International Office
Gebäude Studierenden-Service-Center (SSC)
Universitätsstrasse 150
44780 Bochum

Email: rubiss@rub.de
www.international.rub.de/rubiss
INTERNATIONAL COURSE CATALOGUE

Winter semester 2016/2017

Degree programmes, seminars and lectures taught in English and other foreign languages
Dear student, dear researcher, dear guest,

this is the International Course Catalogue (ICC) for Ruhr-Universität Bochum, put together by RUBiss – RUB international student services of the International Office. The International Course Catalogue gives an overview of RUB’s classes which are taught in foreign languages. It is aimed at international students wanting to organise their semester programme, prospective students planning on studying in Bochum, or partners and guests wishing to gain a general idea of RUB’s international courses and degree programmes.

All courses are open to exchange students and students of related subjects.

It contains the following information:

1. A compilation of seminars and lectures (Bachelor, Master and PhD) held in English or other foreign languages:
   Many of RUB’s departments offer seminars and lectures in English or other foreign languages. These are NOT usually part of an international degree programme. The ICC provides information about the content of the classes and prerequisites for admission, as well as credit points and contact persons. It also states which courses can be accredited to the “Optionalbereich”, and which ones are especially suitable for exchange students.

2. Additional information on studying and researching internationally at RUB:
   RUB’s international profile, a list of international (English) Master and PhD programmes as well as double and joint degree courses, exchange programmes, RUBiss – RUB international student services, Welcome Centre for internationally mobile researchers, application and admission, contact addresses.

We hope that you will find the International Course Catalogue a helpful guide for your semester programme, and wish you every success in the new semester!

Your RUBiss – RUB international student services team
# CONTENT

THE RUHR-UNIVERSITÄT BOCHUM ................................................................. 4

SERVICE FOR INTERNATIONAL MEMBERS ............................................. 5
  RUBISS – INTERNATIONAL STUDENT SERVICES ................................... 5
  EXCHANGE PROGRAMMES ..................................................................... 6
  RUB RESEARCH SCHOOL: MORE THAN RESEARCH ................................. 10
  WELCOME CENTRE FOR INTERNATIONAL RESEARCHERS ..................... 11

STUDYING AT RUB ....................................................................................... 12
  DEGREE PROGRAMMES TAUGHT IN ENGLISH ........................................ 12
  DOUBLE AND JOINT DEGREES ............................................................. 17
  LANGUAGE COURSES ............................................................................... 21
  APPLICATION AND ADMISSION ............................................................ 22

INTERNATIONAL SEMINARS AND LECTURES ........................................ 23
THE RUHR-UNIVERSITÄT BOCHUM

Located in the midst of the dynamic, hospitable metropolitan area of the Ruhr, in the heart of Europe, Ruhr-Universität Bochum (RUB) with its 20 faculties is home to 5,600 employees and over 43,000 students from 130 countries. All the great scientific disciplines are united on one compact campus. RUB offers approximately 150 bachelor’s and master’s degree programmes in various combinations.

Opened in 1965 as the first new university to be established in Germany following the Second World War and also the first university in the Ruhr area, RUB is now one of Germany’s biggest universities and on its way to becoming one of the leading European universities of the 21st Century. The university’s greatest strength is its interdisciplinary cooperation. Interfaculty and interdisciplinary Research Departments, which are nationally and internationally networked, sharpen RUB’s profile.

What makes it all come alive, are the people who meet on campus with their thirst for knowledge, their curiosity and their commitment. They help shape the RUB and their open-mindedness makes RUB an attractive place for people from around the world: More than 5500 international students, approx. 830 international PhD students and international researchers are studying and working at RUB. About 500 international exchange students spend time at RUB each year and just as many RUB students complete parts of their degree abroad.

Research at RUB is internationally linked and geared towards internationalisation: RUB has signed collaboration agreements with numerous prestigious partner universities and these collaborations are put into practice by way of the active exchange programmes and various projects which are taking place for students and researchers. RUB is a member of the Utrecht Network and further international university networks in the areas of research and teaching. It has about 350 partner universities in the ERASMUS Programme. It is also running liaison offices in New York, Moscow and São Paulo/Rio de Janeiro with its neighbouring universities Dortmund and Duisburg-Essen as part of the University Alliance Ruhr (UA Ruhr).

International students, PhD students and international researchers can benefit from a number of extraordinary services:

- RUBiss – RUB international student services provides extensive information, support and advice for all international students.
- Incoming and outgoing exchange students are offered a wide range of exchange programmes with partner universities worldwide, as well as special services at RUB.
- Research School is the university-wide graduate school of RUB supporting all doctoral researchers on campus by training of personal and interdisciplinary skills, career guidance, personal counselling and with research-related training offered by the faculties.
- Internationally mobile researchers are welcomed and supported in RUB’s Welcome Centre.
SERVICE FOR INTERNATIONAL MEMBERS

RUBiSS – INTERNATIONAL STUDENT SERVICES

In order to be able to study successfully, it is important that you feel comfortable, both at university and in daily life. Only then will you be able to focus on your studies. As part of the International Office, RUBiSS is your contact for important issues which go beyond your academic studies, such as advice and support in social, cultural and university-related affairs, as well as support with administrative tasks and legal affairs concerning foreign nationals.

RUBiSS offers:

- Support and advice on various matters
- Orientation and welcome events
- Events and excursions

We assist you in arranging your legal affairs with the foreign citizens’ office, the city of Bochum and various other officials. We will also advice you on general questions concerning your studies and living in Bochum and Germany.

Events are organised both at the beginning and during the semester. On various excursions, you will have the opportunity to become acquainted with your new surroundings, settle in and meet fellow students.

At the start of every semester, RUBiSS organises orientation events for international students: Orientation Days take place in the weeks before lectures start and are open to all new international students. Participation is free of charge.

Every semester, members of staff from the International Office, accompanied by the Rector himself, welcome the new international students to RUB at the International Welcome. RUBiSS as well as various university institutions introduce themselves and present their offers for international students.

The RUBiSS team publishes a semester programme every semester. In it, you will find a range of different events, workshops and excursions. You can also register for our newsletter to stay informed on current events.

Semester programme: http://www.international.rub.de/rubiss/freizeit/programm.html.en

Newsletter: http://international.rub.de/rubiss/start/newsletter.html.en
EXCHANGE PROGRAMMES

RUB offers a variety of opportunities for student exchange. An exchange programme is certainly the easiest, safest and cheapest of all possibilities to go abroad. The most commonly known exchange programme is the EU’s ERASMUS. Ruhr-Universität Bochum has some 300 partner universities all over Europe. Students can spend 3 - 12 months abroad in one of the 28 EU member states, Iceland, Norway, Macedonia (FYROM), Liechtenstein and Turkey and they will be supported financially by the ERASMUS Mobility Grant.

In addition to the ERASMUS universities involved in the exchange programme, RUB closely cooperates with the following universities:

- Universidade Federal de Minas Gerais, Belo Horizonte, Brazil
- Universidade de Brasília, Brazil
- Universidade Federal do ABC, São Paulo, Brazil
- Universidade Federal do Rio Grande do Sul, Porto Alegre, Brazil
- Universidade Federal do Rio Grande do Norte, Natal, Brazil
- Universidade Federal Fluminense (UFF), Niterói, Brazil
- Universidade Federal de Juiz de Fora (UFJF), Juiz de Fora, Brazil
- Universidad Tecnológica Nacional, Argentina
- Universidad de Monterrey, Mexico
- Universidad Autónoma de Nuevo León, Monterrey, Mexico
- Universidad Autónoma Metropolitana, Mexico City, Mexico
- Benemérita Universidad Autónoma de Puebla, Mexico
- Universidad Católica del Norte, Antofagasta/Coquimbo, Chile
- Universidad de La Serena, Región de Coquimbo, Chile
- Universidad Santo Tomás, Colombia
- National Taiwan University, Taipei, Taiwan
- Ewha Woman’s University, Seoul, Korea
- Soongsil University, Seoul, Korea
- Sogang University, Seoul, Korea
- Sungkyunkwan University, Seoul
- Kyungpook National University, Daegu, Korea
- Osaka University, Japan

The following universities offer RUB students a monthly scholarship in addition to the reimbursement of tuition fees:

- Université François Rabelais in Tours, France
- Universidad de Oviedo, Spain
- Belarusian State University Minsk, Belarus
- Tongji University in Shanghai, China

Students at all of these universities may study at RUB for one or two semesters without having to pay any tuition fees.

RUB is also a member of the Utrecht Network. Within this network, 32 European universities are working together on topics of internationalisation and exchange. The Utrecht Network has strong links with the MAUI (Mid-America Universities International) Network and AEN (Australian-European Network). The following universities are members of these networks:
Studying at RUB

a) MAUI:

| Baylor University            | Texas State University       |
| Waco, TX                     | San Marcos, TX              |
| Kansas State University      | University of Missouri      |
| Manhattan, KS                | Kansas City, MO             |
| Missouri University of Science & Technology | University of Missouri |
| Rolla, MO                    | St. Louis, MO               |
| Oklahoma State University    | University of Nebraska      |
| Stillwater, OK               | Kearney, NE                 |
| Southern Illinois University | University of Nebraska      |
| at Carbondale, IL            | Lincoln, NE                 |
| Texas Tech University        | University of Nebraska      |
| Lubbock, TX                  | Omaha, NE                   |
| University of Kansas         | University of Oklahoma      |
| Lawrence, KS                 | Norman, OK                  |

b) AEN:

| Deakin University            | University of Tasmania      |
| Victoria                     | Tasmania                    |
| Edith Cowan University       | University of Western Sydney|
| Western Australia            | New South Wales             |
| Griffith University          | University of Wollongong    |
| Queensland                   | New South Wales             |
| Macquarie University         |                             |
| New South Wales              |                             |

Student exchanges take place on a regular basis through the MAUI Utrecht Network Exchange Programme and the AEN Utrecht Network Exchange Programme. Students from all areas of study may participate (only students from the Faculty of Medicine are excluded from the MAUI and AEN Utrecht Network exchange programmes). All tuition fees at the host institution will be reimbursed.

Furthermore, many faculties run their own exchange programmes

Faculty of Historical Science:
- Kyushu University, Japan

English/American Studies:
- Central Michigan University, USA

Slavonic Studies:
- Institute of European Cultures, Moscow, Russia
- Moscow State University of Railway Engineering, Russia
- Kursk State University, Russia
- Vologda State Pedagogical University, Russia
- Vologda State Technical University, Russia
- Belarusian State University Minsk, Belarus
- Simferopol State University, Ukraine
Faculty of Economics:
- Tongji University in Shanghai, China
- Nihon University in Tokyo, Japan
- East Anglia University, UK
- HSBC Business School of Peking University Shenzhen, China
- Wollongong Universität, Australien

Faculty of Social Science:
- El Colegio de la Frontera Norte, Mexico

Faculty of East Asian Studies:
- Nihon University in Tokyo, Japan
- Fukushima University in Fukushima, Japan
- Keio University in Tokyo, Japan
- Okayama University in Okayama, Japan
- Mie University in Tsu, Japan
- Kwansei Gakuin University in Nishinomiya, Japan
- Kyushu University, Japan
- Niigata University, Japan

Faculty of Psychology:
- Universidad Santo Tomás, Colombia

Faculty of Civil and Environmental Engineering:
- Toyohashi University of Technology in Toyohashi, Japan

Faculty of Mechanical Engineering:
- Toyohashi University of Technology in Toyohashi, Japan
- Tongji University in Shanghai, China
- Drexel University in Philadelphia, USA
- Virginia Tech in Blacksburg, USA

Faculty of Electrical Engineering and Information Technology:
- Purdue University in West Lafayette, Indiana, USA
- Drexel University in Philadelphia, USA

Faculty of Geosciences:
- Universidad Nacional de San Juan, Argentina

Faculty of Medicine:
- Gunma University, Japan
- University of Toyama, Japan

Students from those universities listed above, who are interested in spending one or two semesters at RUB, should contact the International Office or their faculty at their home university
to check exchange possibilities. After being nominated for an exchange programme, you are welcome to contact RUB’s Incoming Exchange Student Services.

RUB students wanting to spend part of their studies abroad are welcome to contact the Outgoing Exchange Student Services located at the International Office.

Incoming Exchange Student Services
International Office
Ruhr-Universität Bochum
Email: meike.schaich@uv.rub.de
      Theodoros.markakidis@uv.rub.de
Internet: www.international.rub.de/gaststudis

Outgoing Exchange Student Services
International Office
Ruhr-Universität Bochum
Email: anika.odenbach@uv.rub.de (USA, Australia, ERASMUS)
      maren.scharwald@uv.rub.de (Asia, ERASMUS)
      uta.baier@uv.rub.de (Latin America, ERASMUS)
Internet: www.international.rub.de/ausland
RUB RESEARCH SCHOOL: MORE THAN RESEARCH

Research School supports doctoral researchers and early postdocs during their research careers at RUB.

RUB Research School and its 20 faculties promote top-level postgraduate education in an international and interdisciplinary research environment and support the individual research interests of doctoral researchers. All enrolled doctoral researchers - from natural sciences and engineering to the life sciences and the humanities and social sciences - are members of the Research School. Early postdocs are also most welcome to participate in our programme.

Research School makes visible the research-related training offered by the faculties and research areas of RUB. Dedicated counselling offers, training of personal skills (e.g. scientific communication, proposal writing, leadership skills) and various inter- and transdisciplinary events such as Science College, Research Day support young researchers during their doctorate. In addition, we offer career guidance for a career in- and outside academia preparing doctoral researchers and early postdocs for their next career steps. If you have questions concerning planning or starting your doctorate at RUB you are most welcome to contact us.

Doctoral researchers who wish to internationalize their research project and broaden their scientific network around the world can be financially supported by Research School PLUS until the end of 2017.

On our website doctoral researchers and postdocs get all information about our programme and offers. You are always most welcome to contact us any time during our office hours and come with your questions about starting or doing a Dr. or a Ph.D at RUB.

We are looking forward to seeing you soon!

Central Coordination Office
RUB Research School
Ruhr-Universität Bochum
Internet: http://www.research-school.rub.de
WELCOME CENTRE FOR INTERNATIONAL RESEARCHERS

The Welcome Centre is the place to go for international researchers and their families who seek advice and support regarding their research stay at Ruhr-Universität Bochum. We offer information and services on topics such as residence formalities, health insurance or family issues, as well as helpful hints for a smooth social integration and everyday life in Germany. Welcome Centre also provides advice to hosts and faculties at RUB.

Services

- Guide for international researchers
- Webpage with information and forms in English and German language
- Support in dealing with formalities and authorities
- Guest apartments for international researchers and their families
- Information on other relevant issues connected to your stay
- International Lounge

Welcome Centre Events

The Welcome Centre invites international researchers and their families to various events such as excursions throughout the region, receptions of the rectorate on a regular basis, intercultural trainings, information events and many more.

International Lounge

Ruhr-Universität Bochum has a modern, comfortable lounge for international researchers, their families and hosts. At the lounge they have the possibility to get together to talk and work or simply to have a coffee and read an international journal. During opening hours there is always someone present at the Lounge to answer any general questions you may have.

EURAXESS

The Welcome Centre in Bochum is registered as a EURAXESS Service Centre – EURAXESS is an EU wide network providing information and advice for internationally mobile researchers.

Welcome Centre, International Office
Ruhr-Universität Bochum
International Lounge, „Mensa“ building
Email: welcome-centre@rub.de
Internet: www.rub.de/welcome-centre

International Lounge for visiting researchers:
Mensa building, main entrance, Bistro level
STUDYING AT RUB

DEGREE PROGRAMMES TAUGHT IN ENGLISH

Numerous degree programmes at RUB are taught in English, many of them specialising in contemporary research topics and/or offering double and joint degrees with distinguished universities:

Lasers and Photonics

Faculty of Electrical Engineering and Information Technology

Degree: Master of Science (single degree)

Application deadline: 15 July (winter semester) and 15 January (summer semester)

Prerequisites: above-average Bachelor’s degree (at least 6 semesters) in Electrical Engineering, Mechanical Engineering, Physics, Chemistry or similar; very good English language skills. See programme website for further details.

Fees: RUB’s social fee 303.04 € (per semester)

Contact: Biljana Cubaleska. Phone: +49 (0)234 32-29474, email: studienberatung@ei.rub.de

More information: www.ei.rub.de/studium/lap

Master of Arts in Development Management

Institute of Development Research and Development Policy

Degree: Master of Arts (single degree)

Application deadline: Next intake: October 2016. Application Deadlines will be published on the programme website.

Prerequisites: above-average BA or relevant degree in Political Science, Social Science, Law, Economics, Geography or any other subjects related to the planning and evaluation of development programmes and projects; practical experience in a relevant field; very good English language skills. See programme website for further details.

Fees: RUB’s social fee 303.04 € (per semester)

Special feature: DAAD scholarships available; twin programme in Cape Town, S.A.

Contact: Dr. Tobias Thürer, Phone: +49 (0)234 / 32-22448, email: ieemdm@rub.de

PhD in Development Management Studies (IDS)

Institute of Development Research and Development Policy

Degree: PhD in International Development Studies

Application deadline: 30. April of a year. Application Deadlines will be published on the programme website.

Prerequisites: Qualified university degree (Master or an equivalent to the German Diploma or Staatsexamen) with an overall grade equivalent to 2.7 (fully satisfactory) in the German grading system after completion of relevant studies with a duration of at least 4 years. Qualified degree with an overall grade equivalent to 1.7 (fully good) in the German grading system after completion of relevant studies with a duration of at least three years plus preparatory studies for the PhD of usually three semesters. For international degrees the equivalence will be judged during the application process. Candidates who have to follow preparatory studies before admission to the PhD in International Development Studies can be accepted for such preparatory studies at the
Studying at RUB

Ruhr-University Bochum; very good English language skills. See programme website for further details: [http://www.development-research.org/index.php/study-programmes/phd-ids.html](http://www.development-research.org/index.php/study-programmes/phd-ids.html)

**Fees**: RUB’s social fee 303,04 € (per semester)

**Capacity**: Up to 10 PhD students per year.

**Duration**: 3 years

**Contact**: Dr. Martina Shakya, Phone: +49 (0)234 / 32-25149 email: ieephd@rub.de

---

**Materials Science and Simulation**

Interdisciplinary Centre for Advanced Materials Simulation (ICAMS)

**Degree**: Master of Science (single degree)

**Application deadline**: see [www.icams.de/content/masters-course-mss/application-and-admission](http://www.icams.de/content/masters-course-mss/application-and-admission)

**Prerequisites**: Bachelor’s degree (B. Sc.) or comparable degree in one of the following or related disciplines: Materials Science, Mechanical Engineering, Physics, Civil and Environmental Engineering, Electrical Engineering, Chemical Engineering, Power Engineering, Chemistry, Nanotechnology, Mathematics, Computer Sciences or Astronomy; very good English language skills. See programme website for further details.

**Fees**: RUB’s social fee 303,04 € (per semester)

**Contact**: Prof. Dr. rer. nat Alexander Hartmaier. Phone: +49 (0)234/32-29314, email: mss@icams.rub.de / More information: [www.icams.de/mss](http://www.icams.de/mss)

---

**Master of Science in Biochemistry**

Faculty of Chemistry and Biochemistry

**Degree**: Master of Science (single degree)

**Application deadline**: 15 July

**Prerequisites**: above-average German or equivalent Bachelor of Science in Biochemistry or a related field; very good English language skills. See programme website for further details.

**Fees**: RUB’s social fee 303,04 € (per semester)

**Contact**: Prof. Dr. Irmgard D. Dietzel-Meyer. Phone: +49 (0)234 / 32-25803, email: bc-schwerpunkte@rub.de

More information: [www.chemie.rub.de/studium/master/biochemie](http://www.chemie.rub.de/studium/master/biochemie)

---

**Molecular Sciences (iMOS)**

Faculty of Chemistry and Biochemistry

**Degree**: Master of Science (single degree)

**Application deadline**: 15 July. The course starts in winter semester (October) each year.

**Prerequisites** A B.Sc. Degree or international equivalent with an average mark better than 1.9 in Chemistry, Physics, Biochemistry, Engineering or a related interdisciplinary subject; very good English language skills. See programme website for further details. **Fees**: RUB’s social fee 303,04 € (per semester)

**Contact**: Dr. Gerhard Schwaab. Phone: +49 (0)234 / 32-24256, email: imos@rub.de

More information: [www.rub.de/imos](http://www.rub.de/imos)

---

**Master of Science in Chemistry**

Faculty of Chemistry and Biochemistry
**Degree:** Master of Science (single degree)

**Application deadline:** 15 July

**Prerequisites:** above-average German or equivalent Bachelor of Science in Chemistry or a related field; very good English language skills. See programme website for further details.

**Fees:** RUB’s social fee 303.04 € (per semester)

**Contact:** Gundula Talbot: +49 (0)234 / 32-26908, email: gundula.talbot@rub.de.

**More information:** [www.chemie.ruhr-uni-bochum.de/studium/master/chemie](http://www.chemie.ruhr-uni-bochum.de/studium/master/chemie)

---

**Computational Engineering**

Faculty of Civil and Environmental Engineering

**Degree:** Master of Science (single degree)

**Application deadline:** international students 1 May, national students 15 September

**Prerequisites:** above-average Bachelor’s (or comparable) degree in Civil Engineering, Mechanical Engineering or a related engineering field. Students who only have a Bachelor’s degree in Computer Science cannot be accepted. Very good English language skills, see programme website for further details.

**Fees:** RUB’s social fee 303.04 € (per semester)

**Special feature:** twin programme at the Vietnamese-German University in Ho Chi Minh City

**Contact:** Dipl.-Ing. Jörg Sahlmen. Phone: +49 (0)234 / 32-22103, email: comp-eng@rub.de

**More information:** [http://compeng.rub.de](http://compeng.rub.de)

---

**Geosciences – Resources and Energy**

Faculty of Geosciences

**Degree:** Master of Science (single degree)

**Application deadline:** 15 July

**Prerequisites:** B.Sc. in Geosciences or related natural sciences, very good English language skills (see programme website for further details) and sufficient physical fitness to perform fieldwork

**Fees:** RUB’s social fee 303.04 € (per semester)

**Special feature:** prepares students for subsequent employment in the industry (mainly hydrocarbon industry)

**Contact:** Prof. Dr. Adrian Immenhauser. Phone: +49 (0)234 / 32-28250, email: adrian.immenhauser@rub.de

**More information:** [http://www.gmg.rub.de/studium/studgang](http://www.gmg.rub.de/studium/studgang)

---

**Molecular and Developmental Stem Cell Biology**

Faculty of Medicine

**Degree:** Master of Science (double degree)

**Application deadline:** 15 July (winter semester)

**Prerequisites:** Top Bachelor’s degree in the Life Sciences (e.g. B.Sc. in Biology, Microbiology, Biomedicine, Molecular Biology) or a state examination/Master’s in a medical subject; proof of good basic mathematical skills, very good English language skills. See programme website for further details: [www.rub.de/istem](http://www.rub.de/istem)

**Fees:** RUB’s social fee €303.04 (per semester)

**Contact:**
Master of Science in Economics
Faculty of Management and Economics
Degree: Master of Science (single degree)
Application deadline: 15 July (winter semester), 15 January (summer semester)
Prerequisites: A Bachelor’s degree in economics or a related discipline (business, statistics, mathematics, political science, international relations, etc.) with a duration of at least six semesters (180 ECTS credit points). As the program is taught entirely in English, applicants need to have very good English language skills. For further details on admission requirements please visit the programme website or contact the programme coordinator.
Fees: RUB’s social fee 303,04 € (per semester)
Contact: Dipl. Ök. Michèle Lorraine Teufel, tel.: 0234 32-22687 email: econmaster@rub.de
More information: www.rub.de/econmaster/Course catalogue: rub.de/econmaster/download.html

Master of Cognitive Science
Faculty of Psychology
Degree: Master of Science (single degree)
Application deadline: 15 July
Prerequisites: excellent Bachelor’s degree in philosophy, psychology, neuroscience, mathematics, biology, computer science or linguistics and similar subjects, extremely high motivation to study; very good English language skills. See programme website for further details.
Fees: RUB’s social fee 303,04 € (per semester)
Contact: Dr. Andreas Utsch, Tel.: 0234 / 32-27895, email: andreas.utsch@rub.de

Criminal Justice, Governance and Police Science
Faculty of Law
Degree: Master of Criminal Justice, Governance and Police Science (M.A.)
Application deadline: 15 July
Prerequisites: a successful completion of a university/college degree (BA, BSc and MA, MSc or equivalent) degree in the program relevant subject areas (240 CPs*); at least one year of relevant practical experience after graduation; an excellent knowledge of the English language.
Fees: For Information on tuition fees, please contact tuitionfees@macrimgov.eu
Contact: Dr. Katrin List: Phone: +49 (0)234 32-25249, email: administration@macrimgov.eu, Skype: MACRIMGOV
Type: completely online/ part-time (studying while working)

Ethics – Economics, Law and Politics
Jointly offered by the Faculties of Philosophy, Law, Economics and Social Science
Degree: Master of Science (single degree)
Application deadline: 15 July
Prerequisites: an interdisciplinary frame of mind, first graduation (BA) in Philosophy, Political Science, Law, or Economics; very good English language skills. See programme website for further details.

Fees: RUB’s social fee 303.04 € (per semester)

Contact: Dr. Simone Heinemann: Tel.: 0234 / 32-24733, email: Simone.Heinemann@rub.de.


Joint European Master’s Programme in International Humanitarian Action (NOHA)

Institute of International Law of Peace and Armed Conflict

Degree: Master of Arts (joint degree)

Application deadline: 15 March

Prerequisites: Master’s degree (or equivalent) in International Relations, History, Law, Medicine, Psychology, Sociology, Anthropology, Economics, Management, Geography, Spatial Sciences or related fields

Fees: participation costs €12,600 for non-European students; €8,400 for European students (one-off payment), RUB’s social fee 303.04 € (per semester)

Special feature: Erasmus Mundus Programme

Contact: Prof. Dr. Hans-Joachim Heintze Email: Hans-Joachim.Heintze@rub.de

More information: http://www.ruhr-uni-bochum.de/ifhv

Double Master’s degree in Transformation of Urban Landscapes (TUL)

Faculty of Geosciences, Department of Geography

Degree: Master of Science in Transformation in Urban Landscapes (RUB) and Master of Engineering in Landscape Studies (Tongji University)

Application deadline: 15 July (winter semester)

Prerequisites: Bachelor of Science degree in Geography, Spatial Planning (‘Raumplanung’) or familiar equivalent study programmes from Germany or other countries. Thorough knowledge of English.

Fees: RUB’s social fee €303.04 (per semester)

Contact: Prof. Dr. Harald Zepp. +49 234 32-23313, email: gi-research@rub.de

More information: www.geographie.rub.de/transformation-urbaner-landschaften

European Master’s Programme in Human Rights and Democratisation

Institute of International Law of Peace and Armed Conflict

Degree: Master of Arts (joint degree)


Prerequisites: university degree of a high standard in a field relevant to human rights, including disciplines of Law, Social Sciences and the Humanities and a minimum of 180 ECTS credits (Bachelor’s/general degree)

Fees: tuition fees €4900 (one-off payment), enrolment fee €150, application processing fee €50, RUB’s social fee €303.04 (per semester)

Special feature: first semester taught in Venice

Contact: Name Prof. Dr. Hans-Joachim Heintze Email: Hans-Joachim.Heintze@rub.de

More information: www.emahumanrights.org
DOUBLE AND JOINT DEGREES

Several double and joint degree programmes provide the opportunity to profit from additional lectures offered by reputable partner institutions, to obtain the degree of a partner university alongside the RUB-degree without prolongation of the duration of your studies and to strengthen your intercultural competencies.

For a list of all double / joint degree programmes including recent changes please check http://www.international.rub.de/profil/lehre/doppelabschluss.html.en.

Double Master’s Degree Germanistik with Universiteit van Amsterdam

Intercultural Master programme taught in German, starting in August. Strong focus on practical application. Students spend the first two semesters in Amsterdam and the third and fourth semester in Bochum.

Contact:
Name: Prof. Bernd Bastert
Email: bernd.bastert@rub.de
www.germanistik.rub.de/ambo/

Double Master’s Degree Option: “Comparative Literature” with Università di Bergamo

Students spend the first semester in Bochum, the second and the third semester in Bergamo and the last (fourth) semester again in Bochum. Upon successful completion of the studies, they will be awarded a Master's degree of both RUB and Università di Bergamo.

Contact:
Name: Dr. Peter Goßens / Email: peter.gossens@rub.de

Double Master’s Degree Development Management with University of the Western Cape, Capetown

International Master programme taught in English. Well performing and committed students who register for the MA in Development Management of Ruhr University Bochum have the possibility to obtain a second degree of our partner, the University of the Western Cape (UWC), South Africa, by submitting a second Master’s thesis and successfully completing additional coursework. (For details, see programme website.)

Contact:
Name: Dr. Gabriele Baecker
Email: gabriele.baecker@rub.de
Name: Dr. Meik Novak
Email: Meik.Nowak@rub.de
http://www.development-research.org/index.php/study-programmes/madm.html

Double Master’s Degree in Gender Studies with the University of Graz

A double degree “Master of Arts” is awarded, a full academic degree in both participating countries. The degree course focuses on an international, mainly European, perspective on Gender Studies.

Contact:
Name: Maximiliane Brand
Email: GenderStudies@rub.de
Double Master’s Degree "Russian Culture" with RGGU in Moscow

Students of (Russian) Culture at the RGGU and at RUB obtain a Master degree of the RUB and of the RGGU after successfully completing their studies.

Contact:
Name: Dr. Klaus Waschik
Email: klaus.waschik@rub.de

Joint European Master’s Programme in International Humanitarian Action (NOHA)
See page 16 for further Information.

Double Master’s Degree in Management and/or Economics with UEA, Norwich

10 double degree places are offered for students of the Master of Economics or Master of Management and Economics. The second and third semester are spent in Norwich.

Contact:
Name: Prof. Dr. Michael Roos
Name: Christina Seeeger
Email: Michael.Roos@rub.de
Email: Christina.Seeger@rub.de
More information: http://www.wiwi.rub.de/international/doubleprogrammes/uea_double.html.en

Double Master’s degree in Transformation of Urban Landscapes (TUL)
See page 16 for further Information.

Double Master’s Degree for students of "Financial Services" at the CDHK at Tongji-University, Shanghai, with the Faculty of Economics

Students of the CDHK can continue their studies at RUB from the 4th semester onwards.

Contact:
Name: Prof. Dr. Bernhard Pellens
Email: pellens@iur.rub.de

Double Master’s Degree of the Faculty of Mechanical Engineering with the CDHK at Tongji University, Shanghai

A double degree in production techniques can be obtained by German and Chinese students (studying at both locations).

Contact:
Name: Prof. Dr.-Ing. Michael Abramovic
Email: Michael.Abramovic@itm.ruhr-uni-bochum.de

Double Bachelor’s Degree in History with Université François Rabelais Tours

The students study at their home university for two semesters, then change to the partner university for semesters 3 and 4. The 5th semester is spent in Tours by all students, the 6th in Bochum. Language of instruction in Tours is French.

Contact:
Name: Prof. Dr. Gerhard Lubich
Email: Gerhard.lubich@rub.de
Name: Dr. Jens Lieven
Email: jens.lieven@ruhr-uni-bochum.de
Double Master’s Degree in History with Université François Rabelais Tours

Research oriented double degree programme. Students spend their first semester in Tours and their second semester in Bochum jointly as one cohort. They continue their studies in the third semester at the partner university (RUB students in Tours and vice versa) and the fourth semester at their home university. Language of instruction in Tours is French.

Contact:
Name: Prof. Dr. Gerhard Lubich
Email: Gerhard.lubich@rub.de
More information: http://www.ruhr-uni-bochum.de/isg/informationenma.html.de

Double Bachelor’s / Master’s Degree in National and European Law with Université François Rabelais Tours

Both double Bachelor’s and double Master’s degree. Students spend two semesters together in Bochum and two in Tours.

Contact:
Name: Prof. Dr. Adelheid Puttler
Email: dfbs-info@rub.de

Double Master’s Degree option in Philology (French Department) with Université François Rabelais Tours

Students of both partner universities can spend the last year of their studies at the partner institution. Students will be awarded a Master’s degree of both RUB and Université Tours. Language of instruction in Tours is French.

Contact:
Name: Jürgen Niemeyer
Email: Juergen.Niemeyer@rub.de

Double Master’s Degree option in Philology (Spanish Department) with Universidad de Oviedo

Students of both partner universities can spend the last year of their studies at the partner institution. Students will be awarded a Master’s degree of both RUB and Universidad de Oviedo.

Contact:
Name: Jürgen Niemeyer
Email: Juergen.Niemeyer@rub.de

European Master’s Programme in Human Rights and Democratisation

See page 16 for further Information.

Joint Master’s Degree Film and Audiovisual Media

Integrated studies in three different European countries, at key media and media studies locations (Goethe-Universität Frankfurt, Université Sorbonne Nouvelle Paris 3, Université de Paris Ouest Nanterre Paris 10, Università degli Studi di Udine, Università Cattolica del Sacro Cuore di Milano, Université de Liège, Birkbeck College London, Universitat Pompeu Fabra de Barcelona, Université Lille 3, Università Roma 3, University of Amsterdam, Université de Montréal). Second and third semesters have to be spent at different partner universities.
Double Master’s Degree: RUBSALA - Integrative Sprachdidaktik des Deutschen
RUBSALA is a German and Swedish Double Master programme where you will learn intercultural language teaching of German. The Master is taught in German. Due to this Master the student will study at RUB and at Uppsala University in Sweden.

Contacts:
Name: Prof. Dr. Björn Rothstein
Email: bjoer.rothstein@rub.de
Name: Judith Janutta
Email: rubsala@rub.de

http://staff.germanistik.rub.de/rubsala/startseite/zum-studienaufbau/
LANGUAGE COURSES

ZFA – CENTER FOR FOREIGN LANGUAGE TRAINING

a) Language Courses
The University Language Centre (Zentrum für Fremdsprachenausbildung, ZFA) provides courses aimed at specialist and non-specialist language learners, with a particular focus on the key attributes of developing cultural awareness and intercultural communicative competence in an academic setting. Classes take place during the semester and -in the form of intensive courses- during the semester break.

The University Language Centre currently offers classes for 15 different languages: Arabic, Chinese, Dutch, English, French, Italian, Japanese, modern Greek, Norwegian, Polish, Portuguese, Russian, Spanish, Swedish and Turkish.
More Information: www.rub.de/zfa

b) German as a Foreign Language
In addition to the language courses listed above, there are numerous offers for German as a Foreign Language. In addition to preparatory courses, there are a lot of courses that may be taken during the semester alongside regular studies. These courses are designed for the special needs of international students, PhD students and international researchers.

c) Certification
In some of the courses for the languages listed above, there is the possibility to achieve special certificates:
TestDaF (Deutsch als Fremdsprache – German as a Foreign Language); UNIcert® (Arabic, English, French, Italian, Japanese, Norwegian, Polish, Russian, Swedish, Spanish, Turkish); DELE (Spanish); CNaVT (Dutch); Swedex and Tisus (Swedish); DELF/DALF (French); IELTS (English) and DAAD-language certificate.

d) Individual Learning
The University Language Centre also provides various opportunities for individual learning and offers support, guidance and individual assistance:
- Tandem (Two people with different native languages learn with and from each other in a systematic manner)
- Centre for self-organised learning
- Language-learning coaching
More information: http://www.ruhr-uni-bochum.de/zfa/sgl/index.html.de

Bochum Institute of Intensive Language Training (LSI – Landesspracheninstitut)

This institute offers intensive language courses for Arabic, Chinese, Japanese and Russian, along with a smaller number of less intensive courses for Korean, Persian, Dari and Turkish.
For more Information, please visit: www.landesspracheninstitut-bochum.de
APPLICATION AND ADMISSION

If you are coming to RUB as an exchange student, you have to apply for an exchange programme at your home university. You will find all of the required information at www.international.rub.de/gaststudis.

If you wish to complete a degree at RUB, you are very welcome to submit your application. Please note, however, that you have to fulfil certain criteria in order to be able to study at RUB:

Your higher education entrance qualification must be recognised as equivalent to the German qualification. Your higher education entrance qualification (Hochschulzugangsberechtigung, HZB) is your school leaving certificate or proof of studies already completed at secondary education level. To qualify for admission to RUB, you must be able to prove that you possess the equivalent of the German Abitur qualification, which is the examination taken at the end of your secondary education.

You will find more information regarding this topic at: www.international.rub.de/bewerbung/zulassung/hzb

Furthermore, you need sufficient German skills for most degree programmes. The international degree programmes listed in the first chapter of this brochure are an exception and these Programmes have individual application procedures. A high standard of German language skills are required for successful completion of a regular course at Ruhr-Universität Bochum. Language skills can be proven by presenting a certificate gained for passing one of the following examinations:

- DSH examination (level 2 or 3)
- ZOP examination or Goethe-Zertifikat C2 of the Goethe-Institut
- German language diploma, level II, of the Goethe-Institut
- TestDaF with the grades 4 x 4 or 16 points
- Degree in German philology.

You will find more information on this subject at www.international.rub.de/bewerbung/zulassung/deutschkenntnisse

Ruhr-Universität Bochum offers an online application system. Application procedure can differ, depending on the country you are coming from and the subject you are planning to study at RUB.

You will find all of the necessary information and the online application tool at www.international.rub.de/bewerbung

Please note the application deadlines at RUB:
Application period, winter semester: 15/05 - 15/07
Application period, summer semester: 15/11 - 15/01

International degree programmes may have their own deadlines and application procedures. For more information, check the chapter “International Master Programmes”
INTERNATIONAL SEMINARS AND LECTURES

The following chapter contains a compilation of seminars and lectures (Bachelor, Master and PhD) held in English.

Please note: These seminars and lectures are NOT necessarily part of an international degree programme.

In the short overview of each course, you will find further information about the requirements and the course descriptions of all offered courses. The name and email-address of the lecturer are attached as well so you will be able to contact him/her to ask if you can join the course or in case you need any special advice.

If you would like to find courses which are open for refugees, please see our special course catalogue called “University without borders – Course Catalogue for refugees”. This catalogue can be found in the International Office as a hard copy or online: http://www.ruhr-uni-bochum.de/uni-ohne-grenzen/index_en.html.
FACULTIES

FACULTY OF PHILOSOPHY AND EDUCATION ......................................................... 25
  INSTITUTE OF PHILOSOPHY ........................................................................... 25
FACULTY OF HISTORY ......................................................................................... 44
FACULTY OF PHILOLOGY ..................................................................................... 45
  ENGLISH DEPARTMENT .................................................................................. 45
  INSTITUTE OF MEDIA SCIENCES .................................................................. 46
FACULTY OF LAW ................................................................................................ 49
FACULTY OF ECONOMICS .................................................................................. 57
FACULTY OF SOCIAL SCIENCE ......................................................................... 66
FACULTY OF EAST ASIAN STUDIES .................................................................. 78
FACULTY OF PSYCHOLOGY ............................................................................... 82
FACULTY OF CIVIL AND ENVIRONMENTAL ENGINEERING ............................ 86
  COMPUTATIONAL ENGINEERING .................................................................. 86
FACULTY OF ELECTRICAL ENGINEERING AND INFORMATION TECHNOLOGY ........................................................................................................... 96
FACULTY OF MATHEMATICS .......................................................................... 102
FACULTY OF GEO SCIENCES .......................................................................... 107
FACULTY OF CHEMISTRY AND BIOCHEMISTRY ........................................... 110
FACULTY OF BIOLOGY AND BIOTECHNOLOGY ............................................ 111
FACULTY OF MEDICINE .................................................................................. 117
INSTITUTE OF NEURAL COMPUTATION .............................................................. 126
INTERDISCIPLINARY CENTRE FOR ADVANCED MATERIALS SIMULATION (ICAMS) ............................................................................................................... 131
Introduction to the Philosophy of Language

Department: Philosophy Department
Contact: Dr. Erica Cosentino, Erica.cosentino@rub.de
Degree programme: Bachelor
Module: WM Ia, IIa
Module taught entirely in foreign language: Yes
Course type: Seminar
Credit Points: 4
Teacher/Lecturer: Dr. Erica Cosentino
Requirements: Bachelors Degree in... /

Room: GA 04/187
Day, Time: Wednesday 14-16
Begin: 19/10/2016

Course description:
The seminar will introduce the students to a number of key topics and central issues of the contemporary philosophy of language, focusing specifically on the nature of meaning and reference, the relationship between language and the world and between language and the mind. Classic writings by Frege, Russell, Wittgenstein, Quine, Davidson, Grice will be presented and critically examined. Other texts which have had a seminal influence in the field, including writings by Chomsky, Fodor, Sperber and Wilson will also be discussed.
Participants will be expected to give a presentation on selected papers. The literature will be announced in the first meeting but many of the texts for the seminar can be found in the anthologies listed below. All the reading material will be made available for the students.

Literature:

Proofs of academic achievement: Oral examination/written examination/...
Module: WM Ia,
Module taught entirely in foreign language: Yes
Course type: Seminar
Credit Points: 4
Teacher/Lecturer: Jun.Prof. Dr. Christian Straßer
Requirements: Bachelors Degree in... /...

Room
GABF 04/609
Day, Time
Thursday 10-12
Begin
20/10/2016

Course description:
This course offers an elementary introduction to classical logic from a philosophical perspective. Students will get familiarized with the formal languages of propositional and predicate logic. The meaning of logical connectives (“and”, “or”, “implies”, “not”) and quantifiers (“for all”, “there is a”) will be discussed in terms of their model-theoretic semantics. A formal proof method will be introduced. A part of the course will be devoted to practical exercises. In this way students have the opportunity to internalize and consolidate their theoretical insights.

A precondition for receiving a certificate is 1.) to submit weekly homework regularly and 2.) to pass the written exam at the end of the course. The certificate can be with or without grade (dependent on the amount of work).

Please register by sending an email to christian.strasser@rub.de

Proofs of academic achievement: Oral examination/written examination/...

Computation und information - philosophical foundations of Cognitive Science

Department: Philosophy Department
Contact: M.A. Krzysztof Dolega krzysztof.dolega@rub.de
Language: English
Degree programme: Master
Module: WM IIIa
Module taught entirely in foreign language: Yes
Course type: Seminar
Credit Points: 6
Teacher/Lecturer: M.A. Krzysztof Dolega
Requirements: Bachelors Degree in... /...

Room
GABF 04/358
Day, Time
Thursday, 14-16
Begin
20/10/2016

Course description:
Although the notions of information and computation have played a central role in founding the project of cognitive science, there is surprisingly little agreement over what it means for the brain to be an information processing system performing computations. This claim, inspired by the invention of digital computers, has been strongly tied the idea that the brain consists of circuits operating on discrete symbolic vehicles. The, so called, computational-representational theory of
mind has been a centrepiece of research on human cognition for over five decades. However, numerous philosophical counter-arguments, together with advancements in neuroscience and work on non-digital computers, have laid serious doubts over the proper understanding and validity of computationalist’s claim.

The aim of the class is to familiarize students with the development and significance of the notions of computation and information, focusing on the role they play in key debates in philosophy of mind and cognitive science. This includes, but is not restricted to topics like: Turing machines, Shannon information, different approaches to individuating computations, digital vs. analogue computers, and parallel vs. serial architectures. By tracing the historical lineage of computationalism the course will ask the following two questions: a) how the hypothesis that the brain implements computational processes should be understood, and b) whether the notion of information can be helpful in clarifying computation as a physical process?

The course does not require prior training in mathematics or computer science, but knowledge of basic logic and some familiarity with history of analytic philosophy will be an advantage.

Proofs of academic achievement: Oral examination/written examination/…

Science of Psychoanalysis

Department: Philosophy Department
Contact: Dr. Beate Krickel beate.krickel@rub.de
Degree programme: Bachelor/Master/...
Module: WM II/ IIIa
Module taught entirely in foreign language: Yes
Course type: Seminar
Credit Points: 4/6
Teacher/Lecturer: Dr. Beate Krickel
Requirements: Bachelors Degree in... /...

Room: GA 3/143
Day, Time: Tuesday 14-16
Begin: 18/10/2016

Course description:
Since Freud, Psychoanalysis, its metapsychology and clinical/therapeutic application, has been further developed and improved. Additionally, some neuroscientists start to be interested in psychoanalytic concepts such as "repression", "dissociation", and "ego defense" (so-called neuropsychoanalysis). For contemporary analytic philosophy, psychoanalysis in the light of these developments is interesting for several reasons: For the philosophy of mind, the question arises, what notion of conscious and unconscious processes psychoanalysis suggests and whether they are compatible with contemporary philosophical theories of consciousness. Philosophers of cognitive science might ask how the psychoanalytic unconscious relates to the unconscious as postulated by, for example, dual system theories. From the perspective of philosophy of science, crucial questions are: Is psychoanalysis a scientific discipline? What kind of explanations are psychoanalytic explanations? How do these explanations relate to neuroscientific explanations?
Self and Other. Exploring Subjectivity, Empathy and Shame

Department: Philosophy Department
Contact: Prof. Dr. Tobias Schlicht tobias.schlicht@rub.de
Degree programme: Bachelor/Master...
Module: WM IIa, IIIa
Module taught entirely in foreign language: Yes
Course type: Seminar
Credit Points: 4/6
Teacher/Lecturer: Prof. Dr. Tobias Schlicht
Requirements: Bachelors Degree in... /

Room | Day, Time | Begin
--- | --- | ---
GA 03/46 | Tuesday, 10-12 | 12/04/2016

Course description:
In this seminar, we will read and discuss Dan Zahavi’s latest book Self and Other. Exploring subjectivity, empathy and shame (Oxford: Oxford University Press 2015). It covers the debate between the nature of subjectivity (of consciousness and self-consciousness, say) and empathy or social cognition and their relation.
The exciting bit of the seminar is that it involves a workshop with Prof. Dan Zahavi from June 20th - 22nd (at Beckmannshof on Campus). Zahavi will give four talks based on the book. In addition, based on an international call for papers, Master- or PhD students will present critical commentaries on this work. This call is of course also open to the Master students.

Proofs of academic achievement: Oral examination/written examination/...

Theories of Perception and Predictive Coding

Department: Philosophy Department
Contact: Prof. Dr. Albert Newen albert.newen@rub.de
Degree programme: Master
Module: WM IIIa
Module taught entirely in foreign language: Yes
Course type: Seminar
Credit Points: 6
Teacher/Lecturer: Prof. Dr. Albert Newen
Requirements: Bachelors Degree in... /

Room | Day, Time | Begin
--- | --- | ---
GA 3/143 | Tuesday, 10-12 | 18/10/2016
Course description:
The seminar introduces into the philosophical debate about object-perception and the role of concepts. This is connected with the debate about cognitive penetration: how is our perception of objects influenced by knowledge, beliefs, desire or other higher-order processes.

Students who participate in the seminar are invited to participate in (and may prepare comments for) the lecture series by Prof. Jakob Hohwy with the general title "Predictive Coding" (3.-5. March 2017). Prof. Hohwy is one of the most influential philosophers working on predictive coding.

The seminar starts with an overview of theories of perception, especially concerning the classical debate what the role of concepts is for the perception of objects. Is any object perception involving concepts? This is claimed and argued for in the Neo-Kantian theory of McDowell. Or can we have a perceptual experience when seeing an object which is independent from concepts? This is claimed and argued for by Dretske who defends the view that the perceptual experience is nonconceptual while only the judgments based on this experience involve concepts. This epistemological debate is connected with recent developments in cognitive psychology and neurosciences. The new way to discuss the question in philosophy and cognitive science is: to which extend is object perception influenced by higher cognitive processes? The claim that high-level cognitive states such as (conceptual) beliefs and desires may influence how we perceive the world goes under the name of "cognitive penetrability". Is there really a direct influence of our background beliefs on the perception of an object or our knowledge - on the basis of a nonconceptual perceptual experience - only modulating our perceptual judgment. What is the nature of perceptual experience and perceptual judgment? One main issue concerns the problem of content. It is usually accepted that high-level states have conceptual content, which is propositional in format. However, many theorists hold that, if lower-level perceptual states also have content, such content is non-conceptual and has a format analog to the perceptual stimulus itself. Therefore, one of the most pressing problems for advocates of cognitive penetrability is to explain how contents that are so different can interact with each other. Related question for cognitive penetration and for a more general philosophical epistemology of object perception are: What is the role of attention and predictive coding for cognitive penetration? What is the role of consciousness? What is the role of culture and emotion in object perception? How should we characterize concepts when we discuss their role for perception?

In the final part of the seminar we will focus on predictive coding reading core parts of Prof. Jakob Hohwy's book "The Predictive Mind".

Proofs of academic achievement: Oral examination/written examination/...
Credit Points: 4/6
Teacher/Lecturer: Prof. Dr. Tobias Schlicht
Requirements: Bachelors Degree in... /...

Room | Day, Time | Begin
---|---|---
GA 3/143 | Tuesday, 12-14 | 18/10/2016

Course description:
In this seminar, which is taught in English, we will read recent texts from the vivid debate on social understanding, i.e. on topics related to the question how we understand each other. Human beings are importantly social beings and an adequate philosophical theory of the capacity to get access to other people's mental states must conform to the best evidence from developmental psychology and social neuroscience. The seminar will cover debates on a) social perception, b) the developmental paradox that young infants seem to have an implicit understanding of false beliefs but cannot express this explicitly until they are 5 years old, c) dual process theories of social cognition, and d) the role of social cognition in collective activities like joint actions. The texts will be available for students in a moodle course from September.

Proofs of academic achievement: Oral examination/written examination/...

Default logic: A Formal Account for Reasoning with Exceptions

Language: English

Department: Philosophy Department
Contact: M.A. Jesse Heyninck, jesse.heyninck@rub.de
Degree programme: Bachelor
Module: WM IIa,
Module taught entirely in foreign language: Yes
Course type: Seminar
Credit Points: 4
Teacher/Lecturer: M.A. Jesse Heyninck
Requirements: Bachelors Degree in... /...

Room | Day, Time | Begin
---|---|---
GABF 04/609 | Tuesday 10-12 | 18/10/2016

Course description:
An important topic in logic and artificial intelligence is how to deal with rules that allow for exceptions: “if X then usually Y”. In contradistinction to classical implications, Y can sometimes be false even if X is true. Examples occur in science (most birds fly, but kiwis don't fly), normative reasoning (in general, you shouldn't eat with your fingers, but if you eat lobster, you can use your hands) and everyday reasoning (most people who play an instrument and improvise on it are jazz musicians, but liturgical organ players improvise as well). In this course we will look at the research area known as default logic which concerns itself with the formalization of reasoning on the basis of this kind of rules. Default Logic was first proposed by Raymond Reiter in 1980 and has since then played a central role in the formal modelling of defeasible reasoning. We
will look at various forms of entailment for default logic and study their behavior and properties (e.g. cautious cut and monotonicity, case based reasoning, consistency). Additionally, we will look at ways of increasing the expressiveness of default logic, such as preferences over defaults (e.g. when conflicting orders are issued by a sergeant and a corporal) and incorporating statistical information. Finally, we will ask some more philosophical questions about default logic, such as: should we see default logic as a descriptive or normative enterprise? If it is a descriptive enterprise, does the formal model correctly capture the natural language phenomenon it aimed to capture? Given that it captures such a natural language phenomenon, does default logic offer interesting insights in the phenomenon it formally explicates?

Proofs of academic achievement: Oral examination/written examination/…

Linguistic Relativity: The Influence of Language on Thought

Language: English

Department: Philosophy Department
Contact: Prof. Dr. Markus Werning markus.werning@rub.de
Degree programme: Bachelor/Master
Module: WM IIc, IIIc
Module taught entirely in foreign language: Yes
Course type: Seminar
Credit Points: 4/6
Teacher/Lecturer: Prof Dr. Markus Werning
Requirements: Bachelors Degree in… /…

Room Day, Time Begin
GA 04/187 Wednesday, 12-14 19/10/2016

Course description:
Since Edward Sapir and Benjamin Whorf formulated their famous hypothesis that the grammar of a person’s native language determines the structure of her thought, linguistic relativity has been a major topic in the philosophy of mind and language, linguistics and cognitive science. Numerous studies have investigated in how far the vocabulary and syntax of a language influence people’s ontology, the way they categorize objects and properties and how they think about time, space and causality. Philosophers have contributed to that debate by arguing for and against the indeterminacy of translation, ontological relativity, or the priority of language over thought. In the seminar we will review those arguments and evaluate them in the light of recent empirical studies.
Aside from active participation, participants will be expected to give a presentation in English. Assistance regarding the English language will be provided.

Proofs of academic achievement: Oral examination/written examination/…

Research Colloquium "Logic and Epistemology"
International seminars and lectures

**Department:** Philosophy Department

**Contact:** Claudia Smart
claudia.smart@rub.de

**Degree programme:** Bachelor/Master

**Module:** WM III a
Module taught entirely in foreign language: Yes

**Course type:** Seminar

**Credit Points:** 6

**Teacher/Lecturer:** Prof. Dr. Heinrich Wansing, Jun. Prof. Dr. Christian Straßer

**Requirements:** Bachelors Degree in... /...

**Room** | **Day, Time** | **Begin**
---|---|---
GABF 04/358 | Thursday, 16-18 | 20/10/2016

**Course description:**
In this colloquium students have an opportunity to present a paper on a topic of their choice from philosophical logic or epistemology. This paper may or may not be related to MA theses. Background knowledge in analytic epistemology and philosophical logic is required. In addition to presentations by students, there will be talks by guest and invited speakers.

**Proofs of academic achievement:** Oral examination/written examination/...

---

**The philosophy of animal minds**

**Language:** English

**Department:** Philosophy Department

**Contact:** Dr. Tobias Starzak
tobias.starzak@rub.de

**Degree programme:** Bachelor/Master

**Module:** WM IIc, IIIc
Module taught entirely in foreign language: Yes

**Course type:** Seminar

**Credit Points:** 4/6

**Teacher/Lecturer:** Dr. Tobias Starzak

**Requirements:** Bachelors Degree in... /...

**Room** | **Day, Time** | **Begin**
---|---|---
GABF 04/358 | Thursday, 12-14 | 20.104.2016

**Course description:**
Can animals think? And if so, what do they think about and what are the limits of animal thought? Are they rational in the same sense humans are? Or is there a distinct animal rationality? Do they have concepts or beliefs? Do they understand causality or other minds? How can we get access to the animal mind? And how can we choose between alternative explanations for animal behavior? Philosophers have been discussing questions like these since antiquity and they do so for various reasons. Answers to these questions can have important implications for animal ethics but they
are also important from an anthropological perspective, since one possible way to determine human nature is by comparison to non-human animals. But is there really an essential difference between humans and non-human animals, a so-called anthropological difference? Or are there only gradual differences that add up to a something that seems more fundamental than it really is? And why do we put more emphasis on some differences than on others? Finally, what can we learn about the psychological abilities in question and our mental vocabulary by studying the animal mind?

In this seminar we’ll discuss these philosophical questions in due consideration of the relevant empirical literature from comparative psychology.

**Proofs of academic achievement:** Oral examination/written examination/...

---

**Ethics of Migration**

**Language:** English

**Department:** Philosophy Department

**Contact:** Tomczak, 28719, martina.tomczak@rub.de

**Degree programme:** Master Studiengang EELP (Ethics, Economics, Law and Politics)

**Module:** WM IIb, IIIb, EELP
Module taught entirely in foreign language: Yes

**Course type:** Seminar

**Credit Points:** 4/6

**Teacher/Lecturer:** Prof. Dr. Corinna Mieth

**Requirements:** Bachelors Degree in... /...

**Room**  
GA 3/143

**Day, Time**  
Friday, 12-14 (bi-weekly)

**Begin**  
28/10/2016

**Course description:**
The recent refugee crisis has raised many questions in the public realm. Some of them are philosophically discussed in recent publications that will be the material of this seminar. What are the causes/ reasons for migration? Should we make a normative difference between causes like climate change or civil war or poverty and reasons for searching for better living conditions? Should we make a difference between refugees, asylum seekers and migrants? What can be legitimate reasons to exclude people from crossing borders? Are open borders a plausible concept? Can open borders contribute to solve global justice problems? Or is there a right to exclude? How could that be legitimized? What does it mean that the (endangered) stability of a country is a legitimate reason to limit access to this country? How does integration of foreigners work? Is Rawlsian liberalism with its tolerance principle the right way to deal with migrants?

In this seminar, we shall discuss these questions. The seminar will be followed up by a three-day workshop with international speakers who will present their current work on these issues. Students will be given the opportunity to comment on the papers presented as well as to present (selected) essays.

**Credits:** 6 CP
Students are supposed to attend the seminar and the workshop and contribute actively to it. Furthermore, they are supposed to write a 4-6 pages essay on the topic referring to the literature below until November 1st. For 6 CP, term papers as well as three essays of high quality will be accepted.

Proofs of academic achievement: Oral examination/written examination/...

---

### Ethics of Climate Change

Language: English

Department: Philosophy Department

Contact: martina.tomczak@rub.de  martina.tomczak@rub.de

Degree programme: Bachelor/Master/

Module: WM IIb/ IIIb

Module taught entirely in foreign language: Yes

Course type: Seminar

Credit Points: 4/6

Teacher/Lecturer: Prof. Dr. Klaus Steigleder

Requirements: Bachelors Degree in... /...

Room: GABF 05/703

Day, Time: Thursday 16-18

Begin: 20/10/2016

Course description:
The seminar is part of the master's program "Ethics - Economics, Law, and Politics" and will therefore be taught in English. It may also be attended by students of the masters programs in philosophy and by advanced students in the bachelor's degree course in philosophy. The impending climate change most likely constitutes the most pressing problem and the biggest moral challenge of our time. But so far the industrialized countries have not even rudimentarily coped with this challenge. What ought to be done in such a situation? Due to a variety of reasons normative ethics has great difficulties to answer this question. Climate change is connected with many problems ethics is ill prepared to solve, such as the relation between individual and collective responsibility, questions of global justice, problems of our obligations to future generations, and the problems of adequately dealing with risks. We will study these problems in order to improve our competencies to answer the question what ought to be done in the face of climate change.

We will work with essays representing different and controversial viewpoints on the topics of the seminar. At the beginning of the seminar, these essays will be provided as a download.

Proofs of academic achievement: Oral examination/written examination/...

---

### Introduction to Cognitive Science for Philosophers and Students of Cognitive Sciences

Language: English
Department: Philosophy Department
Contact: Prof. Dr. Albert Newen, phone +49 (0)234 3222139, albert.newen@rub.de
Degree programme: Bachelor/Master
Module: WM IIc, WM IIIc, Master Cognitive Science
Module taught entirely in foreign language: Yes
Course type: Lecture
Credit Points: 4 (or 6)
Teacher/Lecturer: Prof. Dr. Albert Newen, Prof. Dr. Tobias Schlicht
Requirements: Bachelor’s Degree in philosophy, linguistics, psychology, or cognitive neurosciences

Room | Day, Time | Begin
---|---|---
HGA 20 | Wednesday, 10-12 | 19/10/2016

Course description:
The lecture introduces the interdisciplinary field of cognitive science in combining philosophy, psychology, computational modeling and neuro-sciences. The course has the aim to deliver important basic knowledge from empirical sciences in the framework of theory formation. The credit points are delivered on the basis of a written examination and of some active work in the obligatory additional seminar.
The structure of the lecture:

1. Introduction: History of Cognitive Science
2. Basic Concepts in Cognitive Science
3. Cognitive Neuroscience of Perception
4. Modeling Vision
5. Philosophy of Perception
6. Development of Vision
7. Enacted and Embodied Cognition
8. Models of Motor Control
9. Theories of Emotion
10. Cognitive Neuroscience of Emotion
11. Psychology of Learning
12. Cognitive Neuroscience of Memory
13. Models of Learning and Memory

Proofs of academic achievement: Written examination

Theories of Perception and Predictive Coding

Language: English

Department: Lehrstuhl/...
Contact: Name, Phone, Email
Degree programme: Bachelor/Master
Module: WM IIIa, Master Cognitive Science  
Module taught entirely in foreign language: Yes  
Course type: Seminar  
Credit Points: 4 (or 6)  
Teacher/Lecturer: Prof. Dr. Albert Newen  
Requirements: Bachelor’s Degree in philosophy, linguistics, psychology, or cognitive neurosciences  

<table>
<thead>
<tr>
<th>Room</th>
<th>Day, Time</th>
<th>Begin</th>
</tr>
</thead>
<tbody>
<tr>
<td>GA 03/143</td>
<td>Tuesday, 10-12</td>
<td>18/10/2016</td>
</tr>
</tbody>
</table>

Course description:  
The seminar introduces into the philosophical debate about object-perception and the role of concepts. This is connected with the debate about cognitive penetration: how is our perception of objects influenced by knowledge, beliefs, desire or other higher-order processes.  
Students who participate in the seminar are invited to participate in (and may prepare comments for) the lecture series by Prof. Jakok Hohwy with the general title "Predictive Coding" (3.-5. March 2017). Prof. Hohwy is one of the most influential philosophers working on predictive coding.  

Proofs of academic achievement: To be discussed in the seminar  

Philosophy and the Cognitive Sciences – Recent Debates and Learning to make a Presentation in English  

Language: English  
Department: Philosophy Department  
Contact: sekretariat-newen@rub.de  
Degree programme: Master  
Module: WM IIIc, Ph.D students  
Module taught entirely in foreign language: Yes  
Course type: Colloquium  
Credit Points: 6  
Teacher/Lecturer: Prof. Dr. Albert Newen, Prof. Dr. Markus Werning  
Requirements: Bachelor’s Degree in philosophy, linguistics, psychology, or cognitive neurosciences  

<table>
<thead>
<tr>
<th>Room</th>
<th>Day, Time</th>
<th>Begin</th>
</tr>
</thead>
<tbody>
<tr>
<td>GA 04/187</td>
<td>Thursday, 16-18</td>
<td>20/10/2016</td>
</tr>
</tbody>
</table>

Course description:  
The colloquium will offer regular presentations given partly by Bochum MA and PhD students and partly by external guests. The presentations will all be in the general domain of theoretical philosophy and the cognitive sciences with a focus on language and concepts. The presentations should ideally, but not necessarily have some interdisciplinary dimension such that perspectives from philosophy, psychology, linguistics and neurosciences can be systematically interconnected. The aim of the colloquium is to offer a platform for the discussion of ongoing research and to
support the education of students at the Master and PhD level. Students who are accepted for a presentation in this seminar will receive a special training in preparing presentations in English. PhD-students who are interested in presentations should write an email to both organizers (albert.newen@rub.de and markus.werning@rub.de) and come to the first meeting. The semester program will be fixed then. PhD-students can receive 2 credit points for an active participation. MA students can receive 4-6 CP for a presentation in the colloquium (to receive a mark, MA students have to write an additional essay). Topics can be freely chosen such that MA students can develop a talk in the area of their MA project (Ein avisiertes Masterprojekt kann selbstverständlich im Anschluss in deutscher Sprache ausgearbeitet werden). Language: The presentations in the colloquium and the discussion will be in English. Questions can be raised in German, but will then be translated for the whole audience.

Proofs of academic achievement: To be discussed in the seminar

Mental Representation

Language: English

Department: Philosophy Department
Contact: sekretariat-newen@rub.de
Degree programme: Master
Module: WM IIIa
Module taught entirely in foreign language: Yes
Course type: Seminar
Credit Points: 6
Teacher/Lecturer: Prof. Dr. Francis Egan
Requirements: Bachelors Degree in... /...

Room
GABF 04/714

Day, Time
Friday, 21.10.2016, 10-12
And
Friday, 11.11.-09.12.2016, 10-14

Begin
21/10/2016

Course description:
The seminar will focus on mental representation. A central question is: what are the grounds of the meaning or intentionality of mental states? We will begin by looking at some of the classic (recent) literature on the problem of intentionality. One goal of the seminar is to uncover the assumptions that account for the shape that discussion of the problem has taken, and, if possible, to challenge these assumptions with a view to opening up the possibility space. We will then turn to the role of mental content in computational cognitive science, considering such questions as whether content can be causally efficacious in computational models of cognition and whether computationalism is likely to provide a ‘naturalization’ of intentionality. We will consider the requirements for a theoretical posit in a theory of cognition to genuinely count as a representation. We will conclude by considering the plausibility of representationalism about
perceptual experience. Tentative syllabus and readings:

**Proofs of academic achievement:** Oral examination/written examination/…

---

**Philosophy of Psychoanalysis**

**Department:** Department Philosophy

**Contact:** Dr. Beate Krickel, +49 (0)234 3224724, beate.krickel@rub.de

**Degree programme:** Bachelor/Master

**Module:** WM IIa, WM IIIa, Master Cognitive Science

Module taught entirely in foreign language: Yes

**Course type:** Seminar

**Credit Points:** 4 (or 6)

**Teacher/Lecturer:** Dr. Beate Krickel

**Requirements:** Bachelor’s Degree in philosophy, linguistics, psychology, or cognitive neurosciences

<table>
<thead>
<tr>
<th>Room</th>
<th>Day, Time</th>
<th>Begin</th>
</tr>
</thead>
<tbody>
<tr>
<td>GA 3/143</td>
<td>Tuesday, 14-16</td>
<td>18/10/2016</td>
</tr>
</tbody>
</table>

**Course description:**

Since Freud, Psychoanalysis, its metapsychology and clinical/therapeutic application, has been further developed and improved. Additionally, some neuroscientists start to be interested in psychoanalytic concepts such as "repression", "dissociation", and "ego defense" (so-called neuropsychoanalysis). For contemporary analytic philosophy, psychoanalysis in the light of these developments is interesting for several reasons: For the philosophy of mind, the question arises, what notion of conscious and unconscious processes psychoanalysis suggests and whether they are compatible with contemporary philosophical theories of consciousness. Philosophers of cognitive science might ask how the psychoanalytic unconscious relates to the un-conscious as postulated by, for example, dual system theories. From the perspective of philosophy of science, crucial questions are: Is psychoanalysis a scientific discipline? What kind of explanations are psychoanalytic explanations? How do these explanations relate to neuroscientific explanations?

**Proofs of academic achievement:** To be discussed in the seminar

---

**The Philosophy of Animal Minds**

**Language:** English

**Department:** Philosophy Department

**Contact:** Dr. Tobias Starzak, +49 (0)234 3224725, tobias.starzak@rub.de

**Degree programme:** Bachelor/Master

**Module:** WM IIc, WM IIIc, Master Cognitive Science

Module taught entirely in foreign language: Yes

**Course type:** Seminar
Credit Points: 4 (or 6)
Teacher/Lecturer: Dr. Tobias Starzak
Requirements: Bachelor’s Degree in philosophy, linguistics, psychology, or cognitive neurosciences

Room: GABF 04/358  
Day, Time: Thursday, 12-14  
Begin: 20/10/2016

Course description:
Can animals think? And if so, what do they think about and what are the limits of animal thought? Are they rational in the same sense humans are? Philosophers have been discussing questions like these since antiquity and they do so for various reasons. Answers to these questions can have important implications for animal ethics but they are also important from an anthropological perspective, since one possible way to determine human nature is by comparison to nonhuman animals. But is there really an essential difference between humans and non-human animals, a so-called anthropological difference?
In this seminar we’ll discuss these philosophical questions in due consideration of the relevant empirical literature from comparative psychology.

Suggested literature for preparation:

Proofs of academic achievement: To be discussed in the seminar

Linguistic Relativity: The Influence of Language on Thought

Language: English

Department: Philosophy Department
Contact: Prof. Dr. Markus Werning, markus.werning@rub.de, +49 (0)234 3224734
Degree programme: Bachelor/Master
Module: WM IIc, WM IIIc, Master Cognitive Science
Module taught entirely in foreign language: Yes
Course type: Seminar
Credit Points: 4 (or 6)
Teacher/Lecturer: Prof. Dr. Markus Werning
Requirements: Bachelors Degree in... /...

Room: GA 04/187  
Day, Time: Wednesday, 12-14  
Begin: 19/10/2016

Course description:
Since Edward Sapir and Benjamin Whorf formulated their famous hypothesis that the grammar of a person’s native language determines the structure of her thought, linguistic relativity has been a major topic in the philosophy of mind and language, linguistics and cognitive science. Numerous studies have investigated in how far the vocabulary and syntax of a language influence people’s ontology, the way they categorize objects and properties and how they think about time,
space and causality. Philosophers have contributed to that debate by arguing for and against the indeterminacy of translation, ontological relativity, or the priority of language over thought. In the seminar we will review those arguments and evaluate them in the light of recent empirical studies.

Aside from active participation, participants will be expected to give a presentation in English. Assistance regarding the English language will be provided.

**Proofs of academic achievement:** To be discussed in the seminar

**This course is credited for „Optionalbereich“**.

---

### Arguments in Action

**Language:** English

**Department:** Institute for Philosophy II

**Contact:** Dr. Dunja Šešelja (Dozent/in), Philosophisches Institut II, GA, Office 3/39, Fon: +49(0)234-32-24721, email: dunja.seselja@rub.de

**Degree programme:** Bachelor, Master

**Module:** Arguments in Action!

Module taught entirely in foreign language: Yes

**Course type:** Seminar + Practical Skills

**Credit Points:** 5

**Teacher/Lecturer:**

Dr. Dunja Šešelja (Dozent/in), Philosophisches Institut II, GA 3/39, Fon: +49(0)234-3224721, email: dunja.seselja@rub.de

Birgit Frey (Modulbeauftragte), Optionalbereich, GBCF 04/509, Fon: +49(0)234-32-29228, email: birgit.frey@rub.de

**Requirements:** Bachelor and Master students of all faculties are welcome (beside a good command of English, no other background knowledge is required). Bachelor students of all semesters can take part in the module. Given the interdisciplinary character of the module, no restrictions are posed on the main study domain of the students.

**Room**

TBA

**Day, Time**

Wednesday 16-18;18-20

**Begin**

19 October, 2016

**Course description:**

**Part 1:** Argumentation in context (Seminar), Wednesday 16-18 h, room to be announced.

**Part 2:** Debating (Practical skills), Wednesday 18-20 h, room to be announced.

The aim of this module is to introduce students to the basic aspects of argumentation by focusing on the argumentative exchange in the context of debate, where debate is a formal contest between two teams or individuals (see [http://idebate.org/about/debate/what](http://idebate.org/about/debate/what)).
In the first part, the seminar, students will be introduced to the theory of argumentation with a special focus on the successful use of arguments in the context of critical thinking and debating. In the second part, consisting of practical sessions, students will practice debating, and apply the knowledge gained throughout the seminar.

Proofs of academic achievement:

Part 1: presentation (50%)
Part 2: participation in the final debate tournament (25%), a list of arguments for and against a certain (debatable) topic (25%).

This course is credited for „Optionalbereich“.

---

**Argumentation in context**

*Language:* English

**Department:** Philosophy Department

**Contact:** Dr. Dunja Šešelja  
dunja.seselja@rub.de

**Degree programme:** Master

**Module:** Optionalbereich

Module taught entirely in foreign language: Yes

**Course type:** Seminar

**Credit Points:** 5

**Teacher/Lecturer:** Dr. Dunja Šešelja

**Requirements:** Bachelors Degree in... /...

<table>
<thead>
<tr>
<th>Room</th>
<th>Day, Time</th>
<th>Begin</th>
</tr>
</thead>
<tbody>
<tr>
<td>GABF 04/516</td>
<td>Wednesday, 16-18</td>
<td>19/10/2016</td>
</tr>
</tbody>
</table>

**Course description:**

The aim of this module is to introduce students to the basic aspects of argumentation by focusing on the argumentative exchange in the context of debate, where debate is a formal contest between two teams or individuals (see [http://idebate.org/about/debate/what](http://idebate.org/about/debate/what)). Disagreements and conflicts are omnipresent in society and play an important role in various domains, from science to politics to everyday life. Nevertheless, discussants do not always argue in a very successful way. Their arguments are often based on logical fallacies and rhetorical devices used to shield erroneous reasoning. In this module students will learn some of the central ideas of argumentation and develop skills of successful arguing, critical thinking and public speaking.

Part 1: The seminar aims at introducing students to the theory of argumentation with a special focus on the successful use of arguments in the context of critical thinking and debating. To this end, the seminar will cover:

a) the theory of argumentation and debating;

b) case studies of disagreements and conflicts in different cultural domains (such as science, politics, ethics, etc.).

Each student (or a team of students) will have the task of preparing a presentation on a topic of their choice, which concerns either a) or b). In addition to the list of possible topics, provided at
the beginning of the seminar, students will also have the freedom of suggesting alternative topics, in accordance with their background and interests, and in agreement with the head of the module. In addition to student presentations, the seminar will also include occasional guest lectures by experts working in different scientific domains.

Part 2: The practical sessions aim at introducing students to the practice of debating, where they can apply the knowledge gained throughout the seminar. Student debating is practised across the world and it is considered to be one of the most efficient methods of learning the skill of critical thinking and public speaking. In this part of the module students will learn to debate according to some of the standard debating formats (such as Parliamentary Debate, see http://idebate.org/about/debate/formats), to compose a speech, to pose useful questions to an opponent, and to protocol and evaluate debates. This part will end with a debate tournament and/or a public debate event (depending on the preferences of the participants). Students will have the task to submit a list of arguments for and against one of the debatable topics (a list of possible topics will be offered during the course) and to participate in the final debate event (a debate tournament or a public debate).

**Proofs of academic achievement:** Oral examination/written examination/...

**This course is credited for „Optionalbereich“.**

---

**Logic: Introductory Course**

**Department:** Institute for Philosophy II  
**Contact:** Christian Straßer, christian.strasser@rub.de  
**Degree programme:** Bachelor/Master  
**Module:** WM Ia, Master Cognitive Science, Optionalbereich  
**Module taught entirely in foreign language:** Yes  
**Course type:** Lecture/Seminar  
**Credit Points:** 4 / 6  
**Teacher/Lecturer:** Prof. Dr. Christian Straßer  
**Requirements:**

<table>
<thead>
<tr>
<th>Room</th>
<th>Day, Time</th>
<th>Begin</th>
</tr>
</thead>
<tbody>
<tr>
<td>GABF 04/609</td>
<td>Thursday, 10:00-12:00</td>
<td>20/10/2016</td>
</tr>
</tbody>
</table>

**Course description:**  
This course offers an elementary introduction to classical logic from a philosophical perspective. Students will get familiarized with the formal languages of propositional and predicate logic. The meaning of logical connectives ("and", "or", "implies", "not") and quantifiers ("for all", "there is a") will be discussed in terms of their model-theoretic semantics. A formal proof method will be introduced. A part of the course will be devoted to practical exercises. In this way students have the opportunity to internalize and consolidate their theoretical insights.
A precondition for receiving a certificate is 1.) to submit weekly homework regularly and 2.) to pass the written exam at the end of the course. The certificate can be with or without grade (dependent on the amount of work).

Please register by sending an email to christian.strasser@rub.de

For literature besides the script (which will be available via the blackboard online portal), see e.g.,
- Dirk Van Dalen, Logic and Structure, Springer, 2004

Proofs of academic achievement: written examination/exercises

This course is credited for „Optionalbereich“. 
FACULTY OF HISTORY

Introduction to Kaballah

**Department**: Department of History / Ceres

**Contact**: Prof. Dr. Alexandra Cuffel, 32-22336, alexandra.cuffel@rub.de

**Degree programme**: Bachelor

**Module**: Modul III/V

Module taught entirely in foreign language: No

**Course type**: Seminar

**Credit Points**: 5

**Teacher/Lecturer**: Prof. Dr. Alexandra Cuffel

**Requirements**: Bachelors Degree in... /...

<table>
<thead>
<tr>
<th>Room</th>
<th>Day, Time</th>
<th>Begin</th>
</tr>
</thead>
<tbody>
<tr>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Please contact the lecturer

**Course description**:

-Introduction to Kaballah
Apart from few exceptions all courses offered by the English Department are taught in English.

The different courses cover topics from the fields of American Cultural Studies, British Cultural Studies, American Literature, British Literature and Linguistics.

Courses which could be particularly useful and interesting for exchange students are also provided in the modules Language Practice (i.e. Translation, Communication, Grammar) and English for Special Purposes (i.e. Legal English, Business English, Technical English).

A complete list can be found on the departmental homepage: http://www.es.rub.de/vorlesungsverzeichnis.html

Contact Information:

Geschäftszimmer GB 6/133
Mon-Fri: 9 am – 1 pm
Phone: 0234/32-22589
Email: anglistik@rub.de
INSTITUTE OF MEDIA SCIENCES

Exploitation Cinema

Language: English

Department: Institut für Medienwissenschaft
Contact: Ifm-gz@rub.de 0234-32-25057
Degree programme: Bachelor
Module: Course number: 051725
Module taught entirely in foreign language: Yes
Course type: Seminar
Credit Points: 3 CP
Teacher/Lecturer: Rebecca Kaplan
Requirements: No

Room | Day, Time | Begin
---|---|---
GB 5/38 | Thursday 10-12 | 28/10/2016

Course description:
Exploitation cinema capitalizes on major trends, niche genres, and lurid content to create what are commonly known as B movies. Usually low budget and low quality, exploitation films still manage to find cult status, historical significance, and devoted followings. In this course we will explore several sub-genres of exploitation cinema including blaxploitation, sexploitation, and the cautionary films of the 1930s and 40s. Texts, readings, and discussions will be in English.

Proofs of academic achievement: Oral examination/written examination/...

Von hier aus II

Language: English

Department: Institut für Medienwissenschaft/ Media Science
Contact: Ifm-gz@rub.de, 0234-32-25057
Degree programme: Bachelor
Module: Von hier aus II
Module taught entirely in foreign language: Yes
Course type: Practical Seminar
Credit Points: 5 CP
Teacher/Lecturer: Dr. Hilde Hoffmann
Requirements: No

Room | Day, Time | Begin
---|---|---
Bahnhof Langendreer | Mo, 4pm – 8pm | 21/10/2016

Course description:
2. Teil/ Part 2.
Organisation of a film serie for childeren and their families who have experienced flight (Refugees).
Die Praxisveranstaltung „von hier aus“ ist Teil der Veranstaltungsreihe ‚über Film sprechen’. Wir planen die Durchführung einer Filmreihe für Kinder (ab 6 Jahren) und ihre Familien mit Fluchterfahrung. Die wöchentlichen Filmvorführungen finden jeweils Montag von 16-17.30 Uhr in Kooperation mit dem endstation.kino im Bahnhof Langendreer statt.

Die Veranstaltung beginnt für die Studierenden mit einer intensiven Einführung in die Praxis des Programmierens von Filmen. Vom Auswählen, Zusammenstellen und Kombinieren von Filmen bis zu einem Programm, das begeistert, und dem anschließenden Filmgespräch werden vielfältige Aspekte von kuratorischer Arbeit und Filmvermittlung reflektiert. Im Verlauf des Semesters geht es neben der Filmauswahl auch um die praktische Umsetzung: Filme besorgen, Aushänge machen, Begleiten, Begrüßen und die Einleitung vor dem Film sowie ein interaktives Gespräch nach dem Film.

Proofs of academic achievement: Oral examination/written examination/...

**Documental Comics and intermediality**

**Department:** Institut für Medienwissenschaft

**Contact:** Ifm-gz@rub.de, 0234-32-25057

**Degree programme:** Bachelor/Master

**Module:** Course number: 051732

Module taught entirely in foreign language: Yes

**Course type:** Blockseminar

**Credit Points:** 3 CP

**Teacher/Lecturer:** Prof. Dr. Felipe Muanis

**Requirements:** No

<table>
<thead>
<tr>
<th>Room</th>
<th>Day, Time</th>
<th>Begin</th>
</tr>
</thead>
<tbody>
<tr>
<td>GABF 04/611</td>
<td>Sat 22.10; Fri/Sat</td>
<td>22/10/2016</td>
</tr>
<tr>
<td></td>
<td>25.11/26.11; Fri/Sat</td>
<td></td>
</tr>
<tr>
<td></td>
<td>02.12/03.12; Fri/Sat</td>
<td></td>
</tr>
<tr>
<td></td>
<td>09.12/10.12; 10-14 o´clock</td>
<td></td>
</tr>
</tbody>
</table>

**Course description:**

Over the last 30 years a different Comic genre has begun to flourish, this is a type of self-referenced history inspired by American underground comics and some modern comic experiences in Europe, both of them from the 1960’s. Many of these experiences were connected with war scenes in which the comic artist became a journalist, who was trying to analyze the facts through images and narrative, which are apparently closer to reality than what which general media tries to portray. These graphic novels are divided into different sub-genres such as autobiographical, travel, historical and journalistic comics, these can be grouped under one title “documental comics". Nowadays documental comics actualize Baudelaire’s fascination of urban scenes drawn from Constantin Guys in the 2nd half of the 19th Century, through the comics of Harvey Peakar, Will Eisner, Keiji Nakazawa, Joe Sacco, Art Spiegelman, Reinhard Kleist,
Emmanuel Guibert, David Schraven and others. They commonly find connections between their images, the different discursive possibilities and the presence of the author as a main character. In this way documental comics can be understood in a variety of ways. There is a net of intermediality between documentary films, animation, photography and journalism, revealing comics as a powerful means to comprehend differences aspects of reality.

Proofs of academic achievement: Oral examination/written examination/...
FACULTY OF LAW

Introduction to American Law

**Language:** English

**Department:** Faculty of Law – Zentrum für Internationales

**Contact:** Dr. Judit Beke-Martos, LL.M., PhD., Judit.Beke-Martos@rub.de, 0234 32 27681

**Degree programme:** Bachelor/Master/State Exam – Law / Certificate Program, Faculty of Law

**Module:** Name

Module taught entirely in foreign language: Yes

**Course type:** Lecture

**Credit Points:** 3 CP (5ECTS)

**Teacher/Lecturer:** Dr. Judit Beke-Martos, LL.M., PhD.

**Requirements:** Proficiency in English

<table>
<thead>
<tr>
<th>Room</th>
<th>Day, Time</th>
<th>Begin</th>
</tr>
</thead>
<tbody>
<tr>
<td>HZO 40</td>
<td>Wednesday, 14:00-16:00</td>
<td>26/10/2016</td>
</tr>
</tbody>
</table>

**Course description:**
This course is a basic introduction to the law and legal system of the United States in English. It covers the basic characteristics of the common law system, the doctrine of stare decisis, sources of law in the United States, the U.S. court system (both state and federal), the jury system, parties to a lawsuit, basics of the adversary system of trial, pleadings and motions, pretrial discovery, the trial process, case briefs and citations. This course is a core course in the Certificate Program of the Legal Faculty.

The course is though a lecture, some participation is expected.


**Proofs of academic achievement:** Obligatory Attendance and Written Exam

**This course is credited for „Optionalbereich“**.

---

U.S. Constitutional Law: State & Governance

**Language:** English

**Department:** Faculty of Law – Zentrum für Internationales

**Contact:** Dr. Judit Beke-Martos, LL.M., PhD., Judit.Beke-Martos@rub.de, 0234 32 27681

**Degree programme:** Bachelor/Master/State Exam – Law / Certificate Program, Faculty of Law

**Module:** Name

Module taught entirely in foreign language: Yes

**Course type:** Lecture

**Credit Points:** 3 CP (5ECTS)
**International seminars and lectures**

**Teacher/Lecturer:** Dr. Judit Beke-Martos, LL.M., PhD.

**Requirements:** Proficiency in English

<table>
<thead>
<tr>
<th>Room</th>
<th>Day, Time</th>
<th>Begin</th>
</tr>
</thead>
<tbody>
<tr>
<td>HGC 30</td>
<td>Thursday, 10:00-12:00</td>
<td>27/10/2016</td>
</tr>
</tbody>
</table>

**Course description:**
This is an entry-level course on U.S. Constitutional Law. The course focuses on the text of the U.S. Constitution and its Amendments. Through grammatical and contextual analysis, students examine the structure and working of the American state and governance. Horizontal and vertical separation of powers and the basics of the common law legal system are also addressed and examined through documents and cases. This course is a core course in the Certificate Program of the Legal Faculty.

The course is though a lecture, some participation is expected. Required reading will be provided.

**Proofs of academic achievement:** Obligatory Attendance and Written Exam

This course is credited for „Optionalbereich“.  

---

**Law & Politics in the United States: The President**

**Language:** English

**Department:** Faculty of Law – Zentrum für Internationales

**Contact:** Dr. Judit Beke-Martos, LL.M., PhD., Judit.Beke-Martos@rub.de, 0234 32 27681

**Degree programme:** Bachelor/Master/State Exam – Law / Certificate Program, Faculty of Law

**Module:** Name
Module taught entirely in foreign language: Yes

**Course type:** Lecture

**Credit Points:** -

**Teacher/Lecturer:** Dr. Judit Beke-Martos, LL.M., PhD.

**Requirements:** Proficiency in English

<table>
<thead>
<tr>
<th>Room</th>
<th>Day, Time</th>
<th>Begin</th>
</tr>
</thead>
<tbody>
<tr>
<td>GBCF 05/602</td>
<td>Friday, 11.11.2016</td>
<td>9.00-16.00</td>
</tr>
<tr>
<td></td>
<td>Saturday, 12.11.2016</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Friday, 20.01.2017</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Saturday, 21.01.2017</td>
<td></td>
</tr>
</tbody>
</table>

**Course description:**
The President of the United States is arguably the most powerful politician in the world. The current political campaign and the upcoming presidential election on November 8, 2016, seems to redefine social and political boundaries. The legal boundaries have thus far remained intact. This course looks at the American head of state, the duties and obligations based on both the Constitution of the United States and long-standing tradition. The course is separated into two
parts, the first focuses on the election of the President, while the second closely examines the inauguration and ceremonial legitimization of the President-elect. This course is an elective course in the Certificate Program of the Legal Faculty.

The course is interactive. Reading material will be provided.

Proofs of academic achievement: Obligatory Attendance

This course is credited for „Optionalbereich“.

Philosophy of Law

Department: Faculty of Law – Lehrstuhl Prof. Dr. Magen
Contact: Prof. Dr. Magen, ls-magen@rub.de, 0234 32 29640
Degree programme: Bachelor/Master/State Exam – Law
Module: Name
Module taught entirely in foreign language: Yes
Course type: Lecture
Credit Points: 3CP (5ECTS) – if the written exam is successful
Teacher/Lecturer: Prof. Dr. Stefan Magen
Requirements: Proficiency in English

Room | Day, Time | Begin
--- | --- | ---
GC 03/142 | Wednesday, 10:00-12:00 | 19/10/2016

Course description:

Proofs of academic achievement: Written Exam (in English or German)

This course is credited for „Optionalbereich“.

Introduction to International Economic Law

Department: Faculty of Law – Lehrstuhl Prof. Dr. Magen
Contact: Dr. Rike Krämer, Rike.Kraemer@rub.de, 0234 32 28265
Degree programme: State Exam – Law / Certificate Program, Faculty of Law
Module: Name
Module taught entirely in foreign language: Yes
Course type: Seminar
Credit Points: 3 CP (5ECTS)
Teacher/Lecturer: Dr. Rike Krämer
Requirements: Proficiency in English

Language: English
International seminars and lectures

Room  
GBCF 05/602  
Day, Time  
Thursday, 17:00-19:00  
Begin  
20/10/2016

Course description:
This course is aimed at introducing the students into the main topics of global economic governance. The course will focus on the general issues of international economic law especially WTO law as well as more specific issue of international investment protection. We will start by addressing the economic aspects of international trade, followed by an overview of the historical foundations of the WTO. In the main part of the course, you will be introduced to different WTO agreements (GATT, TBT, SPS, SCM and TRIPS). Each of this introduction will be followed by a discussion of a current case or issue, for example the WTO seal case, the Canada Renewable Energy case, the debate about TRIPS Plus and HIV treatment and the pending case Vattenfall against Germany about the nuclear opt-out. Student participation in the debates and preparation of parts of the cases is essential for the realisation of the objectives of the course. If you require a certificate according to § 7 Abs. 1 Nr. 3 JAG NRW a written assignment of 3000 words is requested.

This course is an elective course in the Certificate Program of the Legal Faculty.

Proofs of academic achievement:  Obligatory Attendance and Paper

This course is credited for „Optionalbereich“.

Law and Global Challenges

Language:  English

Department:  Faculty of Law – Lehrstuhl Prof. Dr. Kaltenborn
Contact:  Prof. Dr. Kaltenborn, LS-Kaltenborn@rub.de, 0234 32 25252
Degree programme:  Bachelor/Master/State Exam – Law/Certificate Program, Faculty of Law
Module:  Name
Module taught entirely in foreign language:  Yes
Course type:  Colloquium/Lecture
Credit Points:  -
Teacher/Lecturer:  Prof. Dr. Markus Kaltenborn
Requirements:  Reliable knowledge of English

Room  
GC 03/142  
Day, Time  
Wednesday, 16:00-18:00  
Begin  
26/10/2016

Course description:
This course focuses on global challenges in light of public international law. Maintaining peace, fighting terrorism, climate change, human rights, refugee crises, politics of developing countries, rule of law, world trade, international organizations are just a few of the topics up for discussion.

This course is an elective course in the Certificate Program of the Legal Faculty.
Proofs of academic achievement: Active Participation and English-language Presentation

Introduction to South-African Constitutional Law

Language: English

Department: Facultly of Law – Zentrum für Internationales
Contact: Dr. Judit Beke-Martos, LL.M., PhD., Judit.Beke-Martos@rub.de, 0234 32 27681
Degree programme: State Exam – Law/Certificate Program, Faculty of Law
Module: Name
Module taught entirely in foreign language: Yes
Course type: Lecture
Credit Points: 3 CP (5ECTS)
Teacher/Lecturer: Prof. Dr. Werner Scholtz
Requirements: Proficiency in English

Room
GC 03/142
Day, Time
Monday – Friday, 9:00-16:00
Exam: Saturday, 10:00-13:00
Begin
10/10/2016-14/10/2016
15/10/2016

Course description:
It is the main aim of this course to introduce students to the terminology and doctrines of South African constitutional law; to apply knowledge to factual situations and furthermore to analyse constitutional issues and offer creative solutions.

Section 1 accordingly introduces students to the terminology of constitutional law. Section 2 presents a historic background to the development of current South African constitutional law. The third part of the course aims to clarify the most important constitutional doctrines in terms of the South African context. This section will also provide students with up to date developments that have an impact on constitutional law. A thorough analysis of case law, textbooks and authoritative articles form an integral part of the course. Student participation and the completion of written assignments are essential for the realisation of the objectives of the course.

Proofs of academic achievement: Obligatory Attendance and Written Exam

This course is credited for „Optionalbereich“.

International Dispute Settlement

Language: English

Department: Facultly of Law – Zentrum für Internationales
Contact: Sebastian Wuschka, sebastian.wuschka@rub.de,
Degree programme: State Exam – Law/Certificate Program, Faculty of Law
Module: Name
Module taught entirely in foreign language: Yes
Course type: Lecture
Credit Points: 3 CP (5ECTS)
Teacher/Lecturer: Sebastian Wuschka, LL.M. (Geneva MIDS)
Requirements: Proficiency in English

Room
GBCF 05/602

Day, Time
Friday, 02.12.2016
Saturday, 03.12.2016
Friday, 16.12.2016
Saturday, 17.12.2016

Begin
9.00-16.00

Course description:
This course focuses on the procedural side of international law. In addition to general principles of international dispute settlement, students will be familiarized with various fora for the resolution of inter-state, investor-state and commercial disputes, including their rules of procedure. The institutions to be discussed are, inter alia, the International Court of Justice, the World Trade Organisation’s dispute settlement system, arbitral tribunals, as well as the currently hot-debated system for the settlement of investment disputes (e.g. ICSID).

The course is limited to 20 participants (SPB 4 students and interested others).
This course is an elective course in the Certificate Program of the Legal Faculty.

Proofs of academic achievement: Obligatory Attendance and Paper
This course is credited for „Optionalbereich“.

International Legal Dialogue

Language: English and German

Department: Faculty of Law – Lehrstuhl Prof. Dr. Windel
Contact: Prof. Dr. Windel, zpo@rub.de, 0234 32 28839

Degree programme: Bachelor/Master/State Examination/Certificate Program, Faculty of Law
Module: International Legal Dialogue
Module taught entirely in foreign language: No

Course type: Colloquium/Seminar
Credit Points: 3 for Colloquium / 9 for own Presentation
Teacher/Lecturer: Prof. Dr. Peter A. Windel

Requirements: Knowledge and skills in either German or at least one foreign law

Room
GC 03/49

Day, Time
Tuesday, 14:00-17:00

Begin
25/10/2016

Course description:
Students will discuss about legal questions that go along with globalization. In the context of a moderated colloquium presentations of foreign visiting lecturers and Student Video Conferences with foreign partner faculties will be integrated.

This course is also an elective course in the Certificate Program of the Legal Faculty.
Proofs of academic achievement: Possibility of own presentation

International Dimensions of Law

Language: English

Department: Faculty of Law – Zentrum für Internationales; Lehrstuhl Prof. Dr. Schaub
Contact: Dr. Judit Beke-Martos, LL.M., PhD., Judit.Beke-Martos@rub.de, 0234 32 27681
Degree programme: Bachelor/Master/State Exam – Law/Certificate Program, Faculty of Law

Module: Name
Module taught entirely in foreign language: Yes

Course type: Lecture
Credit Points: 3 CP (5 ECTS)
Teacher/Lecturer: Dr. Thomas Thiede, LL.B., LL.M.
Requirements: Proficiency in English

Room Day, Time Begin
BS 4/02 Thursday, 14.00-16.00 20/10/2016

Course description:
Aims & Intended Outcomes: As indicated by its title, this course will focus on an introduction to Comparative Law, Conflict of Laws, European Law and Public International Law (with a focus on all questions of the law applicable (choice of law) in cases with a foreign element). Participants should obtain basic knowledge in Comparative Law, Conflict of Laws, European Law and Public International Law; understanding of problems in mentioned areas of law and (some) competence in questions of the law applicable in cases with a foreign element.

Previous knowledge expected: Instruction and assessment will be exclusively in English, and participants should have an appropriate level of linguistic competence.

Proofs of academic achievement: Obligatory Attendance and Written Exam

This course is credited for „Optionalbereich“.

Introduction to Humanitarian Action

Language: English

Department: Institute for International Law of Peace and Armed Conflict (IFHV) – Faculty of Law
Contact: Prof. Dr. Dennis Dijkzeul, dennis.dijkzeul@rub.de, 0234 32 27932
Degree programme: Bachelor / State Exam - Law

Module: Name
Module taught entirely in foreign language: Yes

Course type: Lecture
Credit Points: 5
Teacher/Lecturer: Prof. Dr. Dennis Dijkzeul
International seminars and lectures

Requirements: Good knowledge of English, interest in Humanitarian Action (for 2nd Semester and higher).

Room               Day, Time        Begin
                   tbc             Wednesday, 10-12 04/11/2016

Course description:
This module addresses the ideas and practices of humanitarianism, in particular the politics and management of humanitarian crises and organizations. In this vein, the module discusses the main critiques of humanitarian action and possible alternatives. It adheres to the idea that humanitarian aid should be provided from a long term perspective, otherwise it can either reinforce conflict and exclusion and neglect the root causes of (complex) crises or hinder access at a later stage of the crisis or during other crises.
This module is designed to help students think through the main practical and academic issues, dilemmas and debates in humanitarian affairs.
The module consists of weekly classes and a number of study trips. Topics include moral foundations of humanitarian action; legal norms of humanitarian action; the international system of actors and organizations; the role of the media; linking relief, rehabilitation and development; civil-military relations.
Students from this module receive a preferential treatment for admittance to the NOHA master (www.nohanet.org) in case all other requirements are fulfilled.

Proofs of academic achievement: written exam (graded), presentation (graded), study trip

This course is credited for „Optionalbereich“. 

Türkisches Strafrecht im Vergleich zum Deutschen Strafrecht (Karsilastirmali olarak Türk ve Alman Ceza Hukuku)

Language: Turkish

Department: Faculy of Law – Zentrum für Internationales
Contact: Dr. Judit Beke-Martos, LL.M., PhD., Judit.Beke-Martos@rub.de, 0234 32 27681
Degree programme: Bachelor/Master/State Exam - Law
Module: Name
Module taught entirely in foreign language: No
Course type: Lecture
Credit Points: 3 CP (5 ECTS)
Teacher/Lecturer: Jun.-Prof. Dr. Özdem Özaydin
Requirements: Reliable knowledge of Turkish
Room               Day, Time        Begin
                   BF 8.17         Friday, 28.10.2016. 13.00-18.00
                   Friday, 25.11.2016.
                   Friday, 16-12.2016.
                   Friday, 20.01.2017.
                   Friday, 10.02.2017.

Proofs of academic achievement: Written Exam
FACULTY OF ECONOMICS

Management Game „General Management“

**Language:** English

**Department:** Institute of Management

**Contact:** Dr. Martin Seidler, +49 (0)234 32-22235, Martin.Seidler@rub.de

**Degree programme:** Bachelor Management and Economics

**Module:** Management Game “General Management”

Module taught entirely in foreign language: Yes

**Course type:** management game

**Credit Points:** 5

**Teacher/Lecturer:** Prof. Dr. Brigitte Werners/Dr. Martin Seidler

**Requirements:** Knowledge of the modules „Kostenrechnung“ (cost accounting), “Jahresabschluss” (financial accounting) and „Finanzierung und Investition“ (finance and investment)

**Room**

GC 4/50

**Day, Time**

Introductory session: Friday 21st of October,
10.00-11.30 am

**Begin**

21/10/2016

**Course description:**

The management game models structure and functions of industrial companies. Participants represent the boards of directors and have to make decisions in all fields of management. The groups are in competition with each other and have to cope with challenging scenarios. The students are supposed to handle complex problems and to make group-decisions under uncertainty and time pressure. Thus they get to know interdependencies of different aspects of management while acting together in small groups and having fun in learning.

**Proofs of academic achievement:** Written examination

---

**Microeconomics I**

**Language:** English

**Department:** Chair for Applied Microeconomics

**Contact:** Tel 0234/32-22887, appliedmicro@rub.de

**Degree programme:** MSc in Economics, MSc in Management, MSc in Management and Economics

**Module:** Microeconomics I

Module taught entirely in foreign language: Yes

**Course type:** Lecture (2h) plus tutorial (2h)

**Credit Points:** 5 ECTS

**Teacher/Lecturer:** Prof. Dr. Julio R. Robledo and assistants

**Requirements:** Good knowledge of basic microeconomic theory and mathematics, good command of English.
Course description:
The module covers standard microeconomic topics at master level: consumer choice, production and costs, competitive markets, general equilibrium, efficiency and welfare theorems.

Proofs of academic achievement: Written examination

Economics of Innovation

Language: English

Department: Chair for Applied Microeconomics
Contact: Tel 0234/32-22887, appliedmicro@rub.de
Degree programme: MSc in Economics, MSc in Management and Economics
Module: Economics of Innovation
Module taught entirely in foreign language: Yes
Course type: Lecture (2h) plus tutorial (2h) plus seminar
Credit Points: 10 ECTS
Teacher/Lecturer: Prof. Dr. Julio R. Robledo and assistants
Requirements: Good knowledge of microeconomics and mathematics, good command of English.

Course description:
The module analyses from an economic perspective the origin of information and knowledge and the incentives which encourage their emergence. Topics include intellectual property (IP), IP protection (patents), IP design, cumulative research, licensing, knowledge sharing, open source software.

Proofs of academic achievement: Written examination, seminar paper and presentation

Seminar in Micro econometrics

Language: English

Department: Chair of Empirical Economics
Contact: Katrin Pritsch, -25341, empwifo@rub.de
**Degree programme:** Master

**Module:** Economics of Migration

Module taught entirely in foreign language: Yes

**Course type:** Seminar

**Credit Points:** 10

**Teacher/Lecturer:** Prof. Dr. Thomas Bauer

**Requirements:** Knowledge of microeconomics is required. Prior coursework in the B.Sc. module "Grundlagen der Empirischen Wirtschaftsforschung" is recommended.

<table>
<thead>
<tr>
<th>Room</th>
<th>Day, Time</th>
<th>Begin</th>
</tr>
</thead>
<tbody>
<tr>
<td>GBCF 04/252</td>
<td>Monday, 14.00–18.00</td>
<td>24/10/2016</td>
</tr>
</tbody>
</table>

**Course description:**

This module deals with the econometric analysis of micro data. The first lectures will review the basic econometric methods and introduce the participants into the software package STATA. Afterwards, the students work on their own empirical project. As part of this project, the students review the relevant literature, identify their research question, prepare the underlying data, and empirically analyze the data by applying basic and advanced econometric methods. The results of the projected are presented to the class and documented in a term paper.

**Proofs of academic achievement:** 50% term paper, 30% presentations, 20% involvement in discussions

**Econometric Evaluation of Economic Policies**

**Language:** English

**Department:** Chair of Empirical Economics

**Contact:** Katrin Pritsch, -25341, empwifo@rub.de

**Degree programme:** Master

**Module:** Econometric Evaluation of Economic Policies

Module taught entirely in foreign language: Yes

**Course type:** Lecture and literature seminar

**Credit Points:** 5

**Teacher/Lecturer:** Prof. Dr. Thomas Bauer

**Requirements:** Advanced knowledge of empirical research and/or econometrics is required.

<table>
<thead>
<tr>
<th>Room</th>
<th>Day, Time</th>
<th>Begin</th>
</tr>
</thead>
<tbody>
<tr>
<td>RWI Essen</td>
<td>Friday, 14.00-16.00</td>
<td>28/10/2016</td>
</tr>
</tbody>
</table>

**Course description:**

Tight public budgets increase the need to learn more about the effectiveness and efficiency of public policy measures. The empirical evaluation of these policies, however, is connected with difficult methodological problems. This module discusses the newest developments in the literature on the empirical evaluation of economic policy measures. A lecture introduces the basic concepts. Central contributions to the literature will be presented by the students themselves and discussed by the participants in a detailed way.
Proofs of academic achievement: 50% exam, 50% presentation

---

**Econometrics**

**Language:** English

**Department:** Statistics and Econometrics  
**Contact:** Janosch Kellermann, janosch.kellermann@rub.de  
**Degree programme:** Master  
**Module:** Econometrics  
Module taught entirely in foreign language: Yes  
**Course type:** Lecture  
**Credit Points:** 10  
**Teacher/Lecturer:** Prof. Dr. Vasyl Golosnoy  
**Requirements:** Undergraduate courses in Statistics and Econometrics

<table>
<thead>
<tr>
<th>Room</th>
<th>Day, Time</th>
<th>Begin</th>
</tr>
</thead>
<tbody>
<tr>
<td>HGC 40 (tutorial)</td>
<td>Monday 10.15 – 11.45 (tutorial)</td>
<td></td>
</tr>
</tbody>
</table>

**Course description:**

This course serves as an introduction to econometrics at graduate level and concentrates primarily on the linear regression model, its estimation, inference and diagnostics. A short introduction to time series analysis concludes the course.

**Proofs of academic achievement:** Written examination

---

**Financial Econometrics**  
**Language:** English

**Department:** Statistics and Econometrics  
**Contact:** Janosch Kellermann, janosch.kellermann@rub.de  
**Degree programme:** Master  
**Module:** Financial Econometrics  
Module taught entirely in foreign language: Yes  
**Course type:** Lecture  
**Credit Points:** 10  
**Teacher/Lecturer:** Prof. Dr. Vasyl Golosnoy  
**Requirements:** at least one graduate course in econometrics

<table>
<thead>
<tr>
<th>Room</th>
<th>Day, Time</th>
<th>Begin</th>
</tr>
</thead>
<tbody>
<tr>
<td>HGC 50</td>
<td>Tuesday 10.00 – 11.30</td>
<td>Oct 18, 2016</td>
</tr>
<tr>
<td></td>
<td>Tuesday 8.15 – 9.45 (Tutorial)</td>
<td></td>
</tr>
</tbody>
</table>

**Course description:**
This course provides a review of empirical methods applied in the quickly growing field of financial econometrics. The course concentrates on describing and modelling stylized facts found in return and volatility time series. The important financial models (CAPM, APT) are discussed from the empirical point of view as well.

Proofs of academic achievement: Written examination

---

**Introductory Labor Economics**

**Department:** Chair of Empirical Economics  
**Contact:** Katrin Pritsch, -25341, empwifo@rub.de  
**Degree programme:** Bachelor  
**Module:** Introductory Labor Economics  
**Module taught entirely in foreign language:** Yes  
**Course type:** Lecture  
**Credit Points:** 5  
**Teacher/Lecturer:** Prof. Dr. Thomas Bauer  
**Requirements:** Basic knowledge in microeconomics is required.

<table>
<thead>
<tr>
<th>Room</th>
<th>Day, Time</th>
<th>Begin</th>
</tr>
</thead>
<tbody>
<tr>
<td>HGC 40</td>
<td>Tuesday, 10.00-12.00</td>
<td>25/10/2016</td>
</tr>
</tbody>
</table>

**Course description:**
The labor market affects the welfare of every individual directly. Hence, the analysis of labor markets is of importance and interest not only to economists but to the population at large. Labor economics is a very challenging and a stimulating area in economics due to the special characteristics of the labor market. For example, different to capital, workers are not commodities with fixed characteristics and make decisions about the nature of their participation in the labour market. Institutions affect the labour market much more than any other market.

The aim of this module is to give a basic understanding of the distinctive features of labour markets and the ways in which they operate. Among other things, we will analyse labor supply, labor demand, human capital, labor mobility, the wage structure, discrimination, trade unions, and incentive pay. Throughout the module, we attempt to integrate theoretical issues and empirical evidence, and to address questions of policy. The latter will concentrate on German issues.

Proofs of academic achievement: written exam

This course is credited for „Optionalbereich“.

---

**Labor market institutions and economic policy**

**Language:** English

**Department:** Chair of Empirical Economics
International seminars and lectures

Contact: Katrin Pritsch, -25341, empwifo@rub.de

Degree programme: Master

Module: Labor market institutions and economic policy
Module taught entirely in foreign language: Yes

Course type: Lecture
Credit Points: 5

Teacher/Lecturer: Dr. Hanna Frings

Requirements: Strong knowledge of microeconomics is advised. Knowledge of labor economics (e.g. the master module “Labor economics” by Prof. Bauer) is recommended. Advanced knowledge of empirical research is recommended to follow the examples for policy evaluation.

Course description:
The course aims at enabling students to understand and comment on current labor market policies from a scientific point of view. Covered topics include: unions and collective bargaining, early retirement, family policies, employment protection, atypical work arrangements (e.g. “Minijobs” or temporary work), unemployment benefits, and active labor market policies.

In a first step, a theoretical framework will be provided for each topic, which often departs from a perfectly competitive market. In a second step, the theory is linked to a specific policy reform, mostly in Germany, and its evaluation as well as international empirical evidence. Students are expected to transfer the theoretical concepts to real world economic policy independently by completing assignments out of class, and to discuss their results actively in class.

For students interested in writing their master thesis in applied, empirical labor economics, the course offers an overview of possible topics.

Proofs of academic achievement: Final exam (80%), Participation in class (20%) At least 80% of the assignments need to be completed in order to take the final exam.

International Finance

Language: English

Department: Chair of Macroeconomics
Contact: 0234/32-28868, mak@rub.de

Degree programme: BSc in Management and Economics

Module: International Finance
Module taught entirely in foreign language: Yes

Course type: Lecture(2h) and tutorial (2h)
Credit Points: 5 ECTS

Teacher/Lecturer: Prof. Dr. Michael Roos and Paola d'Orazio, Ph.D.

Requirements: Principles of micro- and macroeconomics, sound mathematical skills

<table>
<thead>
<tr>
<th>Room</th>
<th>Day, Time</th>
<th>Begin</th>
</tr>
</thead>
<tbody>
<tr>
<td>UFO 0/10</td>
<td>Monday 14.15-15.45</td>
<td>24/10/2016</td>
</tr>
<tr>
<td>HZO 60</td>
<td>Tuesday 14.15-15.45</td>
<td>25/10/2016</td>
</tr>
</tbody>
</table>
Course description:
This course presents the principles of modern international finance. It focuses on macroeconomic issues of international economics such as the balance of payments and models of exchange rate determination. The connection between interest rates and exchange rates is discussed and exchange rate regimes are introduced. Further the course offers a look into some case studies that deal with international financial crises.

Proofs of academic achievement: Written examination

This course is credited for „Optionalbereich“.

Macroeconomics II

Language: English

Department: Chair of Macroeconomics
Contact: 0234/32-28868, mak@rub.de

Degree programme: MSc in Economics, MSc in Management and Economics, MSc in Management

Module: Macroeconomics II
Module taught entirely in foreign language: Yes

Course type: Lecture (2h) and exercise session (2h)

Credit Points: 5 ECTS

Teacher/Lecturer: Prof. Dr. Michael Roos and assistants

Requirements: Macroeconomics I highly recommended, thorough knowledge of mathematics for economists recommended

Room | Day, Time | Begin  
---|---|---
HZO 100 | Friday 8.15-9.45 | 28/10/2016
HZO 80 | Tuesday 14.15-15.45 | 25/10/2016

Course description:
This module covers advanced theoretical models on business cycle fluctuations, inflation, unemployment and economic growth. It provides an overview of the most important macroeconomic topics and introduces students to modern micro-founded macroeconomics. The focus of this module is on agent-based modeling and complexity macroeconomics and contrasts it to the New Keynesian models. This theoretical focus reflects the current research frontier.

Proofs of academic achievement: Written examination

Case Studies in International Macroeconomics

Language: English

Department: Chair of Macroeconomics
Contact: 0234/32-28868, mak@rub.de
Degree programme: MSc in Economics, MSc in Management and Economics, MSc in Management

Module: Case Studies in International Macroeconomics
Module taught entirely in foreign language: Yes

Course type: Seminar (Blockseminar)

Credit Points: 5 ECTS

Teacher/Lecturer: Dr. Jörg Zeuner

Requirements: Good knowledge of English, Principles in macroeconomic theory

Room	Day, Time	Begin
GBCF 04/300	Monday 10.00-16.00	24/10/2016
GBCF 04/300	Tuesday 8.00-16.00	25/10/2016
GBCF 04/300	Monday 10.00-16.00	28/11/2016
GBCF 04/300	Monday 10.00-16.00	19/12/2016
GBCF 04/300	Monday 10.00-16.00	06/02/2017

Course description:
This seminar focuses on applied macroeconomics. Using case studies, we look at problems in fiscal policy, monetary policy, currency policy and/or finance and analyze and solve them in the seminar. The role and tasks of international financial institutions (IFIs) and other decision makers in economic policy will be considered all the time. In the seminar, we elaborate how to assess economic developments, which policy measures are appropriate for the identified problems, and which effects they might have. We normally work with case studies, data set and literature form international organizations and articles from scientific journals. Students learn how to study economic policy problems independently, how to analyze macroeconomic data and trends, and how to work out predictions and solutions. The required term paper is a solution oriented documentation and presentation for decision makers in economic policy. The oral presentation and the ensuing discussion of scientific results will also be practiced.

Proofs of academic achievement: Seminar paper (70%), presentation (20%) and active participation (10%)

Seminar on health economics and health policy: Population ageing and its challenges for health systems

Language: English

Department: Chair for Health Economics and Health Policy

Contact: ingo.kolodziej@rwi-essen.de

Degree programme: Master

Module: 075 274 - Seminar on health economics and health policy: Population ageing and its challenges for health systems
Module taught entirely in foreign language: Yes

Course type: Seminar

Credit Points: 5

Teacher/Lecturer: Prof. Dr. Ansgar Wübker
**Requirements:** Optional module for MSc in Economics students. Optional module for MSc in Management and Economics students

<table>
<thead>
<tr>
<th>Room</th>
<th>Day, Time</th>
<th>Begin</th>
</tr>
</thead>
<tbody>
<tr>
<td>RWI in Essen</td>
<td>Block-course</td>
<td>Kick-off-Meeting on</td>
</tr>
<tr>
<td></td>
<td></td>
<td>19.10.2016; Block seminar</td>
</tr>
<tr>
<td></td>
<td></td>
<td>12.01.-13.01.2017, 9-17 at</td>
</tr>
<tr>
<td></td>
<td></td>
<td>RWI in Essen</td>
</tr>
</tbody>
</table>

**Course description:**
In this seminar students will prepare a term paper based on selected challenges imposed by population aging and the geo-demographic change. The topics will cover both empirical and theoretical contributions. Students will thus have the possibility to acquire the necessary knowledge and methodological skills for the successful completion of a master thesis in health economics and related fields. Students will prepare their seminar papers in the first half of the semester and present their papers in the second half of the semester. Further course details will be given at the introductory meeting.

**Proofs of academic achievement:** Oral Presentation and term paper

This course is credited for „Optionalbereich“.
FACULTY OF SOCIAL SCIENCE

Empirical Labor Market Research

Language: English

Department: Faculty of Social Science
Contact: international-services@sowi.rub.de, +49 (0)234 - 22966
Degree programme: Bachelor
Module: Empirical Module
Module taught entirely in foreign language: Yes
Course type: Seminar
Credit Points: 8
Teacher/Lecturer: Jan Marvin Garbuszus

Requirements: This is part two of the two-part seminar. Enrollments of students that did not participate in part one during the summer semester are not possible.

Room
GCFW 04/304

Day, Time
Tuesday, 12.00-14.00

Begin
18/10/2016

Course description:
During the two-part seminar students will learn the basics and current developments of labor market research. This includes recent findings that define our view of the labor market e.g. growing labor market participation in old age, the gender wage-gap and rising long-term unemployment. German Socio-economic Panel (GSOEP) for quantitative analysis. This will provide a profound working experience at the intersection of socioeconomics and empirical social science. The seminar will focus on empirical testing of labor market theory (from descriptive statistics to regression based analysis). Students will gain the required skills set to use quantitative data and statistical software to write an empirical seminar paper.

Proofs of academic achievement: Active participation and independent evaluation, presentation of intermediate results, term paper at the end of the course.

Actors and Developments in EU Trade Policy: An Examination of EU Free Trade Agreements

Language: English

Department: Faculty of Social Science
Contact: international-services@sowi.rub.de, +49 (0)234 - 22966
Degree programme: Bachelor
Module: International Structures and Processes, International Relations
Module taught entirely in foreign language: Yes
Course type: Seminar
Credit Points: 3/5
Teacher/Lecturer: Aukje van Loon
Requirements: Enrollments are only possible for students that already attended the Lecture “Einführung in die Internationalen Beziehungen”. Literature reports (summaries of one page) of texts that can be found in Campus Office. Please register through Campus Office or via Email (aukje.vanloon@rub.de).

<table>
<thead>
<tr>
<th>Room</th>
<th>Day, Time</th>
<th>Begin</th>
</tr>
</thead>
<tbody>
<tr>
<td>GBCF 05/608</td>
<td>Thursday, 16.00-19.00 s.t.</td>
<td>08/12/2016</td>
</tr>
</tbody>
</table>

Course description:
Since the stalemate of WTO trade negotiations, the EU has increasingly negotiated bilateral free trade agreements. While negotiations with Mexico and South Korea gained little public attention, the negotiations with Canada (CETA) and the United States (TTIP) attracted significant interest and an increase in public debate about the objectives, content and negotiation procedures of EU bilateral agreements. This seminar provides students with an overview on the development of EU trade policy and thereby examines the various issues and actors shaping bilateral agreements (i.e. EU Commission, EU member governments, business interests, trade unions and civil society). Following questions will be discussed: How did EU trade policy evolve? What are its strategies and contents of free trade agreements both in the past and now? Which traditional and new trade actors shape trade negotiations and why do their positions diverge/converge? Students are introduced to some of the key IR theories (i.e. neorealism, liberalism, constructivism and institutionalism) in order to highlight their characterisations and limitations. They will then have the opportunity to apply this theoretical knowledge into empirical evidence through case study presentations of trade policy preferences of the various actors mentioned above in EU bilateral free trade agreements (i.e. Mexico, South Korea, Singapore, CETA and TTIP).

Proofs of academic achievement: A certificate for active participation ("Studiennachweis"): Active participation in the weekly discussions, literature reports, presentation, theory paper. "Modulprüfung": "Studiennachweis" + seminar paper or oral exam.

Central and Middle European Countries in the EU: Eurozone, Immigration and Russia

Language: English

Department: Faculty of Social Science
Contact: international-services@sowi.rub.de, +49 (0)234 - 22966
Degree programme: Bachelor
Module: International Structures and Processes, International Relations
Module taught entirely in foreign language: Yes
Course type: Seminar
Credit Points: 3/5
Teacher/Lecturer: Roman Novak

Requirements: Enrollments are only possible for students that already attended the Lecture “Einführung in die Internationalen Beziehungen”. Literature reports (summaries of one page) of texts that can be found in Campus Office. Please register through Campus Office.

<table>
<thead>
<tr>
<th>Room</th>
<th>Day, Time</th>
<th>Begin</th>
</tr>
</thead>
<tbody>
<tr>
<td>To be announced</td>
<td>To be announced</td>
<td>To be announced</td>
</tr>
</tbody>
</table>
Course description:
The 2004 European Union (EU) enlargement was a key political process for the EU with far-reaching implications for its political shape, but also for its institutional set up and its policy-making. Equally, the Eastern and Middle European countries have been affected by EU politics and decision-making. This seminar will focus on the latter countries and Germany and employs three particular cases of policy-making in which the EU is currently facing difficulties: the Eurozone crisis, immigration, and Russia. In order to explain EU politics as well as the politics of Eastern and Middle European countries' towards the EU, their domestic politics and decision-making process, three IR theories (neorealism, neofunctionalism, and societal approach/liberalism) will be applied. Students are made familiar with these theories with regard to: (1) the role of distribution of power, institutions and intergovernmental bargaining among and between countries' governments and EU institutions, (2) and the role of domestic societal ideas and interest groups for governmental preference formation towards the EU. This theoretical knowledge will guide the analysis of the empirical evidence in the case studies on EU member states policies and EU institutions policies towards the Eurozone, migration, and the relations with Russia.

Proofs of academic achievement: A certificate for active participation ("Studiennachweis"): Active participation in the weekly discussions of the presentations, literature reports, presentation, theory paper. "Modulprüfung": “Studiennachweis” + seminar paper or oral exam.

Migration in Political Theory

Language: English

Department: Faculty of Social Science
Contact: international-services@sowi.rub.de, +49 (0)234 - 22966
Degree programme: Bachelor
Module: International Structures and Processes
Module taught entirely in foreign language: Yes
Course type: Seminar
Credit Points: 3/5
Teacher/Lecturer: Prof. Dr. Volker Heins
Requirements: Open to MA students. Please register through Campus Office starting 22/08/2016.

Room
GCFW 04/703
Day, Time
Thursday, 16.00-20.00 (biweekly)
Begin
20/10/2016

Course description:
The seminar addresses themes on the subject of migration. We discuss the question of whether we should recognize a human right to immigrate, or whether it might be legitimate to restrict not only immigration, but also emigration. We examine criteria for selecting would-be migrants, and for acquiring citizenship, discuss tensions between the claims of immigrants and existing residents, and tackle questions of migrant worker exploitation and responsibility for refugees.
Proofs of academic achievement: Active participation, one essay, one in-class exam.

Introduction to Humanitarian Action

Language: English

Department: Faculty of Social Science
Contact: international-services@sowi.rub.de, +49 (0)234 - 22966
Degree programme: Bachelor
Module: International Structures and Processes, G4 Optionalbereich
Module taught entirely in foreign language: Yes
Course type: Lecture
Credit Points: 2.5
Teacher/Lecturer: Prof. Dr. Dennis Dijkzeul

Requirements: This course is open to students with a strong interest in interdisciplinary themes from all schools or faculties at Ruhr University Bochum. Requirements for participation: minimum 2nd semester, good knowledge of the English language, and a high degree of interest in international humanitarian action. Students from specific assignments dealing with humanitarian issues, such as medical, civil engineering, law, environmental technology, business management, and theology, etc. are also welcome to participate.

Room Day, Time Begin
GC 02/120 Wednesday, 10.00-12.00 19/10/2016

Course description:
The lecture addresses the ideas behind and practices of humanitarian action, in particular the politics and management of humanitarian organizations and crises. In this vein, the lecture also discusses the main critiques of humanitarian action and possible alternatives to it. It is based on the idea that humanitarian aid should be provided from a long-term perspective, otherwise it can either reinforce conflict and exclusion, and neglect the root causes of (complex) crises, or hinder access at a later stage of the crisis or during other crises.

The course consists of three interrelated sections:
1. Context and Legal Basics
2. Actors and organizations

Proofs of academic achievement: The final grade consists of a Referat (presentation with a 1-page handout) during the semester, as well as an exam at the end of the semester which will consist of several questions.

This course is credited for „Optionalbereich“. 
Xenophobia in the Rainbow Nation? Contemporary Migration Issues in South Africa

**Language:** English

**Department:** Faculty of Social Science

**Contact:** international-services@sowi.rub.de, +49 (0)234 - 22966

**Degree programme:** Bachelor

**Module:** Cultural Change and Migration

Module taught entirely in foreign language: Yes

**Course type:** Seminar

**Credit Points:** 3/5

**Teacher/Lecturer:** Julia Koch

**Requirements:** Please register through CampusOffice starting 22/08/2016.

<table>
<thead>
<tr>
<th>Room</th>
<th>Day, Time</th>
<th>Begin</th>
</tr>
</thead>
<tbody>
<tr>
<td>GBCF 05/608</td>
<td>Wednesday, 17.00-19.00</td>
<td>19/10/2016</td>
</tr>
<tr>
<td>GBCF 05/608</td>
<td>Friday, 10.00-16.00</td>
<td>04/11/2016</td>
</tr>
<tr>
<td>GBCF 05/608</td>
<td>Saturday, 10.00-18.00</td>
<td>05/11/2016</td>
</tr>
<tr>
<td>GBCF 05/608</td>
<td>Friday, 10.00-16.00</td>
<td>25/11/2016</td>
</tr>
<tr>
<td>GBCF 05/608</td>
<td>Saturday, 10.00-18.00</td>
<td>26/11/2016</td>
</tr>
<tr>
<td>GBCF 05/606</td>
<td>Saturday, 10.00-16.00</td>
<td>10/12/2016</td>
</tr>
<tr>
<td>GBCF 05/606</td>
<td>Sunday, 10.00-18.00</td>
<td>11/12/2016</td>
</tr>
</tbody>
</table>

**Course description:**
South Africa is one of the main countries of immigration in the world. After the end of the political Apartheid in the 1990s between 4 and 6 million people moved in there. In this seminar we are going to read mainly English texts discussing recent phenomena of immigration and 'xenophobic' violence in South Africa under the leading question of how to approach 'difference' and 'Fremdheit'. In the case studies at hand special attention will be paid to Congolese, Somalian and South Asian immigration.

Firstly we will deal with the historical background of immigration to South Africa and the processes of colonization/de-colonization in the 20th century. In the second section we will focus on ethnographies of the state. In the third section we will discuss specific methods of inquiry and particularly life history approaches in social anthropology with regards to the topic.

On demand the seminar will be held in German.

**Proofs of academic achievement:** By arrangement.

**Organization theories**

**Language:** English

**Department:** Fakultät für Sozialwissenschaft

**Contact:** international-services@sowi.rub.de, +49 (0)234 - 22966

**Degree programme:** Master

**Module:** Employment and Organisation, Culture and Gender

Module taught entirely in foreign language: Yes
Course type: Seminar
Credit Points: 3/6
Teacher/Lecturer: Gesine Ahlzweig

Requirements: A successfully completed Bachelors' degree as well as basic knowledge in the field of organisational sociology. Students should be prepared to actively contribute to discussions, based on the course's reading list.

Course description:
This course will provide an overview of central organisation theories discussing their scientific relevance and empirical applicability. Within this course, students will learn about the plurality of organisational theories and critically discuss and compare them. The course acknowledges the range of sociological paradigms that critically assess organisational phenomena, such as inequality in organisations. Using gender and/in organisations as an example, the course will also discuss theoretical approaches explaining consequences of informal and formal organisational practices.

Proofs of academic achievement: A certificate for active participation ("Studienachweis") can be obtained based on regular, active contributions and a presentation (with a handout for the other course participants). For a graded certificate ("Leistungsnachweis"), writing a seminar paper ("Hausarbeit") is required in addition.

Urban Governance and Development

Language: English

Department: Faculty of Social Science
Contact: international-services@sowi.rub.de, +49 (0)234 - 22966

Course description:
Since the emergence of the concept of governance in the 1990s, it became a catchword in the international development arena as well as in academic debates and attached to the principles of good governance of so-called sustainable political development. It denotes the relationship between the state and civil society and the processes and structures deriving from this relationship. By now the concept corresponds to the international, national as well as the city level
and the interdependencies between these levels. Building on these insights this course looks at urban governance and its problems in development processes in the global South, exploring links between international, national and local policies as well as the economic, social, institutional and political relationships between the global north and south. The course addresses the increasing difficulties and problems of sustainable development facing municipalities in a rapidly urbanising world, exposed to growing climate change and other economic, social and environmental dynamics, pressures and risks alike.

Proofs of academic achievement: A certificate for active participation ("Studiennachweis"): Active and regular participation, reading of compulsory literature, discussion of texts, presentations, preparation of texts. "Modulprüfung": "Studiennachweis" + seminar paper or oral exam.

Global and Transnational Inequalities – The Case of the Sustainable Development Goals

Language: English

Department: Faculty of Social Science
Contact: international-services@sowi.rub.de, +49 (0)234 - 22966
Degree programme: Master
Module: Internationalization and Transnationalisation
Module taught entirely in foreign language: Yes
Course type: Seminar
Credit Points: 3/6
Teacher/Lecturer: Dr. Margit Fauser

Requirements: Registration via CampusOffice starting 22/8/2016. The course is conducted in cooperation with the University Duisburg-Essen and will be held alternating between the two universities.

Room
GC 03/146

Day, Time
Friday, 12.00-16.00
Friday, 12.00-16.00
Friday, 10.00-16.00
Friday, 10.00-16.00
Friday, 12.00-16.00

Begin
28/10/2016
04/11/2016
02/12/2016
16/12/2016
13/01/2016

Course description:
Social inequalities are traditionally addressed within national contexts, often with a focus on Western welfare states. More recently global inequalities have also become a focus of research, particularly in the context of uneven development, income and wealth disparities and sometimes with regard to power asymmetries. These global inequalities can characterize inter-state relations, but also unequal relations between individuals, in and between families and households. Furthermore, new transnational social formations and spaces have emerged from international mobility, cross-border ties of people and the global travelling of information, money and ideas. Thereby they have become sites for the (re)production of transnational inequalities. Both from global and transnational perspectives inequalities concern countries in the Global South where our conceptualizations of inequality are not necessarily translatable - as postcolonial research, for
instance, has claimed. Thus, the questions as to how to define, identify and understand the meaning and production of inequalities call for re?conceptualizations, including a view on the socio?spatial context, interrelated dynamics and developmental issues. It is the aim of the seminar to introduce students to global and transnational perspectives on inequalities. We will focus on key categories such as class, status, gender, ethnicity, territory and space, and their diverging implications across places. We will work with the recently launched Sustainable Development Goals (SDGs), which include a number of explicit and implicit references to different inequalities concerning central challenges for future society and mankind, such as climate change, the scarcity of resources, or decent living and working conditions for all. Students are invited to choose particular goals and targets, to develop specialized expertise in this field and contribute their insights to our plenary debates. Thereby, the seminar strives at contributing to a better understanding of how global and transnational contexts relate to inequality production and which measures can be taken against it.

Proofs of academic achievement: Regular attendance; oral presentations; collaboration in work groups; plenary discussion; written exercise. Modulprüfung (written or oral) is possible.

Contributions to Contemporary Development

Language: English

Department: Faculty of Social Science

Contact: international-services@sowi.rub.de, +49 (0)234 - 22966

Degree programme: Master

Module: Internationalization and Transnationalisation, Central Topics and Issues of socio-scientific Teaching

Module taught entirely in foreign language: Yes

Course type: Seminar

Credit Points: 3/6

Teacher/Lecturer: Prof. Dr. Eva Gerharz

Requirements: Registration in Campus Office. Basic knowledge and ability to read and discuss in English.

Room Day, Time Begin
GC 02/120 Tuesday 16.00-18.00 18/10/2016

Course description:

Post-development criticism and recent moves to deconstruct the developed/developing dichotomy have urged development sociology to abandon its raison d’être. Nowadays, we are well aware of the fact that varying, often contested notions of development exist. At the same time, modernist notions of progress, usually related to individual aspirations to consumerism and life-styles, tend to dominate individual perspectives, leaving collective visions of a better future behind. As soon as we attempt to leave the notion of development behind, perspective become much more varied. One approach seeks to highlight the aspirations to the good life, others refer to capabilities or resilience. There are many other alternative ways of thinking about human progress and of envisioning how society should look like in future. These approaches do not only concentrate on
individual wants or preferences, but relate these to particular systems of ideas that locate the
individual in society. We will work towards a more thorough understanding of how development
could and possibly also should be conceptualised in the globalised world and attend to approaches
that see to move beyond simplifying dichotomies such as coloniser/colonised,
developed/underdeveloped, north/south, and so on.

Proofs of academic achievement: Oral (“Studienachweis”) and written (Modulprüfung) exam.

Ideas, Interests and Power in European Union Politics: Eurocrisis, Migration and Russia

Department: Faculty of Social Science
Contact: international-services@sowi.rub.de, +49 (0)234 - 22966
Degree programme: Master
Module: Interest Mediation, International Institutions and Processes
Module taught entirely in foreign language: Yes
Course type: Seminar
Credit Points: 3/6
Teacher/Lecturer: Prof. Dr. Stefan Schirm

Requirements: Enrollments are only possible for students that already attended the lecture
“Einführung in die Internationalen Beziehungen”, Literature reports to the texts mentioned in
CampusOffice (a summary of one page for each text, a copy template will be available in the
“Handapparat” in the Faculty’s library at the beginning of October).

Room: GCFW 04/703
Day, Time: Thursday, 12.00-14.00
Begin: 20/10/2016

Course description:
European Union politics is currently suffering from severe crises in several economic as well as
security matters. Problems in European policy-making exist, for example, regarding both the
intergovernmental cooperation among EU member states and the policy-making by the EU
Commission in governing the Eurocrisis, in managing migration from Arab countries, and
regarding European relations with Russia. These three crucial crises serve as case studies for the
analysis of the current difficulties of EU policy-making. In order to explain EU politics regarding
these crises, three theoretical perspectives will be employed in the seminar. First, the role of value-
based societal ideas in EU member state societies will be examined to explain governmental
preferences and convergence or divergence in EU intergovernmental negotiations. Second, the
influence of domestic and transnational interest groups on positions and policy making will be
assessed. Third, the distribution of power among EU member states and between member states
and EU Commission will serve as potential explanation for European policy making in the case
studies.

Proofs of academic achievement: Studienachweis: Regular and active participation, punctual
submission of the Literature reports (summaries of one page for each text, Nr. 1-3 in the 3rd
meeting, Nr. 4-6 in the 4th meeting) as well as a presentation including a theory paper and a powerpoint presentation. Modulprüfung: Additional examination.

---

**China's New Role in Global Economic Governance**

*Language:* English  
*Department:* Faculty of Social Science  
*Contact:* international-services@sowi.rub.de, +49 (0)234 - 22966  
*Degree programme:* Master  
*Module:* Foreign and Security Policy in East Asia, Governments and Institutions in East Asia  
Module taught entirely in foreign language: Yes  
*Course type:* Seminar  
*Credit Points:* 3/6  
*Teacher/Lecturer:* Prof. Dr. Jörn-Carsten Gottwald, Prof. Dr. Sebastian Bersick  
*Requirements:* Registration via CampusOffice from 15th September – 28th October.  

**Room:** GB 04/59  
**Day, Time:** Tuesday, 16.00-18.00  
**Begin:** 25/10/2016

*Course description:*  
The People's Republic of China is changing its foreign and regional policies. While the PRC has been on the sidelines of global economic governance for many decades, it is now starting to exert "focused leadership". How can we understand this change in China's concepts and policies? How are China's policies changing the existing framework for global economic governance? Introducing a role theoretical approach, this seminar will discuss the theoretical and methodological challenges of studying China's contribution to global economic governance referring to several case studies. A role theoretical approach requires an understanding of domestic debates as well as expectations by important foreign countries, so-called 'significant others'. The seminar thus offers a relatively new and innovative approach to the study of both Chinese foreign policy-making and China, and international relations.

---

**Slaveries – Historical, sociological and psychological approaches**

*Language:* English  
*Department:* Faculty of Social Science  
*Contact:* international-services@sowi.rub.de, +49 (0)234 - 22966  
*Degree programme:* Master  
*Module:* Cultural Psychology, Cultural and Social Theory  
Module taught entirely in foreign language: Yes  
*Course type:* Seminar  
*Credit Points:* 3/6  
*Teacher/Lecturer:* Dr. Christian Gudehus  
*Requirements:* Registration via Campus Office starting 22/08/2016.
Course description:
Slavery is a violent social relation that has little temporal or spatial limits; it can be found in most (if not all) historical epochs and on all continents and most cultures. It encompasses social and political relations and their dynamics over very long periods of time: collectively several hundred years, individually from some month up to a lifetime for the enslaved and the individuals that have power over them. The study of slaveries encompasses the individuals & societies involved, its logics and logistics as well as the practices of violence that are central for it.

Proofs of academic achievement: Dedicated and constant participation. Willingness to read on a regular basis. Agreements regarding “Modulprüfung” or “Studiennachweis” at the beginning of the seminar.

Multilevel Models

Department: Faculty of Social Science
Contact: international-services@sowi.rub.de, +49 (0)234 - 22966
Degree programme: Master
Module: Methodological Aspects of the Analysis of Socio-scientific Data
Module taught entirely in foreign language: Yes
Course type: Seminar
Credit Points: 3/6
Teacher/Lecturer: Sebastian Jeworutzki
Requirements: Registration via CampusOffice starting 22/08/2016. Participants should have a basic understanding of linear regression models. Some experience with the statistical software R is required - nevertheless the course will start with a short introduction into R.

Course description:
Social scientists are often confronted with hierarchical structured data: An often stressed example are students, which are grouped into classes, classes belong to schools and those schools are influenced by national or federal regulations. Another example are hierarchical structured regional data like individuals from neighborhoods in cities and regions. Theoretical models in these settings often assume cross-level interactions between the individual level and higher levels. A common assumption is that the social composition of a school has an effect on the individual student performance or that the neighborhood context influences the individual probability of delinquent behavior.

Statistical models referred to as multilevel (linear) models, mixed-effects models, covariance component models or random-effects models have been proposed in the literature for this kind of data and are often rated superior to simple OLS regression.

The course will cover an introduction into practical application and interpretation of multilevel
models using R, the discussion of statistical as well as theoretical limitations of these models and alternative methods. In addition, research examples from different fields will be discussed.


---

**Spring School: Current Migration and Refugee Dynamics**

**Language**: English

**Department**: Faculty of Social Science

**Contact**: international-services@sowi.rub.de, +49 (0)234 - 22966

**Degree programme**: Master

**Module**: Complementary Module

**Module taught entirely in foreign language**: Yes

**Course type**: Spring School

**Credit Points**: 3/6

**Teacher/Lecturer**: Dr. Margit Fauser

**Requirements**: -

<table>
<thead>
<tr>
<th>Room</th>
<th>Day, Time</th>
<th>Begin</th>
</tr>
</thead>
<tbody>
<tr>
<td>To be announced</td>
<td>Friday, 10.15-11.45</td>
<td>20/03/2017– 25/03/2017</td>
</tr>
</tbody>
</table>

**Course description**:  
For further information please contact Birgit.Frey@rub.de
FACULTY OF EAST ASIAN STUDIES

Political Economy of Japan

Language: English

Department: East Asian Politics
Contact: Kamila Szczepanska, +49 (0)234 32-26446, kamila.szczepanska@rub.de
Degree programme: Bachelor
Module: APO
Module taught entirely in foreign language: No
Course type: Seminar
Credit Points: 5
Teacher/Lecturer: Dr. Kamila Szczepanska
Requirements: English; It is advisable that students should also have attended Comparative Politics classes.

Room n.n.  Day, Time Tuesday, 10.15-11.45  Begin 18/10/2016

Course description:
The course will explore the main features and transformations of Japanese political economy during the period between 1945 and now. Japan experienced one of the fastest growth rates in the world in the 20th century, especially in the late 1950s and throughout the 1960s, which was hailed as a 'Japanese economic miracle'. In the 1990s, however, the burst of so called 'bubble economy' led to 'lost decade(s), when economic growth slowed down substantially, and the country found itself in the grip of prolonged economic recession and deflation.

During the course we will discuss how Japan came to be a poster child for postwar economic development, how it prospered in the 1970s and 1980s and why it slid into crisis in the 1990s. What were institutional arrangement for that brought the 'miraculous' development and the subsequent multiple crises of Japanese economy? During the course we will investigate among the others 1) the relationship between the political, bureaucratic and business circles that steered the development of Japanese economy, 2) (industrial) policies implemented by subsequent governments to spur Japan’s economic growth in the early postwar period, and later to deal with the fallout of the 'bubble' economy and escape deflation, 3) related topics of re-distributive policies, labour and welfare arrangements, and 4) the importance of the norm of economism in Japanese domestic politics.

Proofs of academic achievement: Oral examination/written examination/…

The European Union and East Asia

Language: English

Department: International Political Economy of East Asia
Contact: Prof. Dr. Bersick, +49 (0)234 32-21852, sebastian.bersick@rub.de
Degree programme:  Bachelor
Module:  LPO
Module taught entirely in foreign language:  No
Course type:  Seminar
Credit Points:  5
Teacher/Lecturer:  Prof. Dr. Vorname Nachname
Requirements:  Bachelors Degree in... /...

Room  Day, Time  Begin
n.n.  Tuesday, 10.15-11.45  18/10/2016

Course description:
This course is designed to introduce and analyze the multi-dimensional relations between the European Union and East Asia. The course will begin with a discussion of major theoretical perspectives and approaches to the study of the EU’s external relations with the region and its many actors, followed by a critical discussion of the evolution of the EU’s approach to Asia. We will then focus on the EU's bilateral relations and the so called strategic partnerships in East Asia (PR China, Japan, Republic of Korea) before turning to the specific role of multilateral regional and interregional organizations and institutions (ASEAN, ARF, ASEM). Policy areas like trade, investment, security and climate will also be dealt with as well as the EU’s role in an evolving regional architecture in East Asia.

Proofs of academic achievement:  Oral presentation, seminar paper (optional)

---

China’s New Role in Global Economic Governance

Language:  English

Department:  East Asian Politics
Contact:  Prof. Dr. Gottwald, +49 (0)234 32-28746, joern-carsten.gottwald@rub.de
Degree programme:  Master
Module:  ASO/RIO
Module taught entirely in foreign language:  No
Course type:  Seminar
Credit Points:  5
Teacher/Lecturer:  Prof. Dr. Vorname Nachname
Requirements:  Bachelors Degree in... /...

Room  Day, Time  Begin
GB 04/59  Tuesday, 16.15-17.45  18/10/2016

Course description:
The People's Republic of China is changing its foreign and regional policies. While the PRC has been on the sidelines of global economic governance for many decades, it is now starting to exert “focused leadership”. How can we understand this change in China’s concepts and policies? How are China’s policies changing the existing framework for global economic governance?
Introducing a role theoretical approach, this seminar will discuss the theoretical and methodological challenges of studying China's contribution to global economic governance referring to several case studies. A role theoretical approach requires an understanding of domestic debates as well as expectations by important foreign countries, so-called 'significant others'. The seminar thus offers a relatively new and innovative approach to the study of both Chinese foreign policy-making and China, and international relations.

Proofs of academic achievement: Oral presentation, seminar paper (optional)

---

**One Belt, One Road: New developments in China’s economic relations**

**Language:** English

**Department:** International Political Economy of East Asia

**Contact:** Prof. Dr. Bersick, +49 (0)234 32-21852, sebastian.bersick@rub.de

**Degree programme:** Master

**Module:** ASO/RIO

Module taught entirely in foreign language: No

**Course type:** Seminar

**Credit Points:** 5

**Teacher/Lecturer:** Prof. Dr. Bersick

**Requirements:** Bachelors Degree in...

<table>
<thead>
<tr>
<th>Room</th>
<th>Day, Time</th>
<th>Begin</th>
</tr>
</thead>
<tbody>
<tr>
<td>GABF 04/409</td>
<td>Thursday 10.15-11.45</td>
<td>20/10/2016</td>
</tr>
</tbody>
</table>

**Course description:**

Text text text

Proofs of academic achievement: Oral presentation, seminar paper (optional)

---

**Japan's Role in International Political Economy**

**Language:** English

**Department:** East Asian Politics

**Contact:** Kamila Szczepanska, +49 (0)234 32-26446, kamila.szczepanska@rub.de

**Degree programme:** Master

**Module:** ASO

Module taught entirely in foreign language: No

**Course type:** Seminar

**Credit Points:** 5

**Teacher/Lecturer:** Dr. Kamila Szczepanska

**Requirements:** Bachelors Degree in...

<table>
<thead>
<tr>
<th>Room</th>
<th>Day, Time</th>
<th>Begin</th>
</tr>
</thead>
<tbody>
<tr>
<td>GABF 04/409</td>
<td>Tuesday 12.15-13.45</td>
<td>18/10/2016</td>
</tr>
</tbody>
</table>
Course description:
The course will explore the main trajectories, features and transformations concerning Japan's role in regional and global political economy, and examine the question of how Japan's position has changed during the last 70 years. The course will cover Japan's rise to a rank of a leader in the 'flying geese pattern' and a model to be copied, as well as challenge that has been posed by the rising China to Japan's position and the latter's subsequent loss of its dominant position among global economies.

During the course we will discuss among the others the following issues: 1) Japan's developmental state model and its export to East and South East Asia countries, 2) the country's central importance for establishing production links in East and South East Asia, 3) Japan's participation in regional economic cooperation/integration initiatives, 4) it's involvement in operations of regional and global institutions/forums (e.g. WTO, G20), 5) the country's response to Asian Financial Crisis and Global Financial Crisis, and 6) Japan's FTA/EPA policies and strategies.

Proofs of academic achievement: Oral presentation, seminar paper (optional)
FACULTY OF PSYCHOLOGY

From basic to advanced fMRI methods

**Language:** English

**Department:** Neuropsychologie

**Contact:** Dr. Hui Zhang, - 23174, hui.zhang.c5u@rub.de

**Degree programme:** Master

**Module:** From basic to advanced fMRI methods

Module taught entirely in foreign language: Yes

**Course type:** Seminar

**Credit Points:** 3

**Teacher/Lecturer:** Dr. Hui Zhang

**Requirements:** Bachelor Psychologie

**Room** | **Day, Time** | **Begin**
---|---|---
GAFO 05/609 | Thursday 12-14 | 27/10/2016

**Course description:**

This seminar seeks to provide a broad, comprehensive, and rigorous introduction to fMRI research. We will start from a systematic review of the physics and biology of fMRI and then extend upward into modern fMRI research. Attendants will learn about proton spin, experimental design, the general linear model, and signal processing. We will discuss chapters of an introductory book by Huettel, Song and McCarthy.

---

**Memory Stabilization**

**Language:** English

**Department:** Psychology, Department of Cognition

**Contact:** Shira Meir Drexler, T: 22668, e-mail: shira.meirdrexler@rub.de

**Degree programme:** Bachelor

**Module:** Kognition und Gehirn

Module taught entirely in foreign language: Yes

**Course type:** Seminar

**Credit Points:** 3

**Teacher/Lecturer:** Shira Meir Drexler, MSc

**Requirements:** good english knowledge

**Room** | **Day, Time** | **Begin**
---|---|---
Gafo 02/368 | Thursday, 10:00-12:00 | 27.10.2016

**Course description:**

The seminar aims to present the students with various topics and methodologies in the field of cognitive neuroscience. During the course, we will accompany the memory trace on its journey from initial consolidation, through subsequent reactivations and reconsolidation processes, to the
point of stabilization. Neural correlates of memory consolidation and reconsolidation will be compared. Cognitive/behavioral and pharmacological methods, aimed to update or disrupt unwanted memories, will be presented in the light of their potential clinical relevance.

Course requirements: students (in groups of 2-3) will prepare a presentation on a selected topic. The course will be held in English.

**Proofs of academic achievement:** Presentation

---

**Left Brain - Right Brain - 118111**

**Language:** English

**Department:** Faculty of Psychology, Institute of Cognitive Neuroscience (ICN), Dept. Biopsychology

**Contact:** Prof. Güntürkün, Kontakt: Sekretariat Biopsychologie: 0234/32-28213; biopsychologie@rub.de

**Degree programme:** Master Psych.; Master Klin. Psych.; Master Cognitive Science

**Module:** Asymmetry

**Module taught entirely in foreign language:** Yes

**Course type:** Lecture

**Credit Points:** 3

**Teacher/Lecturer:** Prof. Dr. Dr. h.c. Onur Güntürkün

**Requirements:** Bachelors Degree in... /...

**Room**
GAFO 03/252

**Day, Time**
Thursday, 12:00 - 2 pm

**Begin**
27/10/2016

**Course description:**
Most of our brain’s processes are executed by different mechanisms in the left and the right hemisphere. Language, spatial orientation, motor control, emotional processing, face perception, and even the ability to comprehend the rhythm of a drum are guided by neural circuits that are differently tuned within the two hemispheres. These asymmetries of mental processing mean that damages of the human brain cannot be understood without a thorough understanding of asymmetries. The lecture aims at explaining the current knowledge about the structure and the mechanisms of cerebral asymmetries by making use of highly interactive teaching methods.

**Proofs of academic achievement:** written examination

---

**Biopsychology Research Colloquium - 118914**

**Language:** English

**Department:** Faculty of Psychology, Institute of Cognitive Neuroscience (ICN), Dept. Biopsychology

**Contact:** Prof. Güntürkün, Kontakt: Sekretariat Biopsychologie: 0234/32-28213; biopsychologie@rub.de

**Degree programme:** Master Psych.; Master Klin. Psych.; Master Cognitive Science
Module: Ergänzendes Lehrangeb
Module taught entirely in foreign language: Yes
Course type: Seminar
Credit Points: 0
Teacher/Lecturer: Prof. Dr. Dr. h.c. Onur Güntürkün
Requirements: Bachelors Degree in... /...

Room: GAFO 05/425
Day, Time: Monday, 1-3pm
Begin: http://www.bio.psy.rub.de/

Course description:
The research colloquium is open to all employees and graduate students of the Biopsychology department. The Aim is to present and discuss their research.
In addition external guests are invited to give talks on different aspects of biopsychology.
You can have a look at the schedule at the department?s information board and our homepage: http://www.bio.psy.rub.de/

Proofs of academic achievement: no examination

S Exercise Learning 112240

Language: English

Department: Faculty of Psychology, Institute of Cognitive Neuroscience (ICN), Dept. Biopsychology
Contact: Prof. Güntürkün, Kontakt: Sekretariat Biopsychologie: 0234/32-28213; biopsychologie@rub.de
Degree programme: Bachelor
Module: Lernen/Learning
Module taught entirely in foreign language: Yes
Course type: Lecture/Seminar/...
Credit Points: 10/...
Teacher/Lecturer: Dr. Patrick AnselmePfeil, Meng Gao, M.Sc.
Requirements: Bachelors Degree in... /...

Room: GAFO 03/974
Day, Time: Tuesday, 2 – 4 pm
Begin: 25/10/2016

Course description:
“This practical participation-based course with online components will provide an applied overview of the psychological foundations of learning and behavior, touching on the neurophysiological basis of learning and memory processes with a view to potential applications in technology, therapy and other areas. Participants will present on various aspects of learning and behavior - such as habituation, sensitization, conditioning and extinction - and place our understanding of these mechanisms in a relevant real-world context. This course will aim at an overview of general knowledge, as well as an in-depth look at early and current examples of human and animal research studies. Learning objectives:
1. Acquire general content knowledge about the field of Learning and behavior within a psychological context.
2. Find, read and understand more specific in-depth knowledge related to content by looking at published experiments (primary source materials).
3. Comfortably, clearly and concisely present about both general and in-depth knowledge to peers.
4. Engage in classroom discussion, expanding upon and applying topics to experience."

**Proofs of academic achievement:** see point 1 - 4

### The evolution of higher cognitive functions in non-human animals - 112615

**Language:** English

**Department:** Faculty of Psychology, Institute of Cognitive Neuroscience (ICN), Dept. Biopsychology

**Contact:** Prof. Güntürkün, Kontakt: Sekretariat Biopsychologie: 0234/32-28213; biopsychologie@rub.de

**Degree programme:** Bachelor

**Module:** Kognition und Gehirn

Module taught entirely in foreign language: Yes

**Course type:** Seminar

**Credit Points:** 3

**Teacher/Lecturer:** Dr. Felix Ströckens

**Requirements:** Bachelors Degree in... /...

<table>
<thead>
<tr>
<th>Room</th>
<th>Day, Time</th>
<th>Begin</th>
</tr>
</thead>
<tbody>
<tr>
<td>GAFO 03/901</td>
<td>Thursday, 12 -2 pm</td>
<td>27.10.2016</td>
</tr>
</tbody>
</table>

**Course description:**

"Humans represent without a doubt the pinnacle in the evolution of higher cognitive functions. However, other non-human animals, even outside the primate order, also possess surprisingly complex forms of higher cognition. Within this seminar, selected studies on the occurrence of such complex cognitive skills will be presented by students, focusing on species like chimpanzees, parrots, crows and dolphins. Furthermore, the seminar aims to clear up with some of the myths about what animals are capable of and what is beyond their reach. In addition to behavioral data, the seminar will also deal with the question what the neuronal underpinnings of such skills are, and if there are any neuronal similarities between species expressing complex cognition. By dealing with these topics, participants of the seminar will get an overview of the cognitive abilities of non-human animals and learn that many of the cognitive skills considered unique to humans actually developed much earlier during evolution. The seminar will be held in English and students are required to give a talk on preselected literature."

**Proofs of academic achievement:** Oral examination/written examination/...
FACULTY OF CIVIL AND ENVIRONMENTAL ENGINEERING

COMPUTATIONAL ENGINEERING

Finite Element Methods in Linear Structural Mechanics (CE-P05)

Department: Computational Engineering
Contact: CompEng Office, 0234/32-25485, compeng-support@rub.de
Degree programme: Computational Engineering
Module: Finite Element Methods in Linear Structural Mechanics
Module taught entirely in foreign language: Yes
Course type: Lecture (2h) and exercise (2h)
Credit Points: 6
Teacher/Lecturer: Prof. Dr. techn. G. Meschke
Requirements: Basics in Mathematics, Mechanics and Structural Analysis (bachelor level)

<table>
<thead>
<tr>
<th>Room</th>
<th>Day, Time</th>
<th>Begin</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIC (lecture)</td>
<td>Monday 08.30-10.00</td>
<td>17/10/2016</td>
</tr>
<tr>
<td>IC 03/610 (exercise)</td>
<td>Friday 08.15-09.45</td>
<td>21/10/2016</td>
</tr>
<tr>
<td>HGB 50 (lecture)</td>
<td>Friday 08.15-09.45</td>
<td>21/10/2016</td>
</tr>
</tbody>
</table>

Course description:
Introduction to the finite element method in the framework of linear elastodynamics. Based upon the weak form of the boundary value problem principles of spatial discretization using the finite element method are explained step by step. First, one-dimensional isoparametric p-truss elements are used to explain the fundamentals of the finite element method. Afterwards the same methodology is used to develop two-(plane stress and plane strain) and three-dimensional isoparametric p-finite elements for linear structural mechanics. In addition to analyses related to structural mechanics, the application of the finite element method to the spatial discretization of problems associated with transport processes within structures (e.g. heat conduction, pollutant transport, moisture transport, coupled problems) is demonstrated. The second part of the lecture is concerned with finite element models for beams and plates. In this context aspects of element locking and possible remedies are discussed. The lectures are supplemented by exercises to promote the understanding of the underlying theory and to demonstrate the application of the finite element method for the solution of selected examples. Furthermore, practical applications of the finite element method are demonstrated by means of a commercial finite element program.

Proofs of academic achievement: written examination (85%) and seminar papers (15%)

Computer-oriented Analysis of Steel Structures (CE-P03)

Department: Computational Engineering

Language: English
Contact: CompEng Office, 0234/32-25485, compeng-support@rub.de

Degree programme: Computational Engineering

Module: Computer-oriented Design of Steel Structures
Module taught entirely in foreign language: Yes

Course type: Lecture (2h) and exercise (2h)

Credit Points: 6

Teacher/Lecturer: Prof. Dr. M. Knobloch, Faranak Faghihi Habibabbadi M.Sc.

Requirements: Fundamental knowledge in mechanics and strength of materials

Room | Day, Time | Begin
--- | --- | ---
HZO 100 | Tuesday 10.15-11.45 | 18/10/2016
HZO 100 | Thursday 13.15-14.45 | 20/10/2016

Course description:
This course is introductory - by no means does it claim any completeness in such a dynamically developing field as numerical analysis of slender steel structures. The course intends to achieve a basic understanding of applied mechanics approaches to slender steel structure modelling, which can serve as a foundation for exploring more advanced theories and analyses of different kind of structures.

Basics of Analyses, Design and Fundamentals for Computer-Based Calculations
- Basic principles of structural design
- Beam theory and torsion
- Finite elements for beams and plates
- Software for analyses

Stability Behaviour of Slender Structures and Second Order Theory
- Geometric non-linear design of structures - second order analysis
- Buckling of linear members and frames
- Lateral buckling and lateral torsional buckling
- Eigenvalues and –shapes
- Numerical methods for plate buckling

Structural Behaviour and Verifications Regarding Crane Supporting Structures
- Fatigue
- Verification methods for crane supporting structures

Proofs of academic achievement: written examination

Mechanical Modelling of Materials (CE-P02)

Language: English

Department: Computational Engineering

Contact: CompEng Office, 0234/32-25485, compeng-support@rub.de

Degree programme: Computational Engineering

Module: Mechanical Modelling of Materials
Module taught entirely in foreign language: Yes
Course type: Lecture (2h) and exercise (2h)
Credit Points: 6
Teacher/Lecturer: Dr.-Ing. R. Kazakeviciute-Makovska
Requirements: Basic knowledge in Mathematics and Mechanics

Room | Day, Time | Begin
--- | --- | ---
HZO 90 | Tuesday 14.00-16.00 | 18/10/2016

Course description:
Several advanced issues of the mechanical behaviour of materials are addressed in this course. More precisely, the following topics will be covered:
- Basic concepts of continuum mechanics (introduction)
- Introduction into the rheology of materials (solid, fluid, multiphase materials, jammed materials)
- Theoretical concepts of constitutive modelling
- 1-dimensional constitutive approaches for
  - Elasticity, hyperelasticity
  - Inelasticity (plasticity, damage, viscoelasticity)
  - Multiphase/porous materials
- 3-dimensional generalization of material modelling concepts
- Simple boundary and initial value problems

Proofs of academic achievement: written examination

Modern Programming Concepts in Engineering (CE-P04)

Language: English

Department: Computational Engineering
Contact: CompEng Office, 0234/32-25485, compeng-support@rub.de
Degree programme: Computational Engineering
Module: Modern Programming Concepts in Engineering
Module taught entirely in foreign language: Yes
Course type: Lecture (2h) and exercise (2h)
Credit Points: 6
Teacher/Lecturer: Prof. Dr.-Ing. M. König
Requirements: -

Room | Day, Time | Begin
--- | --- | ---
IC 04/628 CIP-Pool | Wednesday 08.30-10.00 | 19/10/2016
IC 03/604 | Thursday 08.00-10.00 | 20/10/2016

Course description:
Lectures and exercises cover the following topics:
- Principles of object-oriented modelling
- Encapsulation
- Polymorphism
- Inheritance
- Unified Modelling Language (UML)
- Basic programming constructs
- Fundamental data structures
- Implementation of efficient algorithms
  - Vector and matrix operations
  - Solving systems of linear equations
  - Grid generation techniques
- Using software libraries
  - View3d a visualization toolkit
  - Packages for graphical user interfaces
During the exercises, students practice object-oriented program-ming techniques in the computer lab on the basis of fundamental engineering problems.

Proofs of academic achievement: written examination (70%) and homework (30%)

---

Parallel Computing (CE-WP16)

**Department:** Computational Engineering  
**Language:** English

**Contact:** CompEng Office, 0234/32-25485, compeng-support@rub.de

**Degree programme:** Computational Engineering

**Module:** Parallel Computing  
Module taught entirely in foreign language: Yes

**Course type:** Lecture (2h) and exercise (1h)

**Credit Points:** 4

**Teacher/Lecturer:** Dr.-Ing. K. Lehner / Prof. Dr.-Ing. M. König

**Requirements:** Modern Programming Concepts in Engineering

<table>
<thead>
<tr>
<th>Room</th>
<th>Day, Time</th>
<th>Begin</th>
</tr>
</thead>
<tbody>
<tr>
<td>IC 04/628 CIP-Pool</td>
<td>Tuesday 14.15-15.45</td>
<td>18/10/2016</td>
</tr>
<tr>
<td>IC 04/628 CIP-Pool</td>
<td>Friday 14.15.-15.45</td>
<td>21/10/2016</td>
</tr>
</tbody>
</table>

**Course description:**
- Introduction to parallel computing
  - Examples of simple parallel computational problems
- Concepts of parallel computing
  - Levels of parallelism - Interconnection networks
  - Parallel computer architectures
  - Operating systems - Interaction of parallel processes
  - Parallel programming with shared memory and distributed memory
  - Performance of parallel computing: speedup, efficiency, redundancy, utilization
- Parallel programming for shared memory using the programming interfaces OpenMP in
International seminars and lectures

- Fortran and C/C++, and JOMP in Java
  - Parallel programming for distributed memory with the programming interfaces MPI in Fortran and C/C++, and mpiJava in Java
  - Designing parallel programs by applying functional decomposition to:
    --> matrix methods
    --> direct and iterative solution methods for systems of linear equations
  - Designing parallel structural analysis methods based on domain decomposition and substructure methods
  - Computational implementation and parallel applications on a Linux-Cluster, Programming in Fortran, C/C++ and Java

Proofs of academic achievement: written examination

Dynamics of Structures (CE-WP11)

Language: English

Department: Computational Engineering
Contact: CompEng Office, 0234/32-25485, compeng-support@rub.de
Degree programme: Computational Engineering
Module: Dynamics of Structures
Module taught entirely in foreign language: Yes
Course type: Lecture (2h) and exercise (2h)
Credit Points: 6
Teacher/Lecturer: Prof. Dr. techn. G. Meschke / Prof. Dr.-Ing. R. Höffer

Requirements: A first degree in engineering sciences (e.g. B.Sc.), A profound previous knowledge in fluid mechanics, especially mechanics of solids and numerical methods in dynamics

<table>
<thead>
<tr>
<th>Room</th>
<th>Day, Time</th>
<th>Begin</th>
</tr>
</thead>
<tbody>
<tr>
<td>IC 03/606</td>
<td>Wednesday 8.30-10.00</td>
<td>19/10/2016</td>
</tr>
<tr>
<td>IC 03/653</td>
<td>Thursday 14.15-15.45</td>
<td>20/10/2016</td>
</tr>
</tbody>
</table>

Course description:
The lecture recapitulates and deepens the methodology of the calculation of single- and multi-degree-of-freedom oscillations of structures. Dynamical analyses are based on simplified models of structures and on the application of modal analysis. A second focus is put on the modelling and the computation of random vibrations of structures. The spectral method for a stationary, broad-banded excitation mechanism like wind excitation is introduced. The response spectrum method for the treatment of earthquake excitations is applied. In addition to the procedures in the frequency domain numerical representations of stochastic processes in time domain are explained.
The contents of the lecture are deepend during the exercises and through seminar papers performed by the students. The presentation of related results through students is part of the module.
Learning objectives: The students shall attain the qualifications to apply realistic models of dynamically excited engineering structures and of the excitation mechanism including simplified,
stochastic excitation models for wind or earthquake impacts, and to analyze the structural responses.

Proofs of academic achievement: written examination

Computational Plasticity (CE-WP12)

Language: English

Department: Computational Engineering
Contact: CompEng Office, 0234/32-25485, compeng-support@rub.de
Degree programme: Computational Engineering
Module: Computational Plasticity
Module taught entirely in foreign language: Yes
Course type: Lectures including exercises: 3h
Credit Points: 4
Teacher/Lecturer: Dr.-Ing. U. Hoppe, Prof. Dr. rer. Nat. Klaus Hackel

Requirements: A first degree in engineering sciences, e.g. B.Sc. Basic knowledge of continuum mechanics is required

Room | Day, Time | Begin
--- | --- | ---
IC 04/408 | Monday 13.00-16.00 | 17/10/2016

Course description:
Learning objectives: Fundamentals of computational modeling of inelastic materials with emphasis on rate independent plasticity. A sound basis for approximation methods and finite element method. Understanding of different methodologies for discretisation of time evolution problems, and rate independent elasto-plasticity in particular.

Proofs of academic achievement: written examination
Dynamics and Adaptronics (CE-WP03)

Department: Computational Engineering  
Contact: CompEng Office, 0234/32-25485, compeng-support@rub.de  
Degree programme: Computational Engineering  
Module: Advanced Control Methods for Adaptive Mechanical Systems  
Module taught entirely in foreign language: Yes  
Course type: Lecture (2h) and exercise (2h)  
Credit Points: 6  
Teacher/Lecturer: Prof. Dr.-Ing. Tamara Nestorovic, Prof. Dr. rer. Nat. K.C. Le  
Requirements: Control Theory, Strucutral Control, Dynamics and Adaptronics  
Room: Tba on www.rub.de/mas  
Day, Time: tba  
Begin: tba  
Course description:  
The course introduces the first principles of the dynamics of discrete and continuous mechanical systems: Newton laws and Hamilton variational principles. The force and energy methods for deriving the equation of motion for systems with a finite number of degrees of freedom as well as for continuous systems are demonstrated. The energy conservation law for conservative systems and the energy dissipation law for dissipative systems are studied. Various exact and approximate methods for solving dynamical problems, along with the Laplace transform method, the method of normal mode for coupled systems, and the Rayleigh method are developed for free and forced vibrations. Various practical examples and applications to resonance and active vibration control are shown.

Proofs of academic achievement: written examination  
This course is credited for „Optionalbereich“.

Design Optimization (CE-WP15)

Department: Computational Engineering  
Contact: CompEng Office, 0234/32-25485, compeng-support@rub.de  
Degree programme: Computational Engineering  
Module: Design Optimization  
Module taught entirely in foreign language: Yes  
Course type: Lecture (2h) and exercise (2h)  
Credit Points: 6  
Teacher/Lecturer: Dr.-Ing. K. Lehner / Prof. Dr.-Ing. M. König  
Requirements: -  
Room: IC 04/634 CIP-Pool  
Day, Time: Wednesday 12.15-13.45  
Begin: 19/10/2016
Course description:
Introduction: Definition of optimization problems, History of optimization
- Design as a process: Conventional design, Optimization as a design tool
- Optimization from a mathematical viewpoint: Numerical approaches, Linear optimization, Convex domains, partitioned domains, Examples
- Categories of opt. variables: Explicit design variables, Synthesis and analysis, Discrete and continuous variables, Shape variables
- Dependant design variables
- Realization of constraints: Explicit and implicit constraints, Constraint transformation, Equality constraints
- Optimization criterion: Objectives in structural engineering
- Application of design optimization in structural engineering: Trusses and beams, Framed structures, Plates and shells, Mixed structures
- Solution techniques: Direct and indirect methods, Gradients, Hessian matrix, Kuhn-Trucker conditions

Learning objectives: Acquisition of skills in design optimization to be able to model, solve and evaluate optimization problems for moderately complex technical systems.

Proofs of academic achievement: written examination

Safety and Reliability of Engineering Structures (CE-WP18)

Department: Computational Engineering
Contact: CompEng Office, 0234/32-25485, compeng-support@rub.de
Degree programme: Computational Engineering
Module: Safety and Reliability of Engineering Structures
Module taught entirely in foreign language: Yes
Course type: Lecture (2h) and exercise (2h)
Credit Points: 6
Teacher/Lecturer: PD Dr.-Ing. habil. M. Kasperski
Requirements: Basic knowledge in structural Engineering

Room | Day, Time | Begin
--- | --- | ---
IC 03/606 | Monday 09.30-11.00 | 17/10/2016
IC 03/606 | Thursday 10.00-12.00 | 20/10/2016

Course description:
Introduction - causes of failures
Basic definitions - safety, reliability, probability, risk
Basic demands for the design and appropriate target reliability values: Structural safety, Serviceability, Durability, Robustness
Formulation of the basic design problem: R > E
Descriptive statistics: mean, median, standard deviation, skewness, peakedness
Theoretical distributions: Bernoulli, Poisson, Rectangular, Triangular, Beta, Normal, Log-Normal, Exponential, Generalized Extreme Value, Generalized Pareto
Failure probability and basic design concept considering confidence
Code concept (level 1 approach) and First Order Reliability Method (level 2 approach)
Full reliability analysis - level 3 approach
Probabilistic models for actions and combinations of actions
Probabilistic models for resistance: cross section - structure
Model uncertainties, non-linear methods and Monte-Carlo Simulation
Learning objectives: Students should attain the following qualifications / competencies:
Basic knowledge on statistics and probability, deeper understanding of the basic principles of reliability analysis in structural engineering, basic knowledge on how codes try to meet the reliability demands in regard to structural safety and serviceability, basic knowledge in simulation techniques

Proofs of academic achievement: written examination (85%) and Project work on simulation techniques (15%)

Computational Wind Engineering (CE-WP14)

Language: English

Department: Computational Engineering
Contact: CompEng Office, 0234/32-25485, compeng-support@rub.de
Degree programme: Computational Engineering
Module: Computational Wind Engineering
Module taught entirely in foreign language: Yes
Course type: Lecture (1h) and exercise (1h)
Credit Points: 3
Teacher/Lecturer: Prof. Dr.-Ing. R. Höffer
Requirements: Modern Programming Concepts in Engineering, Fluid Dynamics

Room | Day, Time | Begin
--- | --- | ---
IC 03/647 | Tuesday 12.15-13.45 | 18/10/2016

Course description:
Details and guidelines about the application of CFD methods in wind engineering are introduced and studied. Related problems which are relevant for practical applications and solution procedures are investigated. The lectures and exercises contain the following topics:
- short review of boundary layer turbulence and the Navier-Stokes equations
- turbulence models for implementation to the computation for mean wind quantities: k-ε-models, k-ω-models and derivatives
- Implementation of turbulence for time resolved computations: Large-eddy simulation, concept of DNS
- isotropic turbulence and turbulence in a boundary layer flow
- mesh generation strategies and introduction to the mesh generator ICEM
- Introduction to solver applications using the program systems ANSYS CFX and OpenFoam

Within the scope of the exercises, the students are guided to working out assessment and solution strategies for related, typical technical problems in wind engineering.

Proofs of academic achievement: written examination
FACULTY OF ELECTRICAL ENGINEERING AND INFORMATION TECHNOLOGY

For more information about the Faculty of Electrical Engineering and Information Technology see page 12.

This faculty has one Master taught in English:

→ Lasers and Photonics

Terahertz Technology

Language: English

Department: Photonic und Therahertztechnology
Contact: Prof. Dr. Martin Hofmann, martin.hofmann@rub.de, 22259
Degree programme: Master
Module: Lasers and Photonics, Elektrotechnik und Informationstechnik
Module taught entirely in foreign language: Yes
Course type: Lecture with integrated tutorials
Credit Points: 4
Teacher/Lecturer: Dr.-Ing. Carsten Brenner
Requirements: none

Room
ID 05/158
Day, Time
Monday 09:15-11:45
Begin
17/10/2016

Course description:
For a long time, the generation of THz radiation was a major issue. In the past 20 years the possible approaches to generation and detection of THz radiation have evolved. The lecture gives an overview over radiation in this spectral region and its possible applications. Main focus of the lecture are concepts for THz generation that are based on optical principles (quantum cascade lasers, gas and pulse lasers) as well as electronic means (mixers, tunnel diodes, superconducting contacts). Special attention is paid to time domain spectroscopy which has become a commercially available technology in the past few years.

Proofs of academic achievement: Oral examination

This course is credited for „Optionalbereich“. 
Scientific Working

**Language:** English

**Department:** Photonic und Terahertztechnology

**Contact:** Prof. Dr. Martin Hofmann, martin.hofmann@rub.de, 22259

**Degree programme:** Bachelor

**Module:** IT-Sicherheit, Elektrotechnik und Informationstechnik

Module taught entirely in foreign language: Yes

**Course type:** Lecture with tutorials

**Credit Points:** 2

**Teacher/Lecturer:** Dr.-Ing. Carsten Brenner

**Requirements:** none

<table>
<thead>
<tr>
<th>Room</th>
<th>Day, Time</th>
<th>Begin</th>
</tr>
</thead>
<tbody>
<tr>
<td>ID 03/471</td>
<td>Tuesday 10:15-11:45</td>
<td>18/10/2016</td>
</tr>
</tbody>
</table>

**Course description:**

The target audience for this lecture are Bachelor students during their third term to help with the necessary background for research activities. Furthermore it gives an impression of the requirements during master studies or a PhD project.

The three main chapters are:

1. **Background**
   - What is science
   - Scientific structures
   - Quality criteria

2. **Effective Communication and Tools**
   - Oral communication and presentation tools
   - Written communication and word processors
   - Graphs and data analysis tools

3. **Scientific Process**
   - Defining the problem
   - Doing the work
   - Plan and write the report / thesis

**Proofs of academic achievement:** continual assessment

This course is credited for „Optionalbereich“.

---

Photovoltaics

**Language:** English

**Department:** Photonic und Terahertztechnology

**Contact:** Prof. Dr. Martin R. Hofmann, martin.hofmann@rub.de, 22259
Degree programme: Master
Module: Lasers and Photonics, Elektrotechnik und Informationstechnik
Module taught entirely in foreign language: Yes
Course type: Lecture with integrated tutorials
Credit Points: 3
Teacher/Lecturer: Dr.-Ing. Dietmar Borchert
Requirements: none

Room
ID 04/413

Day, Time
Wednesday from 13:30
(kick-off meeting)

Begin
19/10/2016

Course description:
Content overview:
- The sun as energy source
- Basics of semiconductor physics
- Operating principle of a solar cell
- Solar cell materials
- Production technologies
- Cell concepts
- Module technologies
- Grid connected systems
- Stand-alone PV systems

Proofs of academic achievement: Written exam

This course is credited for „Optionalbereich“.

Optoelectronics

Language: English

Department: Photonic und Terahertztechnology
Contact: Priv.-Doz. Dr.-Ing. Nils C. Gerhardt, nils.gerhardt@rub.de, 26514
Degree programme: Master
Module: Lasers and Photonics
Module taught entirely in foreign language: Yes
Course type: Lecture with tutorials
Credit Points: 6
Teacher/Lecturer: Priv.-Doz. Dr.-Ing. Nils C. Gerhardt
Requirements: none

Room
ID 05/158

Day, Time
Wednesday 10:15-12:00
(lecture)
Thursday 14:15-16:00
(tutorial)

Begin
19/10/2016
Course description:
At first, the basic principles of semiconductors (lattice structure, band structure, doping) are introduced. In the second chapter, the elementary interactions between light and semiconductors are addressed. The third chapter contains the p-n-junction and hetero junctions. Then the most important devices: solar cells, photodiodes, light emitting diodes, and semiconductor lasers are discussed in separate chapters. New devices like modulators and optical switches are referred to in the second last chapter and the last chapter consists of an overview about organic optoelectronics.

Proofs of academic achievement: Oral examination

This course is credited for „Optionalbereich“.

Methods and Instruments of technology Management

Language: English

Department: Photonic und Terahertztechnology
Contact: Prof. Dr. Martin Hofmann, martin.hofmann@rub.de, 22259
Degree programme: Master
Module: Lasers and Photonics
Module taught entirely in foreign language: Yes
Course type: Lecture with integrated tutorials
Credit Points: 5
Teacher/Lecturer: Dr. Josef Gochermann
Requirements: None

Room ID 03/463
Day, Time
Begin

<table>
<thead>
<tr>
<th>Room ID 03/463</th>
<th>Day, Time</th>
<th>Begin</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Wednesday 10:15-11:45 (lecture)</td>
<td>19/10/2016</td>
</tr>
<tr>
<td></td>
<td>Wednesday 12:15-13:45 (tutorial)</td>
<td></td>
</tr>
</tbody>
</table>

Course description:
The lecture is divided in two parts, lectures and tutorials. The lecture will cover all relevant and necessary basics of technology management, and will introduce methods and instruments on a practical background. Main Chapters are:
basics of technology and technology management
technology analysis
technology review and rating
technological environment research
Technological impact assessment
Technology and research strategies
The tutorials focus on the practical implementation of the lecture contents. Students choose from current practical examples of the application of technology management and investigate this.

Proofs of academic achievement: Oral examination
Master Project Virtual Prototyping of embedded Systems

Department: Eingebettete Systeme der Informationstechnik
Contact: Prof. Dr. Micheal Hübner, Michael.Huebner@rub.de
Degree programme: Master
Module: IT-Sicherheit, Elektrotechnik und Informationstechnik
Module taught entirely in foreign language: Yes
Course type: Project
Credit Points: 3
Teacher/Lecturer: Prof. Dr. Michael Hübner
Requirements: none

Room: ID 1/103  
Day, Time: Wednesday form 16:15  
Begin: 19/10/2016

Course description:
Within the project’s scope, the methods of “Virtual Prototyping” are taught and reinforced with practical examples.

- Introduction to Virtual Prototyping – Basic concepts, systems, tools, languages, etc.
- SystemC basics – Cadence iSL SystemC course
- Fast processor models: OVP
- Cadence Virtual System Platform
- Processor design: ArchC
- Cache Modeling: Alpha-Sim + CACTI – Cache Size Tradeoff

Proofs of academic achievement: Continual assessment

This course is credited for „Optionalbereich“.

Master Project Advanced Optics 2

Department: Photonic und Terahertztechnology
Contact: Prof. Dr. Martin Hofmann, martin.hofmann@rub.de, 22259
Degree programme: Master
Module: Lasers and Photonics, Elektrotechnik und Informationstechnik
Module taught entirely in foreign language: Yes
Course type: Project
Credit Points: 3
Teacher/Lecturer: Prof. Dr. Martin Hofmann
**Requirements:** none

<table>
<thead>
<tr>
<th>Room</th>
<th>Day, Time</th>
<th>Begin</th>
</tr>
</thead>
<tbody>
<tr>
<td>ID 1/168</td>
<td>Wednesday, 12:30</td>
<td>19/10/2016</td>
</tr>
</tbody>
</table>

**Course description:**
It will be worked on a topic related to current research activities. Exemplary topics are holography, interferometry and short pulse generation. The project takes place as block course on appointment.

**Proofs of academic achievement:** Continual assessment

*This course is credited for „Optionalbereich“.*

---

**Fundamentals of GPU Programming**

**Language:** English

**Department:** Theoretische Elektrotechnik

**Contact:** Dr. Denis Eremin, eremin@tet.rub.de, 29471

**Degree programme:** Master

**Module:** IT-Sicherheit, Elektrotechnik und Informationstechnik

Module taught entirely in foreign language: Yes

**Course type:** Lecture with tutorials

**Credit Points:** 4

**Teacher/Lecturer:** Dr. Denis Eremin

**Requirements:** none

<table>
<thead>
<tr>
<th>Room</th>
<th>Day, Time</th>
<th>Begin</th>
</tr>
</thead>
<tbody>
<tr>
<td>ID 04/401</td>
<td>Thursday, 16:15-17:45</td>
<td>20/10/2016</td>
</tr>
</tbody>
</table>

Course description:
- GPU as a modern means for general-purpose massively parallel computations
- General GPU architecture and CUDA operational model
- Basic CUDA syntax
- Optimization strategies in GPU programming
- Case study of general-purpose GPU programming

**Proofs of academic achievement:** Oral examination

*This course is credited for „Optionalbereich“.*
FACULTY OF MATHEMATICS

MATHEMATICAL ASPECTS OF DIFFERENTIAL EQUATIONS AND NUMERICAL MATHEMATICS

Language: English

Department: Faculty of Mathematics
Contact: Prof. Dr. Gerhard Röhrle, +49 (0)234/32-28304, gerhard.roehrle@ruhr-uni-bochum.de
Degree programme: Master
Module: Mathematical Aspects of Differential Equations and Numerical Mathematics
Module taught entirely in foreign language: Yes
Course type: Lecture
Credit Points: 10/…
Teacher/Lecturer: Prof. Dr. Gerhard Röhrle
Requirements: Bachelors Degree in… /…

Day, Time: Wednesday 11-13 and Thursday 11-13
Begin: 19/10/2016

Course description:
As its title suggests, this lecture is about the mathematical aspects of differential equations and numerical analysis. Special emphasis is given to foundational mathematical concepts and their uses. The main topics of this lecture include: Aspects of linear algebra, The method of steepest descent, One-dimensional FEM (toy) models, Green's Theorem.

Proofs of academic achievement: Written examination

Geometry and Topology in many-body systems

Language: English

Department: Faculty of Mathematics (Analytics II), Faculty of Physics and Astronomy
Contact: Prof. Dr. Jörg Winkelmann, 0234/32-28326, joerg.winkelmann@rub.de
Degree programme: Master
Module: Geometry and Topology in many-body systems
Module taught entirely in foreign language: Yes
Course type: Seminar
Credit Points: 4
Teacher/Lecturer: Prof. Dr. Ilya Eremin and Prof. Dr. Jörg Winkelmann
Requirements: Bachelor's Degree in Mathematics or Physics

Room: t.b.d.
Day, Time: t.b.d.
Begin: 18/10/2016

Course description:
The purpose of the course is to study topics from modern quantum physics together with their mathematical backgrounds.

Proofs of academic achievement: -

### Concentration Phenomena

**Department:** Faculty of Mathematics  
**Contact:** Jun.-Prof. Dr. Sabine Jansen, +49 (0)234/ 32 23347, sabine.jansen@rub.de, Jun.-Prof. Dr. Christoph Thäle, +49 (0)234/ 32 28988, Christoph.thaele@rub.de  
**Degree programme:** Master  
**Module:** High-Dimensional Phenomena in Probability - Fluctuations and Discontinuity  
Module taught entirely in foreign language: Yes  
**Course type:** Lecture  
**Credit Points:** 4,5  
**Teacher/Lecturer:** Jun.-Prof. Dr. Sabine Jansen, Jun.-Prof. Dr. Christoph Thäle  
**Requirements:** Bachelors Degree in Mathematics

**Room**  
NA 3/24  
**Day, Time**  
Monday 15.00-17.00  
**Begin**  
17/10/2016

**Course description:**
It is well known for a long time that there is a strong connection between convex geometry and probability theory (geometrization of probability). The first part of this lecture will review some results and methods on large and moderate deviations and concentration inequalities. In the second part of this lecture we demonstrate how the classical Brunn-Minkowski inequality and their close relatives can be used to derive concentration of measure properties on the sphere and the Gaussian space. We shall also demonstrate their usefulness on distinguished examples at the borderline between probability, geometry and analysis.

Proofs of academic achievement: -

### Nonparametric Statistics

**Department:** Faculty of Mathematics  
**Contact:** Dr. Claudio Durastanti, +49 (0)234/ 32 23809, Claudio.durastanti@rub.de  
**Degree programme:** Master  
**Module:** Nonparametric Statistics  
Module taught entirely in foreign language: Yes  
**Course type:** Lecture  
**Credit Points:** 4,5  
**Teacher/Lecturer:** Dr. Claudio Durastanti  
**Requirements:** Bachelor’s Degree in Mathematics

**Language:** English
Course description:
The basic idea of nonparametric inference is to use data to infer an unknown quantity while making as few assumptions as possible. In many situations, indeed, no prior knowledge of the underlying distributions, which characterize the statistical model under investigation, is available. In such situations, standard parametric assumptions can produce misleading results. In this class, we present several statistical procedures which are robust, that is, insensitive to the model assumptions. In particular, we will focus on some results concerning a) hypothesis testing (level robustness and power robustness) and b) estimation (variance robustness), so that the methods described retain their properties in the neighborhood of the model assumptions.

Proofs of academic achievement: -

Advanced Course in Statistical Methods

Department: Faculty of Mathematics
Contact: Dr. Nicolai Bissantz, +49 (0)234/ 32 23291, Nicolai.bissantz@rub.de
Degree programme: Doctoral
Module: Advanced Course in Statistical Methods
Module taught entirely in foreign language: Yes
Course type: Lecture
Credit Points: -
Teacher/Lecturer: PD Dr. Nicolai Bissantz
Requirements: Master’s Degree

Course description:
The course considers quantitative methods in different kinds of statistical data analysis, providing both an overview on statistical data analysis and insight into the most important statistical methods. An important part of the course will be practical examples. In more detail, the course will have the following sections:
- Descriptive statistics and some basics of probability theory
- Confidence intervals
- Statistical testing (1): basic ideas and some important tests
- Statistical testing (2): t-test, F-test and ANOVA
- The linear model
- Non-parametric methods
- Multivariate statistics
Randomness in Cryptography

**Language:** English

**Department:** Faculty of Mathematics

**Contact:** Jun.-Prof. Dr. Sebastian Faust, +49 (0)234/ 32 23265, sebastian.faust@rub.de

**Degree programme:** Bachelor and Master

**Module:** Randomness in Cryptography

Module taught entirely in foreign language: Yes

**Course type:** Lecture

**Credit Points:** 4,5

**Teacher/Lecturer:** Jun.-Prof. Dr. Sebastian Faust

**Requirements:** Knowledge of the lecture cryptography

**Room** | **Day, Time** | **Begin**
--- | --- | ---
NA 5/64 | Tuesday 14.00-16.00 | 18/10/2016

Proofs of academic achievement: -

This course is credited for „Optionalbereich“.

---

Security and Privacy for Big Data

**Language:** English

**Department:** Faculty of Mathematics

**Contact:** Dr. Sven Schäge, +49 (0)234/ 32 29822, sven.schaege@rub.de

**Degree programme:** Master

**Module:** Security and Privacy for Big Data

Module taught entirely in foreign language: Yes

**Course type:** Lecture

**Credit Points:** 4,5

**Teacher/Lecturer:** Dr. Sven Schäge

**Requirements:** Bachelors Degree in Mathematics

**Room** | **Day, Time** | **Begin**
--- | --- | ---
NA 2/24 | Friday 10.00-12.00 | 21/10/2016

**Course description:**

The lecture considers the design, analysis and comparison of safety procedures, which can be used in multi-user and big data scenarios.
Seminar on Secure Multiparty Computation

**Language:** English

**Department:** Faculty of Mathematics

**Contact:** Jun.-Prof. Dr. Sebastian Faust, +49 (0)234/ 32 23265, sebastian.faust@rub.de

**Degree programme:** Bachelor and Master

**Module:** Secure Multiparty Computation

Module taught entirely in foreign language: Yes

**Course type:** Seminar

**Credit Points:** 4

**Teacher/Lecturer:** Jun.Prof. Dr. Sebastian Faust

**Requirements:** Knowledge of the lecture cryptography

<table>
<thead>
<tr>
<th>Room</th>
<th>Day, Time</th>
<th>Begin</th>
</tr>
</thead>
<tbody>
<tr>
<td>t.b.d.</td>
<td>t.b.d.</td>
<td>11/10/2016</td>
</tr>
</tbody>
</table>

**Course description:**

- Verifiable secret sharing
- Definition of MPC protocols (passive/active)
- OT protocols
- Information secure MPC protocols
- Efficient MPC protocols against PPT attacks
- Secure 2-party protocols with Yao Garbled Circuits

A preliminary discussion will take place on 11/10/2016, 12.00-13.00 in NA 5/24.

**Proofs of academic achievement:** Oral examination/written examination/...
FACULTY OF GEOSCIENCES

Kinetics

Language: English

Department: Institut für Geologie, Mineralogie und Geophysik
Contact: Thomas Fockenberg, 24392, thomas.fockenberg@rub.de
Degree programme: Master
Module: Kinetics
Module taught entirely in foreign language: Yes
Course type: lecture
Credit Points: 5
Teacher/Lecturer: Dr. Ralf Dohmen; ralf.dohmen@rub.de
Requirements: B.Sc. in geoscience or a related discipline

Course description:
Please contact the lecturer

Proofs of academic achievement: written examination and exercises

Microeconomics of Competitiveness: Firms, Clusters and Economic Development

Language: English

Department: Geographisches Institut
Contact: Prof. Dr. Matthias Kiese, Tel. 23436, Matthias.Kiese@rub.de
Degree programme: Master of Science
Module: 170096 Microeconomics of Competitiveness: Firms, Clusters and Economic Development
Module taught entirely in foreign language: Yes
Course type: Seminar
Credit Points: 6
Teacher/Lecturer: Prof. Dr. Matthias Kiese, Dr. Christian Hundt
Requirements: M.Sc. students in Geography, Master and PhD students from other programmes (esp. Political Science, Economics, Management Studies, International Development) – All participants should be fluent in English

Room  Day, Time  Begin
NA 7/128  Monday, 14.00 – 17.00  17.10.2016

Course description:
Microeconomics of Competitiveness (MOC) is a graduate course created in a multiyear development effort by Professor Michael E. Porter and the staff and affiliates of the Institute for Strategy and Competitiveness at Harvard Business School. The MOC course explores the determinants of competitiveness and successful economic development viewed from a bottom-up, microeconomic perspective. While sound macroeconomic policies, stable legal and political institutions, and improving social conditions create the potential for competitiveness, wealth is actually created at the microeconomic level. The sophistication and productivity of firms, the vitality of clusters, and the quality of the business environment in which competition takes place, are the ultimate determinants of a nation’s or region’s productivity.

The course has been designed not only for students at Harvard but as a platform that can be taught at universities throughout the world. The course platform consists of case studies and other written materials plus an extensive library of video content that can be used in class including lectures by Prof. Porter for all sessions and videotapes of case protagonists including heads of state, senior ministers, governors, and others.

Following Harvard’s tradition, the course is based on case studies only. Each session deals with a particular company, region or country case investigating the drivers of competitiveness. As preparation for each session, all students are required to read the respective case of approx. 20 cases. A three-hour session will typically include case discussions in small and large groups, audio-visual inputs featuring Prof. Porter and case protagonists, as well as a brief lecture input introducing the key theoretical concept illustrated by the case. As coursework, groups of up to four students prepare a case study analysing the competitiveness of a cluster of their own choice. The best paper will be submitted for a competition with student papers from more than 100 universities world-wide teaching the MOC course (cf. http://www.isc.hbs.edu/economics-of-competitiveness or http://www.isc.hbs.edu/resources/courses/moc-course-at-harvard/Pages/default.aspx).

For further information, please refer to https://www.geographie.ruhr-uni-bochum.de/arbeitsbereiche/stadt-und-regionaloekonomie/microeconomics-of-competitiveness or http://www.isc.hbs.edu/resources/courses/moc-course-at-harvard/Pages/default.aspx.

Proofs of academic achievement: Student Paper (100 %). As precondition for their paper being accepted, students are required to be present in class, and to contribute actively to case discussions.

This course is credited for „Optionalbereich“.

Dynamics of the Earth I

Language: English

Department: Institute of Geology, mineralogy and geophysics
Contact: Thomas Fockenberg, Tel.: 0234/32-24392, e-mail. Thomas.fockenberg@rub.de
Degree programme: Master
Module: n.s.
Module taught entirely in foreign language: Yes
Course type: lecture
Credit Points: 5
Teacher/Lecturer: Prof. Dr. Wolfgang Friederich

Requirements: B.Sc. in earth sciences or similar background,

<table>
<thead>
<tr>
<th>Room</th>
<th>Day, Time</th>
<th>Begin</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Please contact the lecturer

Course description:
State functions of minerals at high pressure-temperature conditions; Kinetics of lattice defects, deformation mechanisms at high temperatures, Transportation of energy and temperatures distribution in the Earth’s interior; Tomography of the Earth

Proofs of academic achievement: written examination
FACULTY OF CHEMISTRY AND BIOCHEMISTRY

For more information about the Faculty of Chemistry and Biochemistry, see page 13.

This faculty has three Masters taught in English:

- Master of Science in Biochemistry
- Master of Science in Chemistry
- Molecular Sciences (iMOS)
**FACULTY OF BIOLOGY AND BIOTECHNOLOGY**

**Lecture Introduction to Bioinformatics for Students of Biochemistry (M.Sc.)**

**Language:** English

**Department:** Lehrstuhl für Biophysik

**Contact:** PD Dr. Mathias Lübben, Phone 24465, E-Mail Mathias.Luebben@bph.rub.de

**Degree programme:** Bachelor/Optionalbereich and Master of Biology or Biochemistry

**Module:** 190702

Module taught entirely in foreign language: Yes

**Course type:** Lecture

**Credit Points:** 5

**Teacher/Lecturer:** PD Dr. Mathias Lübben, Prof. Dr. Axel Mosig, Prof. Dr. Raphael Stoll, N.N.

**Requirements:** Students of the “Optionalbereich” should have a basic knowledge in Molecular Biology; Students of Biochemistry should have a Bachelor degree

**Room**

HGA20

**Day, Time**

Friday, 8.15-10.00

**Begin**

21/10/2016

**Course description:**

In this lecture we give a basic introduction into various fields of bioinformatics, such as data banks and techniques of data recording, molecular sequence analysis and comparison, phylogeny, structure prediction of RNA and proteins, molecular structure analysis, molecular graphics and simulation of molecular dynamics. Special emphasis is on the application of bioinformatic tools. When needed, the used computer algorithms are discussed. The lecture is accompanied by a computer practical (IVV 190703), which takes place as announced in the lecture.

**Proofs of academic achievement:** Written examination

This course is credited for „Optionalbereich“.

**Computer Practical: Introduction to Bioinformatics for Students of Biochemistry (M.Sc.)**

**Language:** English

**Department:** Lehrstuhl für Biophysik

**Contact:** PD Dr. Mathias Lübben, Phone 24465, E-Mail Mathias.Luebben@bph.rub.de

**Degree programme:** Bachelor/Optionalbereich and Master of Biology or Biochemistry

**Module:** 190703

Module taught entirely in foreign language: Yes

**Course type:** Computer practical exercise

**Credit Points:** 0

**Teacher/Lecturer:** PD Dr. Mathias Lübben, Prof. Dr. Axel Mosig, Prof. Dr. Raphael Stoll, N.N.

**Requirements:** Students of the “Optionalbereich” should have a basic knowledge in Molecular Biology; Students of Biochemistry should have a Bachelor degree – The lecture “Introduction to
International seminars and lectures

Bioinformatics for Students of Biochemistry (M.Sc.)” (Module 190703) must be attended in parallel.

<table>
<thead>
<tr>
<th>Room</th>
<th>Day, Time</th>
<th>Begin</th>
</tr>
</thead>
<tbody>
<tr>
<td>ND04/99</td>
<td>Friday, time to be announced</td>
<td>To be announced in the accompanying lecture</td>
</tr>
</tbody>
</table>

Course description:
In this computer practical we deepen the basic introduction into various fields of bioinformatics, such as data banks and techniques of data recording, molecular sequence analysis and comparison, phylogeny, structure prediction of RNA and proteins, molecular structure analysis, molecular graphics and simulation of molecular dynamics. Special emphasis is on the application of bioinformatic tools. The exercises are accompanied by a lecture (IVV 190702).

Proofs of academic achievement: The proof of achievement is coupled to the written examination according to the lecture IVV 190702.

This course is credited for „Optionalbereich“.

190587: Kolloquium zu Forschungsarbeiten des Lehrstuhls Pflanzenphysiologie

Language: English

Department: Plant Physiology
Contact: Angelika Ernst, 0234-32-28004, pflanzlj@rub.de
Degree programme: Bachelor/Master/PhD
Module: Name
Module taught entirely in foreign language: Yes
Course type: Seminar
Credit Points: 2
Teacher/Lecturer: Prof. Dr. Ute Krämer/PD Dr. Markus Piotrowski/Prof. Dr. Danja Schünemann
Requirements: -

<table>
<thead>
<tr>
<th>Room</th>
<th>Day, Time</th>
<th>Begin</th>
</tr>
</thead>
<tbody>
<tr>
<td>ND 3/34</td>
<td>Friday, 8.30-10.00</td>
<td>21/10/2016</td>
</tr>
</tbody>
</table>

Course description:
Talks about ongoing research at the institute

Proofs of academic achievement: participation and lecture

190594: Kolloquium Metallhomöostase; Grundlagen und Praxis des wissenschaftlichen Arbeitens in der Pflanzenphysiologie

Language: English

Department: Plant Physiology
Contact: Angelika Ernst, 0234-32-28004, pflanlzj@rub.de

Degree programme: Bachelor/Master/PhD

Module: Name
Module taught entirely in foreign language: Yes

Course type: Seminar
Credit Points: 1
Teacher/Lecturer: Prof. Dr. Ute Krämer

Requirements: -

<table>
<thead>
<tr>
<th>Room</th>
<th>Day, Time</th>
<th>Begin</th>
</tr>
</thead>
<tbody>
<tr>
<td>ND 3/34</td>
<td>Wednesday, 9.00-11.00</td>
<td>19/10/2016</td>
</tr>
</tbody>
</table>

Course description:
Reports on research related to metal homeostasis and plant metabolism

Proofs of academic achievement: participation

190563: Journal Club Plant Physiology

Language: English

Department: Plant Physiology
Contact: Angelika Ernst, 0234-32-28004, pflanlzj@rub.de
Degree programme: Master/PhD
Module: Name
Module taught entirely in foreign language: Yes
Course type: Seminar
Credit Points: 1
Teacher/Lecturer: Prof. Dr. Ute Krämer

Requirements: -

<table>
<thead>
<tr>
<th>Room</th>
<th>Day, Time</th>
<th>Begin</th>
</tr>
</thead>
<tbody>
<tr>
<td>ND 3/34</td>
<td>Monday, 12.00-13.30 (every four weeks)</td>
<td>07/11/2016</td>
</tr>
</tbody>
</table>

Course description:
Reports on recent publications in plant physiology

Proofs of academic achievement: report

Modern Methods in Life Sciences: Video Microscopy and Confocal Laser Scanning Microscopy

Language: engl/ger

Department: Cell Morphology and Molecular Neurobiology
Contact: Dr. J. Reinhard, 0234-32-24314, jacqueline.reinhard@rub.de
Degree programme: PhD
Theoretical and practical information is given about different microscopic techniques. Depending on the agreements the course can be attended for 3 to 5 days.

**Modern Methods in Life Sciences: Culture and Analysis of Neural Cell Types, Stem and Cancer cells**

*Language*: engl/ger

**Department**: Cell Morphology and Molecular Neurobiology

**Contact**: Dr. U. Theocharidis, 0234-32-22828, ursula.theocharidis@rub.de

**Degree programme**: PhD

**Module**: Name

Module taught entirely in foreign language: Yes

**Course type**: Introductory course

**Credit Points**: 1/1,5/2

**Teacher/Lecturer**: Prof. Dr. A. Faissner, Dr. J. Reinhard, Dr. U. Theocharidis, L. Roll, C. Gottschling

**Requirements**: Master degree

<table>
<thead>
<tr>
<th>Room</th>
<th>Day, Time</th>
<th>Begin</th>
</tr>
</thead>
<tbody>
<tr>
<td>According to prior agreement</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

**Course description**:

Theoretical and practical information is given about the culture of diverse primary cell types of the nervous system. Depending on the agreements the course can be attended for 3 to 5 days.

**Scientific Presentation in English**

*Language*: English

**Department**: General Zoology and Neurobiology

**Contact**: Dr. Melanie Mark, melanie.mark@rub.de

**Degree programme**:  .
**Module:** Scientific Presentation in english  
Module taught entirely in foreign language: Yes  
**Course type:** Seminar  
**Credit Points:** 3  
**Teacher/Lecturer:** Dr. Melanie Mark  
**Requirements:** Bachelor Degree  

<table>
<thead>
<tr>
<th>Room</th>
<th>Day, Time</th>
<th>Begin</th>
</tr>
</thead>
<tbody>
<tr>
<td>ND 6/56b</td>
<td>Wednesday, 09:00–10:00</td>
<td>26/10/2016</td>
</tr>
</tbody>
</table>

**Course description:**  
The goals of this weekly course are to learn how to read and critique research papers, to learn how to present a professional summary of a recent paper in English, and to acquire some background information and knowledge on recent topics in the field of Neurosciences. Every Wednesday a presenter will introduce and describe a current article from a scientific journal ie Nature, Science, Neuron, Cell or Nature Neuroscience. The presenter will present a 30 min seminar which should include an introduction to the topic, the hypothesis or questions the authors were addressing, a description of the results, conclusions from the results and potential improvements, critiques or future experiments which can be performed. The seminar will be followed by a student led discussion period and critique of presentation. Nonpresenters are expected to attend at least 6 seminars, to read the article presented for the week and to participate in the discussion following the presentation.

**Proofs of academic achievement:** Lecture  

This course is credited for „Optionalbereich“.

---

**LECTURE SERIES IN BIOTECHNOLOGY**

**Language:** English  
**Department:** Various Departments of the Faculty of Biology and Biotechnology  
**Contact:** PD Dr. Markus Piotrowski, Tel. 0234 32 24290, Markus.Piotrowski@rub.de  
**Degree programme:** Master of Science in Biology  
**Module:** Lecture Series in Biotechnology  
Module taught entirely in foreign language: Yes  
**Course type:** Lecture Series  
**Credit Points:** 0/3  
**Teacher/Lecturer:** various  
**Requirements:** Bachelor’s degree in Biology or related disciplines  

<table>
<thead>
<tr>
<th>Room</th>
<th>Day, Time</th>
<th>Begin</th>
</tr>
</thead>
<tbody>
<tr>
<td>ND 2/99</td>
<td>Wednesday, 12.00–13.30</td>
<td>19/10/2016</td>
</tr>
</tbody>
</table>

**Course description:**  
The lecture series in biotechnology is taught by various members of the Faculty of Biology and Biotechnology. It covers all modern aspects of white, green, blue and red biotechnology and will
also highlight biotechnology research projects of the faculty. This course is mandatory for students with the study focus Biotechnology. It is especially suitable for exchange students.

**Proofs of academic achievement:** Regular attendance, a written examination is optional for students requiring such an examination and who want to obtain 3 CP.
FACULTY OF MEDICINE

Stem Cell Physiology I

**Language:** English

**Department:** Antomie und Molekulare Embryologie

**Contact:** Prof. Dr. Brand-Saberi. Phone: +49(0)234 32-24556

**Degree programme:** Master of Science

**Module:** Stem Cell Physiology I

Module taught entirely in foreign language: Yes

**Course type:** Lecture

**Credit Points:** 5

**Teacher/Lecturer:** Prof. Dr. Beate Brand-Saberi, Prof. Dr. Dietrich Hofmann, Dr. Ajeesh Balakrishnan-Renuka

**Requirements:** Bachelor in Life Science

**Room**

<table>
<thead>
<tr>
<th>Room</th>
<th>Day, Time</th>
<th>Begin</th>
</tr>
</thead>
<tbody>
<tr>
<td>HMA 40</td>
<td>Friday 10.15-11.45</td>
<td>21/10/2016</td>
</tr>
</tbody>
</table>

**Course description:**

Students are introduced to the principles and chronology of vertebrate development, cell cycle control, the concepts of reproductive medicine as well as vertebrate and invertebrate stem cell biology.

**Proofs of academic achievement:** Written examination

**This course is credited for „Optionalbereich“.**

---

Bioinformatics

**Language:** English

**Department:** Department of Biophysics, Biochemie II – Molekulare Neurobiochemie

**Contact:** PD Dr. Mathias Lübben, luebben@bph.ruhr-uni-bochum.de. Phone: +49(0)234- 32-24465

**Degree programme:** Master of Science

**Module:** Bioinformatics

Module taught entirely in foreign language: Yes

**Course type:** Lecture and practical Assignments

**Credit Points:** 5

**Teacher/Lecturer:** Lübben, Mosig, Stoll

**Requirements:** Bachelor in Life Science

**Room**

<table>
<thead>
<tr>
<th>Room</th>
<th>Day, Time</th>
<th>Begin</th>
</tr>
</thead>
<tbody>
<tr>
<td>HGA 20</td>
<td>Friday 08:15 – 09:45 am</td>
<td>21/10/2016</td>
</tr>
</tbody>
</table>

**Course description:**
International seminars and lectures


Proofs of academic achievement: Written examination

Stem Cell Lecture Series

Language: English

Department: Anatomie und Molekulare Embryologie

Contact: Prof. Dr. Brand-Saberi. Phone: +49(0)234 32-24556

Degree programme: Master of Science

Module: Stem Cell lecture Series

Module taught entirely in foreign language: Yes

Course type: Lecture

Credit Points: 2

Teacher/Lecturer: Bühler/Adamietz/Giebel/Zähres/Heumann/Klump/Eisenacher including guest lectures

Requirements: Bachelor Degree in Life Science

Room: MABF 01/SR 1

Day, Time: Tue 5:15-6:00 pm

Begin: 25/10/2016

Course description:

Acquisition of an overview about views, problems and current topics in stem cell research, introduced by various researchers. A comprehensive list of the guest lectures and given talks will be made available beforehand.
Proofs of academic achievement: Written examination

Stem Cell Practical Courses

Language: English

Department: various
Contact: Prof. Dr. Irmgard Dietzel-Meyer, Irmgard.D.Dietzel-Meyer@rub.de
Degree programme: Master of Science
Module: Stem Cell Practical Courses
Module taught entirely in foreign language: Yes
Course type: Practical
Credit Points: 4x4; 16 points in total
Teacher/Lecturer: Theiss/Heumann/Wiese/Bühler/Balakrishnan-Renuka/Raudzus/Köller/Maricic/Behr and others
Requirements: Bachelor Degree in Life Science

Room | Day, Time | Begin
--- | --- | ---
1st meeting lecture hall ND | Friday 10.15-11.45 | 21/10/2016

Course description:
Students will become familiar in theory and practice with specific techniques related to stem cell biology and have the competence to apply them as required.

Proofs of academic achievement: lab reports, seminar talks, completion of practical tasks

This course is credited for „Optionalbereich“.

Advances in Stem Cell Research

Language: English

Department: Anatomie und Molekulare Embryologie
Contact: Prof. Dr. Beate.Brand-Saberi, Phone: +49(0)234 32-24556
Degree programme: Master of Science
Module: Lab Bench Project and Grant Writing
Module taught entirely in foreign language: Yes
Course type: Lecture
Credit Points: 2
Teacher/Lecturer: Several speaker
Requirements: Bachelor Degree in Life Science

Room | Day, Time | Begin
--- | --- | ---
HMA 30 | Wed 5:15-6:00pm | 19/10/2016

Course description:
Students will get acquainted with relevant topics in stem cell research by gaining an advanced insight into relevant research fields and identifying relevant research methods. They obtain a knowledge of funding agencies.

**Proofs of academic achievement:** Written research proposal from the Lab Bench Project and Grant Writing module

**This course is credited for „Optionalbereich“.**

### Bioethics including Legal Aspects

**Language:** English

**Department:** Anatomie und Molekulare Embryologie, Angewandte Ethik

**Contact:** Prof. Dr. Steigleder ([Klaus.steigleder@rub.de](mailto:Klaus.steigleder@rub.de)) and guest lecturers

**Degree programme:** Master of Science

**Module:** Scientific Responsibility in Biomedicine

Module taught entirely in foreign language: Yes

**Course type:** Lecture

**Credit Points:** 8

**Teacher/Lecturer:** Bioethics: Prof. Dr. Klaus Steigleder; Legal requirements: Dr. rer. nat. Kirsten Bender; Dr. jur. Petra Kauch 3CP, Laboratory Animals Science: PD Dr. Matthias Schmid 5CP

**Requirements:** Bachelor’s Degree in Life Science

<table>
<thead>
<tr>
<th>Room</th>
<th>Day, Time</th>
<th>Begin</th>
</tr>
</thead>
<tbody>
<tr>
<td>MA 5/61</td>
<td>Tue/Wed</td>
<td>18/10/2016</td>
</tr>
</tbody>
</table>

**Course description:**

Bioethics: Introduction to ethics and bioethics

The moral status of human embryos and fetuses

Ethical problems of reproductive medicine

Stem cell research and therapeutic cloning

Questions of justice and responsibility concerning patents and the protection of intellectual property

The ethics of clinical trials

Moral problems of clinical trials involving stem cell

Legal aspects: Security relevant, important parts of GenTG, GenTSV, BioStoffV with regard to the impact on environment and staff.

Biosafety levels of laboratories, technical facilities and working equipment.

Licensing procedures according to GenTG.

Important parts of StZG with regard to experiments with stemcells. Limitations of these experiments based on StZG. Laboratory animal sciences.

**Proofs of academic achievement:** Active participation in discussions and interactions in the context of the lecture

**This course is credited for „Optionalbereich“.**
Pathology of Degenerative Diseases

**Language:** English

**Department:** Anatomie und Molekulare Embryologie

**Contact:** Dr. Markus Napirei, Markus.Napirei@rub.de

**Degree programme:** Master of Science

**Module:** Pathology of Degenerative Diseases

Module taught entirely in foreign language: Yes

**Course type:** Lecture/Seminar

**Credit Points:** 5

**Teacher/Lecturer:** Brand-Saberi/Napirei/Balakrishnan-Renuka/Pu/Förster/Winkhofer/Tatzelt/Mügge/Vorgerd/Milting/Kleiter/Schmelzle/Burger/Faustmann, Guest Lecturers

**Requirements:** Bachelor’s Degree in Life Science

**Room**

**Day, Time**

**Begin**

MA 5/61

Seminar: Wed 13-15pm 19/10/2016

Lecture: Tue 13-15pm 17/10/2016

**Course description:**

Students have gained knowledge of the microscopic and macroscopic morphology of five organ systems:

- the locomotory system
- the cardiovascular system
- the nervous system
- the sensory system (the eye)
- the hepatopancreatic system

Students have an up-to-date overview of degenerative diseases and their stem cell-related therapies, which are state of the art or even are theoretically planned.

The seminar will allow students to test their understanding of the topic by presenting and analyzing histological specimen themselves.

**Proofs of academic achievement:** Written examination

This course is credited for „Optionalbereich“.

---

Lab Bench Project and Grant Writing

**Language:** English

**Department:** Various

**Contact:** Prof. Dr. Rolf Heumann, rolf.heumann@rub.de

**Degree programme:** Master of Science

**Module:** Lab Bench project and Grant Writing

Module taught entirely in foreign language: Yes

**Course type:** Practical

**Credit Points:** 14
Teacher/Lecturer: all the PIs of the international Master Program Molecular and Developmental Stem Cell Biology

Requirements: Bachelor’s Degree in Life Science

Course description:
The students will be enabled to plan, perform and interpret lab experiments choosing from a range of particular methods to solve a particular task. They will also be able to design a research proposal for a suitable funding source.

Proofs of academic achievement: Written research proposal

Language Course I

Language: Course-dependent

Department: ZFA
Contact: +49 (0)234 32 28182, Fax: +49 (0)234 32 14942, E-Mail: zfa@rub.de
Degree programme: Master of Science
Module: Language Course
Module taught entirely in foreign language: Yes
Course type: Lecture
Credit Points: 2.5 to 5
Teacher/Lecturer: Various
Requirements: Bachelor’s Degree in Life Science

Course description:
The students will achieve English language proficiency to meet the international standards of scientific work and communication such as understanding written and spoken scientific (and technical) English and to present data without problems corresponding European language level C1.

Specialized technical language courses will allow to improve their professional vocabulary and communication skills. Students who have a very good command of English will choose a language course in German depending on previous knowledge corresponding at least European language level A 2. Students in command of sufficient skills in both German and English will have an opportunity to learn another language for example those relevant in the exchange program (Danish, Chinese etc.) corresponding at least European language level A 2 or equivalent

Proofs of academic achievement: Written examination

This course is credited for „Optionalbereich“.
Biogenesis of cell organelles

**Language:** English

**Department:** Inst. Biochemistry and Pathochemistry/ Systems Biochemistry

**Contact:** Prof. Dr. Ralf Erdmann, 0234-32-28938, ralf.erdmann@rub.de

**Degree programme:** Master of Science Biochemistry

**Module:** Advanced Practical in the Focal Point Programme: “Molecular Medicine Module is not taught entirely in English.

**Course type:** compact course

**Credit Points:** 7,5 (of 15)

**Teacher/Lecturer:** Prof. Dr. Ralf Erdmann

**Requirements:** A five-week all-day practical lab course with a compulsory seminar presentation. Please note: A second Advanced Practical will have to be performed in the same semester to earn the full complement of 15 credits

<table>
<thead>
<tr>
<th>Room</th>
<th>Day, Time</th>
<th>Begin</th>
</tr>
</thead>
<tbody>
<tr>
<td>MA 4/ 142</td>
<td>On demand</td>
<td>On demand</td>
</tr>
</tbody>
</table>

**Course description:**
After completion of the course, students will have acquired basic practical skills in biochemical, microbiological and molecular biological methods. The students will be able to cultivate pro- and eucaryotic cells, to isolate protein-complexes by affinity chromatography and to characterize these complexes according to their size (size-exclusion chromatography) and constituents (SDS-PAGE, immuno-blotting). Students will learn how state-of-the-art molecular cell biological methods are used to tackle the structure and function of cellular nanomachines. Presentation skills will be improved by learning how to present scientific data in talks and scientific discussions as well as in a written thesis.

**Proofs of academic achievement:** Assessment of experimental skills during the practical (50%), a written project report (40%), and a seminar presentation of experimental results (10%).

Characterization of proteins isolated from peroxisomes and peroxisomal membranes of the yeast Saccharomyces cerevisiae

**Language:** English

**Department:** Biochemistry and Pathobiochemistry/ Systems Biochemistry

**Contact:** Prof. Dr. Ralf Erdmann, 0234-32-28939, ralf.erdmann@rub.de

**Degree programme:** Master of Science Biochemistry

**Module:** Modular Advanced Practical and Seminar in the Focal Point Programme "Molecular Medicine" Module taught entirely in English.

**Course type:** compact course

**Credit Points:** 3

**Teacher/Lecturer:** Prof. Dr. Ralf Erdmann

**Requirements:** Two weeks advanced laboratory course with an integrated seminar
Course description:
After completion of the course, students will have acquired basic practical skills in biochemical, microbiological and molecular biological methods. The students will be able to isolate protein-complexes by affinity chromatography and to characterize these complexes according to their size (size-exclusion chromatography) and constituents (SDS-PAGE, immuno-blotting). Students will learn how state-of-the-art molecular cell biological methods are used to tackle the structure and function of cellular nanomachines with the peroxisomal protein translocation apparatus as an example. Presentation skills will be improved by learning how to present scientific data in talks and scientific discussions.

Proofs of academic achievement: Assessment of active and successful participation in the practical (50%) and a written project report (50%)

This course is credited for „Optionalbereich“.

Actuelle issues and methods of molecular Cellbiology

Department: Biochemistry and Pathochemistry/ Systems Biochemistry
Contact: Prof. Dr. Ralf Erdmann, 0234-32-28938, ralf.erdmann@rub.de
Degree programme: Bachelor/ Master/ PhD
Module: Journals Club
Module taught entirely in English.
Course type: Lecture
Credit Points: 1
Teacher/Lecturer: Prof. Dr. Ralf Erdmann
Requirements: ...

Course description:
Presentation and discussion in English language

This course is credited for „Optionalbereich“.

Journal Club: “Structure, Function and Plasticity of the Central Nervous System”

Department: Neurophysiology
Contact: Prof. Dr. Denise Manahan-Vaughan, Tel. 0234/32-22042, email: LMR@rub.de
Degree programme: Bachelor/Master/MD/PhD
Module: Structure, Function and Plasticity of the Central Nervous System
Module taught entirely in foreign language: Yes
Course type: Analytical skills training in neurophysiology
Credit Points: 2
Teacher/Lecturer: Prof. Dr. D. Manahan-Vaughan, Dr. Jesús Ballesteros Carrasco, Dr. Hardy Hagena, Dr. John Kudolo, Dr. Marta Méndez Lopez, Dr. Christina Strauch, Janna Aarse, Birte Dietz, Maximilian Hauser, Hannah Twarkowski
Requirements: Bachelors Degree in... /...

<table>
<thead>
<tr>
<th>Room</th>
<th>Day, Time</th>
<th>Begin</th>
</tr>
</thead>
<tbody>
<tr>
<td>MA 2/150</td>
<td>Wednesdays, 4.30 p.m.</td>
<td>05/10/2016</td>
</tr>
</tbody>
</table>

Course description:
Presentation of scientific articles in the field of neuroscience

Proofs of academic achievement: Oral examination/written examination/...

This course is credited for „Optionalbereich“. 
Machine Learning: Unsupervised Methods

**Language:** English

**Department:** Institut für Neuroinformatik

**Contact:** PD Dr. Rolf Würtz, NB 3/66, phone: 27994, email: rolf.wuertz@ini.rub.de

**Degree programme:** Master

**Module:** Name

Module taught entirely in foreign language: Yes

**Course type:** Lecture and Tutorial

**Credit Points:** 6

**Teacher/Lecturer:** Prof. Dr. Laurenz Wiskott

**Requirements:** The mathematical level of the course is mixed but generally high. The tutorial is almost entirely mathematical. Mathematics required include calculus (functions, derivatives, integrals, differential equations, ...), linear algebra (vectors, matrices, inner product, orthogonal vectors, basis systems, ...), and a bit of probability theory (probabilities, probability densities, Bayes' theorem, ...).

<table>
<thead>
<tr>
<th>Room</th>
<th>Day, Time</th>
<th>Begin</th>
</tr>
</thead>
<tbody>
<tr>
<td>NB 3/57</td>
<td>Tuesday, 12.15-13.45</td>
<td>18/10/2016 (Lecture)</td>
</tr>
<tr>
<td>NB 3/57</td>
<td>Tuesday, 09.00-12.00</td>
<td>25/10/2016 (Tutorial)</td>
</tr>
</tbody>
</table>

**Course description:**

Goals: (i) The students should get to know a number of unsupervised learning methods. (ii) They should be able to discuss which of the methods might be appropriate for a given data set. (iii) They should understand the mathematics of these methods.

This course covers a variety of unsupervised methods from machine learning such as principal component analysis, independent component analysis, vector quantization, clustering, self-organizing maps, growing neural gas, Bayesian theory and graphical models. We will also briefly discuss reinforcement learning.

**Proofs of academic achievement:** Oral examination

---

Computational Neuroscience: Neural Dynamics

**Language:** English

**Department:** Institut für Neuroinformatik

**Contact:** PD Dr. Rolf Würtz, NB 3/66, phone: 27994, email: rolf.wuertz@ini.rub.de

**Degree programme:** Master

**Module:** Name

Module taught entirely in foreign language: Yes

**Course type:** Lecture and Tutorial

**Credit Points:** 6

**Teacher/Lecturer:** Prof. Dr. Gregor Schöner
Requirements: none

<table>
<thead>
<tr>
<th>Room</th>
<th>Day, Time</th>
<th>Begin</th>
</tr>
</thead>
<tbody>
<tr>
<td>NB 3/57</td>
<td>Thursday, 14.15-16.00</td>
<td>20/10/2016</td>
</tr>
<tr>
<td>NB 3/57</td>
<td>Thursday, 16.15-17.00</td>
<td>27/10/2016</td>
</tr>
</tbody>
</table>

Course description:
This course provides an introduction into the theoretical cognitive and systems neurosciences from a particular theoretical vantage point, the dynamical systems approach. This approach emphasizes the evolution in time of behavioral and neutral patterns as the basis of their analysis and synthesis. Dynamic stability, a concept shared with the classical biological cybernetics framework, is one cornerstone of the approach. Instabilities (or bifurcations) extend this framework and provide a basis for understanding flexibility, task specific adjustment, adaptation and learning.

The course includes tutorial modules which provide mathematical foundations. Theoretical concepts are exposed in reference to a number of experimental model systems which will include the coordination of movement, postural and configurational stability, the perception of motion and elementary forms of spatial cognition. In the spirit of Braitenberg’s "synthetic psychology", autonomous robots will be used to illustrate some of the ideas.

Exercises are integrated into the lectures. They consist of elementary mathematical exercises, the design of (thought) experiments and their analysis and the design of simple artificial systems, all on the basis of the theoretical framework exposed in the main lectures.

Proofs of academic achievement: Oral examination

Artificial Neural Networks

Department: Institut für Neuroinformatik
Contact: PD Dr. Rolf Würtz, NB 3/66, phone: 27994, email: rolf.wuertz@ini.rub.de
Degree programme: Bachelor
Module: Name
Module taught entirely in foreign language: Yes
Course type: Lecture and Tutorial
Credit Points: 5
Teacher/Lecturer: PD Dr. Rolf Würtz
Requirements: none

<table>
<thead>
<tr>
<th>Room</th>
<th>Day, Time</th>
<th>Begin</th>
</tr>
</thead>
<tbody>
<tr>
<td>HZO 100</td>
<td>Friday, 12.15-14.00</td>
<td>21/10/2016 (Lecture)</td>
</tr>
<tr>
<td>ND 03/99</td>
<td>Wednesday, 15.00-16.00</td>
<td>26/10/2016 (Tutorial 1)</td>
</tr>
<tr>
<td>ND 03/99</td>
<td>Wednesday, 16.00-17.00</td>
<td>26/10/2016 (Tutorial 2)</td>
</tr>
</tbody>
</table>

Course description:
This lecture presents standard algorithms and new developments of feedforward Artificial Neural Networks, their functioning, application domains, and connections to more conventional mathematical methods. Examples show the potential and limitations of the methods. Supervised as well as unsupervised learning methods are introduced.

In detail:
1) Introduction, some biological facts
2) Mathematical foundations: probability theory and partial derivatives
3) One layer networks and linear discriminants
4) Multilayer networks and error backpropagation
5) Universality of two-layer networks
6) Radial basis function networks
7) Neuronal maps: Kohonen network, Growing Neural Gas
8) Optimization methods

The course will be given in English upon request.

Proofs of academic achievement: oral presentation

Machine Learning: Evolutionary Algorithms

Language: English

Department: Institut für Neuroinformatik
Contact: PD Dr. Rolf Würtz, NB 3/66, phone: 27994, email: rolf.wuertz@ini.rub.de
Degree programme: Master
Module: Name
Module taught entirely in foreign language: Yes
Course type: Lecture and Tutorial
Credit Points: 6
Teacher/Lecturer: Jun.-Prof. Dr. Tobias Glasmachers

Requirements: The course is designed for Master students of the Angewandte Informatik program. The lecture "Mathematics for Modeling and Data Analysis" is recommended as a background.

<table>
<thead>
<tr>
<th>Room</th>
<th>Day, Time</th>
<th>Begin</th>
</tr>
</thead>
<tbody>
<tr>
<td>NB 3/57</td>
<td>Friday, 10.15-11.45</td>
<td>21/10/2016 (Lecture)</td>
</tr>
<tr>
<td>NB 3/57</td>
<td>Monday, 12.15-13.45</td>
<td>24/10/2016 (Tutorial)</td>
</tr>
</tbody>
</table>

Course description:
Evolutionary Algorithms are randomized search and optimization heuristics inspired by principles of biological evolution. The field aims to exploit the principle of the "survival of the fittest" for the solution of technical problems. The resulting optimization algorithms are conceptually simple, widely applicable, and easy to implement. Evolutionary search has applications in science and engineering for the approximate solution of difficult "black box" problems.
The lecture starts by developing the basic evolutionary optimization model. Various aspects of evolutionary search in discrete and continuous search spaces are discussed in detail, resulting in a systematic taxonomy of largely modular building blocks. Finally, the evolutionary process is embedded into the theoretical framework of optimization on statistical manifolds.

The course consists of a lecture (two hours/week), which is accompanied by a practical course (also two hours/week). It will be held either in German or in English, depending on the audience. Most of the course material will be in English.

Proofs of academic achievement: Oral examination

Introduction to Perception

Department: Institut für Neuroinformatik
Contact: Prof. Dr. Sen Cheng, NB 3/33, phone: 29486, email: sen.cheng@rub.de
Degree programme: Master
Module: Name
Module taught entirely in foreign language: Yes
Course type: Lecture
Credit Points: 3
Teacher/Lecturer: Prof. Dr. Sen Cheng
Requirements: none

Room Day, Time Begin
GA 04/187 Monday, 10.00-12.00 17/10/2016

Course description:
Perception of sensory inputs can be studied along three different dimensions: modality, description level and methodology. This lecture will discuss several different examples along each dimension and highlight common principles, when possible. Modalities include, for instance, vision, audition, olfaction and proprioception. The description level will range from receptor physiology to Gestalt psychology. The methodology will include psychophysics, electrophysiology and computational modeling.

Proofs of academic achievement: Written examination

Computational Cognitive Modeling

Department: Institut für Neuroinformatik
Contact: Prof. Dr. Sen Cheng, NB 3/33, phone: 29486, email: sen.cheng@rub.de
Degree programme: Master

Language: English
Module: Name
Module taught entirely in foreign language: Yes

Course type: Seminar
Credit Points: 3

Teacher/Lecturer: Prof. Dr. Sen Cheng

Requirements: Basic knowledge of cognition, e.g. “Cognition I + II”, “Learning”

<table>
<thead>
<tr>
<th>Room</th>
<th>Day, Time</th>
<th>Begin</th>
</tr>
</thead>
<tbody>
<tr>
<td>NB 3/57</td>
<td>Monday, 14.00-16.00</td>
<td>17/10/2016</td>
</tr>
</tbody>
</table>

Course description:
The human mind is most intimately familiar to us, yet we understand very little about how it functions. To study the mind, the field of cognitive science pursues an interdisciplinary approach. One of the pillars of cognitive science is computational modeling. This seminar will survey models of perception, memory and action. Rather than focusing on the mathematical details, we will discuss the motivation, application and noteworthy properties of the models, including their strengths and shortcomings. Class work will include student presentations and discussions.

Proofs of academic achievement: Oral presentation

The Neural Basis of Vision

Language: English

Department: Institut für Neuroinformatik

Contact: Prof. Dr. Sen Cheng, NB 3/33, phone: 29486, email: sen.cheng@rub.de

Degree programme: Master

Module: Name
Module taught entirely in foreign language: Yes

Course type: Seminar
Credit Points: 3

Teacher/Lecturer: Prof. Dr. Sen Cheng, Dr. Amir Azizi

Requirements: none

<table>
<thead>
<tr>
<th>Room</th>
<th>Day, Time</th>
<th>Begin</th>
</tr>
</thead>
<tbody>
<tr>
<td>GA 04/187</td>
<td>Friday, 10.00-12.00</td>
<td>14/10/2016</td>
</tr>
</tbody>
</table>

Course description:
Of all modalities vision is best studied, perhaps due to the dominance of the visual sense in humans. Even so much is still unknown about the neural basis of vision and visual plasticity. The goal of this seminar is to introduce students to the classic and current research literature. Therefore, a range of experimental approaches will be covered, including electrophysiology and imaging techniques such as fMRI, EEG and MEG.

Proofs of academic achievement: Oral presentation
INTERDISCIPLINARY CENTRE FOR ADVANCED MATERIALS SIMULATION (ICAMS)

MULTISCALE MODELLING IN MATERIALS SCIENCE

Language: English

Department: Interdisciplinary Centre for Advanced Materials Simulation
Contact: mss@icams.rub.de, phone: 0234 32 29332
Degree programme: Master
Module: Name
Module taught entirely in foreign language: Yes
Course type: Lecture with exercises
Credit Points: 6
Teacher/Lecturer: Prof. Dr. Alexander Hartmaier

Requirements: Successful completion of modules “Introduction to Quantum Mechanics/Statistical Physics and Thermodynamics” or “Assessment and Description of Materials Properties”

Room
ICAMS seminar room and
ICAMS CIP-Pool
Day, Time
Tuesday, 8.00-12.00
Begin
18/10/2016

Course description:
Learning outcomes: The students gain knowledge about the different length and time scales on which the phenomena and mechanisms of material behaviour occur. They will furthermore understand the different levels to describe these phenomena and the existing approaches to bridge and integrate these scales, including their range of validity. They build up the skills to independently develop scale-bridging models that integrate all necessary scales and to employ these models to describe and predict materials behaviour under given conditions.

Proofs of academic achievement: oral examination

This course is credited for „Optionalbereich“.

ELEMENTS OF MICROSTRUCTURE

Language: English

Department: Interdisciplinary Centre for Advanced Materials Simulation
Contact: mss@icams.rub.de, phone: 0234 32 29332
Degree programme: Master
Module: Name
Module taught entirely in foreign language: Yes
Course type: Lecture
Credit Points: 3
Teacher/Lecturer: Prof. Dr. Gunther Eggeler

Requirements: Bachelor degree in mechanical engineering, chemistry, physics, nanotechnology, mathematics or computer science or related disciplines.

Course description:
Students will develop a first qualitative and comprehensive view of all basic elements of materials science and engineering, which are important to understand the evolution of materials microstructure during processing and service. They learn basic facts about the solid state, about crystal defects, about thermodynamic stability, about materials kinetics and about phase transformation. They also acquire basic knowledge about materials characterization. With these basics about microstructures and their characterisation they are enabled to study and understand advanced textbooks on materials science independently.

Proofs of academic achievement: written examination

This course is credited for „Optionalbereich“.

CONTINUUM METHODS IN MATERIALS SCIENCE

Language: English

Department: Interdisciplinary Centre for Advanced Materials Scimulation

Contact: Contact: mss@icams.rub.de, phone: 0234 32 29332

Degree programme: Master

Module:
Module taught entirely in foreign language: Yes

Course type: Lecture with exercises

Credit Points: 4

Teacher/Lecturer: Prof. Dr. Alexander Hartmaier

Requirements: Completion of modules “Assessment and Description of Materials Properties” and “Statistical Physics and Thermodynamics” or equivalent.

Course description:
Students understand the underlying principles of the finite element/finite volume method to solve problems in continuum mechanics including phase transformations. They are familiar with mean-field models and rate equation solutions. With the phase field method, they are able to solve free boundary problems coupled to a thermodynamic material description. With the help of these widely used numerical methods in industrial and academic materials science the students have acquired the skills to model and solve materials science problems and they also understand the limitations of these methods.
Proofs of academic achievement: written examination

This course is credited for „Optionalbereich“.

---

**ATOMISTIC SIMULATION METHODS**

*Language:* English

**Department:** Interdisciplinary Centre for Advanced Materials Simulation  
**Contact:** Contact: mss@icams.rub.de, phone: 0234 32 29332  
**Degree programme:** Master  
**Module:** Name  
Module taught entirely in foreign language: Yes  
**Course type:** Lecture/Seminar  
**Credit Points:** 4  
**Teacher/Lecturer:** Prof. Dr. Ralf Drautz  
**Requirements:** Successfully completed modules “Quantum Mechanics in Materials Science” and “Microstructure and Mechanical Properties”

<table>
<thead>
<tr>
<th>Room</th>
<th>Day, Time</th>
<th>Begin</th>
</tr>
</thead>
<tbody>
<tr>
<td>ICAMS seminar room and ICAMS CIP-Pool</td>
<td>Monday, 9.00-10.30 (L) and Tuesday, 16.15-17.45 (S) or Wednesday, 15.30-17.30 (S)</td>
<td>17/10/2016</td>
</tr>
</tbody>
</table>

**Course description:**

Students will be acquainted with models for the interatomic interaction and understand how these interactions can be represented by potentials. They learn how to use methods such as molecular dynamics and kinetic Monte Carlo simulations to calculate the evolution of the atomic structure of materials and the resulting material properties. They understand the importance of the time and length scales in atomic modelling. The successful participants will be able to apply atomistic simulation methods to solve problems in materials science.

Proofs of academic achievement: written examination

This course is credited for „Optionalbereich“.
Publishing Details

Edited and Published by:

International Office
Dezernat 2
Ruhr-Universität Bochum
Studierenden-Service-Center (SSC)
Universitätsstraße 150
D-44780 Bochum

Print run:
800 copies

Printed in September 2016