Economathematics** | | | 10-I-GADW-172-m01 |
| **Module coordinator** | | **Module offered by** | |
| Dean of Studies Informatik (Computer Science) | | Institute of Computer Science | |
| **ECTS** | **Method of grading** | **Only after succ. compl. of module(s)** | |
| 10 | numerical grade | -- | |
| **Duration** | **Module level** | **Other prerequisites** | |
| 1 semester | undergraduate | -- | |

**Contents**

Design and analysis of algorithms, recursion vs. iteration, sort and search methods, data structures, abstract data types, lists, trees, graphs, basic graph algorithms, programming in Java.

**Intended learning outcomes**

The students are able to independently design algorithms as well as to precisely describe and analyse them. The students are familiar with the basic paradigms of the design of algorithms and are able to apply them in practical programs. The students are able to estimate the run-time behaviour of algorithms and to prove their correctness.

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

V (4) + Ü (2)

**Method of assessment** (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)

written examination (approx. 60 to 120 minutes).
If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candidate).
creditable for bonus

**Allocation of places**

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**Additional information**

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**Workload**

300 h

**Teaching cycle**

Teaching cycle: once a year, winter semester

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

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| Module title | | | Abbreviation |
|---|---|---|---|
| **Fundamentals of Programming** | | | 10-I-GdP-172-m01 |
| **Module coordinator** | | **Module offered by** | |
| holder of the Chair of Computer Science II | | Institute of Computer Science | |
| **ECTS** | **Method of grading** | **Only after succ. compl. of module(s)** | |
| 5 | numerical grade | -- | |
| **Duration** | **Module level** | **Other prerequisites** | |
| 1 semester | undergraduate | -- | |

**Contents**

Data types, control structures, foundations of procedural programming, selected topics of C, introduction to object orientation in Java, selected topics of C++, further Java concepts, digression: scripting languages.

**Intended learning outcomes**

The students possess a fundamental knowledge about programming languages (in particular Java, C and C++) and are able to independently develop average to high level Java programs.

**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 can be chosen to earn a bonus)

written examination (approx. 60 to 120 minutes).
If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candidate).
creditable for bonus

**Allocation of places**

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**Additional information**

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**Workload**

150 h

**Teaching cycle**

Teaching cycle: once a year, winter semester

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

§ 49 I Nr. 1 b)
§ 69 I Nr. 1 b)

| Module title | | | Abbreviation |
|---|---|---|---|
| **Practical Course in Programming for Economathematics** | | | 10-I-PPW-222-m01 |
| **Module coordinator** | | **Module offered by** | |
| Dean of Studies Informatik (Computer Science) | | Institute of Computer Science | |
| **ECTS** | **Method of grading** | **Only after succ. compl. of module(s)** | |
| 5 | (not) successfully completed | -- | |
| **Duration** | **Module level** | **Other prerequisites** | |
| 1 semester | undergraduate | -- | |

**Contents**

The programming language Java. Independent creation of small to middle-sized, high-quality Java programs.

**Intended learning outcomes**

The students are able to independently develop small to middle-sized, high-quality Java programs.

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

P (6)

**Method of assessment** (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)

practical examination (programming exercises, approx. 120 hours) and written examination (approx. 60 to 120 minutes)
If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candidate).

**Allocation of places**

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**Additional information**

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**Workload**

150 h

**Teaching cycle**

Teaching cycle: every semester

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

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| Module title | | | Abbreviation |
|---|---|---|---|
| **Software Engineering** | | | 10-I-SE-252-m01 |
| **Module coordinator** | | **Module offered by** | |
| holder of the Chair of Computer Science II | | Institute of Computer Science | |
| **ECTS** | **Method of grading** | **Only after succ. compl. of module(s)** | |
| 5 | numerical grade | -- | |
| **Duration** | **Module level** | **Other prerequisites** | |
| 1 semester | undergraduate | -- | |

**Contents**

Overview of software engineering, software process models with focus on the Unified Process, agile software development, requirements analysis,software architecture, object-oriented analysis and design with UML, design patterns, software testing and quality assurance, distributed systems and cloud computing

**Intended learning outcomes**

The students possess a fundamental theoretical and practical knowledge on the design and development of software 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 can be chosen to earn a bonus)

written examination (approx. 60 to 120 minutes).
If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candidate).
creditable for bonus

**Allocation of places**

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**Additional information**

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**Workload**

150 h

**Teaching cycle**

Teaching cycle: every year, summer semester

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

§ 49 I Nr. 1 b)
§ 69 I Nr. 1 b)

| Module title | | | Abbreviation |
|---|---|---|---|
| **Analysis 1 for Economathematics** | | | 10-M-ANB1-222-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 | (not) successfully completed | -- | |
| **Duration** | **Module level** | **Other prerequisites** | |
| 1 semester | undergraduate | -- | |

**Contents**

Real numbers and completeness; basic topological notions; convergence and divergence of sequences and series; power series and Taylor series; basics in differential calculus in one variable; basics of integral calculus in one variable (Riemann integral and improper integral).

**Intended learning outcomes**

The student knows and masters the essential methods and notions of analysis. He/She is acquainted with the central proof methods in analysis and can employ them to solve easy problems. He/she is able to perform easy mathematical arguments independently and to express mathematical arguments precisely and clearly in written form.

**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 can be chosen to earn a bonus)

written examination (approx. 90 to 180 minutes) and written exercises (approx. 12 exercise sheets with approx. 4 exercises each)
Language of assessment: German and/or English

**Allocation of places**

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**Additional information**

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**Workload**

150 h

**Teaching cycle**

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

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| Module title | | | Abbreviation |
|---|---|---|---|
| **Analysis 2 for Economathematics** | | | 10-M-ANB2-222-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 | (not) successfully completed | -- | |
| **Duration** | **Module level** | **Other prerequisites** | |
| 1 semester | undergraduate | -- | |

**Contents**

Further topological considerations, basics in differential calculus in several variables, inverse function theorem, implicit function theorem.

**Intended learning outcomes**

The student knows and masters the essential methods and notions of analysis. He/She is acquainted with the central proof methods in analysis and can employ them to solve easy problems. He/she is able to perform easy mathematical arguments independently and to express mathematical arguments precisely and clearly in written form.

**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 can be chosen to earn a bonus)

written examination (approx. 90 to 180 minutes) and written exercises (approx. 12 exercise sheets with approx. 4 exercises each)
Language of assessment: German and/or English

**Allocation of places**

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**Additional information**

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**Workload**

150 h

**Teaching cycle**

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

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| Module title | | | Abbreviation |
|---|---|---|---|
| **Overview Analysis for Economathematics** | | | 10-M-ANB-Ü-222-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)** | |
| 13 | numerical grade | -- | |
| **Duration** | **Module level** | **Other prerequisites** | |
| 2 semester | undergraduate | -- | |

**Contents**

Real numbers and completeness, basic topological notions, convergence and divergence of sequences and series, differential and integral calculus in one variable, further topological considerations, differential calculus with a focus on functions in several variables.

**Intended learning outcomes**

The student knows and masters the essential methods and proof techniques of analysis and is able to apply them independently, He/She has an overview over the fundamental notions and concepts of analysis, their analytic background and geometric interpretation, and can interconnect them and express them adequately in written and oral form.

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

V (4) + V (4) + Ü (2)

**Method of assessment** (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)

oral examination of one candidate each (20 to 40 minutes)
Assessment will have reference to the contents of modules 10-M-ANB1 and 10-M-ANB2.
Language of assessment: German and/or English

**Allocation of places**

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**Additional information**

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**Workload**

390 h

**Teaching cycle**

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

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| Module title | | | Abbreviation |
|---|---|---|---|
| **Applied Stochastics Lab for Economathematics** | | | 10-M-ASLW-252-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 | undergraduate | -- | |

**Contents**

Random number generators, Monte Carlo simulation, descriptive statistics, implementation of tests, estimators and confidence intervals, linear and logistic regression, analysis of (co-)variance, data applications.

**Intended learning outcomes**

The student is acquainted with statistical software, e.g. R, able to apply suitable statistical methods to given data and problems and to adequately work out and present developed solutions.

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

V (2) + P (2)

**Method of assessment** (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)

a) project work (20 to 50 hours) or
b) 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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**Workload**

150 h

**Teaching cycle**

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

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| Module title | | | Abbreviation |
|---|---|---|---|
| **Reasoning and Writing in Mathematics** | | | 10-M-ASM-152-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)** | |
| 2 | (not) successfully completed | -- | |
| **Duration** | **Module level** | **Other prerequisites** | |
| 1 semester | undergraduate | -- | |

**Contents**

Introduction to fundamental methods of thinking and proving, basic techniques in mathematics as well as mathematical writing;insight into examples of abstracts concepts in mathematics; approach to axiomatic and deduction.

**Intended learning outcomes**

The student is acquainted with the basic proof methods and techniques in mathematics. He/She is able to perform easy mathematical arguments independently and present them adequately and reasonably in written and oral form.

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

V (1) + Ü (1)

**Method of assessment** (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)

project (10 to 20 pages)
Language of assessment: German and/or English

**Allocation of places**

--

**Additional information**

--

**Workload**

60 h

**Teaching cycle**

--

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

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| Module title | | | Abbreviation |
|---|---|---|---|
| **Thesis Economathematics** | | | 10-M-BAW-152-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)** | |
| 10 | numerical grade | -- | |
| **Duration** | **Module level** | **Other prerequisites** | |
| 1 semester | undergraduate | 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. | |

**Contents**

Independently researching and writing on a (potentially interdisciplinary) topic in mathematics, economics or computer science selected in consultation with the supervisor.

**Intended learning outcomes**

The student is able to work independently on a given, possibly interdisciplinary topic in mathematics, economics or computer science and apply the skills and methods obtained during the study programme. He/She can write down the result of his/her work in a suitable form.

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

No courses assigned to module

**Method of assessment** (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)

Bachelor's thesis (approx. 275 to 330 hours)

**Allocation of places**

--

**Additional information**

Time to complete: 10 weeks.

**Workload**

300 h

**Teaching cycle**

--

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

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| Module title | | | Abbreviation |
|---|---|---|---|
| **Computational Mathematics** | | | 10-M-COM-152-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)** | |
| 4 | (not) successfully completed | -- | |
| **Duration** | **Module level** | **Other prerequisites** | |
| 1 semester | undergraduate | -- | |

**Contents**

Introduction to modern mathematical software for symbolic computation (e. g. Mathematica or Maple) and numerical computation (e. g. Matlab) to supplement the basic modules in analysis and linear algebra (10-M-ANA-G and 10-M-LNA-G). Computer-based solution of problems in linear algebra, geometry, analysis, in particular differential and integral calculus; visualisation of functions.

**Intended learning outcomes**

The student learns the use of advanced modern mathematical software packages, and is able to assess their fields of application to solve mathematical problems.

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

V (1) + Ü (2)

**Method of assessment** (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)

project in the form of programming exercises (approx. 20 to 25 hours)
Language of assessment: German and/or English
Assessment offered: Once a year, winter semester

**Allocation of places**

--

**Additional information**

--

**Workload**

120 h

**Teaching cycle**

--

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

§ 22 II Nr. 3 f)

| Module title | | | Abbreviation |
|---|---|---|---|
| **Ordinary Differential Equations for Economathematics** | | | 10-M-DGB-152-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)** | |
| 10 | numerical grade | -- | |
| **Duration** | **Module level** | **Other prerequisites** | |
| 1 semester | undergraduate | -- | |

**Contents**

Existence and uniqueness theorem; continuous dependence of solutions on initial values; systems of linear differential equations; matrix exponential series; linear differential equations of higher order.

**Intended learning outcomes**

The student is acquainted with the fundamental concepts and methods of the theory of ordinary differential equations. He/she is able to apply these methods to practical problems.

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

V (4) + Ü (2)

**Method of assessment** (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)

a) written examination (approx. 90 to 180 minutes, usually chosen) or
b) oral examination of one candidate each (15 to 30 minutes) or
c) oral examination in groups (groups of 2, 10 to 15 minutes per candidate)
Language of assessment: German and/or English
creditable for bonus

**Allocation of places**

--

**Additional information**

--

**Workload**

300 h

**Teaching cycle**

--

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

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| Module title | | | Abbreviation |
|---|---|---|---|
| **Introduction to Stochastic Financial Mathematics** | | | 10-M-EFM-152-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)** | |
| 9 | numerical grade | -- | |
| **Duration** | **Module level** | **Other prerequisites** | |
| 1 semester | undergraduate | -- | |

**Contents**

Arbitrage and no-arbitrage, annuities and bonds, valuation of deterministic cash flows, actuarial present value, term structures and yield curves, forwards, payout profiles of options and other derivates, fundamental theorem of asset pricing in the stochastic one-period model, risk neutral price measures, replication and completeness, stochastic multi-period models, valuation of European options in the binomial model, Black-Scholes formula.

**Intended learning outcomes**

The student is acquainted with the fundamental concepts and methods of stochastic financial mathematics, can apply them to practical problems and knows about typical fields of application.

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

V (4) + Ü (2)

**Method of assessment** (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)

a) written examination (approx. 90 to 180 minutes, usually chosen) or
b) oral examination of one candidate each (15 to 30 minutes) or
c) oral examination in groups (groups of 2, 10 to 15 minutes per candidate)
Language of assessment: German and/or English
creditable for bonus

**Allocation of places**

--

**Additional information**

--

**Workload**

270 h

**Teaching cycle**

--

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

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| Module title | | | Abbreviation |
|---|---|---|---|
| **External Internship Business Mathematics** | | | 10-M-EPW-152-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)** | |
| 8 | (not) successfully completed | -- | |
| **Duration** | **Module level** | **Other prerequisites** | |
| 1 semester | undergraduate | -- | |

**Contents**

The module consists of a placement of approximately six weeks at a company or another organisation related to business mathematics and the subsequent presentation of the placement report.

**Intended learning outcomes**

The student has practical experience in the relevant fields and is able to apply the skills obtained in his/her studies.

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

P + Ü (2)

**Method of assessment** (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)

report on practical course (10 to 20 pages) and oral presentation thereof (approx. 20 minutes)
Language of assessment: German and/or English

**Allocation of places**

--

**Additional information**

--

**Workload**

240 h

**Teaching cycle**

--

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

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| Module title | | | Abbreviation |
|---|---|---|---|
| **Introduction to Functional Analysis for Economathematics** | | | 10-M-FAB-152-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)** | |
| 10 | numerical grade | -- | |
| **Duration** | **Module level** | **Other prerequisites** | |
| 1 semester | undergraduate | -- | |

**Contents**

Banach spaces and Hilbert spaces, bounded operators, principles of functional analysis.

**Intended learning outcomes**

The student knows the fundamental concepts and methods of functional analysis as well as the pertinent proof methods, is able to apply methods from linear algebra and analysis to functional analysis, and realises the broad applicability of the theory to other branches of mathematics.

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

V (4) + Ü (2)

**Method of assessment** (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)

a) written examination (approx. 90 to 180 minutes, usually chosen) or
b) oral examination of one candidate each (15 to 30 minutes) or
c) oral examination in groups (groups of 2, 10 to 15 minutes per candidate)
Language of assessment: German and/or English
creditable for bonus

**Allocation of places**

--

**Additional information**

--

**Workload**

300 h

**Teaching cycle**

--

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

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| Module title | | | Abbreviation |
|---|---|---|---|
| **Basic Notions and Methods of Mathematical Reasoning** | | | 10-M-GBM-152-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)** | |
| 2 | (not) successfully completed | -- | |
| **Duration** | **Module level** | **Other prerequisites** | |
| 1 semester | undergraduate | -- | |

**Contents**

Introduction to the basic notions and proof techniques in mathematics: approach to sets, formal logic and maps.

**Intended learning outcomes**

The student gets acquainted with the basic working techniques which are prerequisites for the further courses in the Bachelor's degree study programme.

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

V (1) + Ü (1)

**Method of assessment** (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)

project (10 to 15 pages)
Language of assessment: German and/or English

**Allocation of places**

--

**Additional information**

Additional information on module duration: block taught prior to the beginning of the lecture period.

**Workload**

60 h

**Teaching cycle**

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

§ 22 II Nr. 1 h)
§ 22 II Nr. 2 f)

| Module title | | | Abbreviation |
|---|---|---|---|
| **Linear Algebra 1 for Economathematics** | | | 10-M-LNB1-222-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 | (not) successfully completed | -- | |
| **Duration** | **Module level** | **Other prerequisites** | |
| 1 semester | undergraduate | -- | |

**Contents**

Basic notions and structures; vector spaces, linear maps, systems of linear equations; theory of matrices and determinants.

**Intended learning outcomes**

The student knows and masters the basic notions and essential methods of linear algebra. He/She is acquainted with the central proof methods in linear algebra and can apply them to solve easy problems. He/She is able to perform simple mathematical arguments independently, and can present them adequately in written form.

**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 can be chosen to earn a bonus)

written examination (approx. 90 to 180 minutes) and written exercises (approx. 12 exercise sheets with approx. 4 exercises each)
Language of assessment: German and/or English

**Allocation of places**

--

**Additional information**

--

**Workload**

150 h

**Teaching cycle**

--

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

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| Module title | | | Abbreviation |
|---|---|---|---|
| **Linear Algebra 2 for Economathematics** | | | 10-M-LNB2-222-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 | (not) successfully completed | -- | |
| **Duration** | **Module level** | **Other prerequisites** | |
| 1 semester | undergraduate | -- | |

**Contents**

Eigenvalue theory, bilinear forms, Euclidean and unitary vector spaces, diagonalisation and Jordan normal form.

**Intended learning outcomes**

The student knows and masters the basic notions and essential methods of linear algebra. He/She is acquainted with the central proof methods in linear algebra and can apply them to solve easy problems. He/She is able to perform simple mathematical arguments independently, and can present them adequately in written form.

**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 can be chosen to earn a bonus)

written examination (approx. 90 to 180 minutes) and written exercises (approx. 12 exercise sheets with approx. 4 exercises each)
Language of assessment: German and/or English

**Allocation of places**

--

**Additional information**

--

**Workload**

150 h

**Teaching cycle**

--

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

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| Module title | | | Abbreviation |
|---|---|---|---|
| **Overview Linear Algebra for Economathematics** | | | 10-M-LNB-Ü-222-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)** | |
| 13 | numerical grade | -- | |
| **Duration** | **Module level** | **Other prerequisites** | |
| 2 semester | undergraduate | -- | |

**Contents**

Basic notions and structures; vector spaces, linear maps and systems of linear equations; theory of matrices and determinants; eigenvalue theory; bilinear forms and Euclidean/unitary vector spaces; diagonalisability and Jordan normal form.

**Intended learning outcomes**

The student knows and masters the essential methods and proof techniques of linear algebra and is able to apply them independently. He/She has an overview over the fundamental notions and methods of linear algebra, knows about their algebraic and geometric background, is able to relate them to each other and can present them adequately in written and oral form.

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

V (4) + V (4) + Ü (2)

**Method of assessment** (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)

oral examination of one candidate each (20 to 40 minutes)
Assessment will have reference to the contents of modules 10-M-LNB1 and 10-M-LNB2.
Language of assessment: German and/or English

**Allocation of places**

--

**Additional information**

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**Workload**

390 h

**Teaching cycle**

--

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

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| Module title | | | Abbreviation |
|---|---|---|---|
| **Machine Learning and Numerics Lab** | | | 10-M-MNL-222-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)** | |
| 6 | numerical grade | -- | |
| **Duration** | **Module level** | **Other prerequisites** | |
| 1 semester | undergraduate | -- | |

**Contents**

Numerical solution of linear and nonlinear Systems of equations, gradient methods, Newton methods, step size selection, numerical optimization, optimization for machine learning (e.g. ADAM)

**Intended learning outcomes**

The student is acquainted with mathematical software, e.g. MATLAB, Python or Julia, able to apply suitable numerical methods to machine learning problems and to adequately work out and present developed solutions.

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

V (2) + P (2)

**Method of assessment** (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)

project work (30 to 60 hours)
Language of assessment: German and/or English
creditable for bonus

**Allocation of places**

--

**Additional information**

--

**Workload**

180 h

**Teaching cycle**

--

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

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| Module title | | | Abbreviation |
|---|---|---|---|
| **Mathematics and Sustainability** | | | 10-M-MuN-262-m01 |
| **Module coordinator** | | | **Module offered by** |
| -- | | | Institute of Mathematics |
| **ECTS** | **Method of grading** | **Only after succ. compl. of module(s)** | |
| 5 | (not) successfully completed | -- | |
| **Duration** | **Module level** | **Other prerequisites** | |
| 1 semester | -- | -- | |

**Contents**

--

**Intended learning outcomes**

--

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

V (2) + 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 can be chosen to earn a bonus)

a) written examination (approx. 60 to 120 minutes) or
b) portfolio (approx. 30 hours) or
c) talk (approx. 60 minutes)
Language of assessment: German and/or English
Assessment offered: in the semester in which the course is offered
creditable for bonus

**Allocation of places**

--

**Additional information**

--

**Workload**

150 h

**Teaching cycle**

--

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

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| Module title | | | Abbreviation |
|---|---|---|---|
| **Numerical Mathematics 1 for Economathematics** | | | 10-M-NUB1-152-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)** | |
| 10 | numerical grade | -- | |
| **Duration** | **Module level** | **Other prerequisites** | |
| 1 semester | undergraduate | -- | |

**Contents**

Solution of systems of linear equations and curve fitting problems, nonlinear equations and systems of equations, interpolation with polynomials, splines and trigonometric functions, numerical integration.

**Intended learning outcomes**

The student is acquainted with the fundamental concepts and methods in numerical mathematics, applies them to practical problems and knows about their typical fields of application.

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

V (4) + Ü (2)

**Method of assessment** (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)

a) written examination (approx. 90 to 180 minutes, usually chosen) or
b) oral examination of one candidate each (15 to 30 minutes) or
c) oral examination in groups (groups of 2, 10 to 15 minutes per candidate)
Language of assessment: German and/or English
creditable for bonus

**Allocation of places**

--

**Additional information**

--

**Workload**

300 h

**Teaching cycle**

--

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

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| Module title | | | Abbreviation |
|---|---|---|---|
| **Optimization for Machine Learning** | | | 10-M-OML-222-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)** | |
| 10 | numerical grade | -- | |
| **Duration** | **Module level** | **Other prerequisites** | |
| 1 semester | undergraduate | -- | |

**Contents**

Linear programming, quadratic programming, convex optimization, first order methods, application to machine learning problems such as support vector machines.

**Intended learning outcomes**

The student is acquainted with the relevant methods in optimization and is able to apply these methods to practical machine learning problems, both theoretically and numerically.

**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 can be chosen to earn a bonus)

a) written examination (approx. 90 to 180 minutes, usually chosen) or
b) oral examination of one candidate each (15 to 30 minutes) or
c) oral examination in groups (groups of 2, 10 to 15 minutes per candidate)
Language of assessment: German and/or English
Assessment offered: In the semester in which the course is offered and in the subsequent semester
creditable for bonus

**Allocation of places**

--

**Additional information**

--

**Workload**

300 h

**Teaching cycle**

--

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

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| **Module title** | | | **Abbreviation** |
|---|---|---|---|
| **Programming course for students of Mathematics and other subjects** | | | 10-M-PRG-152-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)** | |
| 3 | (not) successfully completed | -- | |
| **Duration** | **Module level** | **Other prerequisites** | |
| 1 semester | undergraduate | -- | |

**Contents**

Basics of a modern programming language (e. g. C).

**Intended learning outcomes**

The student is able to work independently on small programming exercises and standard programming problems in mathematics.

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

P (2)

**Method of assessment** (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)

project in the form of programming exercises (approx. 20 to 25 hours)
Language of assessment: German and/or English
Assessment offered: Once a year, summer semester

**Allocation of places**

--

**Additional information**

--

**Workload**

90 h

**Teaching cycle**

--

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

§ 22 II Nr. 3 f)

| Module title | | | Abbreviation |
|---|---|---|---|
| **Stochastics 1 for Economathematics** | | | 10-M-STB1-152-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)** | |
| 10 | numerical grade | -- | |
| **Duration** | **Module level** | **Other prerequisites** | |
| 1 semester | undergraduate | -- | |

**Contents**

Combinatorics, Laplace models, selected discrete distributions, elementary measure and integration theory, continuous distributions: normal distribution, random variable, distribution function, product measures and stochastic independence, elementary conditional probability, characteristics of distributions: expected value and variance, limit theorems: law of large numbers, central limit theorem.

**Intended learning outcomes**

The student is acquainted with fundamental concepts and methods in stochastics, applies these methods to practical problems and knows about the typical fields of application.

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

V (4) + Ü (2)

**Method of assessment** (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)

a) written examination (approx. 90 to 180 minutes, usually chosen) or
b) oral examination of one candidate each (15 to 30 minutes) or
c) oral examination in groups (groups of 2, 10 to 15 minutes per candidate)
Language of assessment: German and/or English
creditable for bonus

**Allocation of places**

--

**Additional information**

--

**Workload**

300 h

**Teaching cycle**

--

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

--

| Module title | | | Abbreviation |
|---|---|---|---|
| **Stochastics 2 for Economathematics** | | | 10-M-STB2-152-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)** | |
| 10 | numerical grade | -- | |
| **Duration** | **Module level** | **Other prerequisites** | |
| 1 semester | undergraduate | -- | |

**Contents**

Elements of data analysis, statistics of data in normal and other distributions, elements of multivariate statistics.

**Intended learning outcomes**

The student is acquainted with fundamental concepts and methods in statistics, applies these methods to practical problems and knows about the typical fields of application.

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

V (4) + Ü (2)

**Method of assessment** (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)

a) written examination (approx. 90 to 180 minutes, usually chosen) or
b) oral examination of one candidate each (15 to 30 minutes) or
c) oral examination in groups (groups of 2, 10 to 15 minutes per candidate)
Language of assessment: German and/or English
creditable for bonus

**Allocation of places**

--

**Additional information**

--

**Workload**

300 h

**Teaching cycle**

--

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

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| Module title | | | Abbreviation |
|---|---|---|---|
| **Exercise tutor or proof-reading in Mathematics** | | | 10-M-TuKo-152-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 | (not) successfully completed | -- | |
| **Duration** | **Module level** | **Other prerequisites** | |
| 1 semester | undergraduate | -- | |

**Contents**

Tutoring or grading homework for one of the basic courses in the Bachelor's or teaching degree programmes under supervision of the respective lecturer or exercise supervisor.

**Intended learning outcomes**

The student is able to support the acquisition of mathematical skills and knowledge. He/She helps to identify mistakes in mathematical proof exercises and to find possible solutions.

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

T (o)

**Method of assessment** (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)

Assessment of tutoring activities or correcting work by supervising lecturers or exercise supervisors (1 to 2 teaching units or approx. 5 pieces of correcting work)

**Allocation of places**

--

**Additional information**

Please direct application to teaching coordinator Mathematics, he/she will select participants.

**Workload**

150 h

**Teaching cycle**

--

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

§ 22 II Nr. 3 f)

| Module title | | | Abbreviation |
|---|---|---|---|
| **Advanced Analysis for Economathematics** | | | 10-M-VAB-152-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)** | |
| 10 | numerical grade | -- | |
| **Duration** | **Module level** | **Other prerequisites** | |
| 1 semester | undergraduate | -- | |

**Contents**

Continuation of analysis in several variables, integration theorems.

**Intended learning outcomes**

The student is acquainted with advanced topics in analysis. Taking the example of the Lesbegue integral, he or she is able to understand the construction of a complex mathematical concept.

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

V (4) + Ü (2)

**Method of assessment** (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)

a) written examination (approx. 90 to 180 minutes, usually chosen) or
b) oral examination of one candidate each (15 to 30 minutes) or
c) oral examination in groups (groups of 2, 10 to 15 minutes per candidate)
Language of assessment: German and/or English
creditable for bonus

**Allocation of places**

--

**Additional information**

--

**Workload**

300 h

**Teaching cycle**

--

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

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| Module title | | | Abbreviation |
|---|---|---|---|
| **E-Learning and Blended Learning Mathematics 1** | | | 10-M-VHB1-152-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)** | |
| 2 | (not) successfully completed | -- | |
| **Duration** | **Module level** | **Other prerequisites** | |
| 1 semester | undergraduate | -- | |

**Contents**

Becoming familiar with and reflecting techniques in e-learning and blended learning in mathematics.

**Intended learning outcomes**

The student is able to employ basic methods of e-learning and blended learning in mathematics-

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

Ü (2)
Course type: eLearning, mostly Virtuelle Hochschule Bayern (vhb)

**Method of assessment** (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)

project (web-based, 15 to 20 hours)
Assessment offered: Once a year, winter semester

**Allocation of places**

--

**Additional information**

--

**Workload**

60 h

**Teaching cycle**

--

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

--

| Module title | | | Abbreviation |
|---|---|---|---|
| **E-Learning and Blended Learning Mathematics 2** | | | 10-M-VHB2-152-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)** | |
| 2 | (not) successfully completed | -- | |
| **Duration** | **Module level** | **Other prerequisites** | |
| 1 semester | undergraduate | -- | |

**Contents**

Becoming familiar with and reflecting techniques in e-learning and blended learning in mathematics.

**Intended learning outcomes**

The student is able to employ advanced methods of e-learning and blended learning in mathematics-

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

Ü (2)
Course type: eLearning, mostly Virtuelle Hochschule Bayern (vhb)

**Method of assessment** (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)

project (web-based, 15 to 20 hours)
Assessment offered: Once a year, summer semester

**Allocation of places**

--

**Additional information**

--

**Workload**

60 h

**Teaching cycle**

--

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

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| Module title | | | Abbreviation |
|---|---|---|---|
| **Elementary Quantitative Risk Assessment** | | | 10-M-VHB-EQRA-222-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)** | |
| 3 | (not) successfully completed | -- | |
| **Duration** | **Module level** | **Other prerequisites** | |
| 1 semester | undergraduate | -- | |

**Contents**

Concepts and terminology of quantitative risk modeling, Mathematical and Statistical Foundations of Risk Modelling, Stochastic Risk Measures.

**Intended learning outcomes**

The Student becomes familiar with the methods of quantitative model building and quantitative analysis, for applications in risk management. She/he is able to describe risk phenomena and related data in an analytic, formal way, and gets acquainted with basic procedures of descriptive data analysis and a variety of probability distributions and their applicability in describing risk phenomena. She/He is able to fit distributions to data and possesses knowledge on the theoretical definitions and applications of central stochastic risk measures.

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

Ü (2)
Course type: eLearning, mostly Virtuelle Hochschule Bayern (vhb)
Module taught in: English

**Method of assessment** (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)

written examination (approx. 90 minutes); web-based
Language of assessment: English

**Allocation of places**

--

**Additional information**

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**Workload**

90 h

**Teaching cycle**

--

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

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| Module title | | | Abbreviation |
|---|---|---|---|
| **Accounting** | | | 12-ACC-262-m01 |
| **Module coordinator** | | | **Module offered by** |
| -- | | | Faculty of Management and Economics |
| **ECTS** | **Method of grading** | **Only after succ. compl. of module(s)** | |
| 5 | numerical grade | -- | |
| **Duration** | **Module level** | **Other prerequisites** | |
| 1 semester | -- | -- | |

**Contents**

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**Intended learning outcomes**

--

**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 can be chosen to earn a bonus)

a) written examination (approx. 60 to 120 minutes) or
b) portfolio (approx. 50 hours total)
creditable for bonus

**Allocation of places**

--

**Additional information**

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**Workload**

150 h

**Teaching cycle**

--

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

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| Module title | | | Abbreviation |
|---|---|---|---|
| **Management, Economics, and Sustainability** | | | 12-BNE-262-m01 |
| **Module coordinator** | | | **Module offered by** |
| -- | | | Faculty of Management and Economics |
| **ECTS** | **Method of grading** | **Only after succ. compl. of module(s)** | |
| 5 | numerical grade | -- | |
| **Duration** | **Module level** | **Other prerequisites** | |
| 1 semester | -- | -- | |

**Contents**

--

**Intended learning outcomes**

--

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

V (2) + 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 can be chosen to earn a bonus)

a) written examination (approx. 60 to 120 minutes) or
b) portfolio (approx. 50 hours total)
Language of assessment: German and/or English
Assessment offered: In the semester in which the course is offered
creditable for bonus

**Allocation of places**

--

**Additional information**

--

**Workload**

150 h

**Teaching cycle**

--

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

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| Module title | | | Abbreviation |
|---|---|---|---|
| **Operations Management** | | | 12-BPL-G-262-m01 |
| **Module coordinator** | | | **Module offered by** |
| holder of the Chair of Business Management and Industrial Management | | | Faculty of Management and Economics |
| **ECTS** | **Method of grading** | **Only after succ. compl. of module(s)** | |
| 5 | numerical grade | -- | |
| **Duration** | **Module level** | **Other prerequisites** | |
| 1 semester | undergraduate | -- | |

**Contents**

This course will provide students with an overview of fundamental processes in procurement, production and logistics and the related corporate functions as well as a model-based introduction to related planning procedures.

**Intended learning outcomes**

The students will be able to describe and discuss the objectives and major processes in the domains of corporate procurement, production and logistics as well as their interdependencies. Furthermore, they are capable of developing and applying basic planning models in these fields.

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

V (2) + 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 can be chosen to earn a bonus)

a) written examination (approx. 60 to 120 minutes) or
b) portfolio (approx. 50 hours total)
Language of assessment: German and/or English
creditable for bonus

**Allocation of places**

--

**Additional information**

--

**Workload**

150 h

**Teaching cycle**

Teaching cycle: winter semester

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

--

| Module title | Abbreviation |
|---|---|
| **Career planning and professional skills for students of Management and Economics** | 12-CC-KPBK-262-m01 |

| Module coordinator | Module offered by |
|---|---|
| Dean of the Faculty of Business Management and Economics | Faculty of Management and Economics |

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

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

**Contents**

The module was designed in cooperation with the university's Career Centre specifically for students on Bachelor degree programs in the field of business and economics and is taught by lecturers from the Career Centre. In addition to teaching subject-related key skills, it offers support with career orientation and starting a career in the field of business and economics.

As part of the module, students exchange ideas with people from different cultures on interesting topics in order to promote intercultural skills, get to know professional fields for graduates in business and economics and receive information on the various fields of activity. With the help of a strengths/weaknesses analysis, the participants' personal key competencies are analysed and potential for improvement is identified. Guidelines for the design of the CV and cover letter as well as an unsolicited application are covered and the preparation of professional application documents is learnt. Participants practise their presentation skills and how to deal with real job interviews using their individual strengths.

**Intended learning outcomes**

After completing the module, students will be familiar with career prospects, be able to create appealing application documents and be confident in job interviews. They are also prepared for intercultural encounters and have a feel for the different behaviours and approaches of people from different cultures. Students will have mastered the preparation of a comprehensive application portfolio and the special features of unsolicited applications. They are also familiar with argumentative principles for dealing with job interviews.

Students can deal well with the general and specific requirements for graduates in the field of business and economics when finding and starting a career.

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

S (4)
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 can be chosen to earn a bonus)

a) written examination (approx. 60 to 120 minutes) or
b) portfolio (approx. 50 hours total)
Language of assessment: German and/or English
Assessment offered: In the semester in which the course is offered
creditable for bonus

**Allocation of places**

15 places. WA1:
(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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| **Workload** |
| --- |
| 150 h |
| **Teaching cycle** |
| Teaching cycle: each semester |
| **Referred to in LPO I** (examination regulations for teaching-degree programmes) |
| -- |

| Module title | | | Abbreviation |
|---|---|---|---|
| **E-Business** | | | 12-Ebus-F-262-m01 |
| **Module coordinator** | | **Module offered by** | |
| holder of the Chair of Information Systems Engineering | | Faculty of Management and Economics | |
| **ECTS** | **Method of grading** | **Only after succ. compl. of module(s)** | |
| 5 | numerical grade | -- | |
| **Duration** | **Module level** | **Other prerequisites** | |
| 1 semester | undergraduate | -- | |

**Contents**

E-business is a comprehensive, digital processing of business transactions between private and public enterprises as well as institutions and their clients on global public and private networks such as the internet. Precisely because euphoria for e-business has waned considerably in recent years, a lot of emphasis is now being placed on introducing such solutions in a user-oriented way. This lecture will first discuss the supporting economic theories and will then describe and analyse individual solutions such as e-procurement, e-shop, e-marketplace and e-community in detail.

**Intended learning outcomes**

The module provides students with knowledge about:
(i) E-Procurement
(ii) E-Shop
(iii) E-Marketplace
(iv) E-Community

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

V (2) + 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 can be chosen to earn a bonus)

a) written examination (approx. 60 to 120 minutes) or
b) portfolio (approx. 50 hours total)
Language of assessment: German and/or English
creditable for bonus

**Allocation of places**

--

**Additional information**

--

**Workload**

150 h

**Teaching cycle**

Teaching cycle: summer semester

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

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| Module title | | | Abbreviation |
|---|---|---|---|
| **Introduction to Management** | | | 12-EBWL-G-262-m01 |
| **Module coordinator** | | | **Module offered by** |
| holder of the Chair for Human Resource Management and Organisation | | | Faculty of Management and Economics |
| **ECTS** | **Method of grading** | **Only after succ. compl. of module(s)** | |
| 5 | numerical grade | -- | |
| **Duration** | **Module level** | **Other prerequisites** | |
| 1 semester | undergraduate | -- | |

**Contents**

The lecture Organisation covers the basic methodological, empirical, and institutional concepts of management that are necessary for the further study of the subject. More specifically, it gives answers to the question why there are organisations. In addition, different goals, strategies, and structures of enterpreises as well as their economic and societal environment are discussed. Finally, selected empirical findings from organisation research are presented together with the basic tool kit for empirical methods and approaches.

**Intended learning outcomes**

Students should be able to understand, discuss and apply basic theories, econometric techniques as well as empirical findings in organisation science.

**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 can be chosen to earn a bonus)

a) written examination (approx. 60 to 120 minutes) or
b) portfolio (approx. 50 hours total)
creditable for bonus

**Allocation of places**

--

**Additional information**

--

**Workload**

150 h

**Teaching cycle**

Teaching cycle: winter semester

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

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| Module title | | | Abbreviation |
|---|---|---|---|
| **Introduction to Economics** | | | 12-EVWL-262-m01 |
| **Module coordinator** | | **Module offered by** | |
| -- | | Faculty of Management and Economics | |
| **ECTS** | **Method of grading** | **Only after succ. compl. of module(s)** | |
| 5 | numerical grade | -- | |
| **Duration** | **Module level** | **Other prerequisites** | |
| 1 semester | -- | -- | |

**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 can be chosen to earn a bonus)

a) written examination (approx. 60 to 120 minutes) or
b) portfolio (approx. 50 hours total)
creditable for bonus

**Allocation of places**

--

**Additional information**

--

**Workload**

150 h

**Teaching cycle**

--

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

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| Module title | Abbreviation |
|---|---|
| **Business Informatics** | 12-EWiinf-G-262-m01 |

| Module coordinator | Module offered by |
|---|---|
| holder of the Chair of Business Management and Business Information Systems | Faculty of Management and Economics |

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

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

**Contents**

This course provides a comprehensive overview of the theoretical and practical aspects of information systems. The content ranges from the history of information systems and business software to business models, technical requirements and process modelling. In addition to the lectures, tutorials with practical exercises in HTML, CSS, process mining and BPMN support a deeper understanding and application of the knowledge learnt.

Outline of syllabus:
1. overview and technological basics of WI
2. hardware, computer networks and the internet
3. databases and blockchain
4. business models, company structure and organisation
5. connection between business administration and information systems
6. business software and process mining
7. software development
8. future technologies and current research

Reading:
Thome: Grundzüge der Wirtschaftsinformatik.

**Intended learning outcomes**

The "Business Informatics" module aims to achieve the following learning outcomes:
1. Apply fundamentals: after completing the module, students will have an understanding of the basic concepts and terms of information systems and will be able to explain lecture elements addressed, such as hardware components, various database types or blockchain technology. Thanks to the practical exercises, they are able to implement simple applications and apply what they have learnt in practice. The students were also able to gain an overview of the various fields of business informatics.
2. Analysing business processes and system landscapes: After completing the module, students will be able to analyse business models and process modelling and demonstrate their skills by creating BPMN diagrams in practical exercises. They know the basics of software development and are familiar with ERP systems.
3. Conception of business solutions: Students are able to use learned knowledge about business software, structural and process organisation and new technologies to develop realistic solution strategies and business models for operational challenges. They have knowledge of the integration of information systems into operational processes.
4. Evaluating technology trends: Participants will be able to critically evaluate current and future trends in business informatics, including artificial intelligence and Industry 4.0, and contribute their assessments to discussions.

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

V (2) + 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 can be chosen to earn a bonus)

a) written examination (approx. 60 to 120 minutes) or
b) portfolio (approx. 50 hours total)
Language of assessment: German and/or English

| |
|---|
| creditable for bonus |
| **Allocation of places** |
| -- |
| **Additional information** |
| -- |
| **Workload** |
| 150 h |
| **Teaching cycle** |
| Teaching cycle: winter semester |
| **Referred to in LPO I** (examination regulations for teaching-degree programmes) |
| -- |

| Module title | | | Abbreviation |
|---|---|---|---|
| **Introduction to Management and Economics** | | | 12-EWIWI-262-m01 |
| **Module coordinator** | | | **Module offered by** |
| -- | | | Faculty of Management and Economics |
| **ECTS** | **Method of grading** | **Only after succ. compl. of module(s)** | |
| 5 | (not) successfully completed | -- | |
| **Duration** | **Module level** | **Other prerequisites** | |
| 1 semester | -- | -- | |

**Contents**

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**Intended learning outcomes**

--

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

V (2) + T (1)

**Method of assessment** (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)

a) written examination (approx. 60 to 120 minutes) or
b) portfolio (approx. 50 hours total)

**Allocation of places**

--

**Additional information**

--

**Workload**

150 h

**Teaching cycle**

--

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

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| Module title | | | Abbreviation |
|---|---|---|---|
| **Finance** | | | 12-I&F-G-262-m01 |
| **Module coordinator** | | **Module offered by** | |
| holder of the Chair of Business Management and Corporate Finance | | Faculty of Management and Economics | |
| **ECTS** | **Method of grading** | **Only after succ. compl. of module(s)** | |
| 5 | numerical grade | -- | |
| **Duration** | **Module level** | **Other prerequisites** | |
| 1 semester | undergraduate | -- | |

**Contents**

Content:
This course offers an introduction to principles of financial mathematics, several methods of capital budgeting and principles of financial economics.

Outline of syllabus:
1. Principles of financial mathematics
2. Fundamental concepts
3. Problems of investment and finance in one commodity world under certainty
4. Problems of investment and finance in one commodity world under uncertainty
5. Problems of investment and finance in many commodities world under uncertainty
6. Capital market and corporate financing in Germany

**Intended learning outcomes**

After completing the course "Principles of Investments and Finance", the students will be able
(i) to understand the fundamentals in financial mathematics and solve several problems, e.g. via the PV approach;
(ii) to address the central problems in intertemporal allocation given different capital market scenarios;
(iii) to budget and calculate the optimal useful life given static and dynamic investment approaches under the consideration of several other investment opportunities and the capital market scenario, especially the influence of taxes.

**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 can be chosen to earn a bonus)

a) written examination (approx. 60 to 120 minutes) or
b) portfolio (approx. 50 hours total)
creditable for bonus

**Allocation of places**

--

**Additional information**

--

**Workload**

150 h

**Teaching cycle**

Teaching cycle: winter semester

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

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| Module title | | | Abbreviation |
|---|---|---|---|
| **Training of Intercultural Competences** | | | 12-IK-262-m01 |
| **Module coordinator** | | **Module offered by** | |
| Dean of the Faculty of Business Management and Economics | | Faculty of Management and Economics | |
| **ECTS** | **Method of grading** | **Only after succ. compl. of module(s)** | |
| 5 | numerical grade | -- | |
| **Duration** | **Module level** | **Other prerequisites** | |
| 1 semester | undergraduate | -- | |

**Contents**

The module "Intercultural Skills Training" offers a holistic view of the skills required for successful interaction and cooperation in intercultural contexts. Content typically includes cultural diversity awareness, intercultural communication, conflict resolution in intercultural situations, cultural value systems and their impact on behavior and decision making, and strategies to promote intercultural teamwork and leadership. In addition, case studies, role plays and practical exercises are often used to actively involve participants in the learning process and strengthen their skills in dealing with cultural diversity.

**Intended learning outcomes**

The module aims to develop participants' understanding, empathy and flexibility to operate effectively in global work environments and multicultural societies. After the course, participants will have the skills and understanding to navigate successfully in an increasingly interconnected and diverse world and to build and maintain positive relationships in intercultural contexts.

**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 can be chosen to earn a bonus)

a) written examination (approx. 60 to 120 minutes) or
b) portfolio (approx. 50 hours total)
Language of assessment: German and/or English
Assessment offered: In the semester in which the course is offered
creditable for bonus

**Allocation of places**

--

**Additional information**

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**Workload**

150 h

**Teaching cycle**

Teaching cycle: after announcement

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

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| Module title | | | Abbreviation |
|---|---|---|---|
| **Intercultural Competence** | | | 12-IKG-262-m01 |
| **Module coordinator** | | **Module offered by** | |
| holder of the Chair of Business Management and Industrial Management | | Faculty of Management and Economics | |
| **ECTS** | **Method of grading** | **Only after succ. compl. of module(s)** | |
| 5 | numerical grade | -- | |
| **Duration** | **Module level** | **Other prerequisites** | |
| 1 semester | undergraduate | -- | |

**Contents**

This lecture discusses challenges of globalisation from an economic point of view. Based on a basic overview of leadership in a global world, the topic of multiculturality in a business context is discussed in detail. Simulations, case studies and exercises are used to illustrate relevant issues.

**Intended learning outcomes**

Students have gained a comprehensive understanding of relevant topics regarding globalization in the business context. In addition, students have learned how to interact with colleagues and business partners in a cross-cultural environment.

**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 can be chosen to earn a bonus)

a) written examination (approx. 60 to 120 minutes) or
b) portfolio (approx. 50 hours total)
Language of assessment: German and/or English
Assessment offered: In the semester in which the course is offered
creditable for bonus

**Allocation of places**

30 places. WA1:
(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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**Workload**

150 h

**Teaching cycle**

Teaching cycle: after announcement

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

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| Module title | | | Abbreviation |
|---|---|---|---|
| **Globalization and International Economics** | | | 12-IntÖk-262-m01 |
| **Module coordinator** | | **Module offered by** | |
| holder of the Chair of International Economics | | Faculty of Management and Economics | |
| **ECTS** | **Method of grading** | **Only after succ. compl. of module(s)** | |
| 5 | numerical grade | -- | |
| **Duration** | **Module level** | **Other prerequisites** | |
| 1 semester | undergraduate | -- | |

**Contents**

Content

The course starts with an introduction into facts, trends and issues pertaining to the real side of globalization. The main part of the course deals with explanations of international trade (comparative advantage, product variety) and for international factor movements (if time permits). Current issues and controversies (e.g. globalization and labor; globalization and the environment; migration within the European Union) are analyzed on this background.

Outline
I nternational Economics – Trends and current developments
II Internationale Trade
1 Ricardian Theory: Labor productivity and comparative advantage
2 Heckscher-Ohlin-factor proportion theory and the general neoclassical model
3 New Trade Theory: Product differentiation, scale economies, firm heterogeneity
III International Factor Movements [time permitting]

Literature
This course does not strictly follow a single textbook. The best general reference is:
Krugman, P.R., M. Obstfeld, M.J. Melitz (2018), International Economics. Theory and policy (older versions will also do).

The course develops case studies that use additional references.

**Intended learning outcomes**

The students acquire the ability to critically reflect and understand trends and developments concerning the real side of the world economy: trade flows and international factor movements. They are enabled to understand and defend the causes and consequences of globalization both analytically as well as in an intuitive manner. They acquire the scientific knowledge to evaluate controversies associated with the ongoing deepening of the international division of labor.

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

V (2) + 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 can be chosen to earn a bonus)

a) written examination (approx. 60 to120 minutes) or
b) portfolio (approx. 50 hours total)
Language of assessment: German and/or English
creditable for bonus

**Allocation of places**

--

**Additional information**

--

| **Workload** |
| --- |
| 150 h |
| **Teaching cycle** |
| Teaching cycle: summer semester |
| **Referred to in LPO I** (examination regulations for teaching-degree programmes) |
| -- |

| Module title | | | Abbreviation |
|---|---|---|---|
| **Controlling** | | | 12-KR-262-m01 |
| **Module coordinator** | | **Module offered by** | |
| holder of the Chair of Business Management, Controlling and Accounting | | Faculty of Management and Economics | |
| **ECTS** | **Method of grading** | **Only after succ. compl. of module(s)** | |
| 5 | numerical grade | -- | |
| **Duration** | **Module level** | **Other prerequisites** | |
| 1 semester | undergraduate | -- | |

**Contents**

First, this module will discuss basic principles of accounting such as full and direct costing as well as cost and performance accounting in the context of decision-making. The course will then focus on decision-making processes (short-term production planning, pricing decisions) and internal control calculations (the role of controls, deviation analyses).

**Intended learning outcomes**

This module provides competences in order to apply systems of full and direct costing, cost and performance accounting with regard to decision-making and internal control processes. After completing the course unit, students will be able to understand and assess the theoretical principles and interrelationships in decision-making and control as well as be able to apply them to examples from corporate practice. The goal is to promote analytical thinking and problem-solving abilities by analyses of complex problem structures.

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

V (2) + 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 can be chosen to earn a bonus)

a) written examination (approx. 60 to 120 minutes) or
b) portfolio (approx. 50 hours total)
Language of assessment: German and/or English
creditable for bonus

**Allocation of places**

--

**Additional information**

--

**Workload**

150 h

**Teaching cycle**

Teaching cycle: winter semester

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

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| Module title | | | Abbreviation |
|---|---|---|---|
| **Macroeconomics** | | | 12-Mak1-G-262-m01 |
| **Module coordinator** | | **Module offered by** | |
| holder of the Chair of International Economics | | Faculty of Management and Economics | |
| **ECTS** | **Method of grading** | **Only after succ. compl. of module(s)** | |
| 5 | numerical grade | -- | |
| **Duration** | **Module level** | **Other prerequisites** | |
| 1 semester | undergraduate | -- | |

**Contents**

Description:
This module covers basic macroeconomic relationships, the declaration of employment, production, interest, current and capital account, nominal and real exchange rate, prices and inflation - in the long run (with flexible wages and prices) and in the short term (with fixed wages and prices). The course will familiarise students with concepts which are of central importance in a globalised environment (e. g. interest rate arbitrage, foreign exchange risk, purchasing power parity). The explanations will be applied to current issues (e. g. current account balances in the global economy; questions related to the European monetary union and the global financial crisis).

Outline of syllabus:
1. Macroeconomic issues and characteristics
   - Issues of macroeconomics
   - The measurement of economic activity
2. Long-term relationships
   - The classic long-term model of the closed economy
   - Money and Inflation
   - The classic long-term model of a small open economy
   - Unemployment
3. Short and medium-term relationships
   - Fluctuations of economic activity: an introduction
   - The IS-LM model of a closed economy
   - The IS-LM model of an open economy
   - Aggregate supply and Phillips curve
   - Conclusion and outlook

Reading:
The latest editions of the following textbooks:
N. Gregory Mankiw: Macroeconomics [students are recommended to read the original English edition; they may also read the German translation]
Olivier Blanchard and David H. Johnson, Macroeconomics Prentice Hall; [a German-language edition of the book by Oliver Blanchard and Gerhard Illing is available from Pearson Studium].
Michael Burda and Charles Wyplosz: Macroeconomics. A European text.
To illustrate the lecture, case studies in particular will be developed in which more current sources are used.

**Intended learning outcomes**

This expertise enables the students to penetrate economically-intuitively and analytically macroeconomic interactions and problems in the course of advancing globalization and to deal with these arguments. Students learn to interpret on a scientific basis the impact of macroeconomic developments in individual economic actors (businesses, households, the state).

**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 can be chosen to earn a bonus)

a) written examination (approx. 60 to 120 minutes) or

| |
|---|
| b) portfolio (approx. 50 hours total)<br>creditable for bonus |
| **Allocation of places** |
| -- |
| **Additional information** |
| -- |
| **Workload** |
| 150 h |
| **Teaching cycle** |
| Teaching cycle: winter semester |
| **Referred to in LPO I** (examination regulations for teaching-degree programmes) |
| -- |

| Module title | | | Abbreviation |
|---|---|---|---|
| **Marketing** | | | 12-Mark-G-262-m01 |
| **Module coordinator** | | | **Module offered by** |
| holder of the Chair of Business Administration and Marketing | | | Faculty of Management and Economics |
| **ECTS** | **Method of grading** | **Only after succ. compl. of module(s)** | |
| 5 | numerical grade | -- | |
| **Duration** | **Module level** | **Other prerequisites** | |
| 1 semester | undergraduate | -- | |

**Contents**

Description
In this module, students will acquire the theoretical foundations of market-oriented management.

Content:
With the stakeholder approach as a starting point, the basic design of market-oriented management will be explained and exemplified in the 5 classical steps: situation analysis, objectives, strategies, tools and controlling. The course will focus not only on the behavioural approaches of consumer behaviour but also on industrial purchasing behaviour. A case study introducing students to the fundamental principles of market research based on a conjoint analysis will provide students with deeper insights into the topic.

Outline of syllabus:
1. Marketing, entrepreneurship and business management
2. Explanations of consumer behaviour
3. Fundamentals of market research
4. Strategic marketing; marketing tools
5. Corporate social responsibility versus creating shared value

Reading:
Foscht, T. / Swoboda, B.: Käuferverhalten: Grundlagen -- Perspektiven -- Anwendungen, 4th revised and exp. ed., Wiesbaden 2011.
Homburg, Ch.: Grundlagen des Marketingmanagements: Einführung in Strategie, Instrumente, Umsetzung und Unternehmensführung, 4th revised and exp. ed., Wiesbaden 2012.
Homburg, Ch.: Grundlagen des Marketingmanagements: Einführung in Strategie, Instrumente, Umsetzung und Unternehmensführung, 3rd ed., Wiesbaden, 2012a.
Kroeber-Riel, W. /Weinberg, P.: Konsumentenverhalten, 9th ed., Munich 2009.
Meffert, H. / Burman, Ch / Kirchgeorg, M.: Marketing -- Grundlagen marktorientierter Unternehmensführung: Konzepte -- Instrumente -- Praxisbeispiele, 11th revised and exp. ed., Wiesbaden 2012.
Meffert, H. / Burman, Ch / Becker, Ch.: Internationales Marketing-Management -- Ein markenorientierter Ansatz, 4th ed., Stuttgart 2010.
Meyer, M.: Ökonomische Organisation der Industrie: Netzwerkarrangements zwischen Markt und Unternehmung, Wiesbaden 1995.
Porter, M. E.: Wettbewerbsvorteile -- Spitzenleistungen erreichen und behaupten, 8th ed., Campus Frankfurt / New York 2014. (Original: Porter, M.: Competitive Advantage, New York 1985.)
Simon, H. / Fassnacht, M.: Preismanagement, Strategie -- Analyse -- Entscheidung -- Umsetzung, 3rd ed., Wiesbaden 2009.

**Intended learning outcomes**

The students have a basic understanding of business management and are able to classify the knowledge systematically. In addition, they can use the acquired knowledge solve and identify the conventional problem fields of business management.

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

V (2) + T (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 can be chosen to earn a bonus) |
|---|
| a) written examination (approx. 60 to 120 minutes) or<br>b) portfolio (approx. 50 hours total)<br>Language of assessment: German and/or English<br>creditable for bonus |
| **Allocation of places** |
| -- |
| **Additional information** |
| -- |
| **Workload** |
| 150 h |
| **Teaching cycle** |
| Teaching cycle: summer semester |
| **Referred to in LPO I** (examination regulations for teaching-degree programmes) |
| -- |

| Module title | | | Abbreviation |
|---|---|---|---|
| **Management & Digital Transformation** | | | 12-MDT-262-m01 |
| **Module coordinator** | | **Module offered by** | |
| holder of the Junior Professorship of Applied Microeconomics, esp. Human-Machine Interaction | | Faculty of Management and Economics | |
| **ECTS** | **Method of grading** | **Only after succ. compl. of module(s)** | |
| 5 | numerical grade | -- | |
| **Duration** | **Module level** | **Other prerequisites** | |
| 1 semester | undergraduate | -- | |

**Contents**

The lecture Management and Digital Transformation offers a comprehensive introduction to the role of management in the context of the digital transformation of companies. Basic management concepts are taught from a (micro-)economic perspective and linked to the challenges, opportunities, and strategies of digital transformation. The lecture focuses on the organizational architecture and the distribution of decision-making competencies, on the use of machine learning for management decisions and the associated risks, as well as on strategic aspects, in particular the right decisions in the context of changing market conditions.

**Intended learning outcomes**

Students learn how the digital transformation affects organizations and their architecture. Problem-oriented thinking in strategic decision-making is encouraged to evaluate when and to what extent the application of new technologies can deliver value. They will become familiar with how incentives shape economic outcomes for individuals and firms. Furthermore, they will be able to apply basic concepts of game theory to strategic management decisions.

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

V (2) + 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 can be chosen to earn a bonus)

a) written examination (approx. 60 to 120 minutes) or
b) portfolio (approx. 50 hours total)
Language of assessment: German and/or English
creditable for bonus

**Allocation of places**

--

**Additional information**

Qualification goal: employability skills

**Workload**

150 h

**Teaching cycle**

Teaching cycle: every year, winter semester

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

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| Module title | | | Abbreviation |
|---|---|---|---|
| **Microeconomics** | | | 12-Mik1-G-262-m01 |
| **Module coordinator** | | **Module offered by** | |
| holder of the Chair for Economics, Contract Theory and Information Economics | | Faculty of Management and Economics | |
| **ECTS** | **Method of grading** | **Only after succ. compl. of module(s)** | |
| 5 | numerical grade | -- | |
| **Duration** | **Module level** | **Other prerequisites** | |
| 1 semester | undergraduate | -- | |

**Contents**

The lecture covers the following topics

Theory of the household:
1. Utility maximisation under constraints
2. Comparative statics
3. Income and substitution effects
4. Labour supply
5. Intertemporal consumption / savings decisions

Theory of the firm:
6. Production functions (technology)
7. Profit maximisation
8. Long run versus short run cost minimisation
9. Supply of goods

**Intended learning outcomes**

Students are systematically trained in microeconomic methods relevant in household and firm theory. Accordingly, they will know how to solve optimization problems under constraints. These scientific methods will serve as useful in many fields of specialization in economics and business administration. In particular, studends know analytically how to analyze the impact of changes in the economic environment, e.g., wages, interest rates, income on individual decision making.

**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 can be chosen to earn a bonus)

a) written examination (approx. 60 to 120 minutes) or
b) portfolio (approx. 50 hours total)
creditable for bonus

**Allocation of places**

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**Additional information**

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**Workload**

150 h

**Teaching cycle**

Teaching cycle: summer semester

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

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| Module title | | | Abbreviation |
|---|---|---|---|
| **Planning and Decision Making in Business Information Systems** | | | 12-PEBI-262-m01 |
| **Module coordinator** | | **Module offered by** | |
| holder of the Chair of Business Analytics | | Faculty of Management and Economics | |
| **ECTS** | **Method of grading** | **Only after succ. compl. of module(s)** | |
| 5 | numerical grade | -- | |
| **Duration** | **Module level** | **Other prerequisites** | |
| 1 semester | undergraduate | -- | |

**Contents**

Quantitative methods form a central basis for business planning and decision-making. From the information systems perspective, these methods must be integrated into IT systems and processes. The lecture presents fundamental concepts and methods from the areas of decision theory and analysis, mathematical optimization and discrete Markov chains. The methods are applied in the exercise on the basis of examples and solved computer-aided.

**Intended learning outcomes**

- Normative and empirical decision theory
- Fundamentals of linear programming
- Sensitivity analysis
- Discrete Optimization
- Discrete Markov chains

**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 can be chosen to earn a bonus)

a) written examination (approx. 60 to 120 minutes) or
b) portfolio (approx. 50 hours total)
creditable for bonus

**Allocation of places**

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**Additional information**

--

**Workload**

150 h

**Teaching cycle**

Teaching cycle: winter semester

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

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| Module title | | | Abbreviation |
|---|---|---|---|
| **Economic Principles of Risk Management** | | | 12-Risk-262-m01 |
| **Module coordinator** | | **Module offered by** | |
| holder of the Chair for Economics, Contract Theory and Information Economics | | Faculty of 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**

Rational decisions under uncertainty
1. Measures of risk aversion
2. Mean preserving spread
3. Axiomatic foundations of the expected utility hypothesis (Neumann/Morgenstern, Savage)
4. Insurance contracts
5. Optimal portfolios
6. Adverse selection
7. Moral Hazard
8. Experimental evidence and alternative approaches

**Intended learning outcomes**

After completing the course students are able to
1. explain the results of the economic theory of decisions under risk,
2. apply the involved methods to given simple examples on their own,
3. recognise, 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: German and/or English

**Method of assessment** (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)

a) written examination (approx. 60 to 120 minutes) or
b) portfolio (approx. 50 hours total)
Language of assessment: German and/or English
creditable for bonus

**Allocation of places**

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**Additional information**

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**Workload**

150 h

**Teaching cycle**

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

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| Module title | | | Abbreviation |
|---|---|---|---|
| **Games and Strategies** | | | 12-S&W1-F-262-m01 |
| **Module coordinator** | | **Module offered by** | |
| holder of the Chair of Industrial Economics | | Faculty of Management and Economics | |
| **ECTS** | **Method of grading** | **Only after succ. compl. of module(s)** | |
| 5 | numerical grade | -- | |
| **Duration** | **Module level** | **Other prerequisites** | |
| 1 semester | undergraduate | -- | |

**Contents**

Outline of syllabus:
1. Static games with complete information
   - Concept of a game
   - Solution concepts and the Nash equilibrium
   - Continuous strategy sets
   - Nash equilibrium in mixed strategies
2. Dynamic games with complete information
   - Subgame perfect Nash equilibrium
   - Repeated games
3. Static games with incomplete information: Bayesian Nash equilibrium
4. Dynamic games with incomplete information
   - Perfect Bayesian Nash equilibrium
   - Signaling games

**Intended learning outcomes**

Students which complete this course will be able to
(i) explain different equilibrium concepts (Nash equilibrium, subgame perfect equilibrium, bayesian equilibrium, perfect bayesian equilibrium);
(ii) explain for which kind of strategic situation each of these equilibrium concepts were developed;
(iii) apply these concepts to simple realistic strategic situations;
(iv) choose the appropriate equilibrium concept which fits best to a given strategic situation.

**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 can be chosen to earn a bonus)

a) written examination (approx. 60 to 120 minutes) or
b) portfolio (approx. 50 hours total)
Language of assessment: English
creditable for bonus

**Allocation of places**

--

**Additional information**

--

**Workload**

150 h

**Teaching cycle**

Teaching cycle: summer semester

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

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| Module title | | | Abbreviation |
|---|---|---|---|
| **Testimonials from tax experts** | | | 12-St5-262-m01 |
| **Module coordinator** | | | **Module offered by** |
| -- | | | Faculty of Management and Economics |
| **ECTS** | **Method of grading** | **Only after succ. compl. of module(s)** | |
| 5 | numerical grade | -- | |
| **Duration** | **Module level** | **Other prerequisites** | |
| 1 semester | -- | -- | |

**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)
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 can be chosen to earn a bonus)

a) written examination (approx. 60 to 120 minutes) or
b) portfolio (approx. 50 hours total)
Language of assessment: German and/or English
Assessment offered: In the semester in which the course is offered
creditable for bonus

**Allocation of places**

--

**Additional information**

--

**Workload**

150 h

**Teaching cycle**

--

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

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| Module title | | | Abbreviation |
|---|---|---|---|
| **Selected Topics in Subject-Specific Transferable Skills 1** | | | 12-STKC1-262-m01 |
| **Module coordinator** | | **Module offered by** | |
| -- | | Faculty of Management and Economics | |
| **ECTS** | **Method of grading** | **Only after succ. compl. of module(s)** | |
| 5 | numerical grade | -- | |
| **Duration** | **Module level** | **Other prerequisites** | |
| 1 semester | -- | -- | |

**Contents**

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**Intended learning outcomes**

--

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

V (2) + 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 can be chosen to earn a bonus)

a) written examination (approx. 60 to 120 minutes) or
b) portfolio (approx. 50 hours total)
Language of assessment: German and/or English
creditable for bonus

**Allocation of places**

--

**Additional information**

--

**Workload**

150 h

**Teaching cycle**

--

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

--

| Module title | | | Abbreviation |
|---|---|---|---|
| **Selected Topics in Management & Economics 1** | | | 12-STME1-262-m01 |
| **Module coordinator** | | **Module offered by** | |
| -- | | Faculty of Management and Economics | |
| **ECTS** | **Method of grading** | **Only after succ. compl. of module(s)** | |
| 5 | numerical grade | -- | |
| **Duration** | **Module level** | **Other prerequisites** | |
| 1 semester | -- | -- | |

**Contents**

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**Intended learning outcomes**

--

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

V (2) + 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 can be chosen to earn a bonus)

a) written examination (approx. 60 to 120 minutes) or
b) portfolio (approx. 50 hours total)
Language of assessment: German and/or English
creditable for bonus

**Allocation of places**

--

**Additional information**

--

**Workload**

150 h

**Teaching cycle**

--

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

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| Module title | | | Abbreviation |
|---|---|---|---|
| **Selected Topics in Management & Economics 2** | | | 12-STME2-262-m01 |
| **Module coordinator** | | **Module offered by** | |
| -- | | Faculty of Management and Economics | |
| **ECTS** | **Method of grading** | **Only after succ. compl. of module(s)** | |
| 5 | numerical grade | -- | |
| **Duration** | **Module level** | **Other prerequisites** | |
| 1 semester | -- | -- | |

**Contents**

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**Intended learning outcomes**

--

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

V (2) + 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 can be chosen to earn a bonus)

a) written examination (approx. 60 to 120 minutes) or
b) portfolio (approx. 50 hours total)
Language of assessment: German and/or English
creditable for bonus

**Allocation of places**

--

**Additional information**

--

**Workload**

150 h

**Teaching cycle**

--

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

--

| Module title | | | Abbreviation |
|---|---|---|---|
| **Selected Topics in Management & Economics 3** | | | 12-STME3-262-m01 |
| **Module coordinator** | | **Module offered by** | |
| -- | | Faculty of Management and Economics | |
| **ECTS** | **Method of grading** | **Only after succ. compl. of module(s)** | |
| 5 | numerical grade | -- | |
| **Duration** | **Module level** | **Other prerequisites** | |
| 1 semester | -- | -- | |

**Contents**

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**Intended learning outcomes**

--

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

V (2) + 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 can be chosen to earn a bonus)

a) written examination (approx. 60 to 120 minutes) or
b) portfolio (approx. 50 hours total)
Language of assessment: German and/or English
creditable for bonus

**Allocation of places**

--

**Additional information**

--

**Workload**

150 h

**Teaching cycle**

--

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

--

| Module title | | | Abbreviation |
|---|---|---|---|
| **Selected Topics in Management & Economics 4** | | | 12-STME4-262-m01 |
| **Module coordinator** | | **Module offered by** | |
| -- | | Faculty of Management and Economics | |
| **ECTS** | **Method of grading** | **Only after succ. compl. of module(s)** | |
| 5 | numerical grade | -- | |
| **Duration** | **Module level** | **Other prerequisites** | |
| 1 semester | -- | -- | |

**Contents**

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**Intended learning outcomes**

--

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

V (2) + 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 can be chosen to earn a bonus)

a) written examination (approx. 60 to 120 minutes) or
b) portfolio (approx. 50 hours total)
Language of assessment: German and/or English
creditable for bonus

**Allocation of places**

--

**Additional information**

--

**Workload**

150 h

**Teaching cycle**

--

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

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| Module title | | | Abbreviation |
|---|---|---|---|
| **Student (Teaching) Assistant** | | | 12-Tut1-262-m01 |
| **Module coordinator** | | **Module offered by** | |
| Dean of the Faculty of Business Management and Economics | | Faculty of Management and Economics | |
| **ECTS** | **Method of grading** | **Only after succ. compl. of module(s)** | |
| 5 | (not) successfully completed | -- | |
| **Duration** | **Module level** | **Other prerequisites** | |
| 1 semester | undergraduate | -- | |

**Contents**

This module includes tutoring activities in a tutorial offered by a Chair at the Faculty of Business Management and Economics.

**Intended learning outcomes**

Students have the ability to guide a group, to present content understandable and to develop training materials.

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

No courses assigned to module

**Method of assessment** (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)

portfolio (approx. 50 hours total)

**Allocation of places**

--

**Additional information**

--

**Workload**

150 h

**Teaching cycle**

Teaching cycle: each semester

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

--

| Module title | | | Abbreviation |
|---|---|---|---|
| **Managerial Practice Lectures** | | | 12-VGP-262-m01 |
| **Module coordinator** | | **Module offered by** | |
| holder of the Professorship of Economic Journalism | | Faculty of Management and Economics | |
| **ECTS** | **Method of grading** | **Only after succ. compl. of module(s)** | |
| 5 | numerical grade | -- | |
| **Duration** | **Module level** | **Other prerequisites** | |
| 1 semester | undergraduate | -- | |

**Contents**

In this lecture, we invite board members of publicly listed companies, SMEs and Startups to discuss contemporary challenges of corporate management.

Students gain sustainable insights into current management practices, challenges of corporate management in various industries, and discuss pressing managerial issues with C-level executives. In individual and group assignments, students are required to connect management theories with the managerial challenges of the speakers.

Managers of the different companies are required to address the following questions that will foster a detailed discussion at the end of each lecture:

- What are the current challenges facing your company?

- Which strategies do you employ to respond to these challenges?

- How have leadership concepts and approaches changed in your company?

**Intended learning outcomes**

After participating in this module, students should be able to combine theoretical approaches with current challenges in management. The students obtain a realistic insight into a cross-section of the German economy. Through discussions reports and group presentations students' social skills are trained in addition to professional skills.

**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 can be chosen to earn a bonus)

a) written examination (approx. 60 to 120 minutes) or
b) portfolio (approx. 50 hours total)
Language of assessment: German and/or English
Assessment offered: In the semester in which the course is offered
creditable for bonus

**Allocation of places**

--

**Additional information**

--

**Workload**

150 h

**Teaching cycle**

Teaching cycle: each semester

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

--

| Module title | | | Abbreviation |
|---|---|---|---|
| **Economist Practice Lectures** | | | 12-VWP-262-m01 |
| **Module coordinator** | | **Module offered by** | |
| holder of the Senior Professorship for Economics, Money and International Economic Relations | | Faculty of Management and Economics | |
| **ECTS** | **Method of grading** | **Only after succ. compl. of module(s)** | |
| 5 | numerical grade | -- | |
| **Duration** | **Module level** | **Other prerequisites** | |
| 1 semester | undergraduate | -- | |

**Contents**

The content of the seminar is the active participation in as well as the follow-up of the lectures of economists from different national and international fields of activity, which are organized for the event.

The invitation of speakers from practice strengthens the practical orientation of the scientifically founded and at the same time internationally oriented education at the faculty of economics of the University of Würzburg.

In this way, students will gain lasting insights into the fields of activity of economists, gain an insight into practical activities, discuss these with high-ranking economists and combine them with theoretical economic knowledge gained during their studies.

**Intended learning outcomes**

By participating in the seminar, Master's students of the faculty of economics and business administration should get to know the different fields of activity of economists and the questions that determine the daily work of the speakers in the course of the lectures.

In addition, the participants of the seminar will have the opportunity to apply the knowledge of economics they have acquired during their studies. For this purpose, in addition to a discussion with the speakers following the respective lecture, a debating workshop is offered to the participants of the seminar, in which the students are to learn economic argumentation and debate management. The learned contents and competencies will be tested at the end of the semester.

**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 can be chosen to earn a bonus)

a) written examination (approx. 60 to 120 minutes) or
b) portfolio (approx. 50 hours total)
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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**Workload**

150 h

**Teaching cycle**

Teaching cycle: each semester

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

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| Module title | | | Abbreviation |
|---|---|---|---|
| **Introduction to Scientific Work** | | | 12-WIA-262-m01 |
| **Module coordinator** | | | **Module offered by** |
| -- | | | Faculty of Management and Economics |
| **ECTS** | **Method of grading** | **Only after succ. compl. of module(s)** | |
| 5 | numerical grade | -- | |
| **Duration** | **Module level** | **Other prerequisites** | |
| 2 semester | -- | Students must have fulfilled the GOP requirements before registering for the course. | |

**Contents**

The following topics will be covered:

- Introduction to the subject: explanation of terms, purpose and benefits of academic writing and research
- Stages of academic writing and research:
- Stage 1 : orientation and planning
- Stage 2 : collecting and evaluating material
- Stage 3 : writing a draft
- Stage 4 : revision and submission
- Time management
- Presentation

**Intended learning outcomes**

Students acquire knowledge of scientific methods. Many chairs and departments of the faculty recommend to participate or expect successful participation ahead of the application process for the bachelor thesis.

**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 can be chosen to earn a bonus)

a) written examination (approx. 60 to 120 minutes) or
b) portfolio (approx. 50 hours total)
Language of assessment: German and/or English
creditable for bonus

**Allocation of places**

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**Additional information**

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**Workload**

150 h

**Teaching cycle**

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

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| Module title | | | Abbreviation |
|---|---|---|---|
| **Economics of Public Policy** | | | 12-WiPo-G-262-m01 |
| **Module coordinator** | | | **Module offered by** |
| holder of the Chair of Labour Economics | | | Faculty of Management and Economics |
| **ECTS** | **Method of grading** | **Only after succ. compl. of module(s)** | |
| 5 | numerical grade | -- | |
| **Duration** | **Module level** | **Other prerequisites** | |
| 1 semester | undergraduate | -- | |

**Contents**

This course provides an introduction into public policy. Public policy studies the role of the government in the economy. It basically answers four questions:

- When should the government intervene?
- How might the government intervene?
- What is the effect of those interventions?
- Why do governments choose to intervene in the way that they do?

The lecture will cover the following topics:
1. Introduction into public economics/finance
2. Theoretical toolkit
3. Empirical toolkit
4. Public goods
5. Cost Benefit Analysis

**Intended learning outcomes**

The aim of the course is to provide students with and understanding of the public policy making process of the government and to endow them with the necessary skills to judge about and/or design public policies. Students will learn the core theoretical models of public economics as well as modern empirical methods of public finance. The focus will not lie on the theoretical details, but rather on the beauty of the different methods to provide answers to public policy questions.

**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 can be chosen to earn a bonus)

a) written examination (approx. 60 to 120 minutes) or
b) portfolio (approx. 50 hours total)
Language of assessment: English
creditable for bonus

**Allocation of places**

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**Additional information**

Qualification goal: scientific competences

**Workload**

150 h

**Teaching cycle**

Teaching cycle: winter semester

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

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