

Otto-Friedrich-
Universität Bamberg



**Faculty of Social Sciences, Economics and
Business Administration**

and

**Faculty of Information Systems and Applied
Computer Sciences**

ECTS – GUIDE 2008/2009

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1 INTRODUCTION

1.1 General information

This booklet provides detailed information on course offerings at the Otto-Friedrich-University of Bamberg, Germany, *Faculty of Social Sciences, Economic and Business Administration* and *Faculty of Information Systems and Applied Computer Sciences*. It is directed to ERASMUS students and co-ordinators at their home institutions.

The booklet is for your guidance. It should serve to answer the many questions ERASMUS students have prior to, and on their arrival in Bamberg. It should also serve to inform the co-ordinators and advisors at the participating universities about the assessment and accreditation of the work that a returning student has done in Bamberg.

We hope to improve this booklet continuously. Therefore, we are open to any comments that you, the reader, may have.

Please note that the information in this booklet is non-binding, and that Professors are free to add, revise or delete aspects of their courses at any time.

In fact, the information in this booklet is best supplemented by the official course directory ("Vorlesungsverzeichnis") of the University of Bamberg as well as current information usually available from each Professor at the beginning of a semester (for further details see the faculties homepages <http://www.uni-bamberg.de/sowi> and www.uni-bamberg.de/wiai).

It is our most sincere wish that this brochure, in facilitating the mobility of European students, will make a modest contribution to realising the goals that the various contemporary movements towards European integration are striving for, namely a peaceful and prosperous Europe, based on mutual understanding, acceptance and trust.

1.2 What is ECTS and how does it work?

ECTS stands for "European Community Course Credit Transfer System". ECTS is a pilot project forming part of the ERASMUS Programme (European Community Action Scheme for the Mobility of University Students). One of the main aims of ERASMUS is to promote academic recognition throughout the European Union so that it is easier for students to complete a portion of their studies abroad. As of the academic year 1992/93, ERASMUS has also applied to exchanges between an EU Member State and any country belonging to the European Free Trade Association (EFTA).

1.2.1 How does ECTS work?

ECTS was introduced during a pilot phase extending from the academic year 1989/90 to the academic year 1994/95. Five subject areas were selected for testing the ECTS mechanism: Business Administration, Chemistry, History, Mechanical Engineering and Medicine. One faculty or department from each of the 145 member institutions of higher education participated in the scheme. The results of this pilot phase were encouraging enough to convince the European Commission to implement it as part of the in-coming SOCRATES programme, which will incorporate, re-structure, and expand the existing ERASMUS programme.

ECTS is a decentralised system based upon the principle of mutual trust between participating institutions. The few rules of ECTS, which concern information (on courses available), agreement (between the home and host institutions), and the use of credit points (to indicate student workload), are intended as reinforcement of this mutual trust. Each ECTS

department describes the courses it offers not only in terms of content, but also in terms of the credits assigned to each course.

1.2.2 The allocation of credit points to courses

ECTS is a credit system based on student workload. Student workload refers to the time spent in lectures, internships, and independent study. It includes all the work needed to prepare for examinations and to meet academic requirements.

The basic allocation of academic credits in the ECTS is 60 credits per year of study, 30 credits per semester, or 20 credits per trimester or term. It is important that no special courses be set up for ECTS purposes. All ECTS courses should be mainstream courses of the participating institutions, as followed by home students under normal regulations.

It is up to the participating institutions to assign credits for the different courses relative to their workload. Internships (work placements) and optional courses are also assigned academic credit, but only if they form an integral part of the study programme. Non-credit courses may, however, be included on a student's transcript. Credits are awarded only if a course has been completed, all requirements have been met and examinations passed.

1.2.3 ECTS students

Students participating in the ECTS will receive full credit for all academic work successfully completed at any of the ECTS partner institutions. These academic credits may be transferred from one participating institution to another as long as there has been prior agreement between the institutions involved.

All students participating in the ECTS pilot scheme will go to a host institution in an EU Member State, study there for a short period, and then return to their home institution. Some may decide to stay at the host institution and finish their degree there. Others may decide to proceed to a third institution and continue their studies. In each of these three scenarios, students will be required to comply with the legal and institutional requirements of the country and institutions where they take their degree.

When a student returns after successfully completing the study components agreed on in advance by the home and host institution, credit transfer takes place. The student then resumes his/her study programme at his/her home institution without loss of time or credit. If, on the other hand, the student decides to stay at the host institution and to take his/her degree there, he/she may have to adapt his/her study programme to comply with the rules of the host country, institution and department.

1.2.4 ECTS and the Faculty of Social Sciences, Economics and Business Administration and the Faculty of Information Systems and Applied Computer Sciences

The Faculty of Social Sciences, Economics and Business Administration and the Faculty of Information Systems and Applied Computer Sciences publish jointly an ECTS-Guide annually. Visiting students studying in Bamberg will have to apply for recognition of work done here at their home institutions. Whether this recognition is granted will depend in many cases on the course description given to the home faculty. Therefore, it is important that you clarify, with the help of the descriptive pages in this booklet, whether your university will accredit the courses taken here. You are advised to find out about course requirements from your home faculty before you come to Bamberg, and whether they will recognise the programme of study you intend to follow here.

1.2.5 The ECTS Grading System

Examination and assessment are usually expressed in grades. However, many different grading systems co-exist in Europe. Moreover, the issue of grade transfer was highlighted as a major concern by student participants in the ECTS, as indeed it has been for mobile students in general. The situation is further complicated by the fact that the interpretation of

grades varies considerably from country to country, and indeed from institution to institution, and that the failure to effectively communicate grades might have serious consequences for mobile students.

As a result, the Commission of the European Community convened a working group of experts in order to identify the issues involved. Information, comments and statistical data provided by 80 out of the 84 institutions participating in the ECTS at that time were taken into account to refine the proposed ECTS grading scale. All subject area groups agreed to use the ECTS grading scale in order to test its feasibility.

The ECTS grading scale has thus been developed in order to help institutions translate the grades awarded by host institutions to ECTS students. While it provides information on the student's performance additional to that provided by the institution's grade, though it does not replace the local grade. Higher education institutions make their own decisions on how to apply the ECTS grading scale to their own system. The ECTS grading scale allowed other institutions the flexibility to award an appropriate mark on their own scale for any incoming or returning students with ECTS grades.

The ECTS grade is to be indicated, alongside the mark awarded by the institution on the student's transcript, by showing the learning achievement of each student in terms of local grades and ECTS credits, and is to be issued either by the home institution or by the host institution before and after the period of study.

In debating the ECTS grading scale, consideration was given to strict numerical definitions based upon the ranking of students in the class and to more qualitative definitions based on a common understanding of keywords such as 'good' and 'excellent'. Neither approach in itself was deemed to give satisfactory results. Indeed, a strictly numerical approach would define boundaries which might be irrational against national criteria and which might be impossible to draw if the national grading system discriminates only broadly. Similarly, clear differences appear between institutions in their understanding of keywords.

The ECTS grading scale is therefore based upon the combined use of appropriate keywords and numerical descriptions intended to assist in overcoming the transparency of the keywords.

The ECTS grading scale with keywords and percentage of successful students normally achieving the grade:

| | | | |
|----|-----|--------------|--|
| A | 10% | Excellent | Outstanding performance with only minor errors |
| B | 25% | Very Good | Above the average standard but with some errors |
| C | 30% | Good | Generally sound work with a number of notable errors |
| D | 25% | Satisfactory | Fair but with significant shortcomings |
| E | 10% | Sufficient | Performance meets the minimum criteria |
| FX | | Fail | Some more work required before the credit can be awarded |
| F | | Fail | Considerable further work is required |

2 BAMBERG AND ITS UNIVERSITY

2.1 The City

Bamberg looks back on a history which spans more than 1000 years. Mostly spared from the devastation of World War II, the city exhibits some of the most outstanding examples of buildings in Germany and was declared part of the world's cultural and natural heritage by UNESCO in 1993. More than 2000 buildings in Bamberg are listed architectural monuments, representing a wide spectrum of styles, such as Romanesque, Gothic, Baroque, and Classicism. Best known among these are the Cathedral (*Dom*), the churches *Obere Pfarre* and *St. Michael*, the New Bishop's Palace (*Neue Residenz*), and the Old Townhall (*Altes Rathaus*).

Bamberg today has a population of some 70.000 inhabitants. The city itself offers a large range of excellent music events, interesting theatre productions and numerous exhibitions. Of note here are the world-famous Bamberg Symphony Orchestra, concerts with internationally renowned performers in the new Concert Hall and the organ recitals in the Cathedral. In the world of sport, the basketball club Brose Baskets, one of the top teams in the German league for years, should also be mentioned. The surrounding countryside, the „Fränkische Schweiz“, is ideally suited for excursions by car and for hiking trips. In winter, there is sufficient snow for cross country skiing.

Further information: www.bamberg.info

2.2 The University

The Otto-Friedrich University of Bamberg looks back on a varied history of more than 350 years. Founded in 1647 as the „Academia Ottonia“ by Bamberg's Prince Bishop Melchior Otto Voit von Salzburg, the institution first gained university status in 1735, when a Faculty of Law was established under Prince Bishop Friedrich Karl von Schönborn. In 1972, the modern university combined the former Philosophical and Theological College and the Teacher Training College to form an institution of higher education at university level („Gesamthochschule“). It was named University of Bamberg in 1979. Since 1988 it carries the name Otto-Friedrich University, referring to its two important founding fathers.

The university is divided into the following faculties:

Faculty of Catholic Theology

Faculty of Humanities and Cultural Studies

Faculty of Human Sciences and Education

Faculty of Social Sciences, Economics and Business Administration

Faculty of Information Systems and Applied Computer Sciences

The University Library contains approximately 1.4 million volumes. It meets the demands of its users by being divided into departmental libraries assigned to the faculties. The library user has access via computer to the most important sources of academic information, thereby assisting the user in the task of world-wide bibliographical research.

The University of Bamberg offers a modern, specialised range of courses in classical humanities as well as in the field of the social and economic sciences. The orientation towards the practical application of knowledge is a particular specialty of the courses offered in Bamberg, and is even prevalent in the humanities. It is possible, for example, to study German within the diploma course in combination with a choice of three special subjects (Journalism, Literary Evaluation and Interpretation or German as a Foreign Language). In addition to the extended range of languages offered at the university, the diploma course European Economics, amongst others, with its various optional subjects, meets the requirements of practical application which are set by the present European and international situation.

Currently approx. 8.800 students attend the University of Bamberg, among them more than 700 foreign students from over 60 countries worldwide. The university is engaged in more than 150 student exchange programmes with partner institutions in more than 40 countries. Exchange students at Bamberg are offered special services: Housing is arranged for them in university accommodation, they get a personal student tutor in the „Tandem-Programme“, a special three-week intensive German language and orientation course is offered to them prior to the start of the semesters in October and April, and an excursion programme is set up for them during the semesters with inexpensive tours to places like Berlin, Weimar, Heidelberg, Salzburg or Prague.

2.3 The Faculty of Social Sciences, Economics and Business Administration and the Faculty of Information Systems and Applied Computer Sciences

The *Faculty of Social Sciences, Economics and Business Administration, and Information Systems* at the University of Bamberg grew out of a nucleus of Social Sciences in the late seventies. The *Faculty of Information Systems and Applied Computer Sciences* was established in 2001.

Officially founded in 1979, the *Faculty of Social Sciences, Economics and Business Administration* is now the largest faculty of the University of Bamberg.

Today, the faculty comprises a multitude of disciplines: Social Sciences, Political Sciences, Economics, Business Administration, Legal Sciences, and Statistics.

At present, the *Faculty of Social Sciences, Economics and Business Administration* offers programmes in Business Administration, Economics, Economic and Social Law, Social Sciences, Politics and other modules. The programmes lead either to the *German University Diploma* degree, equivalent to studies on a graduate level elsewhere or the *Bachelor/Masters Degree*. The faculty comprises 32 professorships, and numerous teaching and research assistants. The faculty is completed by a varying number of guest lecturers. About 2500 students are enrolled in the different programmes.

The programmes in Business Administration, Economics, Politics, and Sociology are scheduled to last 6 semesters (Bachelor) or 4 semesters (Master). The programme in European Management is designed for 4 ½ years of study.

Please note that most courses at the *Faculty of Social Sciences, Economics and Business Administration* and at the *Faculty of Information Systems and Applied Computer Sciences* will be held in German. You can find a list of the course taught in English at the website of our International Office. However, there is the opportunity of writing diploma theses and seminar papers in English.

Although many courses are offered once a year, there are courses which are offered every three or four semesters only. Please look at the official course directory to ensure the availability of the program you want to attend!

Exams at the *Faculty of Social Sciences, Economics and Business Administration* take place after each semester. The tests are usually scheduled as follows:

| <i>Semester</i> | <i>Written Examinations</i> | <i>Oral Examinations</i> |
|-----------------|-----------------------------|--------------------------|
| Winter Semester | February/March | April/May |
| Summer Semester | August | October/November |

Should an ERASMUS student fail an exam, he or she is required to retake the exam on the scheduled date at the end of the following semester.

The exam mode for each course unit is indicated on the subject's descriptive page in this brochure and is compulsory.

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Academic Calendar:

Student Registration:

Akademisches Auslandsamt
Markusstraße 6
D – 96045 Bamberg
Phone: ++49 951/863-1050
Email: auslandsamt@zuv.uni-bamberg.de

Winter Semester

Lectures: October 13th, 2008 – February 07th, 2009

Summer Semester:

Lectures: April 20th, 2009 – July 25th, 2009

2.4 Preparatory Course For Foreign Students

Starting 3 weeks before the beginning of the semester, this course is provided for all foreign students. Although participation is voluntary it is highly recommended, as exchange students will not only have the opportunity to meet each other, they will also improve their German language skills and cultural awareness. Classes are held from Monday to Friday and comprise a total of 60 hours of classtime. During this time the German lessons take place between 9.30 am and 1.00 pm. Additionally, the course fee includes a preparatory study course and leisure time programme (guided library tours, introduction to computer and e-mail use, lecture courses, help for the enrollment, guided tours, Bamberg city tour, excursions, end-of-course party).

Students may register for the course by completing the form 'Vorbereitungskurs'. There is classification test at the beginning. The course fee of €125 should be paid on arrival in cash at the AAA.

You will receive a "Schein" with 8 ECTS credits for successful participation at the preparatory course. Regular attendance is required, i.e. if you miss classes more than twice without an excuse you will not receive a 'Schein'. Additionally, you will need to give an oral presentation as well as passing a written exam or writing a term paper.

Lector:

Norbert Krines

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3 MODULE DESCRIPTIONS: FACULTY OF SOCIAL SCIENCES, ECONOMICS AND BUSINESS ADMINISTRATION

3.1 Module Descriptions: Business Administration

3.1.1 Finance

Prof. Dr. Andreas Oehler
 Chair of Business Administration and Finance
 Kirschäckerstr. 39
 D-96045 Bamberg
 Tel.: +49/0951 / 863-2537
 Fax: +49/0951 / 863-2538
 Email: andreas.oehler@uni-bamberg.de
 Internet: <http://www.uni-bamberg.de/bwl-finanz/>

Requirements: 100% Attendance; course language: German

Bachelor Program

Prerequisites: Basic knowledge and understanding of theories and concepts in business administration and management.

Corporate Finance I : Entrepreneurial Finance/Venture Capital, Private Equity, IPO/Going Public *Unternehmensfinanzierung I*

Registration: Pre-semester, please look at notice board for current news

- Introduction to Corporate Finance and Financial Management, Financial Markets, Financial Intermediation and Financial Risks
- Venture Finance and Going Public
- Case studies on start ups and entrepreneurship with a focus on budgetary planning and liquidity

| | |
|---|--|
| Hours per Week / Semester: 3 / winter | Teaching Method: Lecture & Presentation |
| Credits: 5 | Examination: Case studies, presentation of a paper, discussion |

Corporate Finance II : Financial Analysis & Evaluation *Unternehmensfinanzierung II*

Registration: Pre-semester, please look at notice board for current news

- Financial accounting and its legal framework
- Financial statement analysis and financial reporting
- Firm valuation and its theoretical framework
- Real option approach and its theoretical framework
- Firm valuation through the market cycle

| | |
|-----------------------------------|-------------------------|
| Hours per Week / Semester: | Teaching Method: |
|-----------------------------------|-------------------------|

| | |
|----------------------|---|
| 3 / winter | Presentations, assignments, discussion |
| Credits: 5 | Examination: Presentation of a paper, contributions to the general discussion |

International Corporate Finance

Internationale Unternehmensfinanzierung

Registration: Pre-semester, please look at notice board for current news

- Introduction to Corporate Finance and Financial Management, Financial Markets, Financial Intermediation and Financial Risks
- Venture Finance and Going Public
- Case studies on start ups and entrepreneurship with a focus on budgetary planning and liquidity / international focus

| | |
|---|--|
| Hours per Week / Semester: 3 / winter | Teaching Method: Lecture & Presentation |
| Credits: 5 | Examination: Case studies, presentation of a paper, discussion |

Financial Markets I : Market Efficiency, Asset Pricing & Valuation

Finanzmärkte I

Registration: First week of the current semester; please look at notice board for current news

- Informational efficiency and pricing in national markets
- General theories on equity pricing: Efficiency concept, random walk, fair game model, rational expectations, empirical results
- Portfolio theory and decision theory
- Theoretical market models: State preference approach, CAPM, APT, empirical results
- Performance analysis: Risk-return trade off, measurement, empirical results

| | |
|---|---|
| Hours per Week / Semester: 3 / summer | Teaching Method: Lectures, assignments, discussion |
| Credits: 5 | Examination: Short presentation of a paper, 1 hour written exam |

Financial Risk Management I : Market Risk & Derivates:

Finanzwirtschaftliches Risikomanagement I

Registration: First week of the current semester; please look at notice board for current news

- Decision making under risk
- Fundamentals in risk management
- Pricing risks
- Market risk analysis
- Market risk control

| | |
|---|---|
| Hours per Week / Semester: 3 / summer | Teaching Method: Lectures, assignments, discussion |
| Credits: 5 | Examination: Short presentation of a paper, 1 hour written exam |

Master Program

Financial Markets II : Market Microstructure, Noise & Behavioural Finance

Finanzmärkte II

Prerequisites: Bachelor degree. Courses in Corporate Finance I (or International Corporate Finance), Corporate Finance II, and Financial Risk Management I. Financial Markets I

Registration: Pre-semester, please look at notice board for current news

- Inefficiency and pricing in financial markets
- Stock exchanges as financial intermediaries
- Market microstructure: Theoretical framework, empirical & experimental results
- Noise trading
- Decision under ambiguity
- Behavioural Finance: Theories, concepts, empirical & experimental results; investment strategies, disposition effect, prospect theory, analysts' behaviour, overconfidence, home bias, herding

| | |
|---|---|
| Hours per Week / Semester: 3 / winter | Teaching Method: Lectures, assignments, discussion |
| Credits: 5 | Examination: Short presentation of a paper, 1 hour written exam |

Financial Risk Management II: Credit Risk & Contracts

Finanzwirtschaftliches Risikomanagement II

Prerequisites: Bachelor degree. Courses in Corporate Finance I (or International Corporate Finance), Corporate Finance II, and Financial Risk Management I.

Registration: Pre-semester, please look at notice board for current news

- New Institutional Economics, agency theory
- Credit risk analysis: Single and portfolio risk
- Credit risk control: Single and portfolio risk, pricing
- Cross risk

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| Hours per Week / Semester: 3 / winter | Teaching Method: Lectures, assignments, discussion |
| Credits: 5 | Examination: Short presentation of a paper, 1 hour written exam |

Corporate Finance III : Corporate Governance & Control*Unternehmensfinanzierung III*

Prerequisites: Bachelor degree. Courses in Corporate Finance I (or International Corporate Finance), Corporate Finance II, and Financial Risk Management I.

Registration: Pre-semester; please look at notice board for current news

- Financial institutions: Financial intermediaries and financial markets
- Financial institutions: The market for corporate control
- Corporate governance & control: Shareholder Value concept and theory of the firm; international legal framework
- Corporate governance & control: Investor protection and insider violations, an international comparison

| | |
|---|---|
| Hours per Week / Semester: 3 / summer | Teaching Method: Presentations, assignments, discussion |
| Credits: 5 | Examination: Presentation of a paper, contributions to the general discussion |

Corporate Finance IV : Capital Structure, Payout Policies & Rating*Unternehmensfinanzierung IV*

Prerequisites: Bachelor degree. Courses in Corporate Finance I (or International Corporate Finance), Corporate Finance II, and Financial Risk Management I.

Registration: Pre-semester; please look at notice board for current news

- Capital Structure and cost of capital: The traditional view; empirical evidence
- Capital Structure and cost of capital: New concepts; empirical evidence
- High yield bonds
- Rating: Theoretical framework and methods
- Rating consequences: Rating migration, rating changes
- Payout policies

| | |
|---|---|
| Hours per Week / Semester: 3 / summer | Teaching Method: Presentations, assignments, discussion |
| Credits: 5 | Examination: Presentation of a paper, contributions to the general discussion |

Financial Market & Monetary Integration (in Europe)*Währungs- und Finanzmarktintegration*

Prerequisites: Bachelor degree. Courses in Corporate Finance I (or International Corporate Finance), Corporate Finance II, and Financial Risk Management I.

Registration: Pre-semester; please look at notice board for current news

- Monetary systems and monetary integration up to World War II
- European negotiations, international monetary systems and the foundation of the European monetary system
- The European Economic and Monetary Union
- The Euro and Optimum Currency Areas
- Currency control by central banks
- Currency risk and currency risk management
- Country risk as a factor in international credit risk management
- Competition of international financial markets

| | |
|---|---|
| Hours per Week / Semester: 3 / summer | Teaching Method: Presentations, assignments, discussion |
| Credits: 5 | Examination: Presentation of a paper, contributions to the general discussion |

3.1.2 Financial Controlling

Prof. Dr. Matthias Muck
 Deka-Bank Chair of Financial Controlling
 Kärntenstr. 7
 D-96052 Bamberg
 Tel.: +49/0951 / 863-2091
 Fax: +49/0951 / 863-2092
 Email: matthias.muck@uni-bamberg.de
 Internet: <http://www.uni-bamberg.de/sowi/finanzcontrolling>

Requirements: 100% Attendance; course language: English/German

Bachelor Program

Prerequisites: Basic knowledge and understanding of theories and concepts in business administration and management.

Financial Controlling I

Finanzcontrolling I

Language: German

Registration: During the semester, pls. look at homepage of the chair

- Introduction to Financial Management and Controlling
- Accounting and Balance Sheets
- Managerial Accounting
- Case Presentations

| | |
|---|--|
| Hours per Week / Semester: 3 / summer | Teaching Method: Lecture & Presentation |
| Credits: 5 | Examination: Case studies, presentation of a paper, discussion, written exam |

Financial Controlling II

Finanzcontrolling II

Language: German

Registration: During the semester, pls. look at homepage of the chair

- Production and Pricing as Fundamental Strategic Decisions
- Production planning under certainty
- Pricing under certainty
- Production and pricing under uncertainty
- Cases

| | |
|---|---|
| Hours per Week / Semester: 3 / summer | Teaching Method: Lecture, Presentations, assignments, discussion |
| Credits: 5 | Examination: Presentation of a paper, contributions to the general discussion, written exam |

International Financial Controlling*Internationales Finanzcontrolling*Language: GermanRegistration: During the semester, pls. look at homepage of the chair

- Introduction to Financial Management and Controlling
- Accounting and Balance Sheets
- Managerial Accounting
- Case Presentations

| | |
|---|--|
| Hours per Week / Semester: 3 / summer | Teaching Method: Lecture & Presentation |
| Credits: 5 | Examination: Case studies, presentation of a paper, discussion, written exam |

Financial Controlling III*Finanzcontrolling III*Language: GermanRegistration: During the semester, pls. look at homepage of the chair

- The management of banks
- Regulation of banks
- Managerial accounting in banks
- Bank Management

| | |
|---|--|
| Hours per Week / Semester: 3 / summer | Teaching Method: Lectures, assignments, discussion |
| Credits: 5 | Examination: written exam |

Cases in Corporate FinanceLanguage: EnglishRegistration: During the semester, pls. look at homepage of the chair

- CAPM and Discounted Cash Flow Method
- Cost of Capital
- Application of concepts to real world companies

| | |
|---|---|
| Hours per Week / Semester: 3 / summer | Teaching Method: Case discussion |
| Credits: 5 | Examination: Case Assignments, written exam |

Master Program

Financial Innovation

Language: English

Prerequisites: Bachelor degree.

Registration: During the semester, pls. look at homepage of the chair

- Principle of No.Arbitrage
- Valuation of Forwards, Futures, Options, and Exotic Derivatives
- Numerical Techniques
- Volatility Smiles

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|---|-------------------------------------|
| Hours per Week / Semester: 3 / winter | Teaching Method: Lectures |
| Credits: 5 | Examination: Written exam |

Fixed Income Instruments

Language: English

Prerequisites: Bachelor degree.

Registration: Pre-semester, please look at notice board for current news

- Fixed Income Instruments
- Ho-Lee Term Structure Model
- Hull-White Term Structure Model
- LIBOR Market Model

| | |
|---|---|
| Hours per Week / Semester: 3 / summer | Teaching Method: Lectures |
| Credits: 5 | Examination: Project Assignment, written exam |

International Finance

Language: English

Prerequisites: Bachelor degree.

Registration: During the semester, pls. look at homepage of the chair

- The Global FX Markets
- International Arbitrage Pricing Theory
- International Capital Pricing Model
- International Derivatives

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|---|-------------------------------------|
| Hours per Week / Semester: 3 / summer | Teaching Method: Lectures |
| Credits: 5 | Examination: Written exam |

3.1.3 International Management

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 Internet: <http://www.uni-bamberg.de/sowi/intman>

Prerequisite: Basic knowledge in Business Administration.

Basic Information: Foreign students are allowed to choose a course program in International Management on their own responsibility. A participation in any type of examination is possible only after registration via Flex Now!

Bachelor Program

Principles of International Management

Grundlagen des Internationalen Managements

The objective of the course is to create a basic comprehension of the specific problems international corporations are facing when entering and developing foreign markets and to identify possible approaches. Necessary theoretical backgrounds will be outlined in class and then applied on selected case studies. Students are expected to work in groups on these case studies and to present their results in class. Content of the course: Socially responsible management, international selection of business locations, eastern enlargement of the European Union, international market entry, intercultural management and international market development.

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|---|--|
| Hours per Week / Semester: 3 / summer | Teaching Method: Lecture & Tutorial |
| Credits: 5 | Examination: written <i>lecture specific examination</i> (1 hour) and continuous assessment of active participation in class (papers, presentations, etc.) |

Internationalization Processes and Comparative Management

Internationalisierungsprozesse und vergleichendes Management

The objective of the course is to deepen the knowledge of internationalization processes of corporations and its cultural implications. The main topics of the course are: Introduction to Management Theories, Classification of International Management, The Role of Culture in International Management, Analysis of Cultural Differences on the Basis of Cultural Studies, The Concept of Intercultural Competence, Internationalization of the Firm – Drivers, Aims, and Explanation of Internationalization, Characteristics of Internationalization Processes, Management Concepts in Different Cultures – Analysing Japanese Management.

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|---|--|
| Hours per Week / Semester: 2 / winter | Teaching Method: Lecture |
| Credits: 4 | Examination: written <i>lecture specific examination</i> (1 hour) and continuous assessment of active participation in class (papers, presentations, etc.) |

Foreign Market Entry: Strategies and Techniques

Auslandsmarkteintritt: Strategie und Technik

The course covers the following topics: Foreign Market Entry Modes, Strategic Planning of Foreign Market Entry, International Trade Law and International Terms of Trade, Carriers in International Freight Traffic and International Transport Conventions, International Trade Documents, International Terms of Payment and International Means of Payment, Management of Foreign Market Risks, Strategies of Foreign Market Exploration.

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|---|--|
| Hours per Week / Semester: 2 / winter | Teaching Method: Lecture |
| Credits: 4 | Examination: written <i>lecture specific examination</i> (1 hour) and continuous assessment of active participation in class (papers, presentations, etc.) |

European Integration: European Business Implications

Europäische Integration: Unternehmenspolitische Implikationen

The Theoretical Foundations of Economic Integration, Integration of Western European States within the EU, Governing Institutions and Governance Systems of the EU, Selected Fields of EU Policy, Implications of EU Policy for Corporate Strategies.

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| Hours per Week / Semester: 2 / summer | Teaching Method: Lecture |
| Credits: 4 | Examination: written <i>lecture specific examination</i> (1 hour) and continuous assessment of active participation in class (papers, presentations, etc.) |

Case Study Seminar

Fallstudienseminar

The objective of the case study seminar is to develop professional and personal competence in International Management on the basis of real life case studies of international corporations (e.g., Audi, Bosch, Commerzbank) and consultancies (e.g., accenture, McKinsey). Students are expected to work in groups on their case study and to present their results.

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| Hours per Week / Semester: 2 / summer | Teaching Method: Seminar |
| Credits: 3 | Examination: Oral examination (20 min.) Essay (15 pages), presentation, continuous assessment |

Master Program

International Financial Management and Exchange Rate Risk Management

Internationales Finanz- und Währungsmanagement

International Financial Markets and the MNC; International Money Market, International Credit Market, International Bond Market, Stock Markets, Foreign Exchange Market and Currency Derivatives; Financial Management of the MNC: Exchange Rate Risk Management; Measuring Exposure to Exchange Rate Fluctuations, Cash Management, Transfer Pricing of MNCs, International Accounting.

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| Hours per Week / Semester: 2 / summer | Teaching Method: Lecture |
| Credits: 4 | Examination: written <i>lecture specific examination</i> (1 hour) and continuous assessment of active participation in class (papers, presentations, etc.) |

International Business Ethics

Internationale Unternehmensethik

Internationalization of Corporate Activities as a Catalyst of Ethical Problems, Arbitrage and Leverage Potentials of International Corporations: Ethical-sensitive Instruments, "Social Responsibility" of Corporations: Points of Reference and Terminology of Business Ethics, Ethical Problems of International Business Activity, Theorizing Morality: Concepts of Business Ethics, Ethical Standards and Labels for Best Practice in Business Ethics.

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|---|--|
| Hours per Week / Semester: 3 / winter | Teaching Method: Lecture & Tutorial |
| Credits: 5 | Examination: written <i>lecture specific examination</i> (1 hour) and continuous assessment of active participation in class (papers, presentations, etc.) |

Foundations of Business Ethics

Grundlagen der Wirtschaftsethik

Introduction to Kantian Moral Philosophy, Morality and Legality, Natural Justice and Positive Law, Liberal Liberties and Republican Ethics; Morality and Economic Rationality.

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| Hours per Week / Semester: 2 / summer | Teaching Method: Seminar |
| Credits: 4 | Examination: Oral examination (20 min.) <i>or</i> Essay (20 pages) |

Advanced Seminar: Corporate Governance and Corporate Social Responsibility
Hauptseminar: Führungsverfassung und Verantwortung von Unternehmen

The course deals with the development process of corporate governance and analyses the interrelation of different factors which determine the potentials of influence and participation of all involved stakeholders in a global environment. On the one hand, these factors concern legal regulations like e.g. the elaboration of legal forms or worker participation, which normally are restricted by national states. On the other hand, these factors concern such informal powers, which are used and expanded increasingly by international non-governmental organisations. Due to this, the concept of corporate social responsibility has gained great importance in the context of globalisation. Moreover the course deals with the interaction of such factors, which influence the development process of corporate governance in international dimensions. National peculiarities and distinctions as well as international developments will also be discussed.

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|---|---|
| Hours per Week / Semester: 2 / winter | Teaching Method: Seminar |
| Credits: 4 | Examination: Oral examination (20 min.) <i>or</i> Essay (20 pages) |

Design and Management of International Corporations
Gestaltung und Führung internationaler Unternehmen

The course deals with theoretical concepts which provide an understanding of international corporations. These concepts are the basis for the application of instruments and strategies, which are available for designing und managing international businesses. The course covers the following topics: Management theories related to international businesses as a whole, contingency approach, resource-based approach configuration and coordination within an international corporate association, origins, contents and consequences of the discussion of configuration and coordination, different types of coordination levels within an international corporate association, people-orientated coordination, structural coordination, technocratic coordination, cultural coordination.

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| Hours per Week / Semester: 2 / winter | Teaching Method: Lecture |
| Credits: 4 | Examination: written <i>lecture specific examination</i> (1 hour) and continuous assessment of active participation in class (papers, presentations, etc.) |

3.1.4 Management & Controlling

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Requirements: course language: German

Bachelor Program

Controlling I: Cost, Revenue and Profit Controlling *Kosten-, Erlös- und Ergebnisrechnung*

Cost, Revenue and Profit Controlling is a fundamental basis of value management and controlling both at university and in business. This undergraduate course is designed to impart basic knowledge of cost, revenue and profit accounting. A continuous case study is used in the lecture to provide a practical insight into all relevant instruments and methods.

The course itself covers the following main topics:

Introduction to finance and accounting; Controlling as a function of value based leadership; Basic principles of cost accounting; Profit and loss account; Absorption and direct costing; Cost type accounting (e.g. direct and indirect costs, imputed costs); Cost centre accounting (e.g. cost and allocation rates for product costing); Product costing (e.g. calculation of products and orders, activity-based costing); Standard cost accounting systems; Basic principles of revenue accounting; Contribution margin accounting (e.g. direct costing, multi-step); Break-even analysis; Basic principles of performance management.

Tutorials with special arithmetic problems of cost, revenue and profit accounting complement the foregoing course.

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| Hours per Week / Semester: 3 / every winter semester | Teaching Method: lecture / tutorial |
| Credits: 5 | Examination: written examination (60 min) |

Controlling II: Fundamentals of Controlling

Grundlagen des Controlling

Prerequisites: Passed Examination of Controlling I. At the beginning of the course every student who wants to take the exam has to deliver a short presentation in Powerpoint. The presentation has to be based on an assigned article.

Basis for the formation of controlling; aims of controlling; controlling from informational; coordinating and output-oriented perspectives; the relationship between traditional business administration and controlling; controlling functions of a primary and derivative type; range of responsibilities of controlling; controlling and controllership; organization of controlling; value management, Balanced Value Map.

The course addresses also topical subjects of controlling.

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| Hours per Week / Semester: 3 / every summer semester | Teaching Method: lecture / seminar |
| Credits: 5 | Examination: written examination (60 min) or alternative: presentation and short written examination |

Management I: Planning, Decision-Making and Control

Planung, Entscheidung und Kontrolle

Basic characteristics of business trading; phenomenology and terminology of planning, decision-making and control; types of synoptical and incremental planning; basic models of planning; processes, methods and instruments of planning, decision-making and control; structural and operational principles of integrated planning, decision-making and controlling systems; the scope of data-processing support of planning, decision-making and control, Scope of data-processing support of planning, decision-making and control; Management and Controlling Information systems.

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| Hours per Week / Semester: 3 / every winter semester | Teaching Method: lecture |
| Credits: 5 | Examination: written examination (60 min) |

Master Program

Controlling III: Cost Management *Kostenmanagement*

Prerequisites: Bachelor Degree

Costs and determinants of costs; total-cost management; total-value engineering; target costing through market and profitability-oriented demand-cost determinants; competition orientation through benchmark costing; planning, determination and control of costs within the framework of standard costing systems; potential and production-process cost accounting and fixed cost policy; structure of multi-stage marginal costing, break-even analyses; performance risk estimates and calculations

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| Hours per Week / Semester: 3 / every summer semester | Teaching Method: lecture |
| Credits: 5 | Examination: written examination (60 min) |

Controlling IV: International Corporate Controlling *Internationales Konzerncontrolling*

Prerequisites: Bachelor Degree

Basic Fundamentals of Corporate Groups, Types of Corporate Groups, Portfolio-Management in Corporate Groups, Management of synergetic effects, International Aspects of Corporate Groups, Management Accounting in Corporate Groups, Using IFRS-Data in Corporate Groups

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| Hours per Week / Semester: 3 / every winter semester | Teaching Method: lecture / seminar |
| Credits: 5 | Examination: Paper, presentation, written examination |

Management III:
Strategic Performance Management
Strategisches Performance Management

Prerequisites: Bachelor Degree

Business behavior in the operative and strategic decision-making horizon; developments and models of management concepts; principles of value management, Balanced Scorecard, strategic analyses and prognoses for the environment as well as the business itself; formulation of system-strategies; instruments and methods of formulating strategies; strategies of integrated cost and performance management; implementation of strategies, aims, functions and instruments of strategic controlling. Methods for measuring performance within the enterprise, Designing and Implementing Balanced Scorecards

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| Hours per Week / Semester: 3 / every winter semester | Teaching Method: lecture / tutorial |
| Credits: 5 | Examination: written examination (60 min) |

Case Studies:
Management Tools
Case Studies: Betriebswirtschaftliche Methoden und Instrumente

Prerequisites: Bachelor Degree

Analytic and prognostic instruments and qualitative and quantitative methods for the support of management and controlling activities within a management cycle (target costing, transfer pricing, modern cost analysis, value ratios, project management).

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| Hours per Week / Semester: 3 / every summer semester | Teaching Method: lecture / seminar / tutorial |
| Credits: 5 | Examination: written examination (60 min) |

3.1.5 Marketing

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Bachelor Program**Fundamentals of Marketing***Absatzwirtschaft*

Overview on types and tasks of market oriented institutions and basic knowledge of decision facts and problems of marketing policy.

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|---|---|
| Hours per Week / Semester: 3 / summer | Teaching Method: Lecture & Tutorial |
| Credits: 5 | Examination: 1 hour written examination |

Market-oriented Management*Marktorientierte Unternehmensführung*

Marketing basics; strategic and operative problems in the field of „before-sales marketing“ and „after-sales marketing“.

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|---|---|
| Hours per Week / Semester: 2 / winter | Teaching Method: Lecture |
| Credits: 3 | Examination: 1 hour written examination |

International Marketing*Internationales Marketing*

Special aspects of international markets with regard to market-selection and market-entry; market-research and application of marketing instruments within the international context.

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| Hours per Week / Semester: 2 / winter | Teaching Method: Lecture |
| Credits: 3 | Examination: 1 hour written examination |

Marketing Seminar (BA)*Marketingseminar (BA)*

Marketing case-study-seminar on Bachelor level.

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| Hours per Week / Semester: 2 / winter and summer | Teaching Method: Seminar |
| Credits: 5 | Examination: Teamwork, presentation, discussion and 1 hour written examination at the end of the respective seminar |

Master Program**Innovation Marketing***Innovationsmarketing*

Characteristics of Innovation Management and Innovation Marketing.

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|---|---|
| Hours per Week / Semester: 2 / winter | Teaching Method: Lecture |
| Credits: 3 | Examination: 1 hour written examination |

Sectoral Marketing*Sektorales Marketing*

Characteristics of the markets and marketing-policies in specific sectors: trade marketing, service marketing, industrial marketing and non-profit marketing.

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| Hours per Week / Semester: 2 / winter | Teaching Method: Lecture |
| Credits: 3 | Examination: 1 hour written examination |

Marketing Seminar (MA)*Marketing Seminar (MA)*

Marketing case-study-seminar on Master level. The marketing seminar builds on the knowledge of the fields covered in the various marketing courses.

The seminar requires active participation.

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| Hours per Week / Semester: 3 / winter and summer | Teaching Method: Seminar |
| Credits: 5 | Examination: Teamwork, presentation, discussion and 1 hour written examination at the end of the respective seminar |

Marketing Intelligence*Marketing Intelligence*

„Marketing-Intelligence“ denotes the support of marketing management by information or marketing knowledge which is relevant for the decision and the decision maker. The lecture will focus on questions of market research and customer (data) analysis.

Market research is concerned with research designs and methods of investigation and evaluation of market data. The object of customer analysis is the targeted evaluation of individual customer data.

| | |
|---|--|
| Hours per Week / Semester: 2 / summer | Teaching Method: Lecture |
| Credits: 3 | Examination: 10 minutes oral examination covering Marketing Intelligence and Buyer Behaviour |

Buyer Behaviour*Käuferverhalten*

Buyer Behaviour includes aspects and approaches in connection with the information, buying and utilization behaviour of consumers and institutions.

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| Hours per Week / Semester: 2 / summer | Teaching Method: Lecture |
| Credits: 3 | Examination: 10 minutes oral examination covering Marketing Intelligence and Buyer Behaviour |

Course of the general programme**Marketing and Environment***Marketing und Umwelt*

Puts across general marketing facts like relevance of marketing oriented management, development of customer oriented offerings, marketing instruments and information. Furthermore, the lecture focuses on challenges for companies from the political, social and ecological environment. Concerning the ecological challenges, several concepts and instruments how to deal with these challenges will be discussed.

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| Hours per Week / Semester: 3 / winter | Teaching Method: Lecture & Tutorial |
| Credits: 5 | Examination: 1 hour written examination |

3.1.6 Organization and Human Resources Management

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Bachelor Program

Human Resources & Organization I

Grundlagen Personal & Organisation

Objectives/contents:

The lecture offers a broad survey of the basics in both human resource management and organization of corporations. It aims at providing the students with the fundamental basics in human resource management and organization to be able to deal intensively with issues of this field.

The following topics will be dealt with in detail:

Basics in human resource management:

1. Analysis of workforce and assessment of manpower requirements
2. Recruitment and selection of personnel
3. Personnel placement
4. Personnel management
5. Evaluation, payment of personnel and career policy
6. Personnel layoff
7. Parameters of human resource management: industrial relations and workers' participation

Basics in Organization:

8. Formal Organization I: configurations
9. Formal Organization II: structural and process organization
10. Informal Organization

At the beginning of the semester students can buy a script. The charts from the lectures and additional literature references are printed in that script.

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|---|---|
| Hours per Week / Semester: 3 / winter | Teaching Method: Lecture & Tutorial |
| Credits: 5 | Examination: 1 hour written examination |

The course is taught **in German**.

Organizational Structures and Boundaries

Strukturen und Grenzen der Organisation

Precondition for participation: Successful participation in “Human Resource Management and Organization I”

Objectives/contents:

Organizations are present throughout our whole life. We are learning and working in organizations, we spend parts of our leisure time in organizations. In this lecture we focus on commercial organizations. The analysis of structures within organizations is becoming more and more difficult due to complex environmental influences. These influences often obstruct the view on significant influencing factors on organizations. Additionally, companies engage more and more in complicated relationships with other companies and whole industries tend to become more dynamic.

Initial point of the course is on the one hand the observation that organizations have specific structures and specific features. On the other hand organizations are no isolated objects. In fact they have extensive relationships with their environment and there with other organizations. So the question arises: where are the boundaries of organizations? Both structures and boundaries are aspects of this lecture.

Objective of this course is to make students familiar with fundamental theoretical approaches and also practical implications of organizational theory.

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| Hours per Week / Semester: 3 / winter | Teaching Method: Mixture of Lecture and Seminar |
| Credits: 5 | Examination: 6 short tests during the semester 1 hour written examination |

This course is taught **in German**.

Labour Markets and Incentive Systems

Arbeitsmärkte und Arbeitspolitik

Precondition for participation: successful participation in “Human Resource Management and Organization I”

Objectives/contents:

In recent years the “war for talent” became a more and more important issue. Despite of unemployment it is very difficult for companies to find suitable or even the best possible employees for their organization.

The first part of the course is dealing with possibilities for organizations to stand the “war for talent”. Thereby the focus is put on (organizational) external and internal labor markets. An overview is given over the structure of these labor markets. In case of external labor markets it is shown how companies can define their “employee value proposition” and design their procedure of applicant selection. In case of internal labor markets emphasis is put on the design of career systems and its problems.

In the second part of the course we focus on the design of incentive systems. On the one hand incentive systems should be an instrument for attracting qualified employees and on the other hand they are supposed to commit these employees to the company. Thereby we are concentrating on incentive systems for executives, especially on the arrangement of stock options models, which can be seen as the central component of a flexible remuneration. For the evaluation of these models also motivational theories are discussed. The distinction between intrinsic and extrinsic incentives plays a special role.

This course aims at providing the students with analytical instruments as well as practical methods, which might be necessary for working in a company's human resource department or as an executive.

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| Hours per Week / Semester: 3 / summer | Teaching Method: Mixture of Lecture and Seminar |
| Credits: 5 | Examination: 6 short tests during the semester 1 hour written examination |

This course is taught **in German**.

Entrepreneurship in high-growth companies

Wachstumsorientierte Unternehmensgründung

Precondition for participation: Basic lectures in Business Administration (mandatory module 1)

Objectives/contents:

In recent years the importance of the topic “entrepreneurship” has gained considerably. This lecture is meant to give an introduction into the topic as well as to provide tools for a potential job in an early stage enterprise – or even for company foundation.

At the same time we act on the assumption that also mature companies should look into topics on foundation to maintain and improve their own dynamic. In the English speaking world it is spoken of “intrapreneurship” instead of “entrepreneurship”.

The adjunct “growth-orientated” emphasizes the aspect of foundation of technology-intensive enterprises, which are dependent on venture capital investors and are likely to employ numerous people in the future. Small and medium sized business start-ups are meant to a lesser extent.

One focus of this lecture lies on biotechnology. Biotechnology firms are often mentioned in association with highlighting specific aspects of company foundation.

Moreover business plans play an important role in this lecture. In particular sessions we deepen parts of designing a business plan.

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| Hours per Week / Semester: 3 / summer | Teaching Method: Lecture & Tutorial |
| Credits: 5 | Examination: 1 hour written examination |

This course is taught **in German**.

Master Program

Human Resources & Organization II

Grundlagen Personal und Organisation II

Precondition for participation: Solid fundamental knowledge of “human resource management and organization”, gained within a Bachelor program of study

Objectives/contents:

In the German theory of business administration “human resource management” and “organization” are usually divided into two different subjects. This lecture aims at giving an alternative, integrating view: A company’s organization is seen as a medium that determines the performance of the employees. In the worst case it might be a kind of “iron cage” (Max Weber) which hinders motivation and creativity of the employees. Whereas in the best case the organization supports “empowerment” of its employees. Evidence is given that successful companies practice this empowerment.

This lecture is subdivided into 10 units:

Part 1: clarification of the relationship between companies, market and organization; what makes companies to organizations and why is it economically useful to carry out transactions within an organization and not in the market?

Part 2: Following the new economic literature two fundamental problems are to solved in organizations: problem of coordination and motivation. It is obvious that these two problems lead to that what is traditionally called “human resource management”. Especially at this point our integrative view turns out to be appropriate.

Part 3-6: Focus on different theories and perspectives dealing with the point of view on the problem of coordination and motivation. Emphasis is put on new economic approaches (Property Rights Theory, Transaction Cost Theory and Agency Theory), behavioral theories (Motivation Theory, Incentive/Contribution Theory), selected social academic theories (Theories of “life world” and Communication Media) as well as the resource based view of the firm, which plays an important role in the recently upcoming discussion on strategy. Hereby we focus on how companies can build up competitive advantages and how they can be defended against competitors.

Part 7: Incentive-compatible compensation and career policy; this is the last required ingredient for allowing us to have an intensive view on two unusual and therefore hopefully interesting fields of application: universities (*Part 8*) and music orchestras (*Part 9*). Afterwards we try to give an outlook on how the outlines of a concept of future-orientated organizations can be designed.

Overall you have to be aware of the fact that in this lecture we put our emphasis on the theoretical background. But theory is never seen as an end in itself but in connection with highly practical problems of coordination and motivation (as can be seen in our two units of applications). This may help to be able to structure and grasp complex issues.

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| Hours per Week / Semester: 3 / winter | Teaching Method: Mixture of Lecture and Seminar |
| Credits: 5 | Examination: 1 hour written examination |

This course is taught **in German**.

The Future of Work and Leadership

Course and partial exam:

Precondition for participation: Solid fundamental knowledge of “human resource management and organization”, gained within a Bachelor program of study; We suggest to participate parallel in “human resource management and organization II”

Objectives/contents:

The revolutionary development in information technology, which took place in recent years, and the resulting implications lead to far reaching changes of a company’s organization. The course aims at providing an overview over potential changes in working and organizational structures.

One important phenomenon in this context is the creation of network or virtual organizations. This leads to changes in working structures as well: in former times standard employment relationships, definite working hours, local presence and obvious hierarchies have been the classical forms of organization of work. In the century of virtual organizations this is not true anymore. Key words like “tele-work”, “tele-cooperation”, “tele-learning”, “free-lancer”, “e-lancer”, “virtual team work” and many more become more and more meaningful.

Of course, even today the majority of employees are employed in relatively well structured employment relationships and most of them have clearly defined working fields. But due to increasing flexibility issues, globalization and high pressure of the competitors companies are forced to assimilate, think controversial and modernize – even in the old economy nothing will stay the same. Thereby we are interested in the potentials arising through the described development for a better efficacy and efficiency for companies. Moreover the question of consequences for people resulting from the new work forms and again their implications for efficacy and efficiency of organizations is of interest.

Whatever the organization of the future will look like – “leadership” will play a central role. The second part of the course therefore deals with this topic. The most important leadership theories will be described and discussed; furthermore different examples of prominent executives will be dealt with extensively.

The overall aim of the course is to strengthen critical awareness for actual challenges in the field of human resource management and organization and to support the ability to discuss.

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| Hours per Week / Semester: 3 / winter | Teaching Method: Mixture of Lecture and Seminar |
| Credits: 5 | Examination: 6 short tests during the semester 1 hour written examination |

This course is taught in English.

Strategic Management, Knowledge-based Organization and Organizational Change

Precondition for participation: Solid fundamental knowledge of “human resource management and organization”, gained within a Bachelor program of study;

We suggest participating in “human resource management and organization II” beforehand

Objectives/contents:

The work in industrial countries has changed in recent years. Knowledge and skills form more and more the base of value creation; the importance of material resources is decreasing. Right now we find ourselves in the knowledge-based society. For individuals life-long learning turns out to be a necessary precondition for professional success. But also organizations have to learn permanently and broaden their knowledge on customers, products and markets for being able to survive in this dynamic environment. To put it different: Organizations are facing a continuous change. The question is how this change can be dealt with and which actual problems occur.

In this course the connection between the two topics “knowledge” and “change” should be stressed and relevant concepts and approaches be discussed. The objective of this course is to become familiar with essential theoretical and explanatory approaches and practical implications in the fields of “knowledge” and “organizational change”. Starting point is that both fields “human resource management” and “organization” cannot be separated, but complement one another. Either a knowledge-based organization or organizational learning cannot be considered independently from individuals. This means that in this course organizational and human resource aspects are closely linked to each other.

The conceptual framework of this course is offered by an introduction in the basics of strategic management.

After having attended this course all participants should be able to evaluate the possibilities and limitations of the discussed approaches and apply them to the analysis of actual developments and problems.

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| Hours per Week / Semester: 3 / summer | Teaching Method: Mixture of Lecture and Seminar |
| Credits: 5 | Examination: 1 hour written examination |

This course is taught **in English**.

3.1.7 Operations Management and Business Logistics

Prof. Dr. Eric Sucky

Chair of Business Administration, Operations Management and Business Logistics

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Internet: <http://www.uni-bamberg.de/sowi/logistik>**Basic Studies (1st and 2nd year)****Production & Logistics Management I***Produktions- und Logistikmanagement I*

Basic structures and concepts of production and logistics; production theory, cost theory; inventory and production decision making

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|---|---|
| Hours per Week / Semester: 3 / summer | Teaching Method: Lecture & Tutorial |
| Credits: 5 | Examination: 1 hour written examination |

Advanced Studies (3rd and 4th year)**Logistics I: Operational Decision Making in Business Logistics***Logistik I: Logistisches Prozessmanagement*

Basic logistical concepts; importance of logistics; objectives of business logistics, process management; activity-based costing; order processing, vehicle routing and scheduling; freight consolidation; transportation planning problems; purchasing and supply chain scheduling decisions; benchmarking and performance measurement

| | |
|---|---|
| Hours per Week / Semester: 3 / summer | Teaching Method: Lecture & Tutorial |
| Credits: 5 | Examination: 1 hour written examination |

Logistics II: Strategic and Tactical Decision Making in Business Logistics*Logistik II: Management von Logistiknetzwerken*

Typical problems of logistical system design and management; model driven optimization; urgent problems and challenges of logistical system; layout and logistics management; components and planning principles of logistical systems in industry and trade; decision structures in transportation companies; macro-logistical units; facility location decisions; distribution strategy: centralized versus decentralized, direct shipment, cross docking, pull or push strategies, third party logistics.

| | |
|---|---|
| Hours per Week / Semester: 3 / winter | Teaching Method: Lecture & Tutorial |
| Credits: 5 | Examination: 1 hour written examination |

Operations Management I: Operational Decision Making in Operations Management*Operations Management I: Produktionsplanung und -steuerung*

Introduction to operations management, levels of planning, the importance of inventory management and production planning and scheduling; forecasting; inventory management; lot sizing, short-range production scheduling

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|---|---|
| Hours per Week / Semester: 3 / winter | Teaching Method: Lecture & Tutorial |
| Credits: 5 | Examination: 1 hour written examination |

Operations Management II: Strategic and Tactical Decision Making in Operations Management*Operations Management II: Potenzialplanung*

Operations strategies; measures of effectiveness for inventory management, aggregate production planning; MRP (materials requirements planning) MRP II (manufacturing resource planning); just-in-time, kanban, FMS (flexible manufacturing systems), layout strategy; location strategies

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|---|---|
| Hours per Week / Semester: 3 / summer | Teaching Method: Lecture & Tutorial |
| Credits: 5 | Examination: 1 hour written examination |

Supply Chain Management

Supply chains and supply chain management; process view and institutional view, objectives of supply chains, decision phases in supply chain management; strategic supply chain management: strategic network optimization, strategic partnerships, information technology infrastructure, make or buy decisions; tactical supply chain management: aggregate planning in supply chains, master planning, sourcing contracts and other purchasing decisions; operational supply chain management: production operations, available-to-promise, supply chain risk management, profit-to-promise

| | |
|---|---|
| Hours per Week / Semester: 2 / winter | Teaching Method: Lecture |
| Credits: 3 | Examination: 1 hour written examination |

Supply Chain Management Seminar

The seminar in "Supply Chain Management" comprises a combination of three types of academic work: homework, presentation and active discussion. The topics of the seminar cover the entire range of supply chain management.

| | |
|---|---|
| Hours per Week / Semester: 2 / summer | Teaching Method: Seminar |
| Credits: 5 | Examination: Essay, presentation, continuous assessment |

Course of the general program**Production & Logistics Management II***Produktions- und Logistikmanagement II*

Principles and basic structures and concepts of production and logistics management: forecasting, production planning, material requirements planning, purchasing decisions, lot sizing, production scheduling, transportation planning

| | |
|---|---|
| Hours per Week / Semester: 3 / winter | Teaching Method: Lecture & Tutorial |
| Credits: 5 | Examination: 1 hour written examination |

3.1.8 Financial Accounting, Auditing and Business Taxation

Prof. Dr. Peter Kupsch

Chair of Financial Accounting, Auditing and Business Taxation

Feldkirchenstr. 21

D-96045 Bamberg

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Fax: +49 (0)951 863-2546

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Internet: <http://www.uni-bamberg.de/sowi/steuerwp>

As this Chair is going to be staffed by another professor in the close future, please check the website or the notice board of the Chair for further information.

3.2 Module Descriptions: Economics

3.2.1 Economic Policy

Prof. Frank Westerhoff
 Chair of Economic Policy
 Feldkirchenstr. 21
 D-96045 Bamberg
 Tel.: +49 / 0951 / 863-2634
 Fax: +49 / 0951 / 863-5635
 E-Mail: frank.westerhoff@uni-bamberg.de
 Internet: <http://www.uni-bamberg.de/vwl-wipo/>

Bachelor Program

Macroeconomics II

Makroökonomie II

Introduction to Macroeconomic Foundations, Part II. Contents: The role of expectations; the open economy; pathologies; monetary and fiscal policy reconsidered.

| | |
|---|---|
| Hours per Week / Semester: 3 / summer | Teaching Method: Lecture and Tutorial |
| Credits: 6 | Examination: 1 hour written examination |

Monetary Policy of the European Central Bank

Geldpolitik der europäischen Zentralbank

Key topics include of this course include: money demand; money supply; money market equilibrium; money and the real economy; money and inflation; goals, strategies and instruments of the European Central Bank.

| | |
|---|---|
| Hours per Week / Semester: 3 / winter | Teaching Method: Lecture and Tutorial |
| Credits: 6 | Examination: 1 hour written examination |

Empirical Macroeconomics

Empirische Makroökonomik

The primary goal of this course is to provide an introduction into econometric theory. The main results are illustrated with the help of macroeconomic examples. In particular, we focus on the linear regression model and violations of its core assumptions.

| | |
|---|---|
| Hours per Week / Semester: 3 / winter | Teaching Method: Lecture and Tutorial |
| Credits: 8 | Examination: 1 hour written examination |

Master Program

Financial Market Dynamics

Finanzmarktdynamik

We introduce several agent-based financial market models in which agents rely on technical and fundamental trading rules to determine their speculative investment positions. These (nonlinear dynamic) models are mainly explored through computer simulations.

| | |
|---|---|
| Hours per Week / Semester: 3 / winter | Teaching Method: Lecture and Tutorial |
| Credits: 6 | Examination: 1 hour written examination |

Regulation and Control of Financial Markets

Regulierung und Kontrolle von Finanzmärkten

Using agent-based financial market models as an artificial laboratory, we numerically explore the effectiveness of transaction taxes (Tobin tax), central bank interventions, trading breaks and price controls.

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|---|---|
| Hours per Week / Semester: 3 / summer | Teaching Method: Lecture and Tutorial |
| Credits: 6 | Examination: 1 hour written examination |

Economic Dynamics

Dynamische Wirtschaftspolitik

In this course we discuss first-order linear difference equations, second-order linear difference equations, higher-order linear difference equations, linear difference equations systems, first-order nonlinear difference equations, second-order nonlinear difference equations, higher-order nonlinear difference equations and nonlinear difference equations systems with the help of numerous economic examples.

| | |
|---|---|
| Hours per Week / Semester: 3 / summer | Teaching Method: Lecture and Tutorial |
| Credits: 6 | Examination: 1 hour written examination |

3.2.2 International Economics

Prof. Dr. Carsten Eckel
 Chair of International Economics
 Feldkirchenstr. 21
 D-96045 Bamberg
 Tel.: +49 / 0951 / 863-2582
 +49 / 0951 / 863-2583
 Fax: +49 / 0951 / 863-5582
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 Internet: <http://www.uni-bamberg.de/sowi/eckel>

Bachelor Program

Macroeconomics I

Makroökonomik 1

The course offers an introduction to macroeconomics. An overall framework will be developed to allow a first application to current macroeconomic issues in the short, medium and long run. Topics covered are theoretical and empirical principles of macroeconomics, short-run analysis (IS/LM model), medium-run analysis (AS/AD model) and a long-run analysis (Solow Growth Model).

| | |
|---|---|
| Hours per Week / Semester: 3 / winter | Teaching Method: Lecture & Tutorial |
| Credits: 6 | Examination: 1 hour written examination |

Introduction to European and International Economics

Einführung in die Europäische und internationale Wirtschaft

The impact of international trade and financial relations on consumers, business and economic policy increases constantly. International interdependencies between different economies and their consequences trigger a controversial discussion under the keyword of globalization. The course gives an overview of basic and present problems concerning European and international relations. Furthermore, it will enable students to analyse current external issues such as the problem of outsourcing to Eastern Europe; experiences of EU enlargement and problems caused by the Stability and Growth Pact; reforms in China and India and the challenge they pose to trade agreements and trade policy; the impact of globalization and dollarization on the world economy as well as a survey of different facets of international trade (Who are the participants and which goods/services do they offer?). The course aims at imparting a basic understanding and an objective evaluation of risks and chances posed by globalization so as to help students in their future decision-making process.

| | |
|---|---|
| Hours per Week / Semester: 3 / summer | Teaching Method: Lecture & Tutorial |
| Credits: 6 | Examination: 1 hour written examination |

Master Program

International Economics:

International Trade I

International trade is a cornerstone concept in economics, and the past twenty years have seen a number of new theoretical approaches that are essential to understanding the modern global economy. The course "International Trade I" takes an in-depth look at the causes and consequences of international trade. Students will become acquainted with the standard models of international trade and learn how to apply these models to real world problems. The course covers traditional theories of international trade (Ricardo, Heckscher-Ohlin, extensions to many goods and many factors, and the role of tariffs, quotas, and other trade policies) as well as more recent developments such as trade in intermediate inputs, offshoring and aspects of political economy. The course and the tutorial are presented in English.

| | |
|---|---|
| Hours per Week / Semester: 6 / summer | Teaching Method: Lecture & Tutorial |
| Credits: 6 | Examination: 1 hour written examination |

International Trade II

This course builds on the insights gained in International Trade I and introduces students to the causes and consequences of international trade in imperfect markets. It covers intraindustry trade based on increasing returns to scale (New Trade Theory), trade based on market power in oligopolistic markets, intrafirm trade and multinational enterprises, and aspects of outsourcing.

The course and the tutorial are presented in English and based on a reading list of scholarly articles. Students will learn to work with journal articles and gain an understanding of up-to-date research in international trade.

| | |
|---|--|
| Hours per Week / Semester: 6 / summer | Teaching Method: Lecture & Tutorial; Seminar |
| Credits: 6 | Examination: 1 hour written examination & 20-minute presentation |

International Macroeconomics I

Internationale Makroökonomik I

The course “International Macroeconomics I” gives an overview of the current progress in research and familiarizes students with methods of the so-called New Open Economy Macroeconomics. In order to do so various relevant questions will be discussed: What are the consequences of long lasting trade deficits and trade surpluses? How does the increasingly intense international integration of capital markets influence national business cycles? Is there an observable trend of convergence of per capita incomes earned in developing and industrial economies? Answering these questions is important to understand decision-making in politics and the economy. The inter-temporal trade balance, dynamics of smaller economies, foreign exchange rates, the Terms of Trade, global interdependencies, economy growth, and nominal price rigidities are the topics discussed.

| | |
|---|---|
| Hours per Week / Semester: 3 / winter | Teaching Method: Lecture & Tutorial |
| Credits: 6 | Examination: 1 hour written examination |

Seminar “International Macroeconomics”

Seminar zur Internationalen Makroökonomik

The presentation themes assigned for the seminar “International Macroeconomics” will cover recent macroeconomic questions and/or modern macroeconomic methods of analysis. Among these are the determinants of the current account balance, economic growth and business cycles in open economies, the potential and limitations of fiscal and monetary policy measures in open economies, and employment and unemployment open economies. The students will not only learn how to work scientifically but also deepen their understanding of international macroeconomic relations.

Specific Macroeconomics

Spezielle Makroökonomik

The course builds on the knowledge imparted in the Macroeconomics 1 & 2 lectures. It uses this new understanding to introduce modern methods of macroeconomic analysis such as the New Growth Theory, real business cycles, the new Keynesian Macroeconomics, and theories of unemployment. The course seeks to identify major economic questions, which deal with the determinants and dynamics of macroeconomic variables.

| | |
|---|---|
| Hours per Week / Semester: 3 / winter | Teaching Method: Lecture & Tutorial |
| Credits: 6 | Examination: 1 hour written examination |

3.2.3 Public Finance

Prof. Dr. Dr. h.c. Heinz-Dieter Wenzel

Chair of Public Finance

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Bachelor Program**Microeconomics 1***Mikroökonomik 1*

Introduction to Microeconomic Foundations, Part I: Introduction to Axiomatic Modelling of Household Behavior. Theory of Consumer Demand: Budget Constraint, Preferences, Utility Functions, Household Demand, Consumer Demand, Slutsky Equation. Theory of Consumer Supply. Intertemporal Choice. Uncertainty.

| | |
|---|---|
| Hours per Week / Semester: 3 / winter | Teaching Method: Lecture and Tutorial |
| Credits: 6 | Examination: 1 hour written examination |

Microeconomics 2*Mikroökonomik 2*

Introduction to Microeconomic Foundations, Part II: Axiomatic Modelling of the Firm, Partial and Total Equilibrium Analysis, Imperfect Competition. Theory of the Firm: Production Technology, Cost Minimization, Profit Maximization, Firm Supply, Industry Supply, Intertemporal Choice. Partial Equilibrium Analysis. Total Equilibrium Analysis: Perfect Competition, Supply, Demand, Equilibrium, Edgeworth Box, Pareto Efficiency. Imperfect Competition: Monopoly, Monopolistic Competition, Oligopoly. Game Theory (and Imperfect Competition). Externalities. Public Goods. Asymmetric Information.

| | |
|---|---|
| Hours per Week / Semester: 3 / summer | Teaching Method: Lecture and Tutorial |
| Credits: 6 | Examination: 1 hour written examination |

Public Economics 1: Introduction to Public Economics*Öffentliche Finanzen 1: Einführung in die Finanzwissenschaft*

The Public Sector in a Mixed Economy, The Public Sector in Germany, Welfare Economics, First-Best and Second-Best, Public Goods, Public Choice, Externalities, Cost-Benefit-Analysis, Taxation, Taxation and Growth, Public Debt, Social Security, Fiscal Federalism.

| | |
|---|---|
| Hours per Week / Semester: 3 / winter | Teaching Method: Lecture and Tutorial |
| Credits: 6 | Examination: 1 hour written examination |

Public Economics 2: European Public Finance*Öffentliche Finanzen 2: Finanzpolitik in Europa*

Fiscal Constitution, Revenue and Expenditure System in Germany and Europe, Tax Incidence, Taxation and Efficiency, Taxation and Equity, Optimal Taxation, Tax System and Tax Reform in Germany and Europe. Fiscal Federalism, Decentralization, Local Public Goods and Resource Allocation, Fiscal Equalization, Intergovernmental Grants

| | |
|---|---|
| Hours per Week / Semester: 3 / summer | Teaching Method: Lecture and Tutorial |
| Credits: 6 | Examination: 1 hour written examination |

Master Program**Public Finance 1: Allocation: Theory and Policy***Finanzwissenschaft 1: Staatsausgaben*

General Equilibrium, General Equilibrium and Welfare Economics, Public Goods and Publicly Provided Goods, Externalities, Cost-Benefit Analysis, Public Choice, Public Administration and Bureaucracies.

| | |
|---|---|
| Hours per Week / Semester: 3 / winter | Teaching Method: Lecture and Tutorial |
| Credits: 6 | Examination: 1 hour written examination or Research Paper |

Public Finance 2: Taxation: Theory and Policy*Finanzwissenschaft 2: Staatseinnahmen (Steuertheorie und -politik)*

Tax Incidence in a Competitive Equilibrium Model, Optimal Taxation, Taxation and Distribution.

| | |
|--|---|
| Hours per Week / Semester: 3 / summer 2009 | Teaching Method: Lecture and Tutorial |
| Credits: 6 | Examination: 1 hour written examination or Research Paper |

Public Finance 3: Public Debt*Finanzwissenschaft 3: Staatsverschuldung*

Government and Growth, Growth and Dynamics, Public Debt and Growth, Public Debt and Stability, Public Investment and Economic Growth, Stability Pact in Europe, Social Security Issues, Fiscal Externalities in Federal States and Growth

| | |
|---|---|
| Hours per Week / Semester: 3 / winter 2008/09 | Teaching Method: Lecture and Tutorial |
| Credits: 6 | Examination: 1 hour written examination or Research Paper |

Public Finance 4: International Taxation*Finanzwissenschaft 4: Internationale Besteuerung*

International Tax Principles: Direct and Indirect taxes, VAT in the European Union, Capital Income Taxation and Resource Allocation, Double Taxation and Double Tax Treaties, Tax Competition and Tax Harmonization.

| | |
|--|--|
| Hours per Week / Semester: 3 / summer 2008 | Teaching Method: Lecture / Main Seminar |
| Credits: 6 | Examination: 1 hour written examination or Research Paper and presentation |

Public Finance 5: Fiscal Policy*Finanzwissenschaft 5: Fiskalpolitik*

Neoclassical Synthesis, Fiscal Policy, Monetary Policy, Government Budget Restraint and Intrinsic Dynamics, Fiscal Externalities in Federal States.

| | |
|--|---|
| Hours per Week / Semester: 3 / summer 2008 | Teaching Method: Lecture and Tutorial |
| Credits: 6 | Examination: 1 hour written examination or Research Paper |

3.2.4 Social Policy

Prof. Dr. Johannes Schwarze
 Chair of Economics and Social Policy
 Feldkirchenstrasse 21
 D-96045 Bamberg
 Tel.: +49 /0951 / 863-2600
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Please watch the board of the chair for possible changes!

Basic Studies (1st and 2nd year)

Introduction to Economics

Einführung in die VWL

Introduction to microeconomic and macroeconomic foundations: Opportunity costs, market mechanism, household behavior, theory of the firm, macroeconomic ex post and ex ante analysis.

| | |
|---|---|
| Hours per Week / Semester: 3 / winter | Teaching Method: Lecture and Tutorial |
| Credits: 6 | Examination: 1 hour written examination |

Advanced Studies (3rd and 4th year)

An introduction to social policy

Einführung in die Sozialpolitik

Stylized facts, historical background, the existence of the welfare state: social justice and market failure, the German social security system: retirement pensions, health care, poverty.

| | |
|---|---|
| Hours per Week / Semester: 2 / winter | Teaching Method: Lecture |
| Credits: 6 | Examination: 1 hour written examination |

Social policy and the labor market

Sozialpolitik und der Arbeitsmarkt

The German Labor market, labor supply, labor demand, labor incentives: income taxes and benefits, income support, marginal employment.

| | |
|---|---|
| Hours per Week / Semester: 2 / summer | Teaching Method: Lecture |
| Credits: 6 | Examination: 1 hour written examination |

Health economics*Gesundheitsökonomik*

The German health care system, defining health, willingness to pay, microeconomic model of health demand and supply, health insurance: private and public.

| | |
|---|---|
| Hours per Week / Semester: 2 / summer | Teaching Method: Lecture |
| Credits: 6 | Examination: 1 hour written examination |

Income inequality and poverty*Einkommensungleichheit und Einkommensarmut*

The personal distribution of income in an international view: stylized facts, explaining the distribution of income, measuring income distribution, poverty and poverty measurement.

| | |
|---|---|
| Hours per Week / Semester: 2 / winter | Teaching Method: Lecture |
| Credits: 6 | Examination: 1 hour written examination |

Introduction to the German Socio-Economic Panel Study (GSOEP)*Einführung in die Arbeit mit dem SOEP*

The GSOEP is an international-wide used representative longitudinal study of private households. The Panel was started in 1984. In 2000, there were more than 12,000 households, and more than 20,000 persons sampled. Learn to work with the GSOEP using SPSS, SAS or STATA.

| | |
|---|---|
| Hours per Week / Semester: 2 / summer | Teaching Method: Lecture and Tutorial |
| Credits: - | Examination: On request |

Course of the general program**Distribution and redistribution of income***Einkommenstverteilung und Einkommensumverteilung*

Macroeconomic theory of income distribution, measuring the personal distribution of income, microeconomic aspects of the wage structure, human capital theory, earnings equations, efficiency theory.

| | |
|---|---|
| Hours per Week / Semester: 2 / winter | Teaching Method: Lecture |
| Credits: 6 | Examination: 1 hour written examination |

Empirical microeconomics (Econometrics II)*Empirische Mikroökonomik*

Micro-data, the classical linear regression model, heteroskedasticity, linear models of panel data, binary choice models, maximum-likelihood estimation, logit and probit models.

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|---|---|
| Hours per Week / Semester: 2 / winter | Teaching Method: Lecture and Tutorial |
| Credits: 8 | Examination: 1 hour written examination |

3.2.5 Integration of European Labour Markets

Prof. Dr. Herbert Brücker

Chair of Economics and Integration of European Labour Markets

Feldkirchenstrasse 21

D-96045 Bamberg

Tel.: +49 /951 / 863-2633

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E-Mail: herbert.bruecker@uni-bamberg.de

Internet: <http://www.uni-bamberg.de/sowi/economics/bruecker/home.html>

Basic Studies (2nd and 3rd year)

Theory and Politics of European Integration

Theorie und Politik der Europäischen Integration

Introduction to the economics and politics of European integration: institutions of the Common Market, trade, capital movements, migration, monetary integration and related European policies. The exam can be written in English.

| | |
|---|---|
| Hours per Week / Semester: 2 / winter | Teaching Method: Lecture. |
| Credits: 6 | Examination: 1 hour written examination |

International Migration and the Labour Market

English is the working language

The seminar will apply quantitative empirical methods to address these topics related to international migration: determinants of migration, self-selection of migrants and the brain drain, labour market effects of migration. Knowledge of econometrics and software skills (STATA, EViews) are of advantage.

| | |
|---|--|
| Hours per Week / Semester: 2 / summer | Teaching Method: Seminar |
| Credits: 6 | Examination: Paper and presentation. |

3.3 Module Description: Business Education

Prof. Dr. Detlef Sembill
 Chair of Business and Human Resource Education
 Kapuzinerstr. 25
 D-96045 Bamberg
 Tel.: +49-951 863-2760
 Fax: +49-951 863-2762
 E-Mail: detlef.sembill@uni-bamberg.de
 Internet: <http://www.uni-bamberg.de/sowi/wipaed>

Basic Information: The program prepares students for careers as teachers in vocational schools as well as trainers in business environments, human resource experts, consultants, and the like. Pedagogical and psychological modules make up roughly one fourth of the program, while the rest of the degree scheme consists primarily of business and management courses.

Basic Studies (Bachelor)

Introduction to educational studies

GLA: Grundlagen des Lernens und Arbeitens

This module aims at the question of how people learn. It deals with the biological and psychological preconditions of learning and especially focuses the interplay of emotional, motivational and cognitive aspects. The course also addresses the influences of learning strategies, learning styles, perception, memory etc. First implications for an adequate design of learning environments in school as well as in work settings are discussed.

| | |
|---|--|
| Hours per Week / Term: 4 / winter | Teaching Method: Lecture and exercise course |
| Credits: 6 | Examination: 90 minutes written examination |

Learning and teaching in vocational education and training

UWP: Planung und Durchführung von Unterrichtsprozessen

This module primarily aims at the question of how to foster learning in vocational education and training. Besides the design of learning environments, the module also deals with the historical development, institutions and stakeholders of vocational education.

| | |
|---|---|
| Hours per Week / Term: 4 / summer | Teaching Method: Seminar |
| Credits: 6 | Examination: Presentation and paper |

Advanced Studies (Master)

Learning and teaching arrangements / Self-organised Learning

LLA: Komplexe Lehr-Lern-Arrangements

Since the early nineties many authors have stressed the advantages of complex learning environments. One adequate method is the so-called "self-organised learning"-approach. This way of teaching and learning resembles a complex problem solving process in which students actively learn in a realistic context. Characteristics, development, and empirical findings of self-organised learning will be presented and discussed within the lecture. The exercise course deals with the concrete design of self-organised learning environments including the creation of teaching material in the subject "accountancy".

| | |
|--|---|
| Hours per Week / Term: 4 / summer and winter | Teaching Method: Lecture and exercise course (e-learning) |
| Credits: 6 | Examination: miscellaneous |

Methods and results of research on teaching and learning

LLF: Methoden und Ergebnisse der Lehr-Lern-Forschung

The exercise course deals with basics of research methods and quantitative data analysis in the research field of teaching and learning. Selected research approaches and projects on learning and instruction as well as current empirical results are presented and discussed in the lecture.

| | |
|---|--|
| Hours per Week / Term: 6 / summer | Teaching Method: Lecture and exercise course |
| Credits: 6 | Examination: Presentation and paper |

Educational management

BM: Bildungsmanagement

This seminar provides the students with the fundamental basics of educational management in the broader sense. Current issues of empirical research on and policy of vocational education are discussed with regard to effectiveness and efficiency. Depending on its particular main topic selected topics of human resource and organisation development as well as change and quality management might also be included.

| | |
|---|---|
| Hours per Week / Term: 4 / winter | Teaching Method: Seminar |
| Credits: 6 | Examination: Presentation and paper |

Course of the general program**Introduction to scientific working methods***EwA: Einführung in das wissenschaftliche Arbeiten*

The aim of this module is to prepare students with the skills and techniques necessary to successfully master their degree as well as to meet the demands of professional life. Amongst others, students will learn how to effectively search for literature, how to structure and compose scientific texts and how to present. Furthermore, the students get to know some basic empirical research methods. The practical applications are backed by the corresponding concepts of philosophy of science. This module addresses to freshmen.

| | |
|--|---|
| Hours per Week / Term: 3 / summer and winter | Teaching Method: Seminar (e-learning) |
| Credits: 5 | Examination: Teamwork, presentation, discussion, and exam |

3.4 Module Descriptions: Quantitative Methods/Statistics

3.4.1 Statistics and Econometrics

Prof. Dr. Susanne Rässler
 Chair of Statistics and Econometrics
 Feldkirchenstr. 21
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 Fax: +49 /0951 / 863-2532
 E-Mail: susanne.raessler@uni-bamberg.de
 Internet: <http://www.uni-bamberg.de/sowi/stat/>

Requirements: course language: German

Bachelor Program

Statistical Methods I

Methoden der Statistik I

Descriptive statistics and probability: frequencies, location and dispersion parameters, measures of concentration, correlation and regression, index numbers, seasonal adjustment

| | |
|---|--|
| Hours per Week / Semester: 3 (+ 1) / summer | Teaching Method: Lecture + Tutorial |
| Credits: 5 | Examination: 90 minute written examination |

Statistical Methods II

Methoden der Statistik II

Probability theorie: probability calculus, random variables, probability distributions, Chebychev inequality; Inferential statistics: law of large numbers, central limit theorem, point and interval estimation, significance tests (one-sample and two-sample tests, analysis of variance, chi-squared goodness-of-fit test), stratified samples, multiple regression

| | |
|---|--|
| Hours per Week / Semester: 3 (+ 1) / winter | Teaching Method: Lecture + Tutorial |
| Credits: 5 | Examination: 90 minute written examination |

Applied Statistics on PC

Angewandte Statistik am PC

Application of statistical methods, data analysis using modern software, evaluation and critical interpretation of results

Prerequisites: Statistical Methods I (+ II)

| | |
|---|--|
| Hours per Week / Semester: 2 / winter | Teaching Method: Lecture + Tutorial |
| Credits: 4 | Examination: 60 minute written examination |

Master Program

Introduction to Econometrics

Grundlagen der Ökonometrie

Classical multiple linear regression on the basis of ordinary least squares methods: specification, estimation, inference and prediction, heteroskedasticity, autocorrelation, multicollinearity, simultaneous equations models, instrument variable estimation, introduction to statistical software R

Prerequisites: Statistical Methods I + II

| | |
|---|---|
| Hours per Week / Semester: 2 (+ 2) / summer | Teaching Method: Lecture + Tutorial |
| Credits: 6 | Examination: 1 hour written examination |

Cross-sectional data analysis via ML

Analyse von Querschnittsdaten mittels ML

Maximum likelihood methods: models for qualitative, ordered, and limited dependent variables, generalized linear models, logistic regression, duration and count data models

Prerequisites: Statistical Methods I + II

| | |
|---|---|
| Hours per Week / Semester: 2 (+ 2) / summer | Teaching Method: Lecture + Tutorial |
| Credits: 6 | Examination: 20 oral examination |

Multivariate Data Analysis

Multivariate Verfahren

Multivariate probability distributions, distance measures, factor analysis, multidimensional scaling, analysis of variance, discriminant analysis, cluster analysis

Prerequisites: Statistical Methods I + II

| | |
|---|---|
| Hours per Week / Semester: 2 (+ 2) / summer | Teaching Method: Lecture + Tutorial |
| Credits: 6 | Examination: 1 hour written examination |

Time Series Analysis*Analyse von Zeitreihendaten*

Models for time series data: smoothing techniques, seasonal adjustment, stochastic processes, Box-Jenkins ARIMA identification, time series models of heteroskedasticity

Prerequisites: Statistical Methods I + II

| | |
|---|---|
| Hours per Week / Semester: 2 / winter | Teaching Method: Lecture |
| Credits: 6 | Examination Paper + presentation + discussion |

Panel Data Analysis*Analyse von Paneldaten*

Models for panel data: fixed effects models, random effects models, instrument variable estimation, dynamic linear models, models with limited dependent variables

Prerequisites: Statistical Methods I + II

| | |
|---|---|
| Hours per Week / Semester: 2 (+ 2) / winter | Teaching Method: Lecture + Tutorial |
| Credits: 6 | Examination: 20 minute oral examination |

Seminar to Computational Statistics*Rechnerintensive Verfahren der Statistik*

Computational intensive statistical methods: Bayes statistics, posterior distributions, pseudo random variable generation, Markov Chain Monte Carlo techniques, simulation techniques

Prerequisites: Statistical Methods I + II

| | |
|---|--|
| Hours per Week / Semester: 2 / winter | Teaching Method: Lecture |
| Credits: 6 | Examination: Paper + presentation + discussion |

Survey Sampling Methods*Stichprobenverfahren*

Methods of survey sampling: probabilities of selection and inclusion, Horwitz-Thompson type estimates, sampling procedures, nonresponse, weighting, imputation

Prerequisites: Statistical Methods I + II

| | |
|---|---|
| Hours per Week / Semester: 2 (+ 2) / winter | Teaching Method: Lecture + Tutorial |
| Credits: 6 | Examination: 1 hour written examination |

3.4.2 Business Mathematics

Dr. Reinhard Dobbener
 Department of Business Mathematics
 Feldkirchenstr. 21
 D-96045 Bamberg
 Tel.: +49 /0951 / 863-2541
 Fax: +49 /0951 / 863-5541
 E-Mail: reinhard.dobbener@uni-bamberg.de

Basic Studies (1st and 2nd year)**Mathematics for Economists I & II***Mathematik für Wirtschaftswissenschaftler I und II*

Basic methods of differential and integral calculus and linear algebra as far as needed for the study of business administration and economics.

| | |
|--|--|
| Hours per Week / Semester: 3 + 3 / winter and summer | Teaching Method: Lecture & Tutorial |
| Credits: 4 + 4 | Examination: 1 hour written examination each |

Static Optimization and Decision theory*Statische Optimierung und Entscheidungstheorie*

Special methods of static optimization; basic concepts and techniques of decision theory.

| | |
|---|---|
| Hours per Week / Semester: 3 / summer | Teaching Method: Lecture & Tutorial |
| Credits: 6 | Examination: 1 hour written examination |

Dynamic Optimization and Stability*Dynamische Optimierung und Stabilität*

Methods for the study of dynamic systems: difference equations, differential equations, dynamic optimization techniques.

| | |
|---|---|
| Hours per Week / Semester: 3 / winter | Teaching Method: Lecture & Tutorial |
| Credits: 6 | Examination: 1 hour written examination |

3.5 Module Descriptions: Economic and Social Law

3.5.1 Tax Law

Prof. Dr. Georg Crezelius
 Professor of Tax Law
 Feldkirchenstr. 21 / Room 249
 D-96052 Bamberg
 Tel.: +49/0951 / 863-2587
 Fax: +49/0951 / 863-2588
 e-Mail: elvira.mackert@uni-bamberg.de
 Internet: http://www.uni-bamberg.de/sowi/fachgebiete/sonstige_faecher/lehrstuhl_fuer_steuerrecht/

Bachelor (1st to 3rd year)

Introduction to Tax Law

Einführung in das Steuerrecht

Introduction into basic concepts, methods and institutions of german tax law.

| | |
|---|--|
| Hours per Week / Semester: 2 / summer | Teaching Method: Lecture |
| Credits: 3 | Examination: 1 hour lecture specific written examination |

Income Tax Law

Einkommensteuerrecht

Introduction into concepts and methods of german income tax law

| | |
|--|--|
| Hours per Week / Semester: 3 / winter (two-years-turn) | Teaching Method: Lecture |
| Credits: 4 | Examination: 1 hour lecture specific written examination |

Value-Added Tax Law

Umsatzsteuerrecht

Introduction into concepts and methods of german value-added tax law

| | |
|--|--|
| Hours per Week / Semester: 1 / winter (two-years-turn) | Teaching Method: Lecture |
| Credits: 2 | Examination: 1 hour lecture specific written examination |

General Tax Law

Allgemeines Steuerrecht

Introduction to procedural tax law and tax-specific law of obligations

| | |
|--|--|
| Hours per Week / Semester: 2 / summer (two-years-turn) | Teaching Method: Lecture |
| Credits: 3 | Examination: 1 hour lecture specific written examination |

Master (4rd and 5th year)**Corporate Tax Law***Bilanz- und Unternehmenssteuerrecht*

Taxation of different forms of Corporations (concepts and methods)

| | |
|--|--|
| Hours per Week / Semester: 4 / winter (two-years-turn) | Teaching Method: Lecture |
| Credits: 8 | Examination: 2 hour lecture specific written examination |

Auxiliary forms of Taxes*Nebensteuern*

Concepts and methods of succession and estate duties

| | |
|--|--|
| Hours per Week / Semester: 2 / summer (two-years-turn) | Teaching Method: Lecture |
| Credits: 4 | Examination: 1 hour lecture specific written examination |

3.5.2 Labor Law and Social Security

Prof. Dr. Dr. Ulrich-Arthur Birk
 Kärntenstr. 7
 D-96052 Bamberg
 Tel.: +49 /0951 / 863-2027
 Fax: +49 /0951 / 863-1180
 E-Mail: ulrich-arthur.birk@uni-bamberg.de

Advanced Studies (3rd and 4th year)

Labor Law

Arbeitsrecht

Individual Labor Law (basic terms; law relating to employment contracts: conclusion of an employment contract, obligations of employee and employer arising from the employment contract; termination of the employment contract) and collective labor law (basic terms, trade union and employer's associations, law of collective agreement, legal principles of strikes and lock-outs, fundamental ideas of the constitution law, especially co-determination in social matters and staff matters).

| | |
|---|---|
| Hours per Week / Semester: 2 (summer), 4 (winter) / summer and winter | Teaching Method: Lecture |
| Credits: 12 | Examination: Part of the final examination in „Labor Law and Law of Social Security“ (4 hour written and 20 minute oral examination) ----- 2 hour written examination (only for foreign students) |

Law of Social Security

Sozialversicherungsrecht

Basic terms and social security system: Social Code, „net“ of social security (social compensation, assistance to war victims, child benefit and child-raising allowance, housing allowance, educational assistance, social assistance, social insurance: health insurance, long-term care insurance, occupational accident insurance, unemployment insurance; protection of individual rights).

| | |
|--|---|
| Hours per Week / Semester: 2 (winter) and 4 (summer) / winter and summer | Teaching Method: Lecture |
| Credits: 12 | Examination: Part of the final examination in „Labor Law and Law of Social Security“ (4 hour written and 20 minute oral examination) ----- 2 hour written examination (only for foreign students) |

3.6 Module Descriptions: Sociology

3.6.1 Sociology I

Prof. Dr. Hans-Peter Blossfeld

Chair of Sociology I

Bamberg University

Lichtenhaidestr. 11

D-96045 Bamberg

Tel.: +49 /0951 / 863-2596

Fax: +49 /0951 / 863-5597

E-Mail: soziologie1@uni-bamberg.de

Internet: <http://www.uni-bamberg.de/sowi/soziologie-i/>

Basic Studies (1st and 2nd year)

Analysis of Social Structure – International and Historical Comparisons (Basic Courses)

(Courses alternately offered by Prof. Dr. Hans-Peter Blossfeld and Prof. Dr. Irena Kogan)

Analysis of Social Structure I

Sozialstruktur im internationalen und historischen Vergleich 1

| | |
|---|--|
| Hours per Week / Semester: 2 / winter | Teaching Method: Lecture |
| Credits: 5 / 6 ^a | Examination: <i>1 hour written examination (exam for Analysis of Social Structure I takes place only after the end of the whole course at the end of the summer term!)</i> |

^a 5 credit points for studies according to the BA exam regulations, 6 credits point for studies according to the diploma exam regulations.

Analysis of Social Structure II

Sozialstruktur im internationalen und historischen Vergleich 2

| | |
|---|---|
| Hours per Week / Semester: 2 / summer | Teaching Method: Lecture |
| Credits: 5 / 6 ^a | Examination: <i>1 hour written examination (exam for Analysis of Social Structure II takes place after the end of the whole course at the end of the summer term)</i> |

^a 5 credit points for studies according to the BA exam regulations, 6 credit points for studies according to the diploma exam regulations.

Education, Family and Employment in the Life Course (Applied Sociology)

The Chair of Sociology I continuously offers special applied seminars on sociology of the life course. Each of these seminars focuses on education, family or employment transitions, or combinations of events across these life spheres. Also courses introducing to (international comparative) life course research are offered on a regular basis.

Introduction to Life Course Research

Einführung in die internationale vergleichende Lebensverlaufsforschung

Lectures and seminars on this topic offer students an introduction to (international comparative) life course research. Key topics addressed: (sociological) definition the life course, key questions of life course research, basic concepts of life course research and international comparison, selected results for education, family and employment in the life course.

Family and the Life Course

Familie im Lebenslauf

Lectures and seminars focus on following problems: 1) family and social class; 2) gender roles and division of labour within families; 3) pluralization of family forms and living arrangements; 4) family as a solidarity system (contact, transfers, support); 5) starting a family: mate choice, marriage, generative behaviour, family developments

Education and the Life Course

Bildung im Lebenslauf

Lectures and seminars focus on the following problems: 1) educational attainment and social origin; 2) educational careers and transitions in the school system; 3) gender and educational careers; 4) education and vocational training; 5) international comparison of educational institutions. In each area we focus on historical developments, theories, methodological questions and results of empirical studies.

Employment and the Life Course

Arbeit und Beruf im Lebenslauf

Lectures and seminars include the following topics: 1) Education and entry into the labour market; 2) vocational training and transition into work; 3) determinants of career trajectories; 4) gender segregation and career development; 5) income inequality and job career.

| | |
|---|---|
| Hours per Week / Semester: 2 / every semester | Teaching Method: Lecture or Seminar |
| Credits: 5 / 6 ^a | Examination: <i>Oral presentation and paper/1 hour written exam</i> |

^a 5 credit points for studies according to the BA exam regulations, 6 credit points for studies according to the diploma exam regulations.

Communication and Internet (Applied Sociology)

The Chair of Sociology I also offers special applied courses on sociology of communication and the internet. These courses focus especially on the following 3 aspects in this area: 1) social inequalities and the internet, 2) sociology of the internet, 3) methods of online research.

Social Inequalities and the Internet

Soziale Ungleichheiten und Internet

These lectures and seminars focus on social structural issues of the information age. Courses' topics address the general discussion of the global and social digital divide in modern societies and ask in how far this contributes to persisting old and establishing new social inequalities. Furthermore, courses present selected results from innovative and latest sociological research studying new social phenomena emerging from the diffusion of the internet society.

Sociology of the Internet

Soziologie des Internets

Lectures and seminars on this topic offer students an introduction to social web research. Key topics addressed: online research, social web, virtual networks, forms of virtual cooperation, online dating.

Methods of Online Research

Methoden der Online-Forschung

Lectures and seminars give an introduction to current methodological and technical issues of online research. The program consists of two parts: 1) a methodological part discussing concepts of online survey design (like sampling and response issues, incentive strategies, principles of designing online questionnaires, etc.) and 2) a more practical part that is held in the computer lab and which addresses more technical issues of online research and imparts practical experiences in the field of online research to the students (for example, coding web-based questionnaires, using HTML and JavaScript, organising data collected from online surveys using database systems like MySQL).

| | |
|--|---|
| Hours per Week / Semester: 2 ^a / every semester | Teaching Method: Lecture or Seminar |
| Credits: 5 / 6 ^b | Examination: <i>Oral presentation and paper/1 hour written exam</i> |

^a Methods of online research: 4 hours per week.

^b 5 credit points for studies according to the BA exam regulations, 6 credit points for studies according to the diploma exam regulations.

Advanced Studies (3rd and 4th year)

General Sociology

Allgemeine Soziologie

The chair of Sociology I offers seminars in general sociology on the following topics:

- Rational choice theory and the analysis of structural social change
- Social change as a diffusion process
- Theoretical and empirical foundations of international comparative research
- Globalization and social inequality

| | |
|---|--|
| Hours per Week / Semester: 2 / winter or summer | Teaching Method: Seminar |
| Credits: 12 | Examination: Essays and presentation/2 hour written exam |

Family, Life Course and Aging Research (Applied Sociology)

Familie, Lebenslauf und Lebensalter (Spezielle Soziologie)

The chair of Sociology I continuously offers advanced seminars in family, life course and aging research:

- Advanced life course research I
- Advanced life course research II
- Collection of life course data
- Secondary analysis of longitudinal data sets
- Event history analysis I: Continuous models
- Event history analysis II: Discrete models

| | |
|--|--|
| Hours per Week / Semester: 2 ^a / winter or summer | Teaching Method: Seminar |
| Credits: 12 | Examination: Essay and presentation/2 hours written exam |

^a Event history analysis I, event history analysis II and collection of life course data: 4 hours per week.

3.6.2 Sociology II

Prof. Dr. Richard Münch

Chair of Sociology II

Lichtenhaidestr. 11

96045 Bamberg

Tel.: +49/ (0)951/ 863-2621

Fax: +49/ (0)951/ 863-1183

E-Mail: richard.muench@uni-bamberg.de

Internet: <http://www.uni-bamberg.de/ba6sz1/home.html>

Basic Studies (1st and 2nd year)**General Sociology – Basic Course (first and second year)****Introduction to General Sociology I**

Allgemeine Soziologie I

History, Basic terms; Classics: Comte, Spencer, Pareto, Durkheim, Marx, Weber, Simmel, Mead.

| | | |
|----------------------------------|--------------------------|-------------------------|
| Semester: Winter | Hours per week: 2 | Assessment: none |
| Type of tuition: Lectures | Examination: none | Credits: 0 |

Introduction to General Sociology II

Allgemeine Soziologie II

Structural functionalism, Symbolic Interactionism, Phenomenology and Ethno-methodology, Behavioural theory and Rational Choice, Systems theory, Critical theory.

| | | |
|----------------------------------|--|--|
| Semester: Summer | Hours per week: 2 | Assessment: certificate (2 hour written exam) |
| Type of tuition: Lectures | Examination: Part of the first diploma exam in Sociology (2 hours written exam) | Credits: 12 on the basis of an assessment |

Social theory – advanced courses (third and fourth year)**Social theory – basics (third year)***Allgemeine Soziologie I + II*

Theories of Society, systems theory and critical theory

| | | |
|---------------------------------|--|--|
| Semester: Winter/Summer | Hours per week: 2 | Assessment: certificate (2 hour written exam) |
| Type of tuition: Seminar | Examination: Part of diploma exam | Credits: 6 |

Social theory – selected problems (fourth year)*Gesellschaftstheorie: Ausgewählte Probleme*

Selected problems of social theory and contemporary debates

| | | |
|---------------------------------|--|--|
| Semester: Winter/Summer | Hours per week: 2 | Assessment: Seminar certificate (seminar paper) |
| Type of tuition: Seminar | Examination: Part of diploma exam | Credits: 6 |

Comparative Macrosociology (advanced courses)**Comparative Macrosociology – basics (third year)***Komparative Makrosoziologie*

Theoretical basics and empirical questions of comparative Macrosociology

| | | |
|---------------------------------|--|--|
| Semester: Winter/Summer | Hours per week: 2 | Assessment: certificate (2 hour written exam) |
| Type of tuition: Seminar | Examination: Part of diploma exam | Credits: 6 |

Comparative Macrosociology – selected problems (fourth year)*Komparative Makrosoziologie*

Selected problems and empirical research in comparative Macrosociology

| | | |
|---------------------------------|--|--|
| Semester: Winter/Summer | Hours per week: 2 | Assessment: Seminar certificate (seminar paper) |
| Type of tuition: Seminar | Examination: Part of diploma exam | Credits: 6 |

3.6.3 Transnational and Global Studies

Prof. Dr. Elmar Rieger
 Chair of Sociology of Transnational and Global Processes
 Feldkirchenstr. 21
 96045 Bamberg
 Tel.: +49/ (0) 951/ 863-2560
 Fax.: +49/ (0) 951/ 863-1200
 E-mail: elmar.rieger@uni-bamberg.de
 Internet: http://www.uni-bamberg.de/soziologie/professur_fuer_soziologie_transnationaler_und_globaler_prozesse/

Basic Studies (1st and 2nd year)

Globalization, Democracy and the Welfare State

| | |
|---|--|
| Hours per Week / Semester: 2 / winter | Type of tuition: Lecture |
| Credits: 6 | Examination: 2 hour written exam |

Sociology of International Organization

| | |
|---|------------------------------------|
| Hours per Week / Semester: 2 / summer | Type of tuition: Seminar |
| Credits: 6 | Examination: Essay |

Advanced Studies (3rd and 4th year)

Sociology of International Relations and International Law

| | |
|---|------------------------------------|
| Hours per Week / Semester: 2 / winter | Type of tuition: Seminar |
| Credits: 6 | Examination: Essay |

Sociology of European Integration

| | |
|---|------------------------------------|
| Hours per Week / Semester: 2 / summer | Type of tuition: Seminar |
| Credits: 6 | Examination: Essay |

Please note that *not* all these seminars are offered every semester – and that there will always be seminars which are equivalent. For details please check <http://univis.uni-bamberg.de/> or contact one of the staff members (for contact details see above).

3.6.4 Population Studies

Prof. Dr. Henriette Engelhardt-Wölfler

Chair of Population Studies

Lichtenhaidestraße 11, 3. Stock

D-96045 Bamberg

Tel.: +49 /0951 / 863-2645

+49 /0951 / 863-2644

Fax: +49 /0951 / 863-5644

E-Mail: henriette.engelhardt-woelfler@uni-bamberg.de

Internet: <http://www.uni-bamberg.de/sowi/bevoelkerung>**Basic Studies (1st and 2nd year)****Introduction into Population Studies:***Einführung in die Bevölkerungswissenschaft*

Part I: Historical background; Population Structure and Distribution; Part II: Population Processes and Movements: Fertility; Mortality, Health and Longevity; Migration; Population Change and Aging; Part III: Applied Demography,; Population projection and forecasting; Population policy

| | |
|---|---|
| Hours per Week / Semester: 2 / winter | Teaching Method: Lecture |
| Credits: 6/5 | Examination: 1 hour written examination |

Population Theory and History*Bevölkerungstheorie und Bevölkerungsgeschichte*

Introduction into history and theory of population studies: Part I: Population History; Part II: From Malthusianism to Demography in the Age of the Postmodern; Part III: Theories of population process: fertility, mortality, migration; Part IV: Population Policies

| | |
|---|---|
| Hours per Week / Semester: 2 / winter | Teaching Method: Seminar |
| Credits: 6/5 | Examination: Essay and presentation |

Population Analysis*Bevölkerungsanalyse*

Introduction into comparative population analysis: Part I: Definitions and basic concepts; Part II: Population Structures of Europe; Part III: Population Processes and Movements in contrast; Part IV: Applied Demography;

| | |
|---|---|
| Hours per Week / Semester: 2 / summer | Teaching Method: Seminar |
| Credits: 5 6/5 | Examination: Essay and presentation |

Tutorial Stata*Tutorium Stata*

The Department of Population Studies offers a Tutorial: Introduction into Stata.

| | |
|---|-------------------------------------|
| Hours per Week / Semester: 2 / every semester | Teaching Method: Tutorial |
| Credits: -/5 | Examination: - |

Advanced Studies (3rd and 4th year)**Introduction into Demographic Methods and Models***Einführung in die Methoden der Demographie*

Advanced Studies of Demographic Methods and Models: Concepts and Measures; Age-specific Rates and Probabilities; The Life Table and Single Decrement Processes; Multiple Decrement Processes; Increment-Decrement Processes; Fertility and Reproduction; Marriage and Divorce; Population Projection; The Stable Population Model; Age Patterns of Vital Events; Heterogeneity and Selection

| | |
|---|--|
| Hours per Week / Semester: 2 / every semester | Teaching Method: Seminar |
| Credits: 12/5 | Examination: 2 hours written examination |

Population processes and movements:*Hauptseminar Bevölkerungswissenschaft*

The Department of Population Studies continuously offers advanced seminars on:

- Fertility
- Mortality
- Public Health
- Regional Statistics
- Aging

| | |
|---|--|
| Hours per Week / Semester: 2 / every semester | Teaching Method: Seminar |
| Credits: 12/5 | Examination: 2 hours written examination or presentation and essay |

Demographic Research Project*Forschungspraktikum Bevölkerungswissenschaft*

Topics of the Empirical research project:

- Introduction into Stata
- Introduction into SHARE
- Project seminar

| | |
|---|---|
| Hours per Week / Semester: 4 / winter 4 / summer | Teaching Method: Lectures and Project Seminar |
| Credits: 12/10 | Examination: Presentation and final report |

For further information please contact the Department of Population Studies.

3.6.5 Sociology, especially Analysis of Social Structures

Prof. Dr. Irena Kogan

Chair of Sociology, esp. Analysis of Social Structures

Lichtenhaidestr. 11a

96045 Bamberg

Tel.: +49/ (0) 951/ 863-2675

Fax.: +49/ (0) 951/ 863-5644 or -1183

E-mail: irena.kogan@uni-bamberg.de

Internet: <http://www.uni-bamberg.de/fakultaeten/sowi/fachgebiete/soziologie/sozialstruktur/>

Basic Studies / Bachelor**Analysis of social structure – International and historic comparisons****Analysis of Social Structure I**

Sozialstrukturanalyse im internationalen und historischen Vergleich I

| | |
|---|---|
| Hours per Week / Semester: 2 / winter | Teaching Method: Lecture |
| Credits: 6 ECTS Points: 5 | Examination: 2 hour written examination (exam for Analysis of Social Structure I takes place only after the end of the whole course at the end of the summer term!) |

Analysis of Social Structure II

Sozialstrukturanalyse im internationalen und historischen Vergleich II

| | |
|---|--|
| Hours per Week / Semester: 2 / summer | Teaching Method: Lecture |
| Credits: 6 ECTS Points: 5 | Examination: 2 hour written examination (exam for Analysis of Social Structure II takes place only after the end of the whole course at the end of the summer term!) |

The Chair of Sociology, esp. Analysis of Social Structures, offers applied seminars in the analysis of social structure every semester with different and changing topics.

Analysis of Social Structure III / Special aspects of social structure analysis

Sozialstrukturanalyse im internationalen und historischen Vergleich III / Spezielle Aspekte der Sozialstrukturanalyse

| | |
|---|---|
| Hours per Week / Semester: 2 / every semester | Teaching Method: Seminar |
| Credits: 6 ECTS Points: 5 | Examination: Oral presentation and essay/1 hour written examination at the end of the summer term |

Migration studies**Introduction to Sociology of Migration***Einführung in die Migrationssoziologie*

| | |
|---|---|
| Hours per Week / Semester: 2 / summer | Teaching Method: Lecture |
| Credits: 6 ECTS Points: 5 | Examination: 1 hour written examination at the end of the summer term |

The Chair of Sociology, esp. Analysis of Social Structures, offers basic-level seminars on sociology of migration every semester with different and changing topics. Each of these seminars focuses on migration decisions and behaviour, integration of immigrants in various spheres of the society, ethnicity and ethnic relations, and migration policy.

Introduction to Sociology of Migration*Einführung in die Migrationssoziologie*

| | |
|---|---|
| Hours per Week / Semester: 2 / every semester | Teaching Method: Seminar |
| Credits: 6 ECTS Points: 5 | Examination: Oral Presentation and essay/1 hour written examination at the end of the summer term |

Advanced Studies**General sociology****Special aspects of social structure analysis***Spezielle Aspekte der Sozialstrukturanalyse*

| | |
|---|---|
| Hours per Week / Semester: 2 / every semester | Teaching Method: Seminar |
| Credits: 12 | Examination: Oral presentation and paper/1 hour written examination at the end of the summer term |

Migration studies**Theory and methodology of migration research***Theorie und Methodologie der Migrationsforschung*

| | |
|---|--|
| Hours per Week / Semester: 2 / winter | Teaching Method: Lecture |
| Credits: 12 | Examination: 2 hour written exam |

Research in migration sociology I - practical course*Forschungspraktikum Migrationssoziologie I*

| | |
|---|---|
| Hours per Week / Semester: 2 / winter | Teaching Method: Seminar/Practical course |
| Credits: 12 | Examination: Presentation at the end of the winter semester |

Research in migration sociology II - practical course*Forschungspraktikum Migrationssoziologie II*

| | |
|---|--|
| Hours per Week / Semester: 2 / summer | Teaching Method: Seminar/Practical course |
| Credits: 12 | Examination: Presentation of the Research Project with oral examination; takes place only after the end of the whole course at the end of the summer term! |

The Chair of Sociology, esp. Analysis of Social Structures, offers advanced and often applied seminars on sociology of migration every semester with different and changing topics. Each of these seminars focuses on migration decisions and behaviour, integration of immigrants in various spheres of the society, ethnicity and ethnic relations, and migration policy.

Special Aspects in Migration Sociology*Spezielle Aspekte der Migrationssoziologie*

| | |
|---|--|
| Hours per Week / Semester: 2 / every semester (with changing topics) | Teaching Method: Seminar |
| Credits: 12 | Examination: Oral Presentation and seminar paper |

Colloquium for Graduate Students*Kolloquium für Diplomanden und Doktoranden*

| | |
|---|---------------------------------------|
| Hours per Week / Semester: 2 / every semester (with changing topics) | Teaching Method: Colloquium |
| Credits: | Examination: No |

Please note that *not* all these seminars are offered every semester. For details please check <http://univis.uni-bamberg.de/> or contact one of the staff members (for contact details see above).

3.6.6 Methodology

Prof. Dr. Gerhard Schulze
Chair of Methods of Social Research
Feldkirchenstr. 21
D-96045 Bamberg
Tel.: +49 / (0)951 / 863-2628
Fax: +49 / (0)951 / 863-7200
E-Mail: gerhard.schulze@uni-bamberg.de
Internet: <http://www.uni-bamberg.de/sowi/empirie/>

Note:

- Foreign visiting students can participate in all courses as long as they fulfill the course prerequisites. It does not matter if you have acquired the necessary knowledge in courses at Bamberg University, in courses at another university, or by teaching yourself.
- Most courses are held in German (see below). For these courses, a basic requirement is that you are able to understand spoken German. The primary course material is in German, too. Therefore you should also be able to read German. However, the Bamberg University Library has many English books on social research and statistics. You can use these books as secondary material. The department's teachers will help you if you have difficulties understanding the course material or finding the right books.
- You may hand in written work in German or English (exception: „Introduction to Social Research,“ which must be in German). The department's teachers can speak German, English and Italian.
- You can find more detailed information on our courses on our homepage. If you have further questions, please contact us.

Basic Studies (1st or 2nd year)

Introduction to Social Research

Einführung in die Methoden der empirischen Sozialforschung

Requirements for Participation: None.

Topics: Social scientists try to understand behavior of human beings in groups. Social Research aims at getting and interpreting valid information to further social theory. The introductory course covers the following topics:

- Epistemology
- Methods of Data Collection (Surveys, Interviews, Observation, Content Analysis)
- Sampling
- Basic Statistical Methods
- Attitude Measurement
- Casual Analysis
- Research Design

| | |
|---|--|
| Hours per Week / Semester: (1-year-course) 2 / winter 2 / summer The course starts in winter. | Teaching Method: Lecture |
| Credits: 10 | Examination: Examination <ul style="list-style-type: none"> – 2 hours written exam at the end of summer. – Foreign students get an extra half hour writing time and are allowed to use a dictionary. |

If you are interested in this course, please contact Gerhard Schulze.

Intermediate Studies (2nd year)

Social Research Project

Soziologisches Forschungspraktikum

Requirements for Participation:

- Basic knowledge in Methods of Social Research (You can acquire this knowledge for example by participating in the lecture „Introduction to Social Research“ the year before.)
- Basic knowledge in Statistics (You can acquire this knowledge for example by participating in the lecture „Statistics I“ the semester before and in the lecture „Statistics II“ the same semester as participating in the research project.)
- Basic knowledge in SPSS (You can acquire this knowledge for example by participating in the course „Introduction to SPSS for Windows“ the year before.)
- Basic knowledge in Sociology (2nd year Sociology or other Social Sciences)
- The course starts in winter. You have to make the first preparations during the summer.

Topics: Students participate in an empirical research project. The project includes all necessary steps from designing an empirical study to writing a final report. The course consists of the following units:

In Winter:

- Project Seminar
- Data Analysis Seminar (“Intermediate Multivariate Data Analysis”)
(Analysis of Contingency Tables, Regression Analysis, Factor Analysis with SPSS for Windows)

In Summer:

- Project Seminar (continued)

| | |
|---|--|
| <p>Hours per Week / Semester: (1-year-course) 14 / winter 12 / summer The course starts in winter.</p> | <p>Teaching Methods: Varying</p> |
| <p>Credits: 20</p> | <p>Examination: – Exams during the course – Special tasks in the course of the research project – Writing the final report Students may write in German or English.</p> |

If you are interested in this course, please contact Gerhard Schulze.

Advanced Studies (3rd year)

Epistemology and Philosophy of Science

Wissenschaftstheorie für Sozialwissenschaftler

Requirements for Participation: Basic Knowledge in Methods of Social Research

Topics (may change slightly):

Scientists have to discuss, criticize and analyze every day. When doing this, we take a lot of things for granted that actually aren't that obvious at all: Reality does not speak for itself. The course's goal is therefore to teach and train the ability to reflect about scientific research. This is very difficult because there is no *one* way to do research correctly. On the contrary, there are always several ways to do good research. During the course, students learn to reflect on the way they choose to do research and the weaknesses of each particular choice.

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| Hours per Week / Semester: 2 / every 2 nd winter (next course: winter 2008 / 2009) | Teaching Method: Seminar |
| Credits: 5 | Examination: <ul style="list-style-type: none"> – Students get special exercises every week. – Students may write in German or English. |

If you are interested in this course, please contact Gerhard Schulze.

Sociology of Social Research

Soziologie der Forschung

Requirements for Participation: Basic Knowledge in Methods of Social Research

Topics (may change slightly):

One of the central ideas of modern science is that people can free themselves from the power nature and society has over them if they know more about themselves, nature and society. Thus knowledge is very important. Knowledge produced by social scientists is used by others, e.g. politicians, the media, companies, and ordinary people, to organize lives, policy, and productivity. However, during the research process and later on, knowledge often becomes distorted. This course has three major topics:

- Dynamics of Social Research: Modern science is a never-ending process. Each point in the history of science is only a stage before the next stage. Scientists always use the knowledge produced by their predecessors and build on it. But is this good knowledge or is it sometimes better to do things completely differently? And how are we supposed to handle all this information?
- Social Forms of Producing Knowledge: What social forms of producing scientific knowledge do exist? How do these institutions distort the production of scientific knowledge?
- Transferring Scientific Knowledge to Practicians: Scientific knowledge does not have a use in itself - its final goal is always to help non-scientists to organize life in a better way than before. How is scientific knowledge distorted when used in „real life“? What effects does it have on every day life? What does this mean for social science as a profession?

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|---|--|
| Hours per Week / Semester: 2 / every 2 nd summer (next course: summer 2009) | Teaching Method: Seminar |
| Credits: 5 | Examination: <ul style="list-style-type: none"> – Students get special exercises every week. – Students may write in German or English. |

If you are interested in this course, please contact Gerhard Schulze.

3.7 Module Descriptions: Political Science

3.7.1 Comparative Politics

Prof. Dr. Ursula Hoffmann-Lange
 Chair of Political Science and Comparative Politics
 Feldkirchenstr. 21
 D-96045 Bamberg
 Tel.: +49 /0951 / 863-2555
 Fax: +49 /0951 / 863-2556
 E-Mail: ursula.hoffmann-lange@uni-bamberg.de
 Internet: <http://www.uni-bamberg.de/polsys/>

Basic Studies (1st and 2nd year)

Introduction to Comparative Politics

Einführung in das Studium politischer Systeme

Democratic political systems: constitutions, executives, legislatures, parliamentary vs. presidential systems, federalism, political parties and party systems

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|---|---|
| Hours per Week / Semester: 2 / winter | Teaching Method: Lecture Course |
| Credits: 4 | Examination: Written final exam |

Electoral Systems

Wahlssysteme

| | |
|---|---|
| Hours per Week / Semester: 2 / winter | Teaching Method: Introductory seminar |
| Credits: 5 | Examination: Oral presentation and written final exam |

Government and Politics of Germany

Das politische System der BRD

Introductory course on parliamentary democracy in Germany: Basic Law, interest groups and political parties, Federal Government and Federal Diet, Federal Constitutional Court, federal system, political culture

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| Hours per Week / Semester: 2 / winter; summer (2x) | Teaching Method: Introductory seminar |
| Credits: 5 | Examination: Oral presentation and written final exam |

Undergraduate Seminar in Comparative Politics

Democratic political systems, political parties, political system of the USA, political system of Great Britain; Democratization in Mid-Eastern Europe

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| Hours per Week / Semester: 2 /winter (4x); summer (4x) | Teaching Method: Undergraduate seminar |
| Credits: 6 | Examination: Term paper and oral presentation |

Advanced Studies (3rd to 5th year)**Topics in Comparative Politics**

Ausgewählte Probleme der Vergleichenden Politikwissenschaft

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|---|---|
| Hours per Week / Semester: 2 / summer | Teaching Method: Lecture course |
| Credits: 5 | Examination: written final exam |

Theoretical and Methodological Problems in Comparative Political Analysis: The Empirical Study of Democracy

Theoretische und methodische Probleme der Vergleichenden Politikwissenschaft: Empirische Demokratieforschung

| | |
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| Hours per Week / Semester: 2 / winter and summer | Teaching Method: Seminar (advanced level BA) |
| Credits: 8 | Examination: Essay and oral presentation plus written final exam |

The Comparative Study of Political Institutions

Analyse politischer Institutionen

Seminar on selected topics: parliamentary and presidential systems, federalism, electoral systems and governments, government and politics of specific countries, e.g. USA, Italy, Switzerland

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| Hours per Week / Semester: 2 / summer | Teaching Method: Graduate seminar |
| Credits: 8 | Examination: Term paper and oral presentation plus essay |

Political Parties and Interest Intermediation

Politische Parteien und Interessenvermittlung

Varying topics, e.g. political parties, interest groups, elites, democratization, direct democracy

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|--|--|
| Hours per Week / Semester: 2 / winter and summer | Teaching Method: Graduate seminar |
| Credits: 8 | Examination: Term paper and oral presentation plus essay |

3.7.2 International and European Politics

Prof. Dr. Thomas Gehring
 Chair of International Relations
 Feldkirchenstr. 21/ 334
 D-96045 Bamberg
 Tel.: +49 /0951 / 863-2720
 E-Mail: thomas.gehring@uni-bamberg.de
 Internet: www.uni-bamberg.de/sowi/ipo

Basic Studies (1st and 2nd year)**Introduction to International and European Politics**

Vorlesung: Einführung in die Internationale und europäische Politik

Lecture on international regimes and organizations, opportunities for, and limits of, cooperation; European Union and concepts of European integration; foreign policy analysis and introduction into German foreign policy.

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| Hours per Week / Semester: 2/winter | Teaching Method: Lecture |
| Credits: 5 | Examination: 2 hour written examination |

Tutorial to International and European Politics

Übung: in die Internationale und europäische Politik

Tutorial supplementing the lecture on International regimes and organizations, opportunities for, and limits of, cooperation; European Union and concepts of European integration; foreign policy analysis and introduction into German foreign policy.

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| Hours per Week / Semester: 2/ winter and summer) | Teaching Method: Seminar ('Übung') |
| Credits: 4 | Examination: Oral presentation and short essays |

Introductory Seminars to International and European Politics

Proseminar/Seminar zu Themen der internationalen und europäischen Politik

Selected topics mainly with a focus on either international institutions, or on European integration, or on (German) foreign policy. There are seminars on different topics every semester.

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| Hours per Week / Semester: 2/ winter and summer) | Teaching Method: Seminar ('Proseminar') |
| Credits: 6 | Examination: Oral presentation and essay |

Advanced Studies (3rd and 4th year)

Theory of International Institutions

Vorlesung: Theorie internationaler Institutionen

This theory-based cycle of lectures addresses problems of international cooperation and international governance institutions: opportunities for international cooperation; functions of international institutions; decision-making in international regimes and organizations; role of non-state and sub-state actors; the importance of institutional design; interaction between international institutions.

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| Hours per Week / Semester: 2 | Teaching Method: Lecture |
| Credits: 5 | Examination: 2 hour written examination |

Selected Issues of International Relations

Hauptseminar zu Themen der internationalen Politik

This seminar addresses every year a different issue of international relations that may be related to the lectures on cooperation and international institutions, e.g. legalization of, or governance in, international relations.

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| Hours per Week / Semester: 2/ | Teaching Method: Seminar |
| Credits: 8 | Examination: Oral presentation and essay |

European Integration: Policies and Problems

Vorlesung: Europäische Integration. Probleme und Politiken

This lecture focuses on the policies of the European Union and their distinct 'logics' of integration and decision-making, e.g. single market policy, currency policy, foreign policy. In addition, it addresses topical issues such as democratic legitimacy of the EU, the Constitution, or enlargement.

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|---|---|
| Hours per Week / Semester: 2/ | Teaching Method: Lecture |
| Credits: 5 | Examination: Two hour written examination |

Issues on European Integration

Hauptseminar zu Themen der europäischen Integration

The seminar focuses on selected issues of European integration, e.g. the European Single Market, Europeanization, or EU development policy.

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| Hours per Week / Semester: 2/ | Teaching Method: Seminar |
| Credits: 8 | Examination: Oral presentation and essay |

Foreign and Security Policy Analysis

Hauptseminar zu Themen der Außen- und Sicherheitspolitik

Seminar themes are: theoretical and conceptual issues of foreign policy analysis, German foreign policy, foreign policy of other states, the foreign and security policy of the European Union.

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|--|--|
| Hours per Week / Semester: 2/ summer | Teaching Method: Seminar |
| Credits: 8 | Examination: Oral presentation and essay |

3.7.3 Political Sociology

Prof. Dr. Hans Rattinger
 Chair of Political Science and Political Sociology
 Feldkirchenstr. 21
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 Fax: +49 /0951 / 863-2606
 E-Mail: hans.rattinger@uni-bamberg.de
 Internet: <http://web.uni-bamberg.de/sowi/polsociology/>

Basic Studies (1st and 2nd year)**Introduction to Political Sociology**

Vorlesung: Einführung in die Politische Soziologie

Political attitudes and political behavior, their origins and their interrelation; in the lecture the most important theoretical approaches are taught with a focus on the micro level (political attitudes and political behavior of individuals).

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| Hours per Week / Semester: 2 / summer | Teaching Method: Lecture |
| Credits: 4 | Examination: 2 hour written test |

Introductory Seminar in Political Sociology

Seminar: Einführung in die Politische Soziologie

Each semester one aspect of Political Sociology (e.g. Political Socialization, Political Participation, Political Culture, Voting Behavior) is covered; required readings are the basis for the discussion of the central theoretical issues and methodological questions in the selected field.

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| Hours per Week / Semester: 2 / winter and summer | Teaching Method: Seminar |
| Credits: 6 | Examination: Term paper and written test |

Methods of Political Sociology

Übung: Einführung in die Methoden der Politischen Soziologie

Introduction to the empirical analysis of Political Sociology research problems and data sets with the SPSS for Windows package. A mandatory two-hour SPSS-tutorial is part of this course

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| Hours per Week / Semester: 2+2 / winter and summer | Teaching Method: Seminar with practical computer applications |
| Credits: 5 | Examination: Oral presentation and written test |

Intermediate Studies (3rd year)**Advanced BA-Seminar on Political Attitudes and Behavior***Vertiefungsseminar zur Politischen Soziologie*

A seminar for students having completed basic training in Political Sociology, Statistics, Methodology, and the SPSS program package that is centered around an empirical research project involving research design, data collection, and data analysis.

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|---|---|
| Hours per Week / Semester: 2 / winter or summer | Teaching Method: Seminar with practical computer applications |
| Credits: 8 | Examination: To be defined by the instructor |

3.7.4 Political Theory

Prof. Dr. Reinhard Zintl
 Chair of Political Science and Political Theory
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 Tel.: +49 /0951 / 863-2640
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 E-Mail: reinhard.zintl@uni-bamberg.de
 Internet: http://www.uni-bamberg.de

Basic Studies (1st and 2nd year) **(Bachelor in Political Science, Diploma in Political Science)**

Introduction to Political Theory

Theorien kollektiver Wahl

Concepts of politics; basic epistemological and methodological problems; normative, positive and practical theory; ideas of the common good and the legitimation of political power; the limits of legitimate state action; problems of collective action and social choice.

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|---|-------------------------------------|
| Hours per Week / Semester: 2 / summer | Teaching Method: Lecture |
| Credits: 5 | Examination: Written Test |

Introductory Seminar in the History of Ideas

Übung/Proseminar Ideengeschichte

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| Hours per Week / Semester: 2 / winter and summer | Teaching Method: Seminar |
| Credits: 4 6 | Examination: Written Test Oral Presentation and Written Test |

Introductory Seminar on modern political theory, in particular on game theory and decision theory.

Übung/Proseminar Moderne Politische Theorie

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| Hours per Week / Semester: 2 / winter and summer | Teaching Method: Seminar |
| Credits: 4 6 | Examination: Written Test Oral Presentation and Written Test |

[Bachelor Programme in Political Science: The Basic Module "Political Theory" (15 ECTS) is constituted by the Introduction and two introductory seminars, one out of each group]

Advanced Studies I
(Bachelor in Political Science 3rd year;
Diploma in Political Science 3rd and 4th year)

Theories of collective choice

Seminar Theorien kollektiver Wahl

Social Choice, Welfare Theory, normative theories of state action

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| Hours per Week / Semester: 2 / winter and summer | Teaching Method: Seminar |
| Credits: 8 | Examination: Term paper and presentation |

[**Bachelor Programme:** The course is an elective part of the "Vertiefungsmodul"; in the **Diploma Programme** the course is mandatory]

Advanced Studies II
(Master in Political Science;
Diploma in Political Science 3rd and 4th year)

1.1. Normative Political Theory

Vorlesung Normative Politische Theorie

Theories of justice, constitutional political economy

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| Hours per Week / Semester: 2 / winter | Teaching Method: Lecture |
| Credits: 5 | Examination: Written Test |

1.2. Political Philosophy

Seminar Politische Philosophie

Political power and justice; freedom and law; social contract; discussion of selected writings (esp. of Hobbes, Harrington, Locke, Smith, Rousseau, Kant, Federalist Papers, Tocqueville, Hayek, Buchanan, Rawls, Nozick, Gauthier)

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| Hours per Week / Semester: 2 / winter and summer | Teaching Method: Seminar |
| Credits: 8 | Examination: Term Paper and presentation |

2.1. Positive Political Theory*Vorlesung Positive Politische Theorie*

Rational Choice, Game Theory, decision theory

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|---|-------------------------------------|
| Hours per Week / Semester: 2 / winter | Teaching Method: Lecture |
| Credits: 5 | Examination: Written Test |

2.2. Political Institutions*Seminar Theorie politische Institutionen*

Rational choice and institutionalism; evolution and design of institutions, theory of democratic and autocratic regimes, neoclassical theory of the state.

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| Hours per Week / Semester: 2 / winter and summer | Teaching Method: Seminar |
| Credits: 8 | Examination: Term Paper and presentation |

[Master Programme: 1.1 and 1.2. constitute Module I in Political Theory, 2.1. and 2.2. constitute Module II in Political Theory. Either Module I or Module II has to be chosen; the other one then is elective.

Diploma Programme: all courses are mandatory]

3.7.5 Comparative Public Policy

Prof. Dr. Reimut Zohlnhöfer
 Professor of Political Science and Comparative Public Policy
 Feldkirchenstr. 21
 D-96045 Bamberg
 Tel.: +49 /0951 / 863-2732
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 Internet: <http://www.uni-bamberg.de/policy>

Basic Studies (1st and 2nd year) **(Bachelor in Political Science)**

Introduction to Comparative Public Policy: Concepts, Theories, Methods

Einführung in die international vergleichende Politikfeldanalyse: Konzepte, Theorien, ethoden
 What is public policy and why should we care? Theories of comparative public policy (Functionalism, Power Resources, Institutionalism, Transnational Determinants, Path Dependence, Advocacy Coalitions, Multiple Streams), Methods of Comparative Public Policy

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| Hours per Week / Semester: 2 / summer | Teaching Method: Lecture |
| Credits: 5 | Examination: Written Test |

Introduction to Comparative Public Policy: Empirical Findings

Einführung in die international vergleichende Politikfeldanalyse: Empirische Ergebnisse
 The theories of comparative public policy research are tested empirically.

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|---|--|
| Hours per Week / Semester: 2 / summer | Teaching Method: Seminar |
| Credits: 4 | Examination: Oral Presentation and Essay |

Undergraduate Seminar in Comparative Public Policy

Seminar zu Themen der international vergleichenden Politikfeldanalyse

| | |
|---|---|
| Hours per Week / Semester: 2 / winter | Teaching Method: Seminar |
| Credits: 6 | Examination: Oral Presentation and Written Test |

[**Bachelor Programme in Political Science:** The Basic Module "Comparative Public Policy" (15 ECTS) is constituted by the Lecture and two seminars, one out of each group]

Advanced Studies I
(Bachelor in Political Science 3rd year;
Diploma in Political Science 3rd and 4th year)

Topics in Comparative Public Policy

Vertiefungsseminar Politikfeldanalyse

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|--|--|
| Hours per Week / Semester: 2 / winter and summer | Teaching Method: Seminar |
| Credits: 8 | Examination: Term paper and presentation |

Advanced Studies II
(Master in Political Science;
Diploma in Political Science 3rd and 4th year)

Political Economy

Politische Ökonomie

Basic macroeconomics, political determinants of macroeconomic outcomes, economic policy instruments

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|---|-------------------------------------|
| Hours per Week / Semester: 2 / winter | Teaching Method: Lecture |
| Credits: 5 | Examination: Written Test |

Economic Policy and Public Finance

Wirtschaftspolitik und Staatsfinanzen

Economic policy making in Western democracies; the changing role of government intervention in the economy; issues of taxation, the politics of budgetary policy

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| Hours per Week / Semester: 2 / winter | Teaching Method: Seminar |
| Credits: 8 | Examination: Term Paper and presentation |

Governing in the Federal Republic of Germany.

Regieren in der Bundesrepublik Deutschland. Politikfelder im Vergleich.

The determinants of German constitutional, foreign and economic policies

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| Hours per Week / Semester: 2 / summer | Teaching Method: Seminar |
| Credits: 8 | Examination: Term Paper and presentation |

Determinants of public policies in Western democracies

Bestimmungsfaktoren staatlicher Politik in westlichen Demokratien

The role of political parties, interest groups, institutions, path dependence, globalization, European integration

| | |
|---|--|
| Hours per Week / Semester: 2 / summer | Teaching Method: Seminar |
| Credits: 8 | Examination: Term Paper and presentation |

3.8 Module Description: Public Administration

Prof. Dr. Hans-Ulrich Derlien
Chair of Public Administration

Feldkirchenstr. 21

D-96045 Bamberg

Tel.: +49 /0951 / 863-2625

Fax: +49 /0951 / 863-2627

E-Mail: hans-ulrich.derlien@sowi.uni-bamberg.de

Internet: <http://www.uni-bamberg.de/sowi/verwaltungswissenschaft>

General Status: Public Administration is an elective subject in all degree courses of the faculty. Despite its interdisciplinary nature, the closest affinity is with the sociology and political science courses. Students of economics are advised to attend lectures, if they aim at jobs whose working environment is the public sector. Furthermore, there are cross-fertilizations in the subfields of organization theory, planning and budgeting.

All public administration courses are held annually. 3 courses (6 hours) are given for undergraduates, 6 courses for advanced students who passed the intermediate examination. Students not familiar with public administration are advised to inscribe in Introduction to Public Administration (winter term).

For the contents of the courses, see homepage.

Basic Studies (1st and 2nd year)

Introduction to Public Administration

Einführung in die öffentliche Verwaltung

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|--|--|
| Hours per Week / Semester: 2 / every winter semester | Teaching Method: Lecture |
| Credits: 6 | Examination: <i>Oral exam (30 minutes)</i> |

Special Aspects of Public Administration

Ausgewählte Aspekte der öffentlichen Verwaltung

| | |
|--|--|
| Hours per Week / Semester: 2 / each semester | Teaching Method: Seminars |
| Credits: 6 | Examination: <i>Essay and presentation</i> |

Advanced Studies (3rd and 4th year)**Organization Theory I***Organisationstheorie I*

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|--|--|
| Hours per Week / Semester: 2 / every winter semester | Teaching Method: Lecture |
| Credits: 4 | Examination: <i>oral examination</i> |

Organization Theory II*Organisationstheorie II*

| | |
|--|--|
| Hours per Week / Semester: 2 / every summer semester | Teaching Method: Lecture |
| Credits: 4 | Examination: <i>oral examination</i> |

Policy Analysis*Policy Analyse*

| | |
|--|--|
| Hours per Week / Semester: 2 / every winter semester | Teaching Method: Seminar |
| Credits: 8 | Examination: <i>Essay and presentation</i> |

Public Management*Public Management*

| | |
|--|--|
| Hours per Week / Semester: 2 / every winter semester | Teaching Method: Seminar |
| Credits: 8 | Examination: <i>Essay and presentation</i> |

Ministerial Bureaucracy*Ministerialbürokratie*

| | |
|--|--|
| Hours per Week / Semester: 2 / every summer semester | Teaching Method: Seminar |
| Credits: 8 | Examination: <i>Essay and presentation</i> |

Selected Aspects of Public Administration*Ausgewählte Aspekte der öffentlichen Verwaltung*

| | |
|--|--|
| Hours per Week / Semester: 3 / every summer semester | Teaching Method: Seminar |
| Credits: 8 | Examination: <i>Essay and presentation</i> |

4 MODULE DESCRIPTIONS: FACULTY OF INFORMATION SYSTEMS AND APPLIED COMPUTER SCIENCES

4.1 Industrial Application Systems

Prof. Dr. Otto K. Ferstl

Chair of Information Systems, esp. Industrial Application Systems

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Basic Studies (1st and 2nd year)

Development and Operation of Application Systems

Entwicklung und Betrieb von Anwendungssystemen

Application systems are actors of automated business tasks. Depending on their fields of application they occur in different forms and specifications. The module provides architectural features of application systems as well as methodologies for the development and operation of these systems. The architectural features cover the integration of applications and its distribution on appropriate resources. We will describe the methodologies on the basis of a project model with the partial models 'system engineering', 'project management', 'quality assurance' and 'configuration management'. We will present suitable software development environments for the implementation of the project model. In the accompanying tutorial you will learn to develop sample application systems and you will get to know components of software development environments.

| | |
|---|--|
| Hours per Week / Semester: 4 / summer | Teaching Method: Lecture and Tutorial |
| Credits: 6 | Examination: 90 minute written examination |

Electronic Business

E-Business

The module covers different architectures of industrial and service enterprises. Main areas are the objectives and strategies of enterprises, their business processes, and the supporting application systems. We treat Enterprise Resource Planning Systems and Management Support Systems within enterprises. The relationships among enterprises and between enterprises and private households are the subject of Electronic Commerce Systems.

| | |
|---|--|
| Hours per Week / Semester: 4 / winter | Teaching Method: Lecture and Tutorial |
| Credits: 6 | Examination: 90 minute written examination |

Advanced Studies (3rd and 4th year)

Enterprise Resource Planning Systems

Enterprise-Resource-Planning-Systeme

The module consists of three main parts. The first part, production and operations management, deals with the design of industrial enterprises, especially with models of computerized manufacturing systems and material flow systems as well as concepts for control of such systems (CAx). The second part covers the two topics application systems in general and modeling of business processes and application systems serving as a basis for the next part which deals with the control of industrial enterprises. We take a close look at the functions production planning and control, materials management, maintenance and sales & distribution as well as the supporting applications systems. In the accompanying tutorial in addition we present selected simulation processes as well as methods for production planning and control. An ERP-system is used for practical application.

| | |
|---|--|
| Hours per Week / Semester: 4 / winter | Teaching Method: Lecture and Tutorial |
| Credits: 6 | Examination: 90 minute written examination |

Electronic Commerce Systems

E-Commerce-Systeme

This module focuses on business models in electronic commerce and inter-organizational business processes. Especially the concepts of Supply Chain Management and Customer Relationship Management are covered in detail. ,Electronic commerce services, the economy of the internet as well as architectures of application systems and IT-technologies within these functional areas are further topics.

| | |
|---|--|
| Hours per Week / Semester: 4 / summer | Teaching Method: Lecture and Tutorial |
| Credits: 6 | Examination: 90 minute written examination |

Management Support Systems

Management-Support-Systeme

- Management Support Systems (MUS) in general are used to support decision making in various problem fields. The module deals especially with the analysis of complex and weak structured problems and the investigation of the support of decision processes by application systems (e. g. Business Intelligence Systems). The tutorial provides the simulation of decision situations through several scenarios using models in combination with commercially available management support systems.

| | |
|---|---|
| Hours per Week / Semester: 4 / winter | Teaching Method: Lecture and Tutorial |
| Credits: 6 | Examination: 90 minutes written examination |

Seminar

The seminar in Industrial Application Systems is a combination of three kinds of academic work: homework, presentation, and discussion. The topics of the seminar cover the entire range of information systems especially industrial application systems. The different topics of the seminar are published at the beginning of the semester.

| | |
|---|--|
| Hours per Week / Semester: 2 / summer | Teaching Method: Seminar |
| Credits: 3 | Examination: Essay (25 pages), presentation, continuous assessment |

Information and Knowledge Management

Informations- und Wissensmanagement

Business information systems can be interpreted as the nervous system of an enterprise in analogy to the nervous system of an organism. The information management of an enterprise has the function to specify, to build and to operate the business information system according to the business objectives. Knowledge management completes the information management in management of human knowledge and the computer supported representation and processing of knowledge. This module deals with tasks and methods of information management as well as knowledge management and derives necessary characteristics of the appropriate resources from them.

| | |
|---|---|
| Hours per Week / Semester: 4 / summer | Teaching Method: Lecture and Tutorial |
| Credits: 6 | Examination: 90 minutes written examination |

4.2 Media Informatics

Prof. Dr. Andreas Henrich
 Chair of Media Informatics
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 Room F140
 Tel.: +49-951 / 863-2850
 Fax: +49-951 / 863-2852
 E-Mail: andreas.henrich@uni-bamberg.de
 Internet: <http://www.uni-bamberg.de//minf/>

General Information: All exams (basic and advanced) may be taken in English. Lectures and tutorials are offered in German.

Basic Studies (1st and 2nd year)

Multimedia Technology

MI-MMT-B: Multimedia-Technik

This course deals with media and media formats. Among that are XML for structured text, SVG and VRML for 2D- and 3D-graphics and animation, JPEG, GIF and, TIFF for images, PCM, MP3, MIDI for audio, as well as MPEG for video. Besides the formats the corresponding fundamentals are examined, like colour- and perception-models, aspects of quality-of-service and engineering-like development of multimedia systems. The intention is to teach practical skills with the mentioned formats and with the development of concepts for coding- and compression-techniques. For this, the course, which generally wants to give a broad overview of the domain, looks at selected topics in more detail. Examples for this are VRML, JPEG and MP3.

| | |
|---|--|
| Hours per Week / Semester: 4 / winter | Teaching Method: Lectures and Tutorials |
| Credits: 6 | Examination: 90 minute written examination |

Advanced Studies (3rd and 4th year)

Information Retrieval 1

MI-IR1-M: Information Retrieval 1 – Grundlagen, Modelle und Anwendungen

Information Retrieval (IR) addresses the search for documents. Traditionally these are textual documents. Today the search for multimedia documents, e.g. images, audio, video as well as hypertext documents is getting more and more important. Furthermore with the proliferation of the World Wide Web Information Retrieval gains even more prominence and actuality.

Within this course we cover essential information retrieval models and algorithms as well as the evaluation of information retrieval systems:

- Motivation and Introduction
- Evaluation of IR Systems
- Considering the Vagueness of Natural Languages
- Pattern Matching within Text – Simple Models and Algorithms
- Simple IR Models and their Implementation (Boolean Retrieval, Coordination Level Match, ...)
- Vector Space Model
- Formats for Structured Documents and Knowledge Representation
- Alternatives to Searching – Classification, Clustering and Browsing
- Multimedia Information Retrieval

Prerequisites: Multimedia Technology, Programming skills (in particular, object-oriented)

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| Hours per Week / Semester: 4 / winter | Teaching Method: Lectures and Tutorials |
| Credits: 6 | Examination: 90 minute written examination |

Information Retrieval 2

MI-IR2-M: Information Retrieval 2 – ausgewählte weiterführende Themen

Within this course we build upon the fundamentals addressed within Information Retrieval 1. We consider advanced information retrieval models as well as advanced algorithms and data structures used for searching images and structured documents. Furthermore we focus on commercial data base systems and their support for information retrieval. Finally we address internet search engines. The topics are:

- Advanced Concepts for the Evaluation of Information Retrieval Systems
- Pattern Matching within Text – Advanced Models and Algorithms
- Probabilistic Information Retrieval
- Advanced Information Retrieval Models – LSI, Bayesian Networks, ...
- Multimedia Information Retrieval – Index Structures and Search Algorithms
- Support for Information Retrieval within Commercial Data Base Systems
- Information Retrieval and the Internet – Fundamentals and Architecture of Search Engines
- Information Retrieval and the Internet – Stating Queries and Query Processing

Prerequisites: Multimedia Technology, Information Retrieval 1, programming skills (in particular, object-oriented)

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| Hours per Week / Semester: 4 / summer | Teaching Method: Lectures and Tutorials |
| Credits: 6 | Examination: 90 minute written examination |

Web Engineering*MI-WebE-B: Web Engineering*

Web-enabled applications provide ubiquitous access to information systems. In practice, ad-hoc approaches dominate the development process of web applications while software engineering methods as known from application development are lacking. The module Web Engineering gives a practical introduction into methods that may be applied to solve these difficulties. Web Engineering builds upon the conclusions of Software Engineering and covers the whole life-cycle of web applications.

The module addresses various activities of Web Engineering, including requirements engineering, modelling, architectural and design stages, implementation techniques, testing, operation, and maintenance.

We will present current concepts, methods, techniques, and tools for the different activities in Web Engineering. One of the key learning objectives is practical competencies in web application development which will be achieved in a Java-based development environment.

Prerequisites: Multimedia Technology, programming skills (in particular, object-oriented)

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| Hours per Week / Semester: 4 / summer | Teaching Method: Lectures and Tutorials |
| Credits: 6 | Examination: 90 minute written examination |

Computer Graphics and Animation*MI-CGuA-M: Computergrafik und Animation*

This course deals with all important aspects of three-dimensional computer graphics and covers the basic mathematic principles as well as the implementation in tools for animation development. That provides a basis for a specific use of these tools for creating animations and virtual worlds.

The topics of this course are similar to the standard work from Watt: basic mathematic principles of computer graphic, description and modelling of three-dimensional objects, display and rendering, the graphics-pipeline, reflection models, illumination, the radiosity method, ray tracing techniques, volume rendering, colours in computer graphics, image-based rendering and photo-modelling, computer animation.

Prerequisites: Multimedia Technology, programming skills (in particular, object-oriented)

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| Hours per Week / Semester: 4 / winter | Teaching Method: Lectures and Tutorials |
| Credits: 6 | Examination: 90 minute written examination |

Seminar Media Informatics

MI-Sem-B: Bachelor-Seminar zur Medieninformatik

Seminars are offered irregularly on varying topics in Media Informatics, both in the winter and/or summer semesters. The seminars are usually advertised at the beginning of each semester.

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| Hours per Week / Semester: 2 / winter, summer | Teaching Method: Seminar |
| Credits: 3 | Examination: Essay, presentation, continuous assessment |

Research Projects in Media Informatics

MI-Prakt-M: Praktikum zur Medieninformatik

Advanced students interested in pursuing a research project leading to a thesis at undergraduate (bachelor) or graduate (masters, doctoral) level are invited to contact the Media Informatics Group for proposals. Possible topics would typically fall within the fields of information retrieval or visualization. Some selected proposals can be found on the group's web pages. Depending on the candidate's preferences and background the project might focus more on theory or implementation.

4.3 Communication Systems and Computer Networks

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Advanced Studies (3rd and 4th year)

Data Communication

Modul: KTR-Datkom-B, Datenkommunikation

Introduction to communication networks, layered architectures, OSI protocol reference model, TCP/IP suite, digital transmission fundamentals, peer-to-peer protocols and data link layer, medium access control protocols, local area networks, ISDN.

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| Hours per Week / Semester: 4 / summer | Teaching Method: Lectures (2) and Tutorials (2) |
| Credits: 6 | Examination: 90 minute written examination |

Multimedia-communication in high-speed networks

Modul: KTR-MMK-M, Multimedia-Kommunikation in Hochgeschwindigkeitsnetzen

Fundamentals of data networking, evolution of communication services, multimedia communication and services (HTTP, Video-Streaming, H.323, VoIP), TCP/IP architecture, circuit- and packet-switched networking, network architecture of BISDN, ATM networks, traffic management, IP networks with QoS mechanisms (Diffserv, Intserv, MPLS).

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| Hours per Week / Semester: 4 / summer | Teaching Method: Lectures (3) and Tutorials (1) |
| Credits: 6 | Examination: 90 minute written examination |

Mobile communication networks and mobile computing

Modul: KTR-Mobi_m, Mobilkommunikation und Mobile Computing

Development of mobile networks and services, fundamentals of wireless transmission, medium access control protocols, data link layer protocols, network layer protocols and mobility management, mobile IP, TCP in wireless environments, wireless local area networks (IEEE.802.11, Hiperlan), wide area mobile networks (GSM, GPRS, UMTS).

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| Hours per Week / Semester: 4 / winter | Teaching Method: Lectures (3) and Tutorials (1) |
| Credits: 6 | Examination: oral examination |

Modelling and analysis of communication networks and distributed systems

Modul: KTR-MAKV-M, Modellierung und Analyse von Kommunikationsnetzen und Verteilten Systemen

Modeling of distributed systems, probability theory and statistics, stochastic processes: Poisson and renewal processes, Markov chains; numerical solution methods for Markov chains, elementary Markovian queueing models, loss networks, elementary queueing networks.

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| Hours per Week / Semester: 4 / winter | Teaching Method: Lectures (3) and Tutorials (1) |
| Credits: 6 | Examination: 90 minute written examination |

Seminar

Modul: KTR-Sem-M, Hauptseminar

Seminars are regularly offered on varying topics of computer networking. They comprise a combination of homework, presentation, and discussion. The upcoming topics of the seminars are announced at the end of the semester.

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| Hours per Week / Semester: 2 / winter or summer | Teaching Method: Seminar |
| Credits: 6 | Examination: Essay, final presentation, continuous assessment |

Advanced Laboratory

Modul: KTR-GIK-M, Grundbausteine der Internet-Kommunikation

Advanced laboratories are regularly offered on varying topics of computer networking. They comprise a combination of assignments, project tasks, presentations, and discussion. The upcoming topics of the laboratory are announced at the beginning of the semester.

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| Hours per Week / Semester: 4 / winter or summer | Teaching Method: Seminar |
| Credits: 6 | Examination: Deliverables, presentations, continuous assessment, final oral examination |

4.4 Foundations of Computer Science

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General Information:

- The content of the courses may be adjusted in line with research interests, new requirements of the curriculum or background of students, possible even on short notice. Although we try to keep the course descriptions up to date, the material presented in the classes in a particular semester may differ slightly from what is given below.
- All courses, except seminars and research projects unless otherwise specified, are assessed by written question papers presented during the examination period at the end of each semester. Guest students who are staying at Bamberg for just one examination period (i.e. one semester) may contact the course lecturer for special arrangements on resit exams.
- All exams (basic and advanced) may be taken in English. Lectures and tutorials may be offered in English, too, if required. Please contact the course lecturer.

Basic Studies (1st and 2nd year)

Gdl-Mfi-B Discrete Foundations

Mathematik für Informatiker

This module covers key elements in discrete mathematics (set theory, logic and algebra) relevant to Computer Science and Business Informatics. At the end of this course students should be able to perform elementary calculations in algebraic structures such as Boolean, functional and relational algebras; be familiar with basic combinatorial and logical principles (such as Russell's Paradox, diagonalisation and the existence of uncountable sets, Pigeon-Hole Principle, counting, fixed-point theorems, recursion and induction); know basic techniques such as formal power series for solving recurrence equations; be familiar with the concept of a formal system and formal calculus and have understood the fundamental difference between syntax and semantics, soundness and completeness; be able to formalize real-world concepts in propositional and predicate logic and have developed skills in reasoning using formal calculi for these logics; be able to apply elementary proof principles (proof by contraposition, proof by cases, natural and structural induction).

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| Hours per Week / Semester: 4 / winter | Teaching Method: Lectures, Tutorials, Practice Labs |
| Credits: 6 | Examination: 90 minute written paper; oral resits possible |

GdI-GTI-B Machines and Languages*Grundlagen der Theoretischen Informatik*

This course addresses the questions "what is a computation?" and "what is an algorithm?" and explores the capabilities and limitations of computers and programming languages as well as the implication of these for a practical computer scientist. It introduces the basic concepts and methods that underlie the mathematical study of computing machines and formal languages. At the end of this course the students should be able to distinguish finite automata, pushdown automata, Turing machines, and know the difference between the deterministic and non-deterministic versions in each case; be able to distinguish regular, context-free, context-sensitive and general phrase structure grammars in the Chomsky Hierarchy; understand the relations between language classes and machine classes; have developed elementary automata and Turing machine programming skills; know the basic concepts of algorithmic complexity theory such as the big-O notation, complexity classes N and NP.

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| Hours per Week / Semester: 4 / summer | Teaching Method: Lectures and Tutorials |
| Credits: 6 | Examination: 90 minute written paper, oral resit possible |

Advanced Studies (3rd and 4th year)**GdI-NPP-B Programming Language Semantics***Nichtprozedurale Programmierung*

The aim of this module is to provide a deeper understanding of programming languages, their semantics and applications. This course focuses on the operational semantics of functional and logical programming, and stresses the importance of the concept of types and type checking. At the end of this course students should be familiar with the computational principles behind functional and logical programming, as well as their relationship; be familiar with important language constructs and their semantics (e.g., expressions, local declarations, function and relational abstraction, recursion, lazy and eager evaluation, unification, backchaining); have an appreciation of the major techniques and underlying principles of the formal specification of semantics (axiomatic, denotational, operational) and extended skills in using structural operational rules; have understood the concept of inductive rule systems and their relevance to the specification of complex systems; have an appreciation of the close relationship between programming language types and specification, and the role of type checking as a formal verification method; be familiar with polymorphic Hindley-Milner style type systems.

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| Hours per Week / Semester: 4 / winter | Teaching Method: Lectures, Tutorials, Practice Labs |
| Credits: 6 | Examination: 90 minute written paper, oral resits possible |

GdI-SaV-B Specification and Verification*Logik*

This advanced module aims to give a thorough introduction to a selection of logics with strong applications in Computer Science. Basic knowledge of classical propositional logic and predicate logic and associated calculi is assumed as a prerequisite. Among the logics covered are intuitionistic logic, modal and temporal logics for the analysis of distributed systems. Depending on the time available, the module also covers belief logics and other specialised logics for security protocols and distributed algorithms. The course addresses theoretical foundations (models and proofs) but also discusses applications and offers practical experience through hands-on experimentation with automatic and interactive verification tools.

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| Hours per Week / Semester: 4 / summer | Teaching Method: Lectures and Tutorials |
| Credits: 6 | Examination: 90 minute written paper, oral resits possible |

GdI-CaC-M Communication and Concurrency*Theorie Verteilter Systeme*

This advanced course gives an introduction to the algorithmic and semantic foundations in the programming of distributed systems and discusses state-of-the-art techniques in the formal modelling and validation of distributed systems. At the end of this course the students should be familiar with elementary algorithms, specifically for resource synchronization, mutual exclusion, leader election, Byzantine agreement, global time-keeping; be able to reason about and argue for the correctness of these algorithms; understand the elementary trade-offs governing the algorithms' time and communication complexities; have a clear appreciation of the intricacies arising from the task of solving global synchronisation problems by local (asynchronous) means of communication; know some of the central impossibility results; be familiar with different behavioural models for distributed systems of varying expressiveness, such as Petri Nets, Kripke structures, labelled transition systems, hybrid automata; understand the operational principles of modern (visual) programming languages for globally-synchronous and locally-asynchronous systems such as Statecharts or Esterel.

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| Hours per Week / Semester: 4 / summer | Teaching Method: Lectures and Tutorials |
| Credits: 6 | Examination: 20 minutes oral examination |

GdI-IaS-M Information and Security

Informationssicherheit

Commercial as well as private and public businesses increasingly exploit the world wide web as an efficient and innovative communication platform. Since the web is openly accessible, widely distributed and largely uncontrolled ("best-effort" principle) the dangers of information security violation are real and bound to cause considerable headaches in the future. This course gives an introduction to the problem and surveys state-of-the-art cryptographic methods and standardised security mechanisms based on them that are designed to counter the risks and to establish secure communication through unsafe channels. It will be discussed how properties such as confidentiality, authentication, data integrity, anonymity, commitment can be achieved systematically through security protocols. At the end of this course students should be familiar with most important modern techniques for encryption and decryption; know some of the prominent historic ciphers; have acquired the necessary elementary background in number and coding theory; understand the difference between symmetric and asymmetric encryption; have understood the RSA cryptographic system and possible attacks on it; be familiar with mathematical technology such as one-way functions and hard-core predicates to amplify secrecy and to turn a cryptographic system such as RSA into practical use; be able to appreciate the difference between perfect information-theoretic secrecy and computational secrecy; be able to compute the information-theoretic secrecy of simple encryption systems; be familiar with BAN logic and able to perform logical analyses of elementary security protocols using BAN or one of its successors.

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| Hours per Week / Semester: 4 / winter | Teaching Method: Lectures and Tutorials |
| Credits: 6 | Examination: 20 minutes oral examination |

GdI Seminar

Seminars are offered irregularly on varying topics in the Foundations of Computer Science, Advanced Software Engineering and Formal Methods, both in the winter and/or summer semesters. The seminars are usually advertised at the beginning of each semester. Seminars will be held in English if needed.

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| Hours per Week / Semester: 2 / winter, summer | Teaching Method: Seminar |
| Credits: 3 | Examination: Essay, presentation, continuous assessment |

Research Projects in Foundations of Computer Science

Advanced students interested in pursuing a research project leading to a thesis at undergraduate (bachelor) or graduate (masters, doctoral) level are invited to contact the Theory Group for proposals. Possible topics would typically fall within the theory and application of logics, type theory, process algebra and the semantics of visual programming languages. Some selected proposals can be found on the group's web pages. Depending on the candidate's preferences and background the project might focus on theory or implementation.

4.5 Applied Computer Science

Prof. Dr. Christoph Schlieder

Chair of Computing in the Cultural Sciences

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Semantic Information Processing (KInf-SemInf-M)

Modul KInf-SemInf-M: Semantische Informationsverarbeitung

Computational methods and tools for semantic information processing with special focus on knowledge-based approaches. Topics covered include: problem solving by heuristic search, constraint solving, representation and reasoning with domain-specific knowledge, formal ontologies, machine learning and knowledge discovery, neural networks.

The design of intelligent agents and agent systems is adopted as unifying perspective for presenting the material. Examples from GIS applications or digital libraries illustrate how the methods from semantic information processing blend with more traditional approaches to software design. Programming exercises in Java complement the lecture.

Prerequisites: Algorithms and Datastructures, Machines and Languages

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| Hours per Week / Semester: 4 hours per week, winter | Teaching Method: Lecture and exercise Lessons |
| Credits: 6 | Examination: Written final exam |

Introduction to Computing for Students from the Humanities

Modul KInf-InfKult-E: Informatik für die Kulturwissenschaften

Modul KInf-ProgKult-E: Programmierkurs für die Kulturwissenschaften

First course in Computing Science not requiring previous experience with computers. Introduction into basic concepts: Information, data, knowledge; architecture of computer systems; principles of programming: control and data structures, software engineering process; computer applications: geographic information systems and digital libraries; theory of computing: fundamental limitations and how to cope with them in practice; future trends of computing: semantic information processing. Exercises include text problems and programming tasks.

Prerequisites: none

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| Hours per Week / Semester: 6 hours per week, winter | Teaching Method: Lecture, exercise and tutorial Lessons |
| Credits: 9 | Examination: Written final exam, assignments |

Geographic Information Systems (KInf-GeoInf-B)*Modul KInf-GeoInf-B: Geoinformationssysteme*

This lecture introduces into fundamental concepts of geographic information processing. Topics covered include: representation of spatial objects, digital maps, acquisition of geographic data, visualization and analysis of spatial data, spatial indexing (e.g. R-trees), spatial query processing and spatial SQL.

Connections to semantic information processing, especially those arising from interoperability issues, are established. Possible fields of application for GIS are illustrated with special emphasis on current trends in mobile computing.

Prerequisites: Discrete foundations, Algorithms and data structures

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| Hours per Week / Semester: 4 hours per week, summer | Teaching Method: Lecture and exercise Lessons |
| Credits: 6 | Examination: Written final exam |

Mobile Assistance Systems (KInf-MobAss-M)*Modul KInf-MobAss-M: Mobile Assistenzsysteme*

A digital travel guide running on a smart phone and a CAD-based system for the documentation of built heritage with a TabletPC are two examples of software solutions designed to assist mobile users, that is, examples of mobile assistance systems.

The objective of the course is to introduce students to the research literature on mobile assistance systems and to enable them to put the acquired concepts and methods into practice. Half of the material is covered in reading sessions and half in lab sessions. The course is taught in English.

Prerequisites: Programming course, Machines and languages

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| Hours per Week / Semester: 4 hours per week, summer | Teaching Method: Reading sessions and lab sessions |
| Credits: 6 | Examination: Written final exam, assignments, colloquium |

4.6 Cognitive Systems

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General Information: All exams may be taken in English. Lecture slides are in English. Lectures and tutorials may be offered in English, too, if required.

Advanced Studies (3rd - 5th year)

Intelligent Agents (KogSys-IA-B)

Intelligente Agenten

In this course basic concepts and methods of cognitive oriented artificial intelligence are introduced in the context of problem solving and action planning. Core topics are: STRIPS planning, logic and deductive planning, heuristic search and heuristic planning, planning graph techniques, SAT-planning, and multi-agent planning. Throughout the course, relations to human problem solving and planning are discussed. In the practice part methods and techniques are applied and partially implemented in Prolog. The course language is German, slides and reading materials are in English.

Prerequisites: Basic programming knowledge (for solving the practicals), basic knowledge in algorithms (search algorithms) and logic.

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| Hours per Week / Semester: 4/summer | Teaching Method: Lectures and tutorials, assignments |
| Credits: 6 | Examination: 90 minutes written examination |

Machine Learning (KogSys-ML-M)

Lernende Systeme

In this master-level course well-known symbolical, statistical, and neuronal approaches to machine learning are introduced and relations to human learning are discussed. Core topics are: decision tree algorithms, multi-layer perceptrons, instance-based learning, genetic algorithms, inductive logic programming, Bayesian learning, computational learning theory, inductive program synthesis, and reinforcement learning. In the practice part, some methods and techniques are applied and implemented in Java and Prolog. The course language is German, slides and reading materials are in English.

Prerequisites: Basic programming knowledge (for solving the practicals), basic knowledge in algorithms (search algorithms) and logic.

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| Hours per Week / Semester: 4/winter | Teaching Method: Lectures and tutorials, assignments |
| Credits: 6 | Examination: 90 minutes written examination |

Human Computer Interaction (KogSys-HCI-M)

Mensch-Computer Interaktion

In this course basic concepts of cognitive psychology and artificial intelligence are introduced with respect to design and evaluation of interactive computer systems. Furthermore, core principles and methods of empirical research are introduced which can be applied for usability studies and software evaluation. Core topics are: Basic concepts of the psychology of perception and of thinking, empirical research methods, cognitive architectures. Advanced topics introduced in the last part of the lecture are, for example: user adaptivity, enduser programming, and intelligent tutor systems. In the practice part, a small usability study will be conducted.

Prerequisites: Successful participation KogSys-IA-B.

Remark: KogSys-IA-B can be replaced by some other course where basic methods and approaches of artificial intelligence were introduced.

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| Hours per Week / Semester: 4/winter | Teaching Method: Lectures and tutorials, assignments |
| Credits: 6 | Examination: 20 minutes oral examination |

Practical Cognitive Systems

Praktikum Kognitive Systeme

In this course, offered on bachelor and master level, design and analysis of cognitive systems are practiced in small teams. The topics are derived from current research work in the cognitive system group. A practice course is essential as preparation for thesis work. Participation involves: Acquainting oneself with a topic by searching and evaluating the relevant research papers, discuss the planned project work in context with the state of the art in the field and give an oral presentation; structure the work in form of a requirement specification; fulfilling the specified requirements by designing and/or implementing algorithms, performing theoretical analyses and/or an empirical evaluation of algorithms together with a written report (in form of a scientific paper) and an oral presentation of the results.

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| Hours per Week / Semester: 4/winter, summer | Teaching Method: Seminar, programming lab |
| Credits: 6 | Examination: written report and oral presentation |

Seminar in Cognitive Systems

Seminar Kognitive Systeme

Seminars are offered bachelor (winter term) and master level (summer term) on varying topics in Cognitive Systems. The seminars are usually advertised at the beginning of each semester.

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| Hours per Week / Semester: 2 / winter, summer | Teaching Method: Seminar |
| Credits: 6 | Examination: Essay, presentation, continuous assessment |

4.7 Systems Engineering

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Basic Studies (1st and 2nd year)

Foundations of Business Information Systems

Grundlagen betrieblicher Informationssysteme, SEDA-GbIS-B

Comprehensive introduction to concepts, models, and techniques for the analysis and the design of business information systems. Subjects are systems theory, models of business systems, business functions, and modeling of business information systems.

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| Hours per Week / Semester: 4 / winter | Teaching Method: Lecture and Tutorial |
| Credits: 6 | Examination: 90 minute written examination |

Data Management Systems

Datenmanagementsysteme SEDA-DMS-B

Comprehensive introduction to data management and data management systems. Relational database model, SQL, architecture of data management systems, design of database schemas, case study (development of a data management system), transactions and transaction management, operating of data management systems.

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| Hours per Week / Semester: 4 / summer | Teaching Method: Lecture and Tutorial |
| Credits: 6 | Examination: 90 minute written examination |

Advanced Studies (3rd and 4th year)

Modelling of Business Information Systems

Modellierung betrieblicher Informationssysteme SEDA-MobIS-B

Introduction to methodological concepts of business information systems modelling; investigation of classical and advanced approaches to information systems modelling (data modelling, business process modelling, object-oriented modelling).

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| Hours per Week / Semester: 4 / winter | Teaching Method: Lecture and Tutorial |
| Credits: 6 | Examination: 90 minute written examination |

Systems Engineering*Systementwicklung SEDA-EbIS-2-M*

Systems engineering; software engineering of business application systems; generic architectural framework; domain-specific layer; software layer; layer of programming platforms; control of large systems engineering projects by means of process models; different kinds of process models and their applicability.

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| Hours per Week / Semester: 4 / summer | Teaching Method: Lecture and Tutorial |
| Credits: 6 | Examination: 90 minute written examination |

Architectures of database management systems and database application systems*Architekturen von Datenbanksystemen und von datenbankbasierten Anwendungssystemen SEDA-EbIS-3-M*

Database models; architecture of relational and object-oriented database management systems; transaction models and transaction processing in distributed systems; architectural concepts for improving the data independence of application systems.

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| Hours per Week / Semester: 4 / summer | Teaching Method: Lecture and Tutorial |
| Credits: 6 | Examination: 90 minute written examination |

Advanced application systems for Data, Information, and Knowledge Processing*Fortgeschrittene Anwendungssysteme zur Daten-, Informations- und Wissensverbreitung SEDA-EbIS-1-M*

Data, information, and knowledge; data warehousing; multi-dimensional data model; architecture of data warehouse systems; data mining; knowledge-based application systems; knowledge representation, programming in prolog.

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| Hours per Week / Semester: 4 / summer | Teaching Method: Lecture and Tutorial |
| Credits: 6 | Examination: 90 minute written examination |

4.8 Information systems in the service industry

Prof. Dr. Tim Weitzel

Chair of Business Information Systems, esp. Information systems in the service industry

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Basic Studies (1st and 2nd year)

E-Finance (ISDL-eFin-B)

E-Finance

E-Finance is the electronic support of financial processes and transactions within and between organizations. This covers (1) secondary financial processes such as cash management and financial chain management, (2) primary processes of the financial services industry such as credit processing, payment transactions, and securities trading, and (3) B2B financial transactions, which are usually fulfilled by products and services of financial service providers via their networks.

Information technology is – next to human resources – the critical production factor in all of these processes. The focus of this module is learning methods that help to shape an efficient and effective IT usage within these processes. Main areas will be: financial chain management, outsourcing of financial business functions, IT compliance in financial service provision, automation and integration of banking processes, and B2B IT infrastructures for securities trading.

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| Hours per Week / Semester: 4 / summer | Teaching Method: Lecture and Tutorial |
| Credits: 8 | Examination: 90 minute written examination |

IT-Controlling (ISDL-ITCon-B)

IT-Controlling

IT-Controlling is the controlling of a firm's IT resources with the goal of ensuring the efficiency and effectiveness of IT usage, considering quality, function and time. IT-Controlling is not only control and monitoring but rather a comprehensive coordination function (planning, coordination, control) for the overall management of information. The lecture will consist of chapters on (IT) portfolio controlling, project controlling, product controlling, and infrastructure controlling. The strategic and operational instruments to be discussed are IT portfolio management, IT balanced scorecard, IT activity-based costing, total cost of ownership, conception and calculation of business cases, IT key performance indicators, and IT risk management.

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| Hours per Week / Semester: 4 / winter | Teaching Method: Lecture and Tutorial |
| Credits: 8 | Examination: 90 minute written examination |

Advanced Studies (3rd and 4th year)

Information Systems and Services I – Standards and Networks (ISDL-ISS-1-M)

Informationssysteme in Dienstleistungsbereichen I – Standards und Netzwerke

This module focuses on models and methods covering intra and inter-organizational networks and the necessary standardization of information systems. Technical aspects of internal and external integration of systems, as well as the economic impact of standards for information production and informational services, lead to standardization problems being one of the basic topics in the discipline information systems. The lecture will focus predominantly on the question of how standards can support the automation and inter-organizational integration of processes (i.e. technical aspects of integration; main application domain will be XML and web services), what the strategic problems of standardization are, and how economic and game-theoretical models can be used to solve standardization problems (i.e. economics aspects).

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| Hours per Week / Semester: 4 / winter | Teaching Method: Lecture and Tutorial |
| Credits: 8 | Examination: 90 minute written examination |

Information Systems and Services II – Optimization of IT-Reliant Processes (ISDL-ISS-2-M)

Informationssysteme in Dienstleistungsbereichen II – Optimierung IT-lastiger Geschäftsprozesse

This module focuses on approaches to optimizing business processes through efficient IT support. Typical primary and secondary processes of service delivery are examined, objectives and methods for optimization are introduced, and procedure models for optimal process design are discussed. Main application domains will be:

E-Finance: Financial processes can be generally considered as completely digitalizable and appear both as primary processes in the financial services industry and as secondary processes in all other firms. The lecture discusses how optimal IT usage can be attained in the financial service industry, which optimization potentials can be uncovered in the financial chain management of non-banks, and which re-structuring alternatives for the value chain by a “value chain crossing” are practical.

E-HR: The IT support of HR management processes is surprisingly low. Therefore, the status quo and additional possibilities for this typical secondary process will be introduced. Particularly, a (partial) automation of the personnel selection process can be realized by employing recommender systems.

Sourcing: The questions of which IT services are delivered, to where, and by whom, are strategic questions in many scenarios. Advantages and disadvantages, like economies of skill, scale, and scope, will be discussed and decision support models and “best practices”, along with problems and cultural barriers, will be examined.

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| Hours per Week / Semester: 4 / winter | Teaching Method: Lecture and Tutorial |
| Credits: 8 | Examination: 90 minute written examination |

Information Systems and Services III – IT Business Value (ISDL-ISS-3-M)*(Informationssysteme in Dienstleistungsbereichen III – IT-Wertschöpfung)*

This module covers approaches for utilizing the IT resource in order to generate a competitive advantage. Basic IT issues like the IT paradox, IT/IS strategies, IT architecture, and IT governance, IT assets and capabilities in general will be discussed and illustrated by presenting several real world cases. In particular, the services industry applies IT as the primary production resource (aside from human resources), and therefore, the main focus of this lecture will be on how to determine and how to influence the business value contribution of IT.

A main aspect for high effectiveness of IT is the alignment with the requirements of the business process, i.e. the so-called *IT business alignment*. How can the interplay between IT units and non-IT units be put into effect? It will be shown that an effective application of IT will not be primarily a technical question of choosing the right system but rather the consideration of a portfolio which ensures effective usage in the context of the particular supported business process. Based upon this, key techniques for project management and the valuation of information systems will be introduced. Finally, important aspects of service quality (SERVQUAL) and the new role of the Chief Information Officer (CIO) as a strategic partner and business enabler will be assessed.

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| Hours per Week / Semester: 4 / summer | Teaching Method: Lecture and Tutorial |
| Credits: 8 | Examination: 90 minutes written examination |

Seminar

The seminar in Information Systems and Services incorporates three kinds of academic work: homework, presentation, and discussion. The topics of the seminar cover the entire range of information systems with a specific focus on industrial application systems. The different topics of the seminar are published at the beginning of the semester.

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| Hours per Week / Semester: 2 / winter | Teaching Method: Seminar |
| Credits: 6 | Examination: Essay (12 pages), presentation, continuous assessment |

4.9 Practical Computer Science

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Basic Studies (1st and 2nd year)

Basics of Information Technology: Introduction to Computer Science (PI-Eidl-B)

Einführung in die Informatik

Objective: To provide students with a basic understanding of and overview about the principles of computer science with an emphasis on algorithmics, programming and software development in an imperative as well as a functional paradigm. Students should be able to apply basic abstraction and representation techniques and should know about the concepts of specification, implementation and correctness as well as syntax and semantics in the context of programming languages.

Contents: The course offers a first introduction in computer science from the programming perspective. The topics discussed include the correspondences between information representation, interpretation and manipulation, syntax and semantics, problem classes and instances, design of algorithms and their implementation via programs, declarative specification vs. algorithmic implementation, abstract data types (stack, queue, list, tree) and their underlying semantics, data abstraction and functional abstraction, stepwise refinement and simple re-use techniques, simple rule-based systems and their processes, Chomsky Typ2 and 3 grammars, finite automata and stack automata. Most of these topics are discussed in the context of the languages SCHEME and Java. Students are required to use the concepts discussed in designing and implementing small programs in both languages.

Literature:

1. Barbara Liskov with John Guttag: Program Development in Java. Addison-Wesley, 2001
2. J. Stanley Warford: Computing Fundamentals. Vieweg, 2002
3. Timothy Budd: An Introduction to Object-Oriented Programming, Pearson/Addison Wesley, 2002 (3rd)
4. Abelson, Sussman: Structure and Interpretation of Computer Programs. MIT Press 1984

Organization: The module is organized in combination with the course *Practical Introduction into Java* that adds the practical programming experience aspects to this course. Participants are assumed to work on assignments (specification and programming) throughout the term.

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| Hours per Week / Semester: 4 / winter | Teaching Method: Lectures (3) and tutorials (1) |
| Credits: 6 | Examination: 90 Minutes written examination |

Basics of Information Technology: Practical Introduction into Java (PI-Prakt-Java-B)*Java-Einführungspraktikum*

Objective: To provide students with a basic understanding of the concepts and techniques required when programming in Java. Students should be able to develop small programs for simple problems on their own using the correct choice of data and control structures as provided by the Java programming language. Students should know and apply the concepts of structuring and abstraction offered in the object-oriented paradigm. Students should be familiar with the different steps involved in developing programs and should be able to use common tools (editor, compiler, documentation, libraries) needed when programming.

Contents: The course is held in combination with the course *Introduction to Computer Science* and provides the practical programming background for that course. It discusses the main concepts of Java as an enabling technology for object-oriented Programming in the Small and introduces to the abstraction and structuring techniques offered by Java like, e.g. interfaces, abstract classes, inheritance and implementation relations, polymorphic typing, packages and visibility rules. Besides discussing the detailed Java-specific aspects, the course puts an emphasis on relating all these concepts to the underlying techniques used in each programming language.

Literature:

1. John Lewis, Joseph Chase: Java Software Structures. Pearson/Addison-Wesley, 2005 (2nd)
2. Bert Bates, Kathy Sierra: Head First Java. O'Reilly, 2005 (2nd)

Organization: The course is held in the last three month of the term after the prerequisites have been discussed in the *Introduction to Computer Science* course. Part of the course is organized as lab studies where all participants are required to attend. Participants are assumed to work on assignments (programming) throughout the term.

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| Hours per Week / Semester: 2 / winter | Teaching Method: Lectures (1) and tutorials (1) |
| Credits: 3 | Examination: 90 Minutes written examination |

Basics of Information Technology: Computer-Architecture/Operating Systems (PI-RBS-B)

Rechner- und Betriebssysteme

Objective: To provide students with a basic understanding of the principles of modern hardware systems and the relationships between hardware and operating systems issues.

Contents: The course discusses the stepwise development of hardware from basics like Boolean algebra to the implementation of circuits and registers, introduces to the von-Neumann architecture and more advanced modern RISC and CISC computers using parallelism and pipelining, gives an overview of typical assembler languages and their implementation and relates architectural issues to the basic principles of system software (Synchronisation and scheduling of processes and resources, virtual memory techniques, file systems etc.) as used in modern operating systems like Windows and Unix-Derivates.

Literature:

1. Andrew S. Tanenbaum: *Structured Computer Organization*. Prentice Hall, 2006 (5th)
2. Douglas E. Comer: *Essentials of Computer Architecture*. Pearson/Prentice Hall, 2005(1th)
3. Silberschatz, A./Gagne, G./Galvin, P. B.: *Operating Systems Concepts*. John Wiley and Sons, 2005 (7th)
4. Andrew S. Tanenbaum: *Modern Operating Systems*. Prentice-Hall 2003 (2nd)
5. John L. Hennessy, David A. Patterson: *Computer Architecture* Morgan Kaufmann, 2002, (3rd)

Organization: Participants are assumed to work on assignments (which includes thread-based programming and synchronisation in Java) throughout the term.

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| Hours per Week / Semester: 4 / winter | Teaching Method: Lectures (3) and tutorials (1) |
| Credits: 6 | Examination: 90 Minutes written examination |

Basics of Information Technology: Software Development Techniques (PI-SWT-B)

Software Entwicklung

Prerequisites: A basic understanding of and experience in Java programming as well as of implementing simple algorithms (e.g., provided through basic studies).

Objective: Students gain an overview of state-of-the-art approaches to tackle software complexity and an in-depth understanding of the most important paradigms used in the area.

Contents: The course discusses the different approaches to software engineering with a focus on design, implementation and testing. Advanced concepts include architecture-centric approaches to systems and software engineering, Pattern- as well as Component-based software development. The discussion is based on examples from operating systems, middleware and user interface management systems.

Literature:

1. Sommerville, Ian: *Software Engineering*, 6. Auflage, Pearson Studium, Addison-Wesley 2001
2. Leszek Maciaszek and Bruce Lee Liong: *Practical Software Engineering: A Case-Study Approach*. Addison-Wesley 2005
3. Kim Walden, Jean-Marc Nerson : *Seamless Object-Oriented Software Architecture - Analysis and Design of Reliable Systems*, Prentice Hall, 1995
4. Erich Gamma, Richard Helm, Ralph Johnson, and John Vlissides: *Design Patterns - Elements of Reusable Object-Oriented Software*, Addison-Wesley 1995
5. Eric Freeman, Elisabeth Freeman, Kathy Sierra, Bert Bates: *Head First Design Patterns*, O'Reilly, 2004 (1th)

Organization: The course is organized in combination with the course Software Techniques Lab that adds the practical programming and project experience aspects to this course. Because this course provides the conceptual background for the lab, the course is mainly scheduled for the first part of each summer term.

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| Hours per Week / Semester: 4/summer | Teaching Method: Lectures (1) and tutorials (1) |
| Credits: 3 | Examination: 90 minute written examination and assessments |

Basics of Information Technology: Software Techniques Laboratory

Praktikum zur Software Entwicklung

Prerequisites: see *Software Development Techniques*

Objective: To expose students to the problems involved in developing complex applications in software projects organized as interacting as well as concurring subprojects/groups. Students gain a first insight into the problems caused by software complexity and project work.

Contents: The lab provides a guided tour through all phases of developing a complex software project using state-of-the-art technology for object-oriented programming languages, libraries, software development environments, testing, logging and documentation tools as well as version control systems.

Organization: The course is held in the last three month of the term after the prerequisites have been discussed in the *Software Techniques* course. The course is mainly organized as a lab project where participants are required to work in interacting subgroups to implement a common software project.

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| Hours per Week / Semester: 4/summer | Teaching Method: Lab Project (4) |
| Credits: 6 | Examination: 20 minute oral examination and assessments |

Advanced Studies (3rd - 5th year)

Practical Computer Science: Distributed and Mobile Systems

Verteilte und Mobile Systeme

Note: the following courses (PI-EVMS-B, PI-AVSM-M, PI-Prakt-M) are offered as a 2 semester curriculum for specializing in the field of practical computer science; at least PI-EVMS-B and PI-AVSM-M should be enrolled in the prescribed order. Depending on the specific topics discussed in the seminars (PI-Sem-M, see below), attendance to the seminars may be permitted without EVMS-B and PI-AVSM-M.

Introduction to Distributed and Mobile Systems (PI-EVMS-B)

Einführung in Verteilte und Mobile Systeme

Prerequisites: A basic understanding of computer networks, operating systems at least as it is offered by the course *Computer Architecture and Operating Systems* (basic studies), experience in Java programming.

Objective: To expose students to the problems involved in designing and programming parallel and distributed applications. To gain an in-depth understanding of the most important paradigms used in the area.

Contents: The course gives an introduction into the characteristics and most important applications of distributed systems, discusses the technical basics as well as typical distributed algorithms and provides a first overview over state-of-the-art middleware systems:

- (1) Introduction: characteristics, pros/cons for distributed systems, typical applications;
- (2) Basics and Technological Background: states, events, processes, non-determinism, concurrency, dependencies, cooperation vs. competition, deadlocks, fairness, starvation; classification of computer architectures, static and dynamic computer networks, operating system issues, tasks and threads
- (3) Interaction Paradigms: Heterogeneous systems and protocols, shared vs. distributed memory, message passing: ports, channels, mailboxes, synchronous vs. asynchronous; Client/Server: RPC, naming, binding, protocols, parameter handling, error handling semantics, call backs; Group communication: broadcast and multicast, group management, semantics issues; LINDA coordination. Throughout this chapter, practical issues using Java are handled in assignments: Threads, synchronization, socket communication (stream and datagram), Java RMI, Java Spaces;
- (4) Basic Distributed Algorithms: real and logical time in distributed systems, message ordering, distributed mutual exclusion, termination and deadlock detection, consistent global snapshots, agreement protocols;
- (5) Distributed Middleware: (sketch): single-system image, failure tolerant systems, replication of active and passive components, consistency issues, short overview of state-of-the-art middleware systems

Literature

1. Andrew S. Tanenbaum, Marten van Steen: *Distributed Systems*, Prentice Hall 2003, 803pp., ISBN 0-13-088893-1
2. G. Coulouris, J. Dollimore and T. Kindberg: *Distributed Systems - Concepts and Design*, 2002(3rd), Addison-Wesley
3. Pradeep K. Sinha: *Distributed Operating Systems - Concepts and Design* IEEE CS Press, 1997, ISBN 0-7803-1119-1
4. Nancy A. Lynch: *Distributed Algorithms*.Morgan-Kaufmann Publ. , 2000 (5th)

Organization: The course is offered each winter term, consists of 3 hours lecture and 1 hour tutorial/lab each week organized as 2 hour tutorial each second week. Participants are assumed to work on 3-4 programming assignments throughout the term.

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| Hours per Week / Semester: 4/winter | Teaching Method: Lectures (3) and tutorials (1) |
| Credits: 6 | Examination: 90 minute written examination and <i>part</i> of final oral examination (20 minutes) |

PI-AVSM-M: Architecture of Distributed Systems and Middleware*Architektur verteilter Systeme und Middleware*

Requirements: Basic understanding of distributed systems issues as it is offered, e.g., in the course PI-EVMS-B: *Introduction to Distributed and Mobile Systems*, practical experience with programming simple distributed software systems.

Objective: To gain an in-depth understanding of the most important middleware platforms, an overview of their specific pros and cons as well as insights in the principles of building and maintaining complex distributed systems architectures.

Contents: The first part of the course describes the essentials of distributed middleware systems based on state-of-the-art middleware products like, e.g., Message Queueing Systems, CORBA, DCOM/COM+, Jini, EJB, .NET, Webservices etc. Moreover, the role of protocols and standards like XML, SOAP, WSDL, UDDI etc. are discussed. Advanced topics include general aspects of component based systems (e.g. EJB3 and Corba CCM), approaches to realize service oriented architectures (SOA) and higher abstraction levels like workflow and business processes based on SOA (WS-BPEL, ebXML etc.). Moreover, specific issues like infra-structure networks vs. Peer-to-Peer models, software platforms and architectures for mobile systems are sketched.

Organization: The course is offered each summer term, consists of 2 hours lecture and 2 hour tutorial/lab each week. Participants are assumed to work on programming assignments and (small) projects utilizing middleware technologies throughout the term.

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| Hours per Week / Semester: 4/summer | Teaching Method: Lectures (2) and tutorials (2) |
| Credits: 6 | Examination: 90 minute written examination and <i>part</i> of final oral examination (20 minutes) |

PI-Prakt-M: Distributed and Mobile Software Project*Projekt zu Verteilte und Mobile Systeme*

Requirements: Understanding of distributed and /or mobile systems issues (depends on the specific topic of the project) as offered, e.g., in the courses *Introduction to Distributed and Mobile Systems* and *Architectures for Distributed Systems and Middleware*, practical experience with programming distributed software systems.

Objective: To gain an in-depth understanding of the practical problems related to distributed programming and software projects using multi-vendor middleware platforms. To apply theoretical concepts of distributed and mobile systems when designing, implementing and testing distributed software.

Contents: After a short introduction in (typically) a middleware system like CORBA, Java-related technology, .NET etc, students work in cooperating and/or concurring groups on a mid-size distributed software project continuously over the term.

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| Hours per Week / Semester: 4 (in between terms: Sep.-Oct.) | Teaching Method: Guided Project (working in groups) |
| Credits: 6 | Examination: Short presentations of technical topics used for the project, presentation of the final results: software architecture, demonstration, handbook, lessons learned; production of a poster summarizing the project and its outcome. <i>part</i> of final oral examination (20 minutes) |

PI-Sem-M: Seminar in Distributed and Mobile Systems

Master-Seminar zu Verteilte und Mobile Systeme

Requirements: Understanding of the basics of the topics handled in the seminar, i.e. basics of software engineering, operating systems, distributed and mobile systems,

Objective: To gain an in-depth understanding of state-of-the-art problems and solutions related to specific research topics of the working group for practical computer science. To learn how to search for and evaluate research papers with background information on a specific topic, to understand and present the contents of recent research papers in written and oral form to an audience of students.

Contents: Depends on the topics of current research work of the distributed and mobile systems working group, e.g., complex software systems modelling and engineering, specific topics from the area of distributed and mobile systems, agent technology and so on.

Organization: The seminar is offered each term. Participants are assumed to work on research literature assignments before start of the term, present a talk, prepare an essay and participate actively in seminar discussions.

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| Hours per Week / Semester: 2/each semester | Teaching Method: Seminar |
| Credits: 3 | Examination: Essay (15 pages), 30 Minutes presentation, continuous assessment |