Excerpt from Module Descriptions

Bachelor of Science Computer Science

Examination Regulations in the Version of: 2017

Sub-Section: Applied Subject
Management and Economics
Index

Applied Subject Management and Economics

Compulsory Modules Applied Subjects Management and Economics

- Introduction to Business Administration 1
- Introduction to Economics 3

Compulsory Elective Modules Applied Subject Management and Economics

- Financial Reporting 5
- Managerial Accounting 7
- Investment 9
- Insurance Economics 11
- Economic Policy Analysis 13
# Introduction to Business Administration

Modules referring to Compulsory Modules Applied Subjects Management and Economics

<table>
<thead>
<tr>
<th>Code</th>
<th>8207970003</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECTS credits</td>
<td>6</td>
</tr>
<tr>
<td>Attendance time</td>
<td>4</td>
</tr>
<tr>
<td>Language of instruction</td>
<td>German</td>
</tr>
<tr>
<td>Duration</td>
<td>1 Semester</td>
</tr>
<tr>
<td>Cycle</td>
<td>each Winter Semester</td>
</tr>
<tr>
<td>Coordinator</td>
<td>Prof. Dr. Kai-Uwe Marten</td>
</tr>
<tr>
<td>Instructor(s)</td>
<td>All professors and lecturers of Management and Economics</td>
</tr>
</tbody>
</table>

**Allocation of study programmes**
- Biology MSc, start of studies: winter semester, compulsory elective module, 1st or 3rd semester
- Chemical Engineering B.Sc.

**Recommended prerequisites**
Formally: Refer to the subject-specific examination regulations of the respective study course, in the version effective when taking up the study program.
Contentually: None.

**Learning objectives**
- Students who have successfully completed this module
  - are familiar with the basic concepts and problems of corporate management.
  - have learned to apply economic concepts to managerial decisions.
  - are able to understand intra-company aspects (corporate governance, human resource management, manufacturing) as well as decisions made in interactions with markets (sales, strategy).

**Syllabus**
This module covers the following subject-specific topics:
- Constitutive decisions (legal forms, organizational structure and design, corporate governance, location planning)
- Human resource management
- Investment (especially net present value rule)
- Cost accounting
- Procurement
- Production
- Sales
- Strategic management (competitive analysis, BCG matrix etc.)

**Literature**

- Bea, Franz Xaver; Schweitzer, Marcell: Allgemeine Betriebswirtschaftslehre, 3 volumes, 9th resp. 10th revised edition, Stuttgart 2006-2011
- Schierenbeck, Henner; Wöhle, Claudia: Grundzüge der Betriebswirtschaftslehre, 17th revised edition, Munich 2008
- Steven, Marion: BWL für Ingenieure, 3rd revised edition, Munich 2008
- Wöhe, Günter; Döring, Ulrich: Einführung in die Allgemeine Betriebswirtschaftslehre, 24th revised edition, Munich 2010

**Teaching and learning methods**

Lecture (3 hours per week) and exercises (1 hour per week)

**Workload**

Attendance time: 60 h
Self-study: 120 h
Sum: 180 h

**Assessment**

The grade of the module will be the grade of the written exam. No prerequisites are necessary for exam registration.

**Grading procedure**

The grade of the module will be the grade of the exam.

**Basis for**

-
# Introduction to Economics

Modules referring to Compulsory Modules Applied Subjects Management and Economics

<table>
<thead>
<tr>
<th>Code</th>
<th>8207970726</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECTS credits</td>
<td>6</td>
</tr>
<tr>
<td>Attendance time</td>
<td>4</td>
</tr>
<tr>
<td>Language of instruction</td>
<td>German</td>
</tr>
<tr>
<td>Duration</td>
<td>1 Semester</td>
</tr>
<tr>
<td>Cycle</td>
<td>each Winter Semester</td>
</tr>
<tr>
<td>Coordinator</td>
<td>Prof. Dr. Kai-Uwe Marten</td>
</tr>
<tr>
<td>Instructor(s)</td>
<td>Prof. Dr. Georg Gebhardt, Prof. Dr. Werner Smolny</td>
</tr>
<tr>
<td>Allocation of study programmes</td>
<td>Biology MSc, start of studies: winter semester, compulsory elective module, 1\textsuperscript{st} or 3\textsuperscript{rd} semester</td>
</tr>
</tbody>
</table>

### Recommended prerequisites
Formally: Refer to the subject-specific examination regulations of the respective study course, in the version effective when taking up the study program.

Contentually: None.

### Learning objectives
Students who have successfully completed this module are familiar with the fundamental principles of economics such as (1) the use of formal models (optimization, marginal analysis, equilibrium, homo oeconomicus and its behavioral alternatives) (2) Empirical tests of hypotheses (regression analysis, causality, experimental economics). Moreover students are introduced to the most important micro- and macroeconomic applications of these methods (markets, growth, business cycles) together with the associated economic policy questions (development, taxation, monetary and fiscal policy).

### Syllabus
This module covers the following subject-specific topics:

1) Economic indicators  
2) Growth  
3) Perfect competition  
4) Foundations of perfect competition  
5) Business cycles
Literature

- Wooldridge, Jeffrey M. (2009), Introductory Econometrics, Southwestern, Cengage: 4. Auflage

Teaching and learning methods

Lecture (3 hours per week) and exercises (1 hour per week)

Workload

Attendance time: 60 h
Self-study: 120 h
Sum: 180 h

Assessment

The grade of the module will be the grade of the written exam. No prerequisites are necessary for exam registration.

Grading procedure

The grade of the module will be the grade of the exam.

Basis for

-
Financial Reporting
Modules referring to Compulsory Elective Modules Applied Subject Management and Economics

<table>
<thead>
<tr>
<th>Code</th>
<th>8207970004</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECTS credits</td>
<td>6</td>
</tr>
<tr>
<td>Attendance time</td>
<td>4</td>
</tr>
<tr>
<td>Language of instruction</td>
<td>german</td>
</tr>
<tr>
<td>Duration</td>
<td>1 Semester</td>
</tr>
<tr>
<td>Cycle</td>
<td>each Summer Semester</td>
</tr>
<tr>
<td>Coordinator</td>
<td>Professor Dr. Kai-Uwe Marten; Institute of Accounting and Auditing</td>
</tr>
<tr>
<td>Instructor(s)</td>
<td>Professor Dr. Kai-Uwe Marten; Institute of Accounting and Auditing</td>
</tr>
</tbody>
</table>

**Allocation of study programmes**
- B.Sc. Management and Economics,
- B.Sc. Mathematics,
- B.Sc. Business Chemistry,
- B.Sc. Business Mathematics,
- B.Sc. Business Physics
- B.Sc. Chemical Engineering

**Recommended prerequisites**
None

**Learning objectives**
At first, students acquire a basic knowledge of accounting. This serves as a basis for an introduction into the problems of preparing annual financial statements. The theoretical knowledge acquired is expanded by means of application-oriented tasks and case studies which are then solved in tutorials. After successfully completing the module, students know the double-entry accounting system and can explain individual business transactions as well as derive the necessary accounting records.

**Syllabus**
- Introduction: overview of accounting
- From the inventory to the statement of financial position
- From the statement of financial position to the account
- Calculation of the statement of comprehensive income
- Organisation of the books
- From the opening statement of financial position to the closing statement of financial position
- Generally accepted accounting principles (GAAP)
- Materials management
- Personnel management
• Production management
• Assets management
• Financial management
• Accruals and provisions

Literature


Teaching and learning methods

3 lecture hours per week; exercises: 1 lecture hour per week

Workload

Attendance: 60 hrs
Preparation and follow-up: 120 hrs
Total: 180 hrs

Assessment

The grade of the module will be the grade of the written exam. No prerequisites are necessary for exam registration.

Grading procedure

The grade of the module will be the grade of the exam.

Basis for

-
**Managerial Accounting**  
Modules referring to Compulsory Elective Modules Applied Subject Management and Economics

<table>
<thead>
<tr>
<th>Code</th>
<th>8207970188</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECTS credits</td>
<td>3</td>
</tr>
<tr>
<td>Attendance time</td>
<td>2</td>
</tr>
<tr>
<td>Language of instruction</td>
<td>No english version available yet.</td>
</tr>
<tr>
<td>Duration</td>
<td>1 Semester</td>
</tr>
<tr>
<td>Cycle</td>
<td>each Winter Semester</td>
</tr>
<tr>
<td>Coordinator</td>
<td>No english version available yet.</td>
</tr>
<tr>
<td>Instructor(s)</td>
<td>No english version available yet.</td>
</tr>
<tr>
<td>Allocation of study programmes</td>
<td>No english version available yet.</td>
</tr>
<tr>
<td>Recommended prerequisites</td>
<td>No english version available yet.</td>
</tr>
<tr>
<td>Learning objectives</td>
<td>No english version available yet.</td>
</tr>
<tr>
<td>Syllabus</td>
<td>No english version available yet.</td>
</tr>
<tr>
<td>Literature</td>
<td>No english version available yet.</td>
</tr>
<tr>
<td>Teaching and learning methods</td>
<td>No english version available yet.</td>
</tr>
<tr>
<td>Workload</td>
<td>No english version available yet.</td>
</tr>
<tr>
<td>Assessment</td>
<td>The grade of the module will be the grade of the written exam. No prerequisites are necessary for exam registration.</td>
</tr>
<tr>
<td>Grading procedure</td>
<td>The grade of the module will be the grade of the exam.</td>
</tr>
</tbody>
</table>
Basis for

No english version available yet.
## Investment

Modules referring to Compulsory Elective Modules Applied Subject Management and Economics

<table>
<thead>
<tr>
<th>Code</th>
<th>8207970308</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECTS credits</td>
<td>3</td>
</tr>
<tr>
<td>Attendance time</td>
<td>2</td>
</tr>
<tr>
<td>Language of instruction</td>
<td>English</td>
</tr>
<tr>
<td>Duration</td>
<td>1 Semester</td>
</tr>
<tr>
<td>Cycle</td>
<td>each Winter Semester</td>
</tr>
<tr>
<td>Coordinator</td>
<td>Prof. Dr. Kai-Uwe Marten</td>
</tr>
<tr>
<td>Instructor(s)</td>
<td>No english version available yet.</td>
</tr>
</tbody>
</table>

### Allocation of study programmes

- Informatik BSc, Studienbeginn WiSe, Pflichtmodul im AF Wirtschaftswissenschaffen, 3. Fachsemester
- Informatik BSc, Studienbeginn SoSe, Pflichtmodul im AF Wirtschaftswissenschaffen, 4. Fachsemester
- Wirtschaftsphysik B.Sc., 3. oder 4. Semester, Pflicht

### Recommended prerequisites

- non

### Learning objectives

- Students will be able to
  - identify capital budgeting problems (investment decisions across time, limited reversibility, uncertainty)
  - select appropriate analytical tools for an identified capital budgeting problem
  - apply selected capital budgeting tools according to specified valuation problems, i.e., Net Present Value, Internal Rate of Return, Real Option Valuation
  - identify the required inputs for capital budgeting tools (e.g., forecast for free cash flows and cost of capital estimates in case of Net Present Value calculation)
  - explain and qualify the calculated results, given real live problems such as incomplete and non-precise information.

### Syllabus

- The course covers:
  - Brief introduction into utility theory (Fisher separation)
  - Net present value as a decision criterion: Definition of cash flows (cash flow statement) and Derivation of opportunity cost of capital
• Pro’s and Con’s of alternative decision criteria like Payback, Internal Rate of Return, Annuities, Return on Investment and Economic Value Added (R)
• Introduction of managerial flexibility into net present value calculus (“real option valuation”)
• Application in case studies, e.g. Market introduction of pharmaceutical drugs and Investment in flexible manufacturing units

**Literature**


**Teaching and learning methods**

Investition (V), 2 SWS, Pflicht

**Workload**

No english version available yet.

**Assessment**

The grade of the module will be the grade of the written exam. No prerequisites are necessary for exam registration.

**Grading procedure**

The grade of the module will be the grade of the exam.

**Basis for**

-
Insurance Economics

Modules referring to Compulsory Elective Modules Applied Subject Management and Economics

Code 8207970218

ECTS credits 6

Attendance time 4

Language of instruction English

Duration 1 Semester

Cycle irregular

Coordinator Prof. Dr. An Chen

Instructor(s) Prof. Dr. An Chen

Allocation of study programmes Econo-Mathematics, BSc, Advanced Module, 5./6. Semester recommended, Economics and Management, BSc., Major Module, 4., 5., or 6. Semester recommended Economics and Management, MSc., Major/Mandatory Module

Recommended prerequisites Modules: Introduction to Business Administration; Introduction to Economics; Introduction into Probability and Statistics and Economics

Learning objectives The student should

• Understand the function and purpose of insurance companies (What is insurance? How can risk be measured? What kind of insurance types, products and markets exist?)
• Comprehend the functionality of selected insurance types (non-life insurance, life insurance, private health insurance, reinsurance)
• Understand insurance supply and demand using decision theory under uncertainty.
• Be able to justify the existence of social insurance systems and give reasons for government interference
• Know the concepts of management and controlling in insurance companies

Syllabus Choice under uncertainty (Origins of expected utility theory, expected utility theory and rational decision under risk, measures for risk aversion, stochastic dominance, mean variance preferences)
Insurance demand by households (Base model, irreplaceable assets, insurance demand without fair premium, pareto-optimal insurance contract)
Insurance demand by firms (Risk management and diversification, risk diversification through the capital market, Capital Asset Pricing Model (CAPM),
Arbitrage Pricing Theory (APT), risk management with forwards, futures and options, corporate demand for insurance
Insurance supply (Traditional premium calculation, financial premium calculation, financial modelling of insurance pricing, economies of scope, economies of scale)
Moral hazard and adverse selection

Literature

- Zweifel, P. und R. Eisen (2003), Versicherungsökonomie, 2. u. verbesserte Auflage - Berlin et al: Springer

Teaching and learning methods

Insurance Economics (Lecture), 3 hours per week
Insurance Economics (Exercises), 1 hour per week

Workload

In class: 80 h
Private study: 100 h
Total: 180 h

Assessment

The credit points will be awarded once the written or oral exam has been passed (depending on the number of participants). The type of examination will be announced in time - at least 4 weeks prior to the date of the exam. No prerequisites are necessary for exam registration.

Grading procedure

The grade of the module will be the grade of the exam.

Basis for

Major in Finance and Insurance;
Mandatory course: Business Administration
### Economic Policy Analysis

**Modules referring to Compulsory Elective Modules Applied Subject Management and Economics**

<table>
<thead>
<tr>
<th><strong>Code</strong></th>
<th>8207970195</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ECTS credits</strong></td>
<td>6</td>
</tr>
<tr>
<td><strong>Attendance time</strong></td>
<td>4</td>
</tr>
<tr>
<td><strong>Language of instruction</strong></td>
<td>No english version available yet.</td>
</tr>
<tr>
<td><strong>Duration</strong></td>
<td>1 Semester</td>
</tr>
<tr>
<td><strong>Cycle</strong></td>
<td>irregular</td>
</tr>
<tr>
<td><strong>Coordinator</strong></td>
<td>No english version available yet.</td>
</tr>
<tr>
<td><strong>Instructor(s)</strong></td>
<td>No english version available yet.</td>
</tr>
<tr>
<td><strong>Allocation of study programmes</strong></td>
<td>No english version available yet.</td>
</tr>
<tr>
<td><strong>Recommended prerequisites</strong></td>
<td>No english version available yet.</td>
</tr>
<tr>
<td><strong>Learning objectives</strong></td>
<td>No english version available yet.</td>
</tr>
<tr>
<td><strong>Syllabus</strong></td>
<td>No english version available yet.</td>
</tr>
<tr>
<td><strong>Literature</strong></td>
<td>No english version available yet.</td>
</tr>
<tr>
<td><strong>Teaching and learning methods</strong></td>
<td>No english version available yet.</td>
</tr>
<tr>
<td><strong>Workload</strong></td>
<td>No english version available yet.</td>
</tr>
<tr>
<td><strong>Assessment</strong></td>
<td>The grade of the module will be the grade of the written exam. No prerequisites are necessary for exam registration.</td>
</tr>
<tr>
<td><strong>Grading procedure</strong></td>
<td>The grade of the module will be the grade of the exam.</td>
</tr>
</tbody>
</table>
Basis for  
No english version available yet.