

RUHR-UNIVERSITÄT BOCHUM

**RUBISS** INTERNATIONAL STUDENT SERVICES

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## INTERNATIONAL COURSE CATALOGUE WiSe 2011/2012

Degree programmes, seminars and lectures taught in English



# INTERNATIONAL COURSE CATALOGUE

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Dear student, dear researcher, dear guest,

this is the International Course Catalogue (ICC) of the Ruhr-Universität Bochum, a project realized by RUBiss – RUB international student services at the International Office. The International Course Catalogue gives an overview on RUB's foreign language offers – for international students who want to organise their semester programme as well as students planning on studying in Bochum or partners and guests wanting to get a general idea on RUB's international courses and programmes.

It contains the following:

- 1. A list of **international (English) Master and PhD programmes**: RUB offers several entire degree programmes in different disciplines that are taught entirely in English. The ICC informs on content, requirements and application procedure.
- 2. A compilation of seminars and lectures (Bachelor, Master and PhD) held in English or another foreign language:

Many departments of RUB offer seminars and lectures in English or other foreign languages. Those are usually NOT part of an international degree programme.

The ICC gives information on the content and requirements, as well as credit points and contact persons. Also, it is stated if courses are credited for the "Optionalbereich" and if they are especially suitable for exchange students.

3. Additional information on studying and researching international at RUB: RUB's international profile, going abroad, 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 Catalog a helpful guide for your semester programme and wish you a good start for the new semester!

Your team of RUBiss – RUB International Student Services



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## **RUB'S INTERNATIONAL PROFILE**

Internationalism traditionally has a very high priority at the Ruhr-Universität. The university cooperates in research and teaching through many active partnerships with universities and research institutes around the world. Members of all departments are involved in international research networks and maintain intensive international exchange. The Ruhr-Universität is a member of the Utrecht Network, where thirty large European universities cooperate on issues of internationalisation. Also beyond the European continent, the university has a high profile. Examples of this global commitment: in Shanghai the Ruhr-University supports the department of mechanical engineering at the Chinese-German University College at Tongji University, it is actively involved in academic reconstruction in Afghanistan, offers various degrees in South Africa at the South African-German Centre for Research Development and Criminal Justice at University of the Western Cap, Capetown, and together with its Ruhr university neighbours, is running liaison offices in New York, Moscow and – opened just recently – Rio de Janeiro.

More than 4,500 international students from some 130 countries are currently at the Ruhr Universität – they appreciate the modern degree structures, the variety of subjects, the interesting cross-border research projects and the good support services on campus. Every year, the university welcomes some 400 visiting scholars from around the world, including a high number of scholarship holders from the Humboldt Foundation, and other renowned scientists. At five international graduate schools, doctoral students from around the world practice their research.

For students who wish to spend part of their degree abroad, the Ruhr-Universität also offers a host of opportunities. In exchange programmes with European partner universities alone, with over 350 collaborations from Finland to Italy and from Turkey to Portugal, there are places to study abroad in all degree courses. The number of Socrates/Erasmus students has doubled over the last five years, and the number of mobile students will continue to grow – facilitated by: expert advice on studying abroad, the further development of interesting degree courses with bi-national dual degree qualification and the extension of exchange agreements already actively underway.

## **STUDYING AT RUB**

In the middle of the metropolitan Ruhr region in the heart of Europe, the Ruhr-Universität with its 20 faculties is home to 5,000 employees and over 31,000 students from 130 countries. The university was opened in 1965 after a construction period of only three years. It was the first new university to be established in Germany following the Second World War and was also the first university in the Ruhr area altogether. Today, it is one of the ten biggest universities in Germany.

The Ruhr-Universität offers research facilities and teaching in all major academic disciplines: humanities, natural sciences, engineering and medicine are all together on one campus. The university's greatest strength is its interdisciplinary cooperation, and there are a lot of special interdisciplinary and international Bachelors and Masters programmes for you to choose from. Altogether, the RUB offers approximately 150 bachelors and masters programmes in various combinations. The range of subjects is even bigger as the Ruhr-Universität cooperates with its neighbouring universities Dortmund and Duisburg-Essen to form the University Alliance Metropolis Ruhr (UAMR), and students can choose courses from all three universities.

The RUB changed to the Bachelors/Masters system before any other German university and therefore almost all degree programmes are offered with the Bachelors and Masters qualifications. Within your Bachelors studies, when choosing humanities or social sciences, you will usually study two subjects, while in natural and engineering sciences Bachelor programmes usually

consist of just one subject.

If you are enrolled in subjects at the Ruhr-Universität Bochum in the areas of humanities and social or natural sciences, you will also have to attend courses in the "options modules" (Optionalbereich), in addition to the subjects you have chosen. Therefore, courses that are credited for the "options modules" are marked in the International Course Catalogue.

## **DOUBLE DEGREES**

Numerous double degree programmes provide the opportunity to obtain the degree of a partner university alongside the RUB-degree:

#### 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 other university. The 5th semester is spent in Tours by all students, the 6th in Bochum.

#### Contact:

Name: Prof. Dr. Gerhard Lubich Email: <u>Gerhard.lubich@rub.de</u> Or: Name: Stephanie Caspari Email: <u>Stephanie.b.caspari@rub.de</u>

#### Double Degree in Philology with Universidad Oviedo

Without prolonging their studies, and after spending time at the partner university during the last year of their studies, students gain the Spanish Licenciatura degree and the German Master degree.

#### Contact:

Name: Lidia Santiso Saco Email: <u>lidia.saco@rub.de</u>

#### Double 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: <u>Klaus.waschik@rub.de</u>

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

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

#### Contact:

Name: Prof. Dr. Bernahrd Pellens Email: <u>pellens@iur.rub.de</u>

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

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

#### Contact:

Name: Prof. Dr.-Ing. Horst Meier Email: <u>Meier@lps.rub.de</u>

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

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: Julia Figdor Email: <u>GenderStudies@rub.de</u>

#### Double Degree in Law with Université François Rabelais Tours

Both double Bachelor's and double Master's degree, starting from WiSe 2011/12. The students spent two semesters together in Bochum and two in Tours. The awarded degree is "Bachelor" (RUB) and "Licence" (Tours) or "Master" in both Tour and Bochum.

#### Contact:

Name: Norman Heenemann Email: <u>Norman.Heenemann@rub.de</u> Or: Name: Véronique Müller Email: <u>Veronique.Mueller@rub.de</u>

#### Double Degree in Philology with Université François Rabelais Tours

Students of both partner universities can spend the last year of their studies at the partner institution. At the successful completion of their studies, the students are awarded a Master's degree of both RUB and Université Tours.

#### Contact:

Name: Jürgen Niemeyer Email: <u>Juergen.Niemeyer@rub.de</u> Consultation hours: Tuesday and Friday, 10.00-11.00 a.m.

#### Double Degree in German Studies with Universiteit Utrecht

By means of a partnership contract, it is possible to obtain degrees from both partner universities at the same time, without prolonging ones studies. It is possible to obtain a Bachelor's as well as a Master's degree. Students taking part in teacher training programmes can make use of this option as well.

#### Contact:

Name: Prof. Dr. Bernd Bastert Email: <u>Bernd.Bastert@rub.de</u> Or: Name: Manfred Eickelmann Email: <u>Manfred.Eickelmann@rub.de</u>

## APPLICATION AND ADMISSION

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

Your **higher education entrance qualification** must be recognised as the equivalent to the German qualification. Your higher education entrance qualification (HZB) is your school leaving certificate or a proof of studies already completed. To qualify for admission at RUB, you must be able to prove that you have got a HZB for a German university.

You will find more information on this subject at <u>www.international.rub.de/bewerbung/zulassung/hzb</u>

Also, for most degree programmes, you need sufficient **German skills**. An exception are the International degree programmes stated in the first chapter of this brochure. Those Programmes have individual application procedures.

For successful studies in a regular course at the Ruhr- University, a high standard of German language skills are required. Language skills can be proven by one of the following examinations:

- DSH examination (level 2 or 3)
- ZOP examinimation of the Goethe-Institut
- German language diploma, level II, of the Goethe-Institut
- TestDaF with the grades 4 x 4 or 16 points

You will find more information on this subject at <a href="http://www.international.rub.de/bewerbung/zulassung/deutschkenntnisse">www.international.rub.de/bewerbung/zulassung/deutschkenntnisse</a>

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 the RUB.

You will find the online application tool at www.international.rub.de/bewerbung/verfahren

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 own deadlines and application procedures. For more information check the chapter "International Master Programmes" from page 13.

## THE INTERNATIONAL OFFICE

The International Office is responsible for all aspects of the University's international contacts and activities.

It fosters and coordinates the university's international relationships, builds contacts with partner universities and handles projects and programmes with foreign partners. In addition, it supports university faculties and chairs in building international relationships. Whilst the team from RUBiss looks after international students, the "Welcome Centre" was established to support international visiting academics. RUB students who want to go abroad as part of their studies, are also advised by the International Office.

## **RUBISS – RUB 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. This is why "RUBiss – RUB international student services" was established and now combines all provisions and services for international students at RUB. As well as support in the application and admission process or with administrative tasks and legal affairs concerning foreign nationals, you will find contact persons for other important issues which go beyond your academic studies, such as e.g. advice and support in social, cultural and study related affairs – there is always a sympathetic ear for you at RUBiss.

Both at the beginning of and during the semester, events are organised: On various excursions, you will have the opportunity to get to know your new surroundings, to settle in and to meet fellow students. Tutors and members of the RUBiss team are present at these events and are available to answer all of your questions in a relaxed atmosphere. RUBiss also provides offers that may be useful for your studies or your future career: During the last year, two new projects were started that get funding by the DAAD: "Praktika international" and the "Rechtschreibkorrekturbüro".

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.



RUBiss, International Office Ruhr-Universität Bochum FNO-Building Email: <u>RUBiss@rub.de</u> www.international.rub.de/rubiss

## WELCOME CENTRE FOR INTERNATIONAL RESEARCHERS

The Welcome Centre is the place to go for international academics, researchers, scientists and other university-related professionals and their families who seek advice, support and services regarding their research stay at Ruhr-Universität Bochum. We also offer support and advice to their hosts and faculties at Ruhr-Universität.

We assist researchers with their preparation for the trip and offer support during their stay in Bochum. Here they can find information, recommendations and support regarding specific topics and areas that are relevant for the research stay in Bochum, including necessary residence and work formalities, as well as helpful hints for a smooth social integration and everyday life in Germany.

Services for international researchers and their families include:

- Internet portal in German and English
- Check lists for preparing the stay and negotiating the first days after arrival
- Advice on formalities (visa, registration, health insurance)
- Assistance in finding accommodation
- Support in dealings with the authorities (tutor service)
- Counselling in legal matters
- Assistance in finding a kindergarten or school for your children
- International Lounge for visiting researchers
- Excursions and events for visiting scientists and scholars
- German language courses at various levels
- Online portal International Researchers' Gallery

#### Welcome Centre Events

The Welcome Centre invites international researchers and their families to many various events such as excursions in the region, monthly "Coffee with the Rector" in the International Lounge, AvH-lectures, monthly "International Women's' Exchange", Christmas and Summer Reception.

The Welcome Centre in Bochum is registered as "local service point" in EURAXESS – EU-wide network providing information and advice for internationally mobile researchers.



Welcome Centre, International Office Ruhr-Universität Bochum FNO-Building Email: <u>welcome-centre@rub.de</u> <u>www.rub.de/welcome-centre</u>

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

## OUTGOING SERVICES

Students who want to go abroad as part of their studies are advised at the Outgoing Services. On their website, you will find Information on studying and internships abroad, summer academies and language courses. You will get hints on organization, contact persons and financing.

RUB-students who want to study abroad can take part in the ERASMUS programme, in which RUB has some 244 partner universities, where students can spend 3 to 12 months, supported by a monthly mobility scholarship and many other benefits.

The ERASMUS programme also supports students who are doing a relevant internship in a country taking part in the ERASMUS programme.

For those wanting to study outside Europe, the International Office has different partner universities, where students can study one or two semesters without paying tuition fees. There are university wide partnerships with the following universities:

- Universidade Federal de Minas Gerais, Brazil
- Universidad de Monterrey, Mexico
- Universidad Autónoma de Nueva León, Mexico
- Universidad Autónoma Metropolitana, Mexico
- Universidad Católica del Norte, Chile
- Lindenwood University in St.Charles, Missouri, USA
- National Taiwan University, Taiwan
- Ewha Womans University, Korea
- Kyungpook National University, Korea
- Osaka University, Japan

The following universities provide RUB-students with a monthly scholarship in addition:

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

As a member of the Utrecht Network, RUB can offer exchange with the following universities in the course of the MAUI and AEN exchange programme:

#### MAUI-Exchange-Programme:

Baylor University	University of Missouri
Waco, TX	Columbia, MO
Kansas State University	University of Missouri
Manhattan, KS	Kansas City, MO
Missouri University of Science & Technology, Rolla, MO	University of Missouri 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

AEN-Exchange-Programme:

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	

A new worldwide programme supplementing the ERASMUS programme is PROMOS. In 2012, the International Office will offer 4 sub programmes, by which studying at partner universities of RUB, internships, study trips and stays for writing a final thesis can be supported. The PROMOS programme supports study stays outside the ERASMUS-countries, internships and stays for writing a thesis can be supported inside and outside Europe.

Outgoing Services, International Office Ruhr-Universität Bochum FNO-Building

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## CONTACTS

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	Mon - Thu: 9 -12 a.m.

Rubiss- RUB Intern	national Student Service
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Ruthild Schulte	Room: FNO 01/174           Tel.: +49 (0)234 32-25899           E-Mail: Ruthild.Schulte@uv.rub.de           Consultation Hours: Mon- Thu, 10- 12 a.m.
Sarah Stücken	Room: FNO 01/176         Tel.: +49 (0)234 32-27676         E-Mail: Sarah.Stuecken@uv.rub.de         Consultation Hours: Mon-Fri 10- 12 a.m. & 2- 3.30 p.m.
Outgoing Services	
Veronika Fuckel	Room: FNO 01/183         Tel.: +49 (0)234 32-28913         E-Mail: Veronika.Fuckel@uv.rub.de         Consultation Hours: Mon & Thu: 2.30 - 4.30 p.m.         Tue & Wed: 10.30 - 12.30 a.m.
Uta Baier	Room: FNO 01/183         Tel.: +49 (0)234 32-29814         E-Mail: Uta.Baier@uv.rub.de         Consultation Hours: Mon & Thu: 10.30 - 12.30 a.m.         Tue & Wed: 2.30 - 4.30 p.m.
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Alexandra Redel	Room: FNO 02/32         Tel.: +49 (0)234 32- 25408         E-Mail: Alexandra.Redel@uv.rub.de         Consultation Hours: Mon, Wed & Fri: 9 - 12 a.m.         Tue & Thu: 2 - 4 p.m.
Internationalisatior	
Ulrike Herrlich	Room: FNO 01/185 Tel.: +49 (0)234 32-24747 E-Mail: <u>Ulrike.Herrlich@uv.rub.de</u> Consultation Hours: By appointment

## **INTERNATIONAL MASTER PROGRAMMES**

The following chapter contains RUB's international Master and PhD programmes that are taught entirely in English.

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## FACULTY OF CHEMISTRY AND BIOCHEMISTRY

http://www.chemie.rub.de

#### Contact:

Name: Dr. Manfred Groß Room: NC 02/128 Tel: 0234/32-24571 Email: <u>chemie@rub.de</u>

#### MASTER OF BIOCHEMISTRY

Language: English

#### Degree programme: MSc

**Requirements:** A qualified BSc (= a BSc with an average mark better than 2.5) in Biochemistry or a related subject, such as Molecular Biology, Biotechnology, Chemical Biology, or Chemistry with a major in Biochemistry)

Application Deadline: deadline for international students: 15/07/12

**Begin:** 10/10/2011

#### Course description:

The Master Course in "Biochemistry" builds on the foundations laid by a BSc in Biochemistry or a related subject. It constitutes the second step towards a comprehensive education and training in the sciences and methods necessary to understand and exploit the molecular and chemical basis of biological and physiological processes. The goal of this course is to enable the student to independently apply the theoretical and technical knowledge gained to tackle and solve open questions in the life sciences, either in academia or in industry.

To reach this goal students will receive up to 26 hours of teaching per week over a period of 3 semesters, a total of 77.5 hours, comprising 16 hrs of lectures, 12 hrs of seminars, and a full 49.5 hrs of practicals. In the fourth semester experiments for the Master thesis project will be performed with the goal to submit a thesis after 6 months.

A unique feature of the MSc Biochemistry in Bochum is the possibility to choose between six Focal Point Programmes in which all courses, starting with the 2nd semester, are geared towards a topic chosen at the end of the first semester. Available topics include a) Biochemistry of the Nervous System, b) Biomolecular Chemistry, c) Molecular Medicine, d) Proteins: Structure and Function, e) Molecular Biology and Biotechnology of Plants and Microorganisms and f) Stem Cell Biochemistry.

Further highlights of this Master Course include compulsory practical training in experimental approaches that use isotopes, a course that in addition to credit points yields a federal certificate required for Radiation Safety Officer duties in academia and industry; and a practical course in the handling of experimental animals, which is conducted in collaboration with the company Bayer HealthCare at their premises in Wuppertal.

The Faculty of Chemistry and Biochemistry appreciates if their Master students choose to spend one or more semesters abroad. The faculty supports this choice by unbureaucratically accepting courses taken abroad as equivalent if they fit the general philosophy of the Master Programme in Biochemistry at RUB.

## MASTER OF CHEMISTRY

Language: English

Degree programme: MSc

**Requirements:** A qualified BSc (= a BSc with an average mark better than 2.5) in Chemistry or a related subject

Application Deadline: 15/07/12

Begin: 10/10/2011

#### **Course description:**

The Master Course in "Chemistry" builds on the foundations laid by a BSc in Chemistry or a related subject. It constitutes the second step towards a comprehensive education and training in chemistry comprising all aspects from organic and inorganic synthesis to physical and theoretical descriptions of chemical reactions. The goal of this course is to enable the student to independently apply the theoretical and technical knowledge gained to tackle and solve open questions in chemistry, either in academia or in industry.

To reach this goal students will receive a research orientated education comprising lectures and seminars but also, to a large extent, practicals. The first and second semester aim to provide an in depth-understanding in inorganic chemistry, organic chemistry and physical chemistry through lectures as well as a practicals in selected disciplines. The third semester allows the students to select a specialization practical including a 3-month practical. In the fourth semester experiments for the Master thesis project will be performed with the goal to submit a thesis after 6 months. A unique feature of the MSc in Chemistry at the Ruhr-University Bochum is the possibility to choose between a number of focal point programmes as specialization including organic, inorganic, physical, analytical, industrial ("Technische Chemie") and theoretical chemistry as well as interdisciplinary programmes such as functional materials. The practicals are mainly performed

in the different research groups using state of the art research equipment thus guiding the students

into research at an early stage. The research groups with PhD students and PostDocs from all over the world provide the basis for an education in an international environment.

The Faculty of Chemistry and Biochemistry appreciates if their Master students choose to spend one or more semesters abroad. The faculty supports this choice by unbureaucratically accepting courses taken abroad as equivalent if they fit the general philosophy of the Master Programme in Chemistry at RUB.

## INTERNATIONAL MASTER OF MOLECULAR SCIENCES AND SIMULATION (IMOS)

Language: English

#### Degree programme: MSc

**Requirements:** A qualified B.Sc. (= a BSc with an average mark better than 1.9 or international equivalent) in Chemistry, Physics, Biology, Engineering or a related interdisciplinary subject. In case of more than 20 applicants a selection will take place.

Application Deadline: for international students: May 1<sup>st</sup>, 2011.

**Begin:** September 19, 2011 (optional levelling courses in scientific English and Mathematics), October 10, 2011, mandatory course program.

#### **Course description:**

The international master program "Molecular Sciences and Simulation" (iMOS) interfaces between the traditional scientific disciplines chemistry and physics with a strong focus on concepts of molecular science, modern laser-spectroscopic and microscopic experimental techniques, computer simulations, and quantum chemistry. It is thus tailored for excellent students who want to learn in depth experimental and theoretical techniques in order to tackle today`s scientific challenges in (bio)molecular sciences in a broad sense.

The topics of this master program have been specially designed to attract outstanding students with a B.Sc. from a broad variety of disciplines (chemistry, physics, biology, mathematics and engineering). The students are driven by their interest for a deeper molecular understanding of (bio)chemical and (bio)physical processes but do not wish to focus on chemical synthesis and "bench chemistry".

iMOS is a true interdisciplinary program which was set-up to meet the new challenges for a top level education for the next generation of young scientists. Promotion of young researchers will be pursued with a focus on early hands-on experience and participation in high profile research projects in combination with a study program stimulating scientific curiosity and creativity. Study goal of the iMOS program is to acquire competence in solving problems and to apply methodological expert knowledge in an interdisciplinary context. The idea is to give the students early in their career "hands on" experience in both cutting-edge science and modern techniques. They will learn how to develop and solve scientific questions by employing suitable theoretical and experimental methods. In the framework of this MSc program, students will be trained in using state-of-the-art methods in a broad sense with early participation in research.

One of the special features of this program is an international research project that will be carried out at one of the worldwide top institutions in the field of molecular sciences and simulation. This is part of a leadership training program for future leaders in science and industry, since the next generation will have to be undoubtedly people that have learned to work effectively in international, intercultural and interdisciplinary teams.

## **COMPUTATIONAL ENGINEERING**

http://compeng.rub.de

#### Contact:

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## **COMPUTATIONAL ENGINEERING**

Language: English

Degree programme: MSc

**Requirements:** A B.Sc. or comparable degree in an engineering sciences subject; profound English language skills, both written and spoken

Application Deadline: deadline for international students: 01/05/12

Begin: 10/10/2012

#### **Course description:**

The master's programme Computational Engineering focuses on the consolidation of knowledge in computer-oriented methods of Engineering Sciences. It provides to students key-skills in engineering mechanics, mathematics and computer science required for innovatively designing and analysing high-tech engineering systems and materials. Besides, the programme conveys so-called soft skills like the capacity for teamwork, the ability to manage conflict situations, and communication skills. It is exactly this unique blend of computer- and engineering-related knowledge with these soft skills which accounts for the high academic standard of the programme. The programme is thus especially designed to qualify students for the requirements of today's job market for engineers, opening them the doors to upper and top positions in the industry and at institutions of higher education.

The master's programme Computational Engineering has the following goals:

- The imparting of skills in the field of computer-oriented methods in Engineering Sciences to qualify students to perform complex tasks with an emphasis on simulation and modelling independently and on their own responsibility. The master's programme thus qualifies students for positions in research and development with managerial responsibility.
- The imparting of skills for writing academic theses on a post-graduate level.

In addition, the programme is aimed at enabling graduates to solve challenging problems in research and practice. At the same time, it aims at opening them the doors to various occupational fields on the international job market on the basis of 'global competencies'. In order to achieve these goals great emphasis is placed on research.

In its concept, the RUB Master programme is designed so as to include courses offered by various faculties, mainly the faculties of Civil- and Environmental Engineering (course coordination), Mechanical Engineering and Mathematics to offer students a highly sophisticated education, breeding tomorrow's specialists and executives.

For further details about our courses please go to: http://compeng.rub.de: Sub-item 'Curriculum'

### INSTITUTE OF DEVELOPMENT RESEARCH AND DEVELOPMENT POLICY

www.development-research.org

#### Contact:

Name: Dr. Katja Bender Room: GB 1/161 Tel: 0234/32-25149 Email: <u>Katja.Bender@rub.de</u>

## PHD IN INTERNATIONAL DEVELOPMENT STUDIES

Language: English

#### Degree programme: PhD

**Requirements:** 1. 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 , or 2. 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 Ruhr-University Bochum

#### **Course description:**

Starting from winter 2007, the Institute of Development Research and Development Policy offers a 3-year English-language PhD program in International Development Studies. It is implemented by the Institute of Development Research and Development Policy on behalf of the Faculties of Geography, Law, Social Science, and Economics. Annually up to 12 PhD candidates are accepted to the program. focus. The PhD program in International Development Studies is a combination of working on individual PhD research projects as well as participating in selected teaching modules. Teaching modules deal with developmental issues from a multidisciplinary perspective. These seminars are complemented by courses on research methods and statistical analysis. Regular presentation and discussion of individual research projects form part of the semi-annual "Research Colloquium" in which all PhD candidates as well as supervisors take part. A field research phase in the fourth semester forms an integral part of the PhD-program. Courses on "Generic Skills" include seminars on Scientific Writing, Scientific Presentation and Professional (Scientific) Communication. They aim at the training of key competences and are offered in cooperation with the Ruhr-University Bochum Research School.

## INSTITUTE OF DEVELOPMENT RESEARCH AND DEVELOPMENT POLICY

www.development-research.org

#### Contact:

Name: Dr. Meik Nowak Room: BB 1/153 Tel: 0234/32- 22458 Email: <u>Meik.Nowak@rub.de</u>

## MASTER OF ARTS IN DEVELOPMENT MANAGEMENT

Language: English

#### Degree programme: Master

**Requirements:** An above average B.A. or relevant degree in political science, social science, law, economics or geography or in other subjects related to the planning and evaluation of development programs and projects career experience in a relevant field; preference is given to candidates whose employers offer a reintegration guarantee. For DAAD scholarship applicants within the program "postgraduate courses with relevance to developing countries" at least two years career experience is required, other applicants shall demonstrate practical experience at least through a relevant internship. Minimum certified proficiency in written and spoken English -TOEFL: 79-80 points internet based (equivalent to 213 points computer based or 550 paper based) or IELTS: band 6

Application Deadline: 31/12/2011

Begin: September 2012 in Bochum

#### **Course description:**

The MADM is addressed to young professionals from all over the world with a B.A. or relevant degree and practical experience with relevance for development management who need further academic qualification for their future professional career in a field related to development management and cooperation.

Since winter 2000, the Institute of Development Research and Development Policy has offered an international English-language Master Program in Development Management. Since May 2002, the program has also been offered at the University of the Western Cape, South Africa; originally as part of the DAAD initiative "German Programs of Study Abroad" and now as part of the DAAD funded "South African - German Centre for Development Research and Criminal Justice". The duration of each program cycle is three semesters (18 months). For each intake, up to 25 students are accepted in Bochum and up to 20 students in Cape Town.

The course starts every two years with the next intake in 2012. For international participants a German language course is offered from beginning of August. The program itself starts in September with a Summer School on Research Methods and Development Practice. In this introductory Summer School the Bochum students will also meet with the students from the Cape Town intake, who started earlier and have by than already completed their first semester. Apart from coursework the Summer School usually includes a seminar on Inter-cultural Communication and Team Building as well as some excursions for you to get more familiar with Bochum, the region and Germany.

**Proofs of academic achievement:** n.s.

## FACULTY OF GEOSCIENCES

INSTITUTE FOR GEOLOGY, MINERALOGY AND GEOPHYSICS

#### www.rub.de/sediment

#### Contact:

Name: Prof. Dr. Adrian Immenhauser Room: NA 2/125 Tel: 0234/32-0234/32-28250 Email: <u>adrian.immenhauser@rub.de</u>

### MS.C. RESOURCES AND ENERGY (GEOSCIENCES)

Language: English

Degree programme: MSc

**Requirements:** B.Sc. in geosciences or related natural sciences, English language proficiency (written and spoken), and sufficient physical fitness to perform fieldwork

Application Deadline: 15/07/2012 for international students

Begin: 08/10/2012

#### **Course description:**

The Institute for Geology, Mineralogy and Geophysics offers a comprehensive two-year (four terms) M.Sc. programme in fundamental and applied geosciences.

The goal of this M.Sc. programme is to provide students with a solid background in geoscience disciplines that are particularly relevant for a subsequent employment in the industry (mainly hydrocarbon industry).

Main topics covered include sedimentology/stratigraphy, geophysics/seismic interpretation and structural geology/tectonics.

Additional topics include aspects of geo-engineering and hydrogeology.

Frontal class room instructions are complemented by practical laboratory courses and hands-on field training.

## INSTITUTE FOR INTERNATIONAL LAW OF PEACE AND ARMED CONFLICT

#### www.ifhv.rub.de

#### Contact:

Name: Markus Moke Room: NA 02/28 Tel: 0234/32-28258 Email: Markus.Moke@rub.de

#### JOINT EUROPEAN MASTER'S IN INTERNATIONAL HUMANITARIAN ACTION

Language: English

Degree programme: Master of Arts in Humanitarian Action

Requirements: Master's degree or equivalent

#### **Application Deadlines:**

ERASMUS MUNDUS 15/12/2011

NOHA and NOHA Mundus 15/03/2012

#### Begin: First week of September with the Intensive Programme (IP)

#### **Course description:**

The Joint European Master's in International Humanitarian Action is a inter-university, multidisciplinary postgraduate programme that provides high quality academic education and professional competencies for personnel working or intending to work in the area of humanitarian action. This European Master's Degree was created in 1993 as a result of concerted efforts on the part of the Network On Humanitarian Action (NOHA) Universities, working in close collaboration with the European Commission's Humanitarian Aid Office (ECHO) and Directorate-General for Education and Culture. This initiative was a response to a growing need from the humanitarian assistance community for higher educational qualifications specifically suited to addressing complex humanitarian emergencies. In addition to collaboration and support from the European Union, the programme has the backing of nongovernmental organisations (NGOs), inter-governmental organisations (IGOs), and other actors of the humanitarian relief community with whom the Network has strong collaborative links.

More than 15 years of experience have proved the Network's capacity to educate and train highly committed, interdisciplinary persons who can act at all levels of humanitarian relief operations and who can function in a variety of ways to enhance the delivery of humanitarian assistance and sustainable actions. Over 1800 NOHA graduated professionals work in the field of humanitarian relief and international co-operation as managers, administrators, researchers, evaluators, monitors, consultants, and representatives of international organisations and international. They hold positions of responsibility in all kinds of national and international intergovernmental and non-governmental organisations both in the field and at headquarters all around the world.

## FACULTY OF MECHANICAL ENGINEERING

www.icams.de/mss

#### Contact:

Name: Prof. Dr. Alexander Hartmaier Room: UHW 12/1211 Tel: 0234/32-29368 Email: alexander.hartmaier@rub.de Dr. Manuel Piacenza UHW 11/1105 Tel: 0234/32-29332 Email: mss@icams.de

## MATERIALS SCIENCE AND SIMULATION

Language: English

#### Degree programme: MSc

**Requirements:** Bachelor (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, or Computer Sciences

#### **Application Deadline:**

Visa required: 15th March for winter term / 15th September for summer term (short track)

No visa required: 15<sup>th</sup> March for summer term (short track)/ 15 September for winter term

Begin: Short track: summer term: April (preparatory courses for short track: around 15<sup>th</sup> March)

winter term (regular track): October

#### **Course description:**

Maintaining and expanding societies' industrial and economic capacity has become increasingly dependent on the rapid availability of sophisticated materials designed for extreme conditions. At the same time, the life-cycles of materials have become shorter due to frequent adaptation to, or even new design for, specific requirements and environments. Advanced computer simulation has been established as a key tool for increasing the speed of materials development at reduced costs and will gain a wide importance in academic and industrial research and development.

The Master of Science programme "Materials Science and Simulation" meets the need for material scientists trained in numerical simulation as well as experimental characterization and processing techniques. Moreover, theoretical and practical knowledge in numerical methods has proven to be one of the most decisive key qualifications of nationally and internationally successful materials scientists and this development is still to continue. The programme focuses on providing you with a thorough knowledge in materials science and hands-on experience with state-of-the-art numerical methods. Furthermore it will enable you to apply your practical skills and knowledge in experimental settings already during your studies.

In detail, the programme will provide you with:

- a comprehensive knowledge of materials science, physics and numerical methods
- practical experience and the necessary theoretical background in applying modern numerical and experimental methods on all relevant scales
- competence to plan and conduct key experiments in modern characterization and processing techniques
- the ability to apply advanced modelling and simulation methods the build-up of research competence by planning and conducting student research projects a thorough understanding of the interrelation between processing, structure and properties of materials
- hands-on experience in project-oriented teamwork, project management skills and interdisciplinary communication.

The Masters course combines compulsory lectures in materials science, physics, numerical methods on different length and time scales, and programming techniques. In the specialization areas lectures can be selected from the fields "modelling and simulation" or "processing and characterization." The lectures typically combine teaching of the theoretical background with the practical application of the gained knowledge in terms of computer models or lab experience. First practical research experience is gained from thr research project scheduled in the third semester. Furthermore, the complete fourth semester is dedicated to the Masters thesis project. A complete course description can be downloaded from <u>www.icams.de/mss</u>.

## INTERNATIONAL SEMINARS AND LECTURES

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

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

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## INSTITUTE FOR APPLIED WORK SCIENCE

http://www.iaw.rub.de/index.html.en

#### Contact:

Dr.-Ing. Rainer Skrotzki Room: Gebäude NB, Etage 02, Raum 32 Tel: +49 (0) 234 32 27723 Email: <u>rainer.skrotzki@rub.de</u> Consultation hours: n.s.

## CHANGE MANAGEMENT

Language: English

Department: IAW Degree programme: Master of Organisational Management Module: n.s. Module taught entirely in English Course type: Coached self-study and project week Credit Points: 10

Teacher/Lecturer: Externbrink, Küpper

**Requirements:** Practical experience in Organization Development would be desirable, is however not a mandatory requirement. Max. 25 students, application required.

Active participation in the design and delivery of one coaching session (i.e. acting as" moderator in charge"), written exam (graded), active participation in group work and presentations during the practice week (activity confirmation, not graded).

Room	Day, Time	Begin
NB02/33	weekly	01.04.2011 (Summer term only)

#### **Course description:**

Over the recent years, continuous change has become a constant challenge for organizations. An increasingly dynamic and complex business environment forces organizations to become flexible entities that are capable of change and therefore well able to gain competitive advantage in face of their dynamic environment. The overall-goal of this module therefore is a) to enable students to reflect on the challenges and opportunities connected to organizational change on a theoretical basis and b) to enable them apply scientifically proven concepts of change management to real-life scenarios of organizational change initiatives.

**Proofs of academic achievement:** Written exam (90 minutes) in the end of the module plus activity confirmation from the practice week

This course is especially suitable for exchange students.

## FACULTY OF BIOLOGY AND BIOTECHNOLOGY

http://www.biologie.ruhr-uni-bochum.de/

#### Contact:

Name: Skadi Heinzelmann Room: ND 03/134 Tel: 0234/32-23142 Email: studienberatung-biologie@rub.de Consultation hours: n.s.

## **190589 RESEARCH ACTIVITIES / PROGRESS REPORTS**

Language: English

Department: Animal Physiology Degree programme: n.s. Module: n.s. Module taught entirely in English Course type: colloquium Credit Points: 1 Teacher/Lecturer: Prof. Dr. H. Lübbert, Colleague Requirements:

Room	Day, Time	Begin
ND 5/63	by arrangement	by arrangement

#### **Course description:**

Colloquium about research activities in the department of Animal Physiology. See also: http://www.ruhr-uni-bochum.de/tierohys/index\_en.htm

## LECTURE SERIES IN BIOTECHNOLOGY

Language: English

Department: various Degree programme: Master of Science in Biology Module: Lecture Series in Biotechnology Module taught entirely in English Course type: Lecture Series Credit Points: none Teacher/Lecturer: various; coordinator Prof. Dr. Nicole Frankenberg-Dinkel Requirements: Bachelors Degree in Biology or related disciplines

Room

Day, Time

Begin

ND2/99

Wednesday, 12.00-13.30 12/10/2011

#### **Course description:**

Lecture series in biotechnology is taught by various membrs of the faculties of biology and biotechnology and medicine. It covers all modern aspect of white, green, blue and red biotechnology and will also highlight biotechnology research projects of the faculty.

Proofs of academic achievement: regular attendence

This course is especially suitable for exchange students.

## KOLLOQUIUM ZU FORSCHUNGSARBEITEN DES LEHRSTUHLS PFLANZENPHYSIOLOGIE

Language: English

Department: Plant Physiology Degree programme: Bachelor/Master/PhD Module: n.s. Module taught entirely in English. Course type: seminar Credit Points: 2 Teacher/Lecturer: Krämer/Piotrowski

Room	Day, Time	Begin
ND 3/34	Fr: 12-13.30	14.10.2011

Course description: talks about ongoing research at the institute

Proofs of academic achievement: participation and lecture

This course is especially suitable for exchange students.

## 190594 Kolloquium Metallhomöostase

Language: English

Department: Plant Physiology Degree programme: Bachelor/Master/PhD Module: n.s. Module taught entirely in English Course type: seminar Credit Points: 1 Teacher/Lecturer: Krämer 
 Room
 Day, Time
 Begin

 ND 3/34
 Mi: 9-11
 12.10.2011

**Course description:** reports on research related to metal homoeostasis

**Proofs of academic achievement:** participation

### 190563: Journal Club Plant Physiology

Language: English

Department: Plant Physiology Degree programme: Master/PhD Module: n.s. Module taught entirely in English. Course type: seminar Credit Points: 1 Teacher/Lecturer: Krämer

Room	Day, Time	Begin
ND 3/34	Thursday 11.45-12.30 (every two weeks)	13.10.2011

**Course description:** reports on recent publications in plant physiology

Proofs of academic achievement: report

This course is especially suitable for exchange students.

## SCIENCE MEETING / MITARBEITERSEMINAR: AKTUELLE FORSCHUNGSPROJEKTE (190580)

Language: English

Department: Faculty of Biology and Biotechnology, Geobotany, ND 03/174 Degree programme: -Module: n.s. Module taught entirely in English. Course type: Seminar Credit Points: 1 Teacher/Lecturer: Prof. Dr. Dominik Begerow Requirements: Own research in the field of Evolutionary Mycology

Room	Day, Time	Begin
ND 1 / 58	Wednesday, fortnightly,	by arrangement
	14:00 - 15:00	

**Course description:** Exchange on research concepts, progress report and discussion of new results.

Proofs of academic achievement: none

## COLLOQUIUM: ACTUAL RESULTS IN CELL BIOLOGY AND MOLECULAR NEUROBIOLOGY

Language: English

Department: Cell Morphology and Molecular Neurobiology Degree programme: any Module: n.s. Module taught entirely in English Course type: seminar Credit Points: 1.0 Teacher/Lecturer: Prof. Dr. A. Faissner, Prof. Dr. S. Wiese, Dr. U. Theocharidis, Dr. N. Brösicke Requirements: none

Room	Day, Time	Begin
ND 05 / 392	Mon, 9:15 - 10:30	continously

**Course description:** Scientists from the department present actual research results.

Proofs of academic achievement: oral presentation

## MODERN METHODS IN LIFE SCIENCES: ANALYSES OF RECEPTOR PHOSPHOTYROSIN PHOSPHATASES IN THE VISUAL SYSTEM

Language: English/German

Begin

Department: Cell Morphology and Molecular Neurobiology
Degree programme: PhD
Module: n.s.
Module taught entirely in foreign language: yes, according to agreement
Course type: introductory course
Credit Points: 1 / 1,5 / 2
Teacher/Lecturer: Prof. Dr. A. Faissner, J. Reinhard, M. Besser
Requirements: Master degree

Room Day, Time according to prior agreement

Course description:

Theoretical and practical information is given about the cell biological and molecular biological analysis of receptor tyrosin phosphatases. Depending on the agreements the course can be attended for 3 to 5 days.

**Proofs of academic achievement:** n.s.

## MODERN METHODS IN LIFE SCIENCES: CULTURE AND ANALYSIS OF EMBRYONIC HIPPOCAMPAL NEURONS UNDER DEFINED CONDITIONS, OF RETINAL GANGLION CELLS AND OF NEUROSPHERES

Language: English/German

Department: Cell Morphology and Molecular Neurobiology Degree programme: PhD Module: n.s. Module taught entirely in English (according to agreement) Course type: introductory course Credit Points: 1 / 1,5 / 2 Teacher/Lecturer: Prof. Dr. A. Faissner, M. Geissler

Requirements: Master degree

Room	Day, Time
according to prior agreement	

Begin

#### **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.

**Proofs of academic achievement:** n.s.

## MODERN METHODS IN LIFE SCIENCES: VIDEO MICROSCOPY AND CONFOCAL LASER SCANNING MICROSCOPY

Language: English/German

Department: Cell Morphology and Molecular Neurobiology
Degree programme: PhD
Module: n.s.
Module taught entirely in English (according to agreement)
Course type: introductory course
Credit Points: 1 / 1,5 / 2
Teacher/Lecturer: Prof. Dr. A. Faissner, Dr. A. Klausmeyer, Dr. U. Theocharidis, J. Reinhard
Paguiraments: Master degree

**Requirements:** Master degree

Room

Day, Time

Begin

according to prior agreement

#### **Course description:**

Theoretical and practical information is given about different microscopy techniques. Depending on the agreements the course can be attended for 3 to 5 days.

**Proofs of academic achievement:** n.s.

## ADVANCED TUTORIAL (S-MODULE): AXON GENERATION AND SYNAPTOGENESIS

Language: English/German

Department: Cell Morphology and Molecular Neurobiology Degree programme: BSc / MSc Module: n.s. Module taught entirely in English (according to agreement) Course type: practical course Credit Points: 15 Teacher/Lecturer: Prof. Dr. A. Faissner Requirements: GMP passed basic module in cell or neurobiology, biochemistry or microbiology passed lecture in cell or neurobiology attended

Room	Day, Time	Begin
according to prior agreement		

#### **Course description:**

The module addresses the molecular basis of axon generation and synaptogenesis. The focus lies on the influence of the extracellular matrix. Issues are inter alia the primary culture of neurons from different brain regions and of glial cells and the culture of defined glial cell lines. The analysis is based on immunocytology and the use of immunofluorescence techniques, biochemical studies and the characterization of expressed genes, Western blot, immunoprecipitation and the biochemical and molecular characterization of the extracellular matrix.

Proofs of academic achievement: seminar, written protocol

## ADVANCED TUTORIAL (S-MODULE): NEURON-GLIA BIOLOGY AND SYNAPTIC PLASTICITY

Language: English/German

Department: Cell Morphology and Molecular Neurobiology Degree programme: BSc / MSc Module: n.s. Module taught entirely in English (according to agreement) Course type: practical course Credit Points: 15 Teacher/Lecturer: Prof. Dr. A. Faissner, M. Geissler Requirements: GMP passed basic module in cell or neurobiology, biochemistry or microbiology passed lecture in cell or neurobiology attended

Room Day, Time Begin according to prior agreement

#### **Course description:**

The module addresses the molecular basis of the interaction between neurons and glia cells. The focus lies on the influence of the extracellular matrix. Issues are inter alia the primary culture of neurons from different brain regions and of glial cells and the culture of defined glial cell lines. Long-term cultures are used to analyse synaptic plasticity under defined conditions. The analysis is based on immunocytology and the use of immunofluorescence techniques, biochemical studies and the characterization of expressed genes, Western blot, immunoprecipitation and the biochemical and molecular characterization of the extracellular matrix.

Proofs of academic achievement: seminar, written protocol

## SEMINAR / LITERATURE CLUB: ACTUAL PUBLICATIONS IN MOLECULAR AND CELLULAR NEUROBIOLOGY

Language: English

Department: Cell Morphology and Molecular Neurobiology
Degree programme: any
Module: n.s.
Module taught entirely in English
Course type: seminar
Credit Points: 1,0
Teacher/Lecturer: Prof. Dr. A. Faissner, Dr. N. Brösicke, Dr. U. Theocharidis

Requirements: n.s.

**Room** NDEF 05/392 **Day, Time** Thursday, 16:45 Begin continously

#### **Course description:**

Students and scientists from the department present actual publications in molecular and cellular neurobiology

Proofs of academic achievement: oral presentation

## ADVANCED TUTORIAL (S-MODULE): TRANSCRIPTION FACTORS AND REGULATION OF NEURAL STEM CELLS

Language: English/German

Department: Cell Morphology and Molecular Neurobiology Degree programme: BSc / MSc Module: n.s. Module taught entirely in English (according to agreement) Course type: practical course Credit Points: 15 Teacher/Lecturer: Prof. Dr. A. Faissner, Dr. U. Theocharidis Requirements: GMP passed basic module in cell or neurobiology, biochemistry or microbiology passed lecture in cell or neurobiology attended

Room	Day, Time
according to prior agreement	

#### **Course description:**

The module addresses the molecular basis of gene regulation of neural stem cells. The focus lies on the influence of the extracellular matrix of the developing nervous system and the regulation of matrix proteins. Issues are inter alia the primary culture of stem cells of the nervous system and their immunocytochemical and molecular biological analysis. Expression studies and genetic manipulations are carried ou . In addition to histochemical studies an analysis of the developing nervous system and the neural stem cell niches will be performed. Transcription factors in neural development and the proteins of the extracellular matrix are in the focus. Methods: Preparation of neural tissue for cell culture, video microscopy, immunocytochemistry with application of fluorescence techniques, RT-PCR, Western blot, in situ hybridization, immunohistochemistry, dot blot in vitro hybridization, Southern blot, chromatin immunoprecipitation, Dual-Luciferase Promotor Assaya, cloning, plasmid purification, transfection

Begin

Proofs of academic achievement: seminar, written protocol

## ADVANCED TUTORIAL (S-MODULE): ANALYSIS OF PROTEIN TYROSIN PHOSPHATASES IN NEURAL STEM CELLS

Language: English/German

Department: Cell Morphology and Molecular Neurobiology Degree programme: BSc / MSc Module: n.s. Module taught entirely in English (according to agreement) Course type: practical course Credit Points: 15 Teacher/Lecturer: Prof. Dr. A. Faissner, J. Reinhard Requirements: GMP passed basic module in cell or neurobiology, biochemistry or microbiology passed lecture in cell or neurobiology attended

Room	Day, Time	Begin
according to prior agreement		

#### **Course description:**

The module deals with cell and molecular biological studies on the development of the visual system and neural stem cells of mammals. One focus is the role of Phosphotyrosinphosphatases in this context. It will cover following items: primary culture of neural stem and retinal ganglion cells , culture defined glial cell lines, immunocytology with defined neural antigens in the visual system and the brain, using immunofluorescence techniques, fluorescence and confocal laser scaning microscopy, biochemical studies, characterization of expressed genes, Western blot, immunoprecipitation, biochemical and molecular characterization of receptor phosphotyrosine phosphatases in neural stem cells and the visual system, transfection and ectopic expression of PTPs, functional assays in co-culture systems and the analysis of functions and properties of retinal stem cells.

Proofs of academic achievement: seminar, written protocol

## ADVANCED TUTORIAL (S-MODULE): INFLUENCE OF ECM MOLECULES ON SYNAPTOGENESIS

Language: English/German

Department: Cell Morphology and Molecular Neurobiology Degree programme: BSc / MSc Module: n.s. Module taught entirely in English (according to agreement) Course type: practical course Credit Points: 15 Teacher/Lecturer: Prof. Dr. A. Faissner, M. Geissler Requirements: GMP passed basic module in cell or neurobiology, biochemistry or microbiology passed

lecture in cell or neurobiology attended

Room

Day, Time

Begin
according to prior agreement

#### **Course description:**

The module addresses the molecular basis of synaptogenesis and especially the influence of the extracellular matrix. Issues are inter alia the primary culture of neurons from different brain regions and of glial cells and the culture of defined glial cell lines. The analysis is based on immunocytology and the use of immunofluorescence techniques, biochemical studies and the characterization of expressed genes, Western blot, immunoprecipitation and the biochemical and molecular characterization of the extracellular matrix.

Proofs of academic achievement: seminar, written protocol

# ADVANCED TUTORIAL (S-MODULE): GLYCOBIOLOGY OF NEURAL STEM CELLS

Language: English/German

Department: Cell Morphology and Molecular Neurobiology Degree programme: BSc / MSc Module: n.s. Module taught entirely in English (according to agreement) Course type: practical course Credit Points: 15 Teacher/Lecturer: Prof. Dr. A. Faissner, E. Hennen Requirements: GMP passed basic module in cell or neurobiology, biochemistry or microbiology passed lecture in cell or neurobiology attended

Room

Day, Time

Begin

according to prior agreement

#### **Course description:**

The S-module provides the basis of protein biochemistry, molecular biological, and immunological methods in cell and developmental biology. The focus lies on the study of glycoproteins of the central nervous system. This projects deals with scientific questions in the current research process. Depending on the focus of the project some of the following methods are tought and used independently: immunocytochemistry, immunohistochemistry, RT-PCR, Western blot, in situ hybridization, cloning, plasmid purification, cell culture of primary tissue, culture of cell lines, production and purification of monoclonal antibodies

#### Proofs of academic achievement: seminar, written protocol

# ADVANCED TUTORIAL (S-MODULE): EXTRACELLULAR MATRIX AND DIFFERENTIATION OF RETINAL STEM CELLS

Language: English/German

**Department:** Cell Morphology and Molecular Neurobiology Degree programme: BSc / MSc Module: n.s. Module taught entirely in English (according to agreement) **Course type:** practical course Credit Points: 15 Teacher/Lecturer: Prof. Dr. A. Faissner, M. Besser **Requirements**:

GMP passed basic module in cell or neurobiology, biochemistry or microbiology passed lecture in cell or neurobiology attended

Day, Time Room according to prior agreement

#### **Course description:**

The module deals with cell and molecular biological studies on the development of the visual system of mammals. One focus is the role of Phosphotyrosinphosphatases in this context. It will cover following items: primary culture of retinal ganglion cells of the nervous system, culture defined glial cell lines, immunocytologyof defined neural antigens in the visual system using immunofluorescence techniques, fluorescence and confocal laser scanning microscopy, biochemical studies on tissues of the visual system and characterization of expressed genes, Western blot, immunoprecipitation, biochemical and molecular characterization of receptor phosphotyrosine phosphatases of the visual system, transfection and ectopic expression of PTPs, functional assays in co-cultures, functions and properties of retinal stem cells.

Begin

**Proofs of academic achievement:** seminar, written protocol

# ADVANCED TUTORIAL (S-MODULE): NEURAL STEM CELLS IN THE SPINAL CORD

**Language:** English/German

Department: Cell Morphology and Molecular Neurobiology Degree programme: BSc / MSc Module: n.s. Module taught entirely in English (according to agreement) **Course type:** practical course Credit Points: 15 Teacher/Lecturer: Prof. Dr. A. Faissner, M. Karus **Requirements:** GMP passed

basic module in cell or neurobiology, biochemistry or microbiology passed lecture in cell or neurobiology attended

Room	Day, Time	Begin
NUUIII	Day, Illie	Degin

according to prior agreement

#### **Course description:**

The course offers an insight into cell biological approaches for the treatment of developmental issues, primarily to control the differentiation of neural stem cells. It includes biochemical studies on neural stem cells, characterization of expressed genes, the processing of the mechanisms of stem cell differentiation, approaches for the characterization of differential gene expression, control of neural stem cell differentiation by extracellular matrix, the control of stem cell proliferation and transgenic animal models. There techniques of immunohistochemistry, biochemistry, cell biology and molecular biology come to use. We use fluorescence microscopy, laser scaning microscopy, video microscopy and electron microscopy of biological specimens for the morphological characterization.

Proofs of academic achievement: seminar, written protocol

# ADVANCED TUTORIAL (S-MODULE): BIOTECHNOLOGICAL METHODS IN MOLECULAR NEUROBIOLOGY

Language: English/German

Department: Cell Morphology and Molecular Neurobiology Degree programme: BSc / MSc Module: n.s. Module taught entirely in English (according to agreement) Course type: practical course Credit Points: 15 Teacher/Lecturer: Prof. Dr. A. Faissner, Dr. U. Theocharidis, Dr. N. Brösicke, S. van Leeuwen Requirements: GMP passed basic module in cell or neurobiology, biochemistry or microbiology passed lecture in cell or neurobiology attended

Room Day, Time

according to prior agreement

#### **Course description:**

The module focuses on the molecular basis of developmental neurobiology. Using molecular biological and biotechnological methods, various aspects of cellular and molecular neurobiology can be elucidated. Objectives are the production and the molecular genetics of expression constructs and recombinant expression of proteins for use in cell culture and protein biochemical analysis. In addition, primary cells and cell lines are genetically manipulated and examined for the molecular and cellular biological effects. Using concrete examples bioinformatical techniques in

Begin

the form of database analysis and sequence comparisons are carried out. The independent development and implementation of cloning strategies are learned and nurtured. Methods: RT-PCR, cloning, plasmid purification, transfection, protein expression, Western blot, in situ hybridization, chromatin immunoprecipitation, dual-luciferase promoter binding studies, immuncyto-/histochemistry

Proofs of academic achievement: seminar, written protocol

# ADVANCED TUTORIAL (S-MODULE): TUMOR STEM CELLS AND BIOLOGY OF GLIAL TUMORS

Language: English/German

Department: Cell Morphology and Molecular Neurobiology Degree programme: BSc / MSc Module: n.s. Module taught entirely in English (according to agreement) Course type: practical course Credit Points: 15 Teacher/Lecturer: Prof. Dr. A. Faissner, Dr. N. Brösicke Requirements: GMP passed basic module in cell or neurobiology, biochemistry or microbiology passed

lecture in cell or neurobiology attended

Room	Day, Time	Begin
according to prior		
agreement		

#### **Course description:**

The course focuses on the study of cellular and molecular aspects of tumor formation in the nervous system. It uses the culture of glial tumor cell lines and defined neural immunocytological antigens of the extracellular matrix and the cytoskeleton, immunofluorescence techniques and laser scanning microscopy, immunological studies of tumor cell lines and studies of ECM in primary tumors (in cooperation). An investigation of the neural regulation of extracellular matrix in tumor cells by cytokines by ELISA and Western blot is possible as well as profiling of receptor genes in tumor cell systems, analysis of integrins, PTPs and ECM glycoproteins, cell biological assays for proliferation, adhesion and migration of tumor cells, and finally the video microscopy of tumor cells of the nervous system.

Proofs of academic achievement: seminar, written protocol

# ADVANCED TUTORIAL (S-MODULE): BIOLOGY OF MYELIN PRODUCING CELLS

Language: English/German

Department: Cell Morphology and Molecular Neurobiology Degree programme: BSc / MSc Module: n.s. Module taught entirely in English (according to agreement) Course type: practical course Credit Points: 15 Teacher/Lecturer: Prof. Dr. A. Faissner, S. van Leeuwen Requirements: GMP passed basic module in cell or neurobiology, biochemistry or microbiology passed lecture in cell or neurobiology attended

RoomDay, TimeBeginaccording to prior agreement

#### **Course description:**

Oligodendrocytes in the central and Schwann cells in the peripheral nervous system stand in the focus of this course. With primary cell cultures and cell lines we analyse the molecular biological basis of the interaction between myelin producing glia cells and neurons. We use histological and immunocytochemical appoaches for the analysis of these cells in the developing nervous system. Methods: culture of primary cells and cell lines, RT-PCR, Western blot, in situ hybridization, immuncyto-/histochemistry, fluorescence microscopy, laser scaning microscopy, video microscopy

Proofs of academic achievement: seminar, written protocol

# ADVANCED TUTORIAL (S-MODULE): METHODS IN BIOTECHNOLOGY FOR CHARACTERIZATION OF THE EXTRACELLULAR MATRIX

Language: English/German

Department: Cell Morphology and Molecular Neurobiology Degree programme: BSc / MSc Module: n.s. Module taught entirely in English (according to agreement) Course type: practical course Credit Points: 15 Teacher/Lecturer: Prof. Dr. A. Faissner, Dr. N. Brösicke Requirements: GMP passed basic module in cell or neurobiology, biochemistry or microbiology passed

lecture in cell or neurobiology attended

#### Room

#### Day, Time

Begin

according to prior agreemen

#### **Course description:**

This course focuses on the characterization of the extracellular matrix (ECM) of the central nervous system. Besides different methods of biotechnology, e.g. cloning, recombinant expression systems and purification of proteins, the culture of glial tumour cell lines, immuncytochemistry of defined neural antigens of the ECM and the cytoskeleton, immunfluorescence via laser scanning microscopy, immunological studies, the analysis of the ECM of primary tumours and the regulation of the ECM via ELISA & Western Blot as well as the profiling of receptor genes, the analysis of integrins, PTPs, glycoproteins via cell biological assay systems for prolifertaion, adhesion 6 migration of tumour cells were used.

Proofs of academic achievement: seminar, written protocol

# **COMPUTATIONAL ENGINEERING**

http://compeng.rub.de

#### Contact:

Dipl.-Ing. Jörg Sahlmen Tel: 0234/32-22103 Email: <u>comp-eng@rub.de</u> Julia Lippmann, M.A. Tel: 0234/32-25485 Email: julia.lippmann@rub.de

# **DYNAMICS OF STRUCTURES**

Language: English

Department: Computational Engineering Degree programme: Master Module: Dynamics of Structures This module is taught in entirely in English Course type: Lecture (2 h) / Exercise (2 h) Credit Points: 6 Teacher/Lecturer: Prof. Dr.-Ing. R. Höffer, Prof. Dr. Tech. Meschke and assistants

**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.

Room	Day, Time	Begin
IA 6/21	Wednesday / Thursday,	13/10/10
	8.30 - 10.00 / 14.15 - 15.45	

#### **Course description:**

The lecture recapitulates and deepens the methodology of the calculation of single- and multi-degree-offreedom 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 excercises and through seminar papers performed by the students. The presentation of related results through students is part of the modul. 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 analyse the structural responses.

#### Proofs of academic achievement: Written examination (2 hours)

Student research projects (seminar papers) on vibration problems in structural engineering including modal analysis and stochastic dynamics)

This course is especially suitable for exchange students.

# **COMPUTATIONAL PLASTICITY**

Language: English

**Department:** Computational Engineering

Degree programme: Master

Module: Computational Plasticity

This module is taught in entirely in English

Course type: Lectures including exercises: 3h

**Credit Points:** 4

#### Teacher/Lecturer: Dr.-Ing. Ulrich Hoppe

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

Room	Day, Time	Begin
IA 3/21	Monday, 13.15 – 15.30	13/10/10

#### **Course description:**

Introduction: Physical Motivation. Rate Independent Plasticity. Rate Dependence. Creep. Rheological Models.

1-D Mathematical Model: Yield Criterion. Flow Rule. Loading / Unloading Conditions. Isotropic and Kinematic Hardening Models.

Computational Aspects of 1-D Elasto-Plasticity: Integration Algorithms for 1-D Elasto-Plasticity. Operator Split. Return Mapping. Incremental Elasto-Plastic BVP. Consistent Tangent Modulus. Classical Model of Elasto-Plasticity: Physical Motivation. Classical Mathematical Model of Rate-Independent. Elasto-Plasticity: Yield Criterion. Flow Rule. Loading / Unloading Conditions. Computational Aspects of Elasto-Plasticity: Integration Algorithms for Elasto-Plasticity. Operator Split. The Trial Elastic State. Return Mapping. Incremental Elasto-Plastic BVP. Consistent Tangent Modulus.

Integration Algorithms for Generalized Elasto-Plasticity: Stress Integration Algorithm. Computational Aspects of Large Strain Elasto-Plasticity: Multiplicative Elasto-Plastic Split. Yield Criterion. Flow Rule. Isotropic Hardening Operator Split. Return Mapping. Exponential Map. Incremental Elasto-Plastic BVP.

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:** Assessment: 60% by examination (open book exam), 40% by course work (three small projects that will require both hand calculation and computer simulation. Computer simulation will require a certain amount of programming).

#### This course is especially suitable for exchange students.

## **DESIGN OPTIMIZATION**

Language: English

**Degree programme:** Master **Module:** Design Optimization This module is taught in entirely in English.

**Course type:** Lecture (2h) and Exercise (2 h)

**Credit Points:** 6

Teacher/Lecturer: Prof. König, Dr. Lehner and assistants

Requirements: A first degree in engineering sciences, e.g. B.Sc.

Room	Day, Time	Begin
IAN 00/18 / IA 5/56	Wednesday / Thursday;	13/10/10
	12.00 - 13.30 / 08.30 - 10.00	

#### **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: Acquirement 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 (2 hours)

This course is especially suitable for exchange students.

# SAFETY AND RELIABILITY OF ENGINEERING STRUCTURES

Language: English

**Department:** Computational Engineering

Degree programme: Master

**Module:** Safety and reliability of engineering structures

This module is taught in entirely in English.

Course type: Lecture: 2 h , Exercise: 2 h, Project work: 1 h

Credit Points: 6

Teacher/Lecturer: PD Dr.-Ing. habil. Kasperski

**Requirements:** A first degree in engineering sciences, e.g. B.Sc. Basic knowledge in structural engineering

Room	Day, Time	Begin
IA 4/56 / IA 3/56	Monday / Thursday	13/10/10
	09.30 - 11.00 / 10.15 - 11.45	

#### **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: position (mean value, median value), dispersion (range, standard deviation, variation coefficient), shape: (skewness, peakedness)
- Theoretical distributions: Discrete distributions (Bernoulli and Poisson Distribution), Continuous distributions (Rectangular, Triangular, Beta, Normal, Log-Normal, Exponential, Extreme Value Distributions)
- Failure probability and basic design concept
- Code concept level 1 approach
- First Order Reliability Method (FORM) level 2 approach
- Full reliability analysis level 3 approach
- Probabilistic models for actions: dead load, imposed loads, snow and wind loads, combination of loads
- Probabilistic models for resistance: cross section structure
- Further basic variables: geometry, 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:** Successful project work on simulation techniques and Written examination (2 hours)

This course is especially suitable for exchange students.

# FACULTY OF ECONOMICS

CHAIR OF ACCOUNTING

http://www.ruhr-uni-bochum.de/accounting/

#### Contact:

Name: Angela Strobelt Tel: 0234/32- 28868 Email: <u>angela.strobelt@rub.de</u> Consultation hours: mon - fri 11 - 13.30

## INTERNATIONAL ACCOUNTING

Language: English

Department: Chair for Accounting and Auditing Degree programme: Master Module: International Accounting Module taught entirely in English Course type: Lecture / Exercise Credit Points: 10 ECTS Teacher/Lecturer: Prof. Dr. Jürgen Ernstberger / Dipl.-Ök. Khaled Kholmy Requirements: Accounting and Controlling (BSc-Level)

Room	Day, Time	Begin
tba	tba	October 2011

#### **Course description:**

This course is an introduction in international accounting standards for students from Afghanistan. After presenting different accounting theories, the lecture will focus on selected issues of International Financial Reporting Standards (IFRS). Course topics include intangible assets, property, plant and equipment, impairments, deferred taxes, financial instruments, and provisions. Furthermore, the course aims to provide insights into financial statement analysis. The topics of the lecture will be illustrated in the exercises by using case studies and practical issues. The course aims to assist students in understanding financial reports according to IFRS.

Proofs of academic achievement: n.s.

This course is especially suitable for exchange students. (Only for students from Afghanistan)

# **CONTEMPORARY ISSUES IN CORPORATE GOVERNANCE**

Language: English

Department: Chair for Accounting and Auditing
Degree programme: Bachelor/Master/...
Module: Contemporary Issues in Corporate Governance
Module taught entirely in English
Course type: Seminar
Credit Points: 5 ECTS
Teacher/Lecturer: Prof. Dr. Jürgen Ernstberger / Dipl.-Ök. Sarah Blaskowski / Dipl.-VW Ralf
Bergheim
Requirements: A basic knowledge of accounting and finance is required. Limited to 10 students.

Room	Day, Time	Begin
GC 2/58	To be announced	Introductory meeting
		October 24, 2011, 10.00 a.m.

#### **Course description:**

The purpose of the course is to discuss contemporary issues in German and international corporate governance (e.g. international differences in corporate governance, stakeholder conflicts, enforcement, and compliance). Participants should explain and assess specific corporate governance mechanisms as well as new regulations in this area. Students should gain experience in writing scientific papers and presenting the main results. Maximum number of participants: 10. Please contact Michael Stich (michael.stich@rub.de) for further details.

**Proofs of academic achievement:** Seminar paper (60%), Presentation of the main result and participation in the class discussion(40%)

This course is especially suitable for exchange students.

# **EMPIRICAL ACCOUNTING**

Language: English

Department: Economics
Degree programme: Master programmes of the department
Module: n.s.
Module taught entirely in English
Course type: Self-study lecture and seminar course
Credit Points: 10 ECTS
Teacher/Lecturer: Prof. Dr. Jürgen Ernstberger and Michael Stich
Requirements: Basic knowledge of international accounting, finance, statistics, and econometrics

Room	Day, Time	Begin
GC 2/58	To be announced	Introductory meeting
		October 17, 2011, 10.00 a.m.

#### **Course description:**

The target of this course is to give an overview about the major concepts (e.g. earnings quality, earnings management, IFRS adoption, disclosure policy) and methodologies (e.g. event study, value relevance, cost of capital) of empirical accounting research. Participants learn how to understand and critically discuss empirical research papers. After the course participants should be able to prepare a review report for an empirical accounting paper and to conduct basic research projects in empirical accounting research on their own. Maximum number of participants: 10. Please correspond Michael Stich (michael.stich@rub.de) for further details.

**Proofs of academic achievement:** Discussion of accounting research papers, term paper and presentation

#### LEHRSTUHL MAKROÖKONOMIK

Homepage: <u>http://economics.rub.de/nc/ls/makro.html</u>

**Contact:** Name: Angela Strobelt Tel: 0234/32- 28868 Email: <u>angela.strobelt@rub.de</u> Consultation hours: mon - fri 08 - 11

# ADVANCED MACROECONOMICS

Language: English

Department: Chair for Macroeconomics
Degree programme: Master of Management and Economics / Master of Economics
Module: Name
Module taught entirely in English, but discussion session will be in German
Course type: Lecture (3h) and discussion session(3h)
Credit Points: 10 ECTS
Teacher/Lecturer: Prof. Dr. Roos

Requirements: none, profound knowledge of mathematics for economists are recommended

Room	Day, Time	Begin
GBCF 04/411	Tuesday, Wednesday, Thurday, 8:30-10:00	11.10.2011

**Course description:** This module covers advanced theoretical models on business cycle fluctuations, inflation, unemployment, and economic growth. It provides an overview over the most important macroeconomic topics and introduces students to modern micro-founded macroeconomics. The focus of this module is on New Keynesian models.

Students obtain core knowledge in modern macroeconomics and learn standard modelling techniques. We also discuss major controversies and the limits of these models. The module stimulates critical thinking and trains the skills required to solve and analyze formal models.

#### Proofs of academic achievement: Written examination

### INTERNATIONAL ECONOMICS

Language: English

Department: Chair for Macroeconomics
Degree programme: no restrictions / diploma students admitted
Module: Name
Module taught entirely in English.
Course type: Lecture, Discussion session: biweekly
Credit Points: 5 ECTS
Teacher/Lecturer: Prof. Dr. Michael Roos/ Dr. Wolfgang Luhan
Requirements: principles of micro- and macroeconomics, sound mathematical skills

Room	Day, Time	Begin
HZO 20	Lecture Thursday, 2 – 4 p.m., c.t.	10.10.2011
HZO 70	Discussion session: Group 1: Monday, 8:30 – 10:00 a.m	
HZO 70	Group 2: Tuesday, 8:30 – 10:00 a.m.	

**Course description:** This course presents the principles of modern international economics. First, the main theories of international trade are discussed. We then focus on the politics of world trade. In the second part of the course, we cover macroeconomic issues of international economics such as the balance of payments and models of exchange rate determination.

Proofs of academic achievement: end-term-exam including MC-parts

# **ECONOMICS OF TAXATION**

Language: English

Department: Chair of Applied Micronomics

Degree programme: Bachelor of Management and Economics

Module: Economics of Taxation

Module taught entirely in English.

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

**Credit Points:** 10 ECTS

Teacher/Lecturer: Prof. Dr. Robledo and assistants

Requirements: Good knowledge of basic microeconomic theory, good command of English.

Room	Day, Time	Begin
HZO 100	Tuesday 12-14	11/10/2011
HZO 80	Wednesday 14-16	12/10/2011

**Course description:** The course gives an overview of the revenue side of public economics at a final year undergraduate level. Proposed topics:

- Introduction and definition of taxes
- Incentive effects (consumption-leisure-choice)
- Excess burden of taxation
- Commodity taxation
- Income taxation
- Tax evasion
- Fiscal federalism
- Fiscal competition

Proofs of academic achievement: Exercises and written examination.

#### MARKETING DEPARTMENT

#### http://www.mib.ruhr-uni-bochum.de

#### Contact:

Name: Sabrina Scheidler Room: GC 4-152 Tel: 0234/32-22373 Email: sabrina.scheidler@rub.de Consultation hours: with appointment

## MARKETING COMMUNICATIONS

Language: English

Department: Lehrstuhl für angewandte Betriebswirtschaftslehre IV (Marketing) Degree programme: B.A. Module: n.s. Module taught entirely in English Course type: Seminar with tutorial Credit Points: 5 ETCS Teacher/Lecturer: Dr. Florian Kraus

Requirements: None

Room	Day, Time	Begin
GBCF 04 - 614	13.01. + 14.01; 20.01. +	13.01.2012
	21.01.2012; 10.00 - 18.00 h	

#### **Course description:**

Marketing communications is concerned with the methods, processes, meanings, perceptions and actions associated with the ways in which organizations (and their brands) engage with their target audiences.

The lecture covers all elements of the communications mix, including advertising, public relations, sponsorship, sales promotion, direct marketing, point-of-purchase communications, exhibitions, and personal selling.

The main goals of the course are:

- 1. Understanding of what Marketing Communications is and how it works
- 2. Learning practical management and tools of Marketing Communications
- 3. Understanding Marketing Communications' emerging relationships with the media

#### Proofs of academic achievement: Written Exam

# FACULTY OF GEOSCIENCES

INSTITUTE FOR GEOLOGY, MINERALOGY AND GEOPHYSICS

www.gmg.ruhr-uni-bochum.de

#### Contact:

Name Thomas Fockenberg Tel: 0234/32-24392 Email: <u>thomas.fockenberg@rub.de</u>

## SEMINAR PETROLOGY

Language: English

Department: Institute for Geology, Mineralogy and Geophysics
Degree programme: master
Module: n.s.
Course type: seminar
Credit Points: 2
Teacher/Lecturer: Prof. Dr. Sumit Chakraborty/ Jun.-Prof. Dr. Thomas Müller
Requirements: Bachelor degree in geosciences

Room	Day, Time	Begin
Please contact the lecturer		

**Course description:** Case studies of petrological problems presented by the participants **Proofs of academic achievement:** oral presentation

## **GROUNDWATER HYDRAULICS**

Language: English

Department: Institute for Geology, Mineralogy and Geophysics Degree programme: Master Module: n.s. Course type: lecture Credit Points: 6 Teacher/Lecturer: Jun.Prof. Dr. Andreas Englert Requirements: bachelor degree, basics in hydrogeology

Room

Day, Time

Begin

Please contact the lecturer

**Course description:** basic groundwater hydraulics, small scale measurements (darcy test .....), large scale

measurements (pumping test ......), analysis of hydraulic tests, characterization of heterogeneous aquifer systems

Proofs of academic achievement: written examination

# **INORGANIC HYDROCHEMISTRY**

Language: English

Department: Institute for Geology, Mineralogy and Geophysics Degree programme: Master Module: n.s. Course type: lecture Credit Points: 6 Teacher/Lecturer: Prof. Dr. Frank Wisotzky Requirements: Knowledge about hydrogeology and basics in hydrochemistry (Hydrogeologische Methoden)

**Room** Day, Time Please contact the lecturer

#### **Course description:**

The course comprised hydrochemical reactions in aquifers like dissolution- precipitation, acidbase-reactions, redox-reactions, gas-water-reactions, complexformation and hydrochemical calculations. In the course the use of the computer code PHREEQC is explained and will be trained. Different applications in water technology and water treatment are described.

Proofs of academic achievement: written examination and excercises

#### MICROFABRICS

Language: English

Department: Institute for Geology, Mineralogy and Geophysics Degree programme: Master Module: n.s. Course type: lecture Credit Points: 4 Teacher/Lecturer: Prof. Dr. Bernhard Stöckhert Requirements: B.Sc. in Geoscience, particularly skills in polarization microscopy, crystallography and petrology

**Room** Day, Time Please contact the lecturer

Begin

Begin

#### **Course description:**

The course deals with all aspects of microfabric evolution, crystallographic orientation, interfaces, crystal defects, deformation mechanisms, rheology of polycrystalline materials, with emphasis on the interpretation of the microstructural record of rocks.

Proofs of academic achievement: written examination

# **EXCERCISES IN MICROFABRICS**

Language: English

Department: Institute for Geology, Mineralogy and Geophysics Degree programme: Master Module: n.s. Course type: practical course Credit Points: 3 Teacher/Lecturer: Prof. Dr. Bernhard Stöckhert Requirements: B.Sc. in Geoscience and course "Microfabrics"

Room	Day, Time	Begin
Please contact the lecturer		

#### **Course description:**

Application of the background acquired in the course "Microfabrics" to the interpretation of natural rocks (thin sections, polarizing microscopy); experiments with analogue materials.

Proofs of academic achievement: written examination (interpretation of rock microfabric)

# MARINE MICROPALENTOLOGY

Language: English

Department: Institute for Geology, Mineralogy and Geophysics Degree programme: Master Module: n.s. Course type: lecture and pratical work Credit Points: 4 Teacher/Lecturer: Prof. Dr. Jörg Mutterlose Requirements: BSc in Geosciences, knowledge in Paleontology and stratigraphy

Day, Time

Begin

**Room** Please contact the lecturer

**Course description:** 

The course gives an overview of the various groups of microorganisms (dinoflagellates, calcareous nannofossils, diatoms, foraminifera, radiolarians, ostracods) widely used in marine geology, oceanography, ecology and oil geology. Each group will be adressed with respect to its taxonomy, ecology and paleooceanography. Special emphasis is being paid to the stratigraphic applications of these groups. Half of the time is devoted to practical exercises studying the groups under the microscope.

Proofs of academic achievement: written examination

# SEDIMENTARY SYSTEMS; PART 1

Language: English

Department: Institute for Geology, Mineralogy and Geophysic Degree programme: Master Module: n.s. Course type: lecture Credit Points: 3 Teacher/Lecturer: Prof. Dr. Adrian Immenhauser

Requirements: MSc in Earth Sciences or similar background

Day, Time

**Room** Please contact the lecturer

#### **Course description:**

This M.Sc. course deals with large-scale sedimentary systems in all its aspects. The focus is presently on carbonate factories in tropical, coolwater and mound facies. The aim is to provide students with a general understanding of processes that shape carbonate depositional environenments throughout Earth history. Here we deal with topics such as platform geometries, controlling factors of carbonate deposition, carbonate sequence stratigraphy, applied carbonate sedimentology, carbonate geochemistry, paleoceanography of carbonate systems. The students contribute actively to the teaching and read and discuss papers. The course material is available on Blackboard.

Begin

Proofs of academic achievement: Oral presentation and written examination

# ISOTOPE GEOCHEMISTRY - PRINCIPLES AND APPLICATIONS WITH EXCERCISES

Language: English

**Department:** Institute for Geology, Mineralogy and Geophysics **Degree programme: Master Module:** n.s. Course type: lecture with excercises Credit Points: 7 Teacher/Lecturer: Dr. Dieter Buhl / Dr. Andrea Niedermayr Requirements: Generally B.Sc. in Geosciences or a related discipline.

Day, Time Begin

Please contact the lecturer

#### **Course description:**

Stable isotopes represent important tools to investigate the processes and factors which control climate and biogeochemical cycling today as well as in the distant past. The aim of this M.Sc. course is to provide on overview on the most common geochemical indicators currently in use for the recon-struction of past environmental conditions (e.g. ocean temperatures, circulation, ecosystem productivity, atmospheric pCO2) and of biogeochemical cycling. Following a short introduction on stable isotopes and up-to-date analytical techniques, the operation mode of the major biogeochemical cycles (C, N, S, H) and their inter-action with the hydrosphere, atmosphere, bio- ad lithosphere will be discussed.

Proofs of academic achievement: written examination

# DYNAMICS OF THE EARTH

Language: English

Department: Institute for Geology, Mineralogy and Geophysics Degree programme: Master Module: n.s. Course type: lecture Credit Points: 5 Teacher/Lecturer: Prof. Dr. Wolfgang Friederich

Day, Time

**Requirements:** Generally B.Sc. in Geosciences or a related discipline. Specially. candidates are required to contact the lecturer (wolfgang.friederich@rub.de) prior to admission to this course.

Begin

Please contact the lecturer

#### **Course description:**

Room

State functions of minerals at hiph 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

This course is especially suitable for exchange students

Room

# THEORETICAL GEOPHYSICS II (FLUIDDYNAMICS)

Language: English

Department: Institute for Geology, Mineralogy and Geophysics Degree programme: Master Module: n.s. Course type: lecture Credit Points: 4 Teacher/Lecturer: Prof. Dr. Jörg Renner Requirements: none

**Room** Day, Time Please contact the lecturer

**Course description:** 

Introduction (Framework and continuum's hypothesis); Mathematical tools (properties of tensors, differentiation and integration of scalar and vectorial fields); Kinematics (Euler- and Lagrange-description, material derivative, Helmholtz theorem, velocitygradient matrix, strain rate tensor); Conservation laws (Reynolds transport Theorem, mass conservations and continuity equation, conservation of momentum and Cauchy stress and equation of motion, energy conservation); Equations of state, material equations (viskosity, flow laws); Navier-Stokes equations; Potential flow; Some applications (water waves and Tsunamis, melt segregation, etc.)

Proofs of academic achievement: written examination (+ weekly assignments)

## MAGMATISM

Language: English

Department: Institute for Geology, Mineralogy and Geophysics Degree programme: Master Module: n.s. Course type: lecture Credit Points: 3 Teacher/Lecturer: Prof. Dr. Bernhard Stöckhert Requirements: B.Sc. in Geoscience

**Room** Day, Time Please contact the lecturer

Begin

Begin

#### **Course description:**

The course deals with the properties of silicate melts, magma generation and ascent, volcanic processes and products, volcanic hazards, volcano monitoring, magma chambers and magmatic conduits

#### Proofs of academic achievement: written examination

# SEMINAR MAGMATISM

Language: English **Department:** Institute for Geology, Mineralogy and Geophysics Degree programme: Master Module: n.s. **Course type:** Seminary Credit Points: 1 Teacher/Lecturer: Prof. Dr. Bernhard Stöckhert Requirements: B.Sc. in Geoscience, Course "Magmatism" followed simultaneously Day, Time Begin

Please contact the lecturer

#### **Course description:**

Room

Case studies of active volcanos and specific magmatic processes presented by the participants

Proofs of academic achievement: oral presentation, file made available to the participants

## **GEODYNAMICS I**

Language: English

**Department:** Institute for Geology, Mineralogy and Geophysics Degree programme: Master Module: n.s. Course type: lecture Credit Points: 5 Teacher/Lecturer: Prof. Dr. Jörg Renner **Requirements:** none

Room Day, Time Please contact the lecturer

**Course description:** 

Equations of state for minerals at temperatures and pressurs prevailing in the Earth's interior; defects in crystals (point, linear, planar): their geometrical characteristics and kinetics; deformation mechanisms at high homoloous temperatures (dislocation and diffusion creep); melt migration

Begin

Aim: Familiarize with theoretical concepts of solid state physics and thermodynamics; students are suppose to learn how to tackle problems in geodynamics with continuum mechanics and micromechanics.

Proofs of academic achievement: written examination (+ weakly assignments)

# **EXPLORATION GEOPHYSICS II**

Language: English

Department: Institute for Geology, Mineralogy and Geophysics Degree programme: Master Module: n.s. Course type: lecture Credit Points: 5 Teacher/Lecturer: Prof. Dr. Jörg Renner Requirements: none

**Room** Day, Time Please contact the lecturer

#### **Course description:**

1) Introduction into origin of hydrocarbons; 2) Physical properties of hydrocarbons; 3) Basics of poro-elasticity; 4) Hydraulic borehole testing (theory and practice); 5) Geothermal energy provision; 6) Particular seismic waves (duided waves in fluid-saturated media)

Begin

Aim: Students are supposed to learn the baiscs of procedures often used in exploration beyond the seismic methods taught in "Exploration geophysics I"; besides practical aspects the theoretical description (differential equations) and solving strategies are presented.

Proofs of academic achievement: written examination (+weakly assignments)

## PETROLEUM GEOLOGY

Language: English

Department: Institute for Geology, Mineralogy and Geophysics Degree programme: Master Module: n.s. Course type: lecture Credit Points: 1 Teacher/Lecturer: Dr. Olaf Podlaha Requirements: n.s.

Begin

Please contact the lecturer

Proofs of academic achievement: written examination

Day, Time

# BIOMINERALISATION

Language: English

<b>Department:</b> Institute for Geology, Mineralogy and Geophysics
Degree programme: Master
Module: n.s.
Course type: lecture and self study
Credit Points: 3
Teacher/Lecturer: Prof. Dr. Adrian Immenhauser
<b>Requirements:</b> Please contact the lecturer

Room	Day, Time	Begin
Please contact the lecturer		

#### **Course description:**

This advanced M.Sc. course deals with all aspects of bio-induced and biologically controlled mineralisation. Whereas we deal with a number of biominerals, the focus is on carbonate and silica minerals. The fundaments of biomineralization are discussed. After a general introduction including the changes of the ambient seawater chemistry through time, we deal with aspects such as membranes and ion channels. Another topic of interest includes microbes as biomineralizers. In the second part of this course, the focus is on a number of organisms including corals, bivalves, foraminifera and coccoliths. The students contribute actively to the teaching and read and discuss papers. The course material is available on Blackboard.

Proofs of academic achievement: Oral presentations and written examination

# **PROJECT IN IGNEOUS PETROLOGY**

Language: English

Department: Institute for Geology, Mineralogy and Geophysics Degree programme: Master Module: n.s. Course type: seminar Credit Points: 4 Teacher/Lecturer: Prof. Dr. Sumit Chakraborty Requirements: Bachelor degree in geosciences

Room

#### Room

#### Day, Time

Begin

Begin

Please contact the lecturer

#### **Course description:**

This will involved the detailed study of one coherent suite of rocks from a given setting. This course uses the tools learned in petrology of igneous rocks and can be considered to be an advanced handling of the former. The study will involve reading and critically analyzing the relevant literature, studying the rocks in hand specimen and thin sections, and calculations using chemical data from these rocks. The goal is to understand the development of a model for the origin of the rocks using data of different kinds. The rock suites may come from the petrological sample collection or from various field trips of the students / teachers.

Proofs of academic achievement: thesis

# ANALYTICAL METHODS

Language: English

Language: English

Department: Institute for Geology, Mineralogy and Geophysics Degree programme: Master Module: n.s. Course type: lecture Credit Points: 2 Teacher/Lecturer: Prof. Dr. Sumit Chakraborty/Dr. Thomas Fockenberg Requirements: Bachelor degree in geosciences, fundamental knowledge in chemistry

Room Day, Time

Please contact the lecturer

#### **Course description:**

This is a required course at the beginning of the petrological curriculum at the Masters level. The objective of the course is to introduce the students to the variety of analytical tools that are available to the modern petrologist / geochemist. For each method discussed, the basic physical principle of the analysis, the capabilities (e.g. major / trace elements, detection limits, kinds of elements analyzed etc.) and typical applications will be introduced. The ultimate objective is to provide an overview which will help subsequently to appreciate the literature better and to plan the Masters Thesis properly.

Proofs of academic achievement: written examination

# PRACTICAL SILICATE ROCK ANALYSIS

**Department:** Institute for Geology, Mineralogy and Geophysics **Degree programme:** Master

Module: n.s. Course type: practical work Credit Points: 4 Teacher/Lecturer: Dr. Thomas Fockenberg Requirements: course analytical methods

#### Room

Day, Time

Begin

Please contact the lecturer

#### **Course description:**

whole rock analysis using spectroscopic methods (AAS, ICP-AES, XRF), coulometric methods (Karl-Fischer titration of water), potentiometric methods (Determination of FeO) and qauntification of CO2. The data will be used for the interpretation of the rock genesis with geochemical computer programs.

#### Proofs of academic achievement: thesis

# RECENT DEVELOPMENTS IN ANALYTICAL AND EXPERIMENTAL PETROLOGY

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Language: English
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Department: Institute for Geology, Mineralogy and Geophysics Degree programme: Master Module: n.s. Course type: seminar Credit Points: 4 Teacher/Lecturer: Prof. Dr. Sumit Chakraborty/ Prof. Dr. Thomas Müller/Dr. Ralf Dohmen/Dr. Thomas Fockenberg Requirements: Bachelor degree in geosciences

Room

Day, Time

Begin

Please contact the lecturer

#### **Course description:**

Study, with the help of advisors, of a series of papers on one topic/a set of topics over the course of the semester. The papers may focus on analytical techniques, or studies on experimental petrology. These would typically trace the evolution of a given kind of method with time, focusing on new advantages that were gained as the tools evolved.

**Proofs of academic achievement:** The grade would be based on a paper that the students submit before the end of the semester. The format would be that of a research proposal where a problem of the student's choice is to be studied using the analytical/experimental method chosen. The student will have to justify why this method is preferred over other possible alternatives.

# INTERDISCIPLINARY CENTER OF ADVANCED MATERIALS SIMULATION (ICAMS)

http://www.icams.de

#### Contact:

Name: Rebecca Janisch Room: UHW 12/1209 Tel: 0234/32-29304 Email: rebecca.janisch@rub.de Consultation hours: n.s.

# **PROGRAMMING CONCEPTS IN MATERIALS SCIENCE**

Language: English

**Department:** Atomistic Modelling and Simulation, Micromechanical and Macroscopic Modelling (Materials Science and Simulation, ICAMS)

Degree programme: Master

Module: 1

Module taught entirely in foreign language: Yes

Course type: Lecture with exercises / Seminar

Credit Points: 6

Teacher/Lecturer: Prof. Dr. Ralf Drautz, Prof. Dr. Alexander Hartmaier, Dr. Georg Madsen

**Requirements:** Bachelors Degree in Mechanical Engineering, Chemistry, Physics, Nanotechnology, Mathematics, Computer Science or related disciplines

Room	Day, Time	Begin
UHW 1102/CIP	Wednesday, 10.00-14.00	12.10.2011

#### **Course description:**

Learning outcomes: Successful participants will gain an overview of modern programming methods, tools and software used for simulations in materials science. They are able to implement, test, debug and apply simple codes or data analysis tools in Matlab and C++ on their own in a Linux environment. They understand the basic principles of numerical data analysis and how to solve mathematical problems with numerical methods.

Proofs of academic achievement: practical exercises, written examination

# **ELEMENTS OF MICROSTRUCTURE**

Language: English

Department: Materials Science and Simulation, ICAMS Degree programme: Master Module: 2a Module taught entirely in foreign language: Yes Course type: Lecture Credit Points: 3 Teacher/Lecturer: Prof. Dr. Gunther Eggeler, Prof. Dr. Victoria Yardley

**Requirements:** Bachelors Degree in Mechanical Engineering, Chemistry, Physics, Nanotechnology, Mathematics or Computer Science or related disciplines

Room	Day, Time	Begin
IA1-21	Monday, 15.00 -17.00	10.10.2011

#### **Course description:**

The students have a first qualitative and comprehensive view on material microstructures. They know about the specific features of amorphous and crystalline solids. Most importantly they can appreciate 0- to 3-dimensional crystal defects (vacancies, dislocations, interfaces, precipitates, inclusions, voids) as elements of microstructure and know about their basic properties (formation, thermodynamic aspects, atomistic and micromechanical aspects, influence on materials kinetics and materials strength). The students also learn about basic characterization techniques (microscopy and diffraction).

Proofs of academic achievement: written examination

# CONTINUUM METHODS IN MATERIALS SCIENCE

Language: English

**Department:** Micromechanical and Macroscopic Modelling, Scalebridging Thermodynamic and Kinetic Simulation (Materials Science and Simulation, ICAMS)

#### Degree programme: Master

Module: 5a

Module taught entirely in foreign language: Yes

Course type: Lecture with exercises

Credit Points: 4

Teacher/Lecturer: Prof. Dr. Alexander Hartmaier, Prof. Dr. Ingo Steinbach

Requirements: Completion of Module 2b-N1 and Module 2b-E2 or equivalent

Room	Day, Time	Begin
UHW 2/1230 (CIP-Pool)	Thursday, 14.00-16.30	13.10.2011

#### **Course description:**

Learning outcomes: Successful students understand the underlying principles of the finite element method to solve problems in solid mechanics with sound descriptions of the mechanical properties of materials and the phase field method to solve free boundary problems coupled to a thermodynamic material description. Both methods represent widely-used numerical tools in industrial and academic materials science. The students develop skills to model and solve materials science problems with the help of these two methods and they also understand the limitations of the methods and where they cannot be used.

#### Proofs of academic achievement: written examination

# ATOMISTIC SIMULATION METHODS

Language: English

Department: Atomistic Modelling and Simulation (Materials Science and Simulation, ICAMS)

Degree programme: Master Module: 5b Module taught entirely in foreign language: Yes Course type: Lecture / Seminar

Credit Points: 4

Teacher/Lecturer: Prof. Dr. Ralf Drautz

Requirements: successfully completed modules 3a and 3b

Room	Day, Time	Begin
Cip-Pool UHW 1229 and	Monday, 9.00-10.30 and	10.10.2011
UHW 1102	Thursday, 8.30-10.00	

#### **Course description:**

The students will be acquainted with models for the inter-atomic interaction and understand how these interactions can be represented by potentials. They learn how to use such 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 materials science problems.

Proofs of academic achievement: written examination

# FACULTY OF LAW

http://www.jura.ruhr-uni-bochum.de/

#### Contact:

Name: Katrin Giesen Room: GC8/36 Tel: 0234/32-27681 Email: katrin.giesen@rub.de Consultation hours: by appointment

# INTRODUCTION TO SOUTH-AFRICAN CONSTITUTIONAL LAW

Language: English

Department: Law Degree programme: Bachelor/Master Module: n.s. Module taught entirely in English Course type: intensive unit, lecture Credit Points: 3 Teacher/Lecturer: Prof. Scholtz Requirements: English

Room	Day, Time	Begin
HGC20	4. to 8. October, 9:00 to	4. October 9:00
	15:00	

#### **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. Students must possess the necessary English language proficiency.

Proofs of academic achievement: written exam at end of course (101. October, 9:00 to 10:00

This course is especially suitable for exchange students.

# THINKING AND WRITING LIKE A LAWYER SHOULD

Language: English

Department: Law Degree programme: Bachelor/Master Module: Name Module taught entirely in English Course type: Lecture Credit Points: 3 Teacher/Lecturer: Katrin Giesen Requirements: English, Law student (or foreign law degree)

Room	Day, Time	Begin
GC8/38	Tue, 16:00 to 18:00	18.09.2011, 16:00

#### **Course description:**

It is the main objective of the course to improve the written and oral English skills of students. During the course, students will learn how to express themselves in plain English language. The course will include drafting exercises (letters of advice to client) and the improvement of oral skills (presentation skills, client interview and negotiation, introduction to mooting). The course will be taught by providing theoretical knowledge, and then practicing the acquired skills by way of drafting and oral presentations and discussions.

Assessment: There are two assessments: The first assessment is a client letter which must be submitted during semester (details will follow). The second is an oral presentation (choice of participating in a negotiation and mediation, or an in-class presentation). The oral assessment will be split over the course, mainly in the last 4 weeks. Students must possess the necessary English language skills.

Proofs of academic achievement: written assessment and oral assessment during semester

This course is especially suitable for exchange students.

# THINKING AND WRITING LIKE A LAWYER SHOULD

Department: Law Degree programme: BAchelor/Master Module taught entirely in English Course type: lecture Credit Points: 3 Language: English

#### Teacher/Lecturer: Katrin Giesen

Requirements: English, Law student (or foreign law degree)

Room	Day, Time	Begin
GC8/38	Wednesday, 10 to 12	19. October 2011

#### **Course description:**

It is the main objective of the course to improve the written and oral English skills of students. During the course, students will learn how to express themselves in plain English language. The course will include drafting exercises (letters of advice to client) and the improvement of oral skills (presentation skills, client interview and negotiation, introduction to mooting). The course will be taught by providing theoretical knowledge, and then practicing the acquired skills by way of drafting and oral presentations and discussions.

Assessment: There are two assessments: The first assessment is a client letter which must be submitted during semester (details will follow). The second is an oral presentation (choice of participating in a negotiation and mediation, or an in-class presentation). The oral assessment will be split over the course, mainly in the last 4 weeks. Students must possess the necessary English language skills.

Proofs of academic achievement: written assessment and oral assessment during semester

This course is especially suitable for exchange students.

# THINKING AND WRITING LIKE A LAWYER SHOULD

Language: English

Department: Law Degree programme: Bachelor/Master Module taught entirely in English Course type: Lecture Credit Points: 3 Teacher/Lecturer: Katrin Giesen Requirements: English, Law student (or foreign law degree)

Room	Day, Time	Begin
GC8/38	Wednesday, 14:00 to 16:00	19. October 2011

#### **Course description:**

It is the main objective of the course to improve the written and oral English skills of students. During the course, students will learn how to express themselves in plain English language. The course will include drafting exercises (letters of advice to client) and the improvement of oral skills (presentation skills, client interview and negotiation, introduction to mooting). The course will be taught by providing theoretical knowledge, and then practicing the acquired skills by way of drafting and oral presentations and discussions.

Assessment: There are two assessments: The first assessment is a client letter which must be submitted during semester (details will follow). The second is an oral presentation (choice of participating in a negotiation and mediation, or an in-class presentation). The oral assessment will be split over the course, mainly in the last 4 weeks. Students must possess the necessary English language skills.

Proofs of academic achievement: written assessment and oral assessment during semester

This course is especially suitable for exchange students.

# **CRIMINAL LITIGATION**

Language: English

**Department:** Faculty of Law/ Prof. Dr. Peter A. Windel, Chair of Procedural Law and Civil Law **Degree programme:** Staatsexamen/ LL.M.

Module: n.s.

Module taught entirely in English

Course type: Presentation

Credit Points: n.s.

Teacher/Lecturer: Dr. Mark McMillian, Attorney at Law, L.C.

**Requirements:** English proficiency

Room	Day, Time	Begin
Gerichtslabor GC 03/49	The date and the beginning	
	will be announced on:	
	www.jura.ruhr-uni-	
	bochum.de/aktuelles/	

#### **Course description:**

Presentation and discussion of a distinguished topic in the field of criminal litigation

Proofs of academic achievement: no

This course is especially suitable for exchange students.

# JOINT-STUDENT-CONFERENCE ON TAIWANESE AND GERMAN PRIVATE LAW

Language: English/German

**Department:** Faculty of Law/ Prof. Dr. Peter A. Windel, Chair of Civile Procedural Law and Civil Law

Degree programme: Staatsexamen/ LL.M.

Module: n.s.

Course type: Lecture/ workshop

Credit Points: n.s.

**Teacher/Lecturer:** Professores of the Faculty of Law of RUB and of the College of Law of National Taiwan University

**Requirements:** English proficiency

Room	Day, Time	Begin
Gerichtslabor GC 03/49	The date and the beginning will be announced	
	www.ruhr-uni-bochu	ım.de/zpo

**Course description:** 

Presentation of distinguished topics of Private Law

Proofs of academic achievement: no

This course is especially suitable for exchange students.

# MEDICAL FACULTY

MERCATOR RESEARCH GROUP "STRUCTURE OF MEMORY"

http://www.rub.de/mrg

#### Contact:

Aenne Petersen Room: GA 04/42 Tel: 0234/32-26739 Email: aenne.petersen@rub.de Consultation hours: Tuesdays 10–11, Thursdays 15-16

# MEMORY FUNCTION: NOVEL BEHAVIOURAL, MOLECULAR AND IMAGING TECHNIQUES

Language: English

Department: Functional Architecture of Memory Degree programme: Master Module: n.s. Module taught entirely in English Course type: Seminar Credit Points: 3 Teacher/Lecturer: Prof. Dr. Magdalena Sauvage Requirements: None

Room	Day, Time	Begin
GA 04/187	Wednesdays 16:00-18:00	19/10/2011

#### **Course description:**

This seminar is methodology-oriented. It focuses on the latest generation of behavioural, molecular and imaging techniques developed: inducible and region specific brain mutagenesis, molecular brain imaging based on the detection of immediate-early genes (by immunocytochemistry and in-situ hybridization), diffusion tensor imaging, optogenetics (light-activated channels) and behavioural translational paradigms (standard human tasks adapted to animals). These methods, which go beyond the spatial and temporal resolution of standard techniques, led to important new findings in memory research, for example through the study of the functional segregation of the medial temporal lobe (MTL), a structure altered in aging and amnesic patients, in terms of the contribution of each MTL areas to a distinct memory type (spatial/non-spatial, recollection versus familiarity etc). However, these techniques can be applied to all fields of research. Background on each technique is provided during the class, advantages and limits of these new techniques are contrasted with those of the standard techniques and an example of how each technique is applied is given through the presentation of a related scientific article (journal club).

Proofs of academic achievement: short tests and presentations

This course is credited for "Optionalbereich".
#### INSTITUTE OF NEUROPHYSIOLOGY

http://www.rub.de/lmr

#### Contact:

Name: Prof. Dr. Denise Manahan-Vaughan Room: MA 4/150 Tel: 0234/32-22042 Email: <u>Imr@rub.de</u> Consultation hours: on demand

## **JOURNAL CLUB**

Language: English

Department: Neurophysiology
Degree programme: n.s.
<b>Module</b> : Structure, Function & Plasticity of the Central Nervous System Module taught entirely in English.
Course type: analytical skills training in neurophysiology
Credit Points: diverse
Teacher/Lecturer: Prof. Funke, Dr. Hagena, Dr. Fährmann, Dr. Klein, Dr. Aliane
Requirements: n.s.

Room	Day, Time	Begin
MA 2/150	Wednesday, 4.30 p.m.	10.10.2011

Course description: n.s.

Proofs of academic achievement: n.s.

## INSTITUTE FOR NEUROINFORMATICS

http://www.neuroinformatik.ruhr-uni-bochum.de/

#### Contact:

Name: Kathleen Schmidt Room: NB 3/32 Tel: 0234/32-28998 Email: kathleen.schmidt@ini.rub.de

## MACHINE LEARNING: BASIC COURSE

Language: English

Department: Institut für Neuroinformatik Degree programme: Master Module: Name Module taught entirely in English Course type: Lecture and Tutorial Credit Points: 2 (Lecture), 4 (Tutorial) Teacher/Lecturer: Prof. Dr. Laurenz Wiskott Requirements: good command of linear algebra and calculus

Room	Day, Time	Begin

KUUIII	Day, Inne	Degin
NB 3/57	Tuesday, 12.00 - 13.30	11/10/11

#### **Course description:**

This course covers a variety of methods from machine learning such as principal component analysis, clustering, vector quantization, self-organizing maps, independent component analysis, Bayesian theory and graphical models, linear regression, backpropagation of error, generalization and support vector machines.

Proofs of academic achievement: written examination

## COMPUTATIONAL NEUROSCIENCE: NEURAL DYNAMICS

Language: English

Department: Institut für Neuroinformatik Degree programme: Master Module: Name Module taught entirely in English Course type: Lecture and Tutorial Credit Points: 5 Teacher/Lecturer: Prof. Dr. Gregor Schöner Requirements: none

Day, Time	Begin
Thursday, 14.15 - 16.00	13/10/11

#### **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 artifical systems, all on the basis of the theoretical framework exposed in the main lectures.

Proofs of academic achievement: written examination

**Room** NB 3/57

#### 75

## FACULTY OF PHILOLOGY

ENGLISH DEPARTMENT

http://ww.rub.de/anglistik

#### **Contact:** Room: GB 6/133 Tel: 0234/32 - 22589

Email: <u>anglistik@rub.de</u> Consultation hours: Monday – Friday: 9 – 13 pm

Apart from a few exceptions all courses offered by the English Department are taught in English.

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

Topics which could be particularly useful and interesting for exchange students are provided in courses of the modules **Language Practice** (i.e. Translation, Communication, Grammar) and **English for Special Purposes** (i.e. Legal English or Business English).

A complete list can be found in the departmental university calendar: <u>http://www.ruhr-uni-bochum.de/anglistik/courses/index\_courses.htm</u>

#### INSTITUTE FOR ORIENTAL AND ISLAMIC STUDIES

#### http://www.rub.de/orient

#### Contact:

Name: Prof. Dr. Stefan Reichmuth Room: GB 2/38 Tel: 0234/32-28125/25125 Email: stefan.reichmuth@rub.de Consultation hours: Thursday 10 - 13 h ( every 14 days, acc. to separate announcement)

## MASS SOCIETY AND DEMOCRACY IN THE MUSLIM WORLD SINCE THE 19<sup>TH</sup> CENTURY: CONSTITUTIONAL MOVEMENTS AND POLITICAL PARTIES

Language: English

**Department:** Oriental and Islamic Studies

Degree programme: B.A., M.A.

Module: n.s.

Module taught entirely in foreign language: basic module, compulsory optional module

Course type: lecture

Credit Points: 2

Teacher/Lecturer: Prof. Dr. Stefan Reichmuth

Requirements: regular and active attendance, preparation, examination

Room	Day, Time	Begin
ND 5/99	Tuesday, 12- 14 h	October 18th, 2011

#### **Course description:**

The lecture treats the historical developments of phenomena of mass society and democratic polity in Muslim states and societies since the late 19<sup>th</sup> century. Core issues are Constitutionalism and political mass movements, as well as the establishment and development of political parties.

Proofs of academic achievement: yes

This course is credited for "Optionalbereich". This course is especially suitable for exchange students.

#### INSTITUTE FOR MEDIA STUDIES

http://www.ruhr-uni-bochum.de/ifm/aktuelles.html

#### Contact:

Name: Rentemeister Room: GB 5/146 Tel: 0234/32-27812 Email: elke.rentemeister@rub.de Consultation hours: Mo 16-18

## VISUAL COMMUNICATION AND MEDIA THEORY. FROM PHOTOGRAFIC 'AUTHENTICITY' TO CONSTRUCTIVISM

Language: English

Department: IfM Degree programme: Bachelor Module: n.s. Module taught entirely English Course type: Seminar Credit Points: 5 Teacher/Lecturer: Angela Schröder Requirements: none

Room	Day, Time	Begin
GABF 04/611	Wednesday, 10-12	19/10/2011

#### **Course description:**

First, photographic images claimed to represent an undisputable 'truth' of perception. The camera was seen and presented as the 'pencil of nature', a notion that served as title for the first book with photographs ever printed. Soon photography was seen as a tool for communication, prone to manipulation and persuasion while at the same time providing several differing meanings at once. The development of digital photography apparently had a crucial impact on everyday and scientific notions of the photographic possibilities and constraints. Whereas all the possibilities of image-manipulation with digital image processing have been discussed intensely, very little attention has been paid to the fact, that 'authenticity' in general might be considered a strange concept whatever the aim and the quality of digital photography are thought to be.

In this seminar photo-theories will only serve as a starting point for a broader perspective on media theory. We will focus on the different modes and functions of visual communication, concepts that have always been open to debate. Special attention will be given to self-referential models concerning the observer and the relevance of modes of visual communication in digital environments. Based on this, constructivist media theory will be discussed in search for a more elaborate model of understanding the everyday construction of media reality.

The seminar will discuss a number of texts related to photo theory and to the function of visual communication in society. To get familiar with basic concepts and the history of visual communication just one book shall be mentioned here. More texts will be available via the Blackboard e-learning system. First reading:

Lester, Paul Martin: Visual Communication. Images with Messages. 4th. Ed. (Thompson Wadsworth) Belmont, CA, 2006

Proofs of academic achievement: written examination

This course is especially suitable for exchange students.

## FACULTY OF PHILOSOPHY AND EDUCATIONAL SCIENCE

INSTITUTE OF EDUCATIONAL RESEARCH

http://www.ife.rub.de

#### Contact:

Name: Dr. Ute Lange Room: GA 1/133 Tel: 0234/32-24982 Email: ute.lange@rub.de Consultation hours: Tue and Thu: 4–6 p.m.

#### EDUCATIONAL DEVELOPMENTS IN COMPARATIVE PERSPECTIVES

Language: English

Department: Comparative Education
Degree programme: Bachelor of Arts (B.A.)/Master of Education (M.Ed.)
Module: A 5: Internationale Bildungsentwicklung und Interkulturelle Pädagogik
Module taught only partly in English.
Course type: Hauptseminar
Credit Points: 4 (+ 3 CP for extended course paper)
Teacher/Lecturer: Prof Dr. Christel Adick

Requirements: Basic knowledge in Educational Sciences

Room	Day, Time	Begin
GABF 04/358	Monday 14.15 – 15.45	10/10/2011

#### **Course description:**

The main aims of the seminar are: (a) to raise awareness of some educational topics which are commonly debated around the world, and (b) to introduce research-oriented learning methods for enquiries on global developments in education.

For this sake, the seminar will be based on: (a) texts compiled in a reader, which will be distributed at the beginning of the course, and (b) internet-based research conducted individually, and in tandems or groups on the Education For All (EFA) Programme of the United Nations Educational, Scientific and Cultural Organisation (UNESCO) and on one specific country in particular.

In the first part some internationally debated issues will be discussed, such as peace education, discrimination in education in the European Union, gender stereotypes in text books, etc. Participants will have to write and present a summary of one of these articles which are compiled in the reader, also distributing their summary (3-5 pp.) in class. In the second part of the course the websites of the UNESCO will be screened for general information on EFA, definitions of empirical indicators (e.g. Gender Parity Index, Education Development Index) and available data on educational enrolments in practically all the countries of the world. Participants will be asked to bring their laptops, if available, in order to conduct online research in class. Our research will concentrate on educational developments in the newly emerging countries, the so-called "BRIC" countries (Brazil, Russia, India and China), which are the four largest economies outside the OECD, comprising more than 40% of the world's population. Groups will be formed who have the task to write country profiles by using the data of the yearly Global Monitoring Reports (available online and also in print in the library of the Institute of Education), and other sources. The country profiles will then be presented and discussed in plenary (presentation by powerpoint/handouts). Students may choose if they want to submit their respective country profile individually or collectively for assessment.

**Proofs of academic achievement:** The proof of academic achievement ('Kleine Studienleistung'/4 CP) requires the written summary of one of the articles in the reader and the preparation of the country profile. Topics for an extended course paper (Hausarbeit, 3 CP) will be discussed individually. Assignments may be written and presented either in English or in German.

This course is especially suitable for exchange students.

#### INSTITUTE FOR PHILOSOPHY II

http://www.ruhr-uni-bochum.de/philosophy/ii/index.html.de

#### Contact:

Name: Prof. Heinrich Wansing Room GA 3/33 Tel: 0234-32-24718 Email: Antike-und-Logik@rub.de Consultation hours: Wednesday 11-12 Prof. Dr. Albert Newen GA 3/152 Tel: 0234/32-22139 Email: albert.newen@rub.de

#### **BRANCHING-TIME STRUCTURES AND MODALITIES**

Language: English

Department: Lehrstuhl für Logik und Erkenntnistheorie Degree programme: Master Module: WMIIIa Module taught entirely in English Course type: Seminar Credit Points: 4-6 Teacher/Lecturer: Prof. Dr. Heinrich Wansing Requirements: Master/ PhD students as well as students

**Requirements:** Master/ PhD students as well as students in the final period of their Bachelor degree.

Room	Day, Time	Begin
GA 03/46	4.10.2011 - 8.10.2011,	04/10/2011
	10-12 a.m and 14-16 p.m.	

#### **Course description:**

The seminar will start with several presentations introducing basic notions and techniques applied in semantical studies of the modal logic of agency. There will be plenty of time for discussion. The focus will be on the interpretation of various modalities in branching time structures. These structures are models of an indeterministic world in which the past is determined but the future is open. The modal notions of interest include the notions of agency, historical necessity and possibility, knowledge, belief, and responsibility. A requirement for participation is some knowledge of classical logic, ideally of modal logic.

Three obligatory essays are to be read by all participants.. A registration for this seminar is required. Please send an e-Mail to: Antike-und-Logik@rub.de until September 19th at the latest. There will be additional guest lectures as part of the seminar during the winter term.

**Proofs of academic achievement:** Bachelor and Master candidates can archieve 4-6 credit points by (1) either giving a short presentation on a specified topic and writing a summary of one session (ungraded credit points)or (2) handing in a written paper (about 10 pages) dealing with a specified topic of the seminar (graded credit points). PhDs are welcome to give a short presentation as comment on one of the seminar topics dealt with and will be given the usual credits for their PhD program.

This course is especially suitable for exchange students.

## DAG PRAWITZ ON PROOFS AND MEANING

Language: English/German

Department: Lehrstuhl für Logik und Erkenntnistheorie Degree programme: Master Module: WMIIIa Module taught entirely in foreign language: no Course type: Seminar Credit Points: 6 Teacher/Lecturer: Prof. Dr. Heinrich Wansing Requirements: Bachelors Degree in Philosophy

Room	Day, Time	Begin
GABF 04/609	Thursday, 10-12	13/10/2011

#### **Course description:**

Dag Prawitz is one of the most important and best-known representatives of the so-called prooftheoretic semantics. Proof-theoretic semantics is an alternative paradigm to the dominant semantics in terms of truth conditions. A fundamental assumption of proof-theoretic semantics is that the notion of proof is the central concept for explicating the meaning of linguistic expressions. The seminar will deal with Dag Prawitz's most important essays on the role of the concept of proof for the explication of the meaning of the logical operators. In particular, we will analyze his proof-theoretic term of validity.

The papers to be discussed in the seminar include:

Prawitz, D. (1971). Ideas and results in proof theory. In J. E. Fenstad (Ed.), Proceedings of the second Scandinavian logic symposium (Oslo 1970) (pp. 235-308). Amsterdam: North-Holland.
Prawitz, D. (1972). The philosophical position of proof theory. In R. E. Olson & M. Paul (Eds.), Contemporary philosophy in Scandinavia (pp. 123-134). Baltimore, London: John Hopkins Press.
Prawitz, D. (1973). Towards a foundation of a general proof theory. In P. Suppes et al. (Ed.), Logic, methodology and philosophy of science IV (p. 225-250). North-Holland.
Prawitz, D. (1974). On the idea of a general proof theory. Synthese, 27, 63-77.

• Prawitz, D. (1974). On the idea of a general proof theory. Synthese, 27, 63-77.

• Prawitz, D. (2007). Pragmatist and vericationist theories of meaning. In R. E. Auxier & L. E. Hahn (Eds.), The philosophy of Michael Dummett (pp. 455-481). Open Court.

**Proofs of academic achievement:** Participants can archieve 6 credit points by (1) either giving a short presentation on a specified topic and writing a summary of one session (ungraded credit points)or (2) handing in a written paper (about 10 pages) dealing with a specified topic of the seminar (graded credit points)

# SEMANTICS AND PRAGMATICS OF NATURAL LANGUAGE: WITH KEY NOTE LECTURES FROM PROF. F. RECANATI, PARIS

Language: English

**Department:** Philosophie des Geistes **Degree programme:** Master

#### Module: WM IIIc

Module taught entirely in English

Course type: Seminar

Credit Points: 6

Teacher/Lecturer: Prof. Dr. Albert Newen/Dr. Leon de Bruin

**Requirements:** Basic Background knowledge in philosophy of language, semantics or linguistics (erg. As presented in an introductory course philosophy of language)

Room	Day, Time	Begin
GABF 04/358	Friday 8-12, 14tgl.	21/10/2011

#### **Course description:**

Content of the Seminar:

During this seminar, we will start to deal with questions like the following: what is the meaning of informative identity sentences? How can we deal with empty names in meaningful utterances? What is the meaning of a belief accription? These questions are discussed within a standard framework of the following constraints: (i) The theory of direct reference claims that the semantic contribution of names and indexicals to a thought expressed by a sentences using these expressions is the object referred to. (ii) The principle of semantic innocence demands that the meaning of expression is the same in all uttereances (after disambiguation and considering contextual information). (iii) The semantics of belief ascriptions should account for the cognitive situation of the thinker one attributes a thought. To account for a new semantic analysis of utterances including belief ascriptions Recanati uses the notion of a mental file and develops a special variant of a cognitive semantics.

The seminar is specially part of the program "Philosophie International". There will be several keynote lectures of Prof. Recanati (Institute Jean Nicod, Paris) who will present his recent theory of singular thoughts during three Friday meetings between mid of November and end of January. Please register by sending an Email to: sekretariat-newen@rub.de

Proofs of academic achievement: Oral presentation (in English) or essay (in English or German)

### PHILOSOPHY AND THE COGNITIVE SCIENCES. RECENT DEBATES

Language: English

Department: Philosophie des Geistes Degree programme: Master Module: WM III c Module taught entirely in English Course type: Colloquium Credit Points: 6 Teacher/Lecturer: Prof. Dr. Albert Newen/Prof. Dr. Markus Werning Requirements: n.s.

**Room** GABF 04/187 **Day, Time** Do, 16-18

Begin 20/10/2011

#### **Course description:**

The colloquium welcomes Master and PhD-students in philosophy, linguistics, psychology, and cognitive neurosciences.

The colloquium will offer regular presentations given partly by Bochum M.A. and PhD-students and partly by external guests. The presentations will all be in the general domain of theoretical philosophy and the cognitive sciences. 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 presentation should write an email to both organizers (albert.newen@rub.de and markus.werning@rub.de) and come to the first meeting at Thursday, 20 October 2011. The semester program will be fixed then.

PhD-students can receive 2 credit points for an active participation. M. A.-students can receive 4-6 CP for a presentation in the colloquium (to receive a mark, M.A.-students have to write an additional essay). Topics can be freely chosen such that M.A.-students can develop a talk in the area of their M.A.-project.

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: Oral presentation

## FACULTY OF PHYSICS AND ASTRONOMY

http://www.physik.rub.de

#### Contact:

Anke Pappert Tel: 0234/32-23445 Email: <u>dekanat@physik.rub.de</u>

The Faculty of Physics and Astronomy offers a broad range of courses in English. Detailed information can be found at <a href="http://www.physik.rub.de/studium/vorlesungsverzeichnis">www.physik.rub.de/studium/vorlesungsverzeichnis</a>. Please have a look at the notice board at NB 02 Nord for changes and dates.

Courses start at the next possible date after lectures start in winter semester (10/10/2011).

Details concerning exercises will be fixed during the corresponding lectures.

#### **Solid-State Physics**

Course	Course Title	Day, Time	Room	Language	Lecturer
Nr					
160	Introduction to Quantum	n.s.	n.s.	English	Neugebauer, Hickel
309	Mechanics in Solid-State				
	Physics				
160	Exercise Introduction to	n.s.	n.s.	English	Neugebauer, Hickel
310	Quantum Mechanics in				
	Solid-State Physics				
160	Seminar: Methods of	n.s.	n.s.	English	Eremin, Polyakov
326	quantum field theory in				
	solid-state and high				
	energy physics				

#### Nuclei and particle physics

Cours	Course Title	Day, Time	Room	Languag	Lecturer
e Nr				e	
160	Detector technology for	Fri.	NB 2/170	German	Ritman,
407	modern hadronic and	12-14.00		or	Stockmanns
	particle physics			English	
	experiments				
160	Seminar for Detector	Fri.	NB 2/170	German	Ritman,
408	technology for modern	10-12.00		or	Stockmanns
	hadronic and particle			English	
	physics				
160	Group theory for	n.s.	n.s.	German	Eremin, Nogueira
305	physicists			or	

				English	
160 306	Exercise group theory for physicist	n.s.	n.s.	German or English	Eremin
160 424	Seminar: Methods of quantum field theory in solid state and high energy physics	Thu. 10-12.00	NB 4/158	English	Polyakov, Eremin

## Plasma and atomic physics

Cours	Course Title	Day, Time	Room	Languag	Lecturer
e Nr.				e	
160	Thin Films and	Di.	NB 5/158	English	de los Arcos,
507	Nanomaterials	10-12.00			Benedikt
		Fr.	NB 02/99		
		10-11.00			
160	Exercise Thins Materials	Fri.	NB 5/158	English	de los Arcos,
508	and Nanomaterials	11-12.00			Benedikt
160	Spektroskopie der Atome	Fri. 14.15-	NB 02/99	German	Träbert
512	und Ionen	16.00		or	
				English	
160	Quantentheorie des	Fri. 14.15-	n.s.	German	Rosmej
513	Lichts I	16.00		or	
				English	
160	Blockkurs: "Low	n.s.	n.s.	German	Winter, Böke
523	Temperature Plasma			or	
	Physics: Basis and			English	
	Applications" and Master				
	Class "Low Temperature				
	Plasma Physics in				
	Fusion"				

## Astronomy and Astrophysics

Cours	Course Title	Day, Time	Room	Languag	Lecturer
e Nr.				e	
160	Cosmic Ray Dynamics in	Di 14.16.00	NB 6/73	English	Schlickeiser,
606	MHD turbulence				Beresnyak, Lazar

## FACULTY OF PSYCHOLOGY

http://www.ruhr-uni-bochum.de/psy-dekanat/fak-home/

#### Contact:

Ingrid Tanach GAFO 04/623 Tel: 0234 32 22447 Email: Ingrid.Tanach@rub.de Consultation hours: Wednesday 9-11/Thursday 14-15

## MATHEMATICAL PSYCHOLOGY II

Language: English

Department: Psychology Degree programme: Bachelor Module: Information processing Module taught only partly in English. Course type: Seminar Credit Points: 3 Teacher/Lecturer: Prof. Cheng

Requirements: Previous programming experience in Matlab orMathematical Psychology I

Room	Day, Time	Begin
GA 04/187	Wednesday 14.00-16.00	

#### **Course description:**

The use of mathematical models and methods in psychology has a long history dating back to the 1800s. In this course, we will use an intuitive approach to mathematical psychology, rather than dwell on rigorous mathematics. This course will focus on perception and decision making, and cover topics such as psychophysics, signal detection theory and prospect theory. Classes will be taught in English and include lectures, student presentations and practical exercises in a computer lab. The mathematical methods covered will range from simple equations with two variables to simulations of neural networks. This course is open to Bachelor students of other disciplines who would like to see mathematics applied to the description of behavior and cognition.

### INTRACELLULAR ELECTROPHYSIOLOGICAL RECORDING TECHNIQUE

Language: English

Department: Psychology Degree programme: Bachelor Module: n.s. Module taught only partly in English. Course type: Seminar Credit Points: 3 Teacher/Lecturer: Prof. Yoshida

Requirements: Basic (high school level) physics

Room	Day, Time	Begin
GA 04/187	Thursday 10 - 12	

#### **Course description:**

Brain functions are based on the activity of single neurons. Intracellular electrophysiological recording techniques enable us to observe the activity and to study the properties of single neurons. In this seminar, students will learn in-vitro patch-clamp recording, which is a popular and powerful intracellular recording technique. This seminar consists of both theoretical background studies and practical hands-on lab experiences. In more details, students will learn 1) the theory of intracellular recording, 2) brain slice preparation using animal brains, 3) patch-clamp recording, 4) visualization of recorded neurons, and 5) data analysis. Intracellular electrophysiological recording technique is not restricted to the study of single-cell properties. When combined with extra-cellular stimulation electrode, one can easily study properties of synaptic connections such as long-term synaptic potentiation and depression. Therefore, this method is also often used to study properties of neural

networks which are believed to be crucial for functions of the brain.

Proofs of academic achievement: Quiz and report

## SOCIAL COGNITION AND PSYCHOPATHOLOGY

Language: English

Department: Psychology

Degree programme: Master Psychology/Clinical Psychology

**Module:** Clinical Psychology/Causes and Treatment of Psychological Disorders Causes and Treatment of Psychological Disorders Clinical Psychology Module taught only partly in English.

Course type: Seminar

Credit Points: 3

Teacher/Lecturer: Prof. Lloyd Williams

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

Room	Day, Time	Begin
GAFO 04/425	Wednesday 12.00-14.00,	10/19/2011

#### **Course description:**

This seminar will explore selected topics in the social cognitive approach to psychopathology. These topics include the consistency and specificity of personality across situations; reciprocal causation among persons, their environments, and behavior; clinical versus statistical prediction of behavior; mental disorder theory contrasted with psychosocial problem theory; social cognitive theories of emotion and motivation; self-efficacy theory.

#### Proofs of academic achievement: n.s.

## **MULTIVARIATE STATISTICS**

Language: English

Department: Psychology
Degree programme: Master Psychology
Module: Multivariate Statistics
Module taught entirely in English
Course type: Seminar
Credit Points: 3
Teacher/Lecturer: Vinita Samarasinghe
Requirements: n.s.

Room	Day, Time
GAFO 04/425	$10/19/2011 \ 10-12 \ and \ 03/07/2012 \ 10$ - $12$

#### **Course description:**

This is an independent study course. There will be no seminars in association with this course. This course will cover multivariate statistics with a focus on the design and analysis of complex systems with multiple predictors. The subject will be approached from a practical viewpoint that will help the participants understand how to choose a model, form and test a hypothesis, and recognize structures and patterns within the data. As such, the course will not dwell on the mathematics behind the statistical methods and will rely on real world data. The main tool used in this course will be SPSS. LISREL will be used for confirmatory factor analysis Topics:

- 1. Multiple Regression
- 2. MANOVA
- 3. Discriminant Analysis
- 4. Cluster Analysis
- 5. Exploratory and Confirmatory Factor Analysis
- 6. Canonical Correlation
- The primary language of instruction for this course is English.

Final exam date: 07.03.2012

Proofs of academic achievement: written examination

## LEARNING AND MEMORY

Department: Psychology... Degree programme: Master Psychology Module: n.s. Module taught entirely in foreign language: no Course type: Seminar Credit Points: 3 Teacher/Lecturer: Prof. Dr. Yoshida Language: English

#### Requirements: n.s.

Room	Day, Time	Begin
GA 04/187	Tuesday 16.00-18.00	10/10/2011

#### **Course description:**

This seminar is taught by four professors from the MRG "Structure of Memory" with expertise in different fields. This seminar focuses on learning and memory functions through multidisciplinary approaches: electrophysiological, behavioral, molecular, computational, and philosophical perspectives. In the seminar, students will study and present the basis of learning and memory through the book "Learning and Memory" written by Howard Eichenbaum, and additional lectures will be given by teachers on the topics of perceptual binding, memory encoding, consolidation and recall, as well as the epistemology of memory.

Proofs of academic achievement: Presentation with written elaboration

#### MEMORY FUNCTION: NOVEL BEHAVIOURAL, MOLECULAR ANDIMAGING TECHNIQUES

Language: English

Department: Psychology Degree programme: Master Psychology Module: n.s. Module taught entirely in foreign language: no Course type: Seminar Credit Points: 3 Teacher/Lecturer: Prof. Dr. Sauvage Requirements: None

Room	Day, Time	Begin
GA 04/187	Wednesdays, 16:00 – 18:00	

#### **Course description:**

This seminar is methodology-oriented. It focuses on the latest generation of behavioural, molecular and imaging techniques developed: inducible and region specific brain mutagenesis, molecular brain imaging based on the detection of immediate-early genes (by immunocytochemistry and in-situ hybridization), diffusion tensor imaging, optogenetics (light-activated channels) and behavioural translational paradigms (standard human tasks adapted to animals). These methods, which go beyond the spatial and temporal resolution of standard techniques, led to important new findings in memory research, for example through the study of the functional segregation of the medial temporal lobe (MTL), a structure altered in aging and amnesic patients, in terms of the contribution of each MTL areas to a distinct memory type (spatial/non-spatial, recollection versus familiarity etc). However, these techniques can be applied to all fields of research. Background on each technique is provided

during the class, advantages and limits of these new techniques are contrasted with those of the standard techniques and an example of how each technique is applied is given through the presentation of a related scientific article (journal club).

Proofs of academic achievement: short tests and presentations

## FACULTY OF SOCIAL SCIENCE

http://www.sowi.rub.de

#### Contact:

Name: Malte Pfau Room: GC 03 / 325 (in the Social Science Library) Tel: 0234/32-22966 Email: international-services@sowi.rub.de Consultation hours: t.b.a.

## THE EU: A QUIETLY RISING SUPERPOWER

Language: English

Department: Political Science
Degree programme: Bachelor
Module: n.s.
Module taught only partly in English.
Course type: Seminar
Credit Points: 4
Teacher/Lecturer: M.A. Aukje van Loon
Requirements: Successful completion of a lecture in "International Relations" or contemporaneous attendance at the lecture "Einführung in die Internationalen
Beziehungen"(Wednesday 10 - 12, HGC 20, this course will be entirely held in german language).
Synopses (1 site per text) to the below-mentioned literature. Active and continuous participance in terms of a presentation and discussion.

Room	Day, Time	Begin
GBCF 05/608	Tuesday, 10.15 - 11.45	11/10/2011

#### **Course description:**

Unipolar, bipolar or multipolar; these contrasting perspectives regarding the distribution of power within the international system exist. Various scholars view the contemporary world as 141 unipolar, with the US as the sole superpower. Alfredo Valladão supports, with his book "The 21st century will be American", the conventional view. Mark Leonard however, challenges this perspective with his book "Why Europe will run the 21st century" and hence, regards the international system as bipolar with the EU as an additional superpower. Also, the multipolar perspective has increasingly gained significance since the rise of the BRICS and their effort at projecting international influence. This seminar will focus on the EU as an international actor and its role, challenges and perspectives within this changing international system. The global power shift has changed the EU's position towards its partners as well as its course of specific EU foreign policies, for example in trade, aid and development, security and defence, its support for multilateral institutions and towards regional approaches (in Latin America, Asia and Africa).

Participating students will look into these specific EU foreign policies and explain, by applying IR theories and/or EU integration theories, EU foreign policy behaviour and decision-making. Literature:

Bendiek, A. und Kramer, H. (2009): Die EU als globaler Akteur. Unklare Strategien, diffuses Leitbild, SWP Studie, April 2009. http://www.swp-

berlin.org/fileadmin/contents/products/studien/2009\_S12\_bdk\_krm\_ks.pdf

Dieter, H. (2009): The Decline of Global Economic Governance and the Role of the Transatlantic Powers, Business and Politics, Special Issue Global Economic Governance: Beyond the Management by the United States and the European Union?, Business and Politics, Vol. 11, Iss. 3, Article 6, 23 pages.

Kappel, R. (2010): Verschiebung der globalen Machtverhältnisse durch den Aufstieg von

Regionalen Führungsmächten: China, Indien, Brasilien und Südafrika, in: GIGA Working Papers, No. 146, September 2010. http://www.giga-

hamburg.de/dl/download.php?d=/content/publikationen/pdf/wp146\_kappel.pdf

Moravcsik, A. (2010): 'Europe: Rising Superpower in a Bipolar World', in: Alexandroff, A. and Cooper, A. (eds.) Rising States, Rising Institutions: Challenges for Global Governance, Washington DC: Brookings Institution Press, pp.151-174.

Schirm, S. A. (2009): Koordinierte Weltwirtschaft? Neue Regeln für effizientere und legitimere Märkte, in: Zeitschrift für Internationale Beziehungen 16/2 (Dezember), 311-324.

Schirm, S. A. (2010): Leaders in Need of Followers: Emerging Powers in Global Governance, in: European Journal of International Relations Vol. 16, No. 2, pp. 197-221.

Proofs of academic achievement: synopses (see above), presentation, handout, term paper.

# INDUSTRIAL RELATIONS IN EUROPE. CONCEPTS - MODELS - DEVELOPMENTS

Language: English

Department: Sociology Degree programme: Master Module: n.s. Module taught only partly in English. Course type: Seminar Credit Points: 4,5 Teacher/Lecturer: Dr. Manfred Wannöffel Requirements: Bachelor Degree

Room	Day, Time	Begin
GBCF 04/614	Tuesday, 12.00 - 13.30	11/10/2011

**Course description:** 

This seminar gives an introduction to the concepts and models of Industrial Relations and Labour Relations in the European Union in order to develop instruments for typification and comparison of Welfare and Industrial Relation systems in the 27 member states of European Union and Turkey.

Literature:

European Union (2011): Industrial Relations in Europe 2010, Luxembourg

Weiss, Manfred (2010): European Labour Law in Transition from 1985 to 2010, IJCLLIR 2010, 3 ff.

Proofs of academic achievement: continuous and active participation, presentation, term paper

## **COMPARATIVE URBAN STUDIES**

Language: English

Department: Sociology Degree programme: Master Module: n.s. Module taught only partly in English. Course type: Seminar Credit Points: 4,5 Teacher/Lecturer: Prof. Dr. Peter Strohmeier Requirements: Bachelor in Sociology, basic knowledge of quantitative data analysis, announcement for this seminar via VSPL

Room	Day, Time	Begin
GCFW 04/703	Thursday, 10.15 - 11.45	13/10/2011

#### Course description:

This seminar will be held in English. Most of it will, in fact, take place in the the Computer lab in GC05. After a brief introduction into concepts of urban development and urban structure (urban growth and functional and social segregation) participants will be given the opportunity to analyze spatially referenced data (individual survey data, statistical information on urban districts, census data) from one of the cities in the Ruhr region (most possibly Mülheim) and from Windhoek, the Capital of the Republic of Namibia. The only thing that both cities, Mülheim an der Ruhr and Windhoek) have in common is that they are of similar (rather small) size and that they are highly segregated cities. In the seminar we will try to operationalize and measure functional and social segregation and to study (and compare its effects on living conditions and life chances (such as poverty, health, and education). Validity of some of the indicators regularly used in urban analysis will be highly dependent on the social and cultural context, as we will find out. Participants will be given the chance to elaborate a comparative project including field work in Windhoek. The university of Namibia has invited me as a visiting professor for the period from the end of February to May 2012, and they expect a group of students doing research for their master theses

following me to Windhoek for a period of probably three weeks. Of course, participation is also open to those who are not planning to go to Africa afterwards.

Literature:

2009 K. P. Strohmeier, H. Wunderlich, P. Lersch: "Kindheiten in Stadt(teil) und Familie". In: Aus Politik und Zeitgeschichte. 17/2009, S. 25-32.

2010 K. P. Strohmeier , M. Neu, V. Kersting: "Sozialberichterstattung als Grundlage für eine kommunale Politik gegen Segregation". In: Hanesch, Walter (Hg.): Die Zukunft der "Sozialen Stadt". Strategien gegen soziale Spaltung und Armut in den Kommunen. Wiesbaden: VS Verlag für Sozialwissenschaften, S. 219-237.

2006 K. P. Strohmeier unter Mitarbeit von S. Alic: "Segregation in den Städten". Herausgegeben von der Friedrich-Ebert-Stiftung. Gesprächskreis Migration und Integration. Bonn.

Proofs of academic achievement: term paper as an analysis report in group- or singlework

# THE G20 AS A NEW STEERING COMMITTEE FOR GLOBAL FINANCE: THEORY AND PRACTICE

Language: English

Department: Political Science
Degree programme: Master
Module: n.s.
Module taught only partly in English.
Course type: Seminar
Credit Points: 4,5
Teacher/Lecturer: Prof. Dr. Stefan Schirm
Requirements: Successful completion of the Lect

**Requirements:** Successful completion of the Lecture 'Einführung in die Internationalen Beziehungen', one under-graduate Seminar, and reports (one page each) on the following texts due in the 3rd. meeting.

Room	Day, Time	Begin
GC 03/325	Thursday, 10.15 - 11.45	13/10/2011

#### **Course description:**

Since the global economic crisis started in 2008, the leaders of the 20 economically most important countries attempted to manage the crisis in the Group of 20. Debates and understandings include from coordinated stimulus programs, financial market regulation, the reform of the IMF, global imbalances, and controversies over a "currency war" between the US and China. The seminar will analyze these issues and the performance of the key players in the G20 both from industrializes and from emerging economies. This analysis will be guided by core theories of international relations focusing on power, international institutions, domestic politics, and societal actors. All discussions, presentations, and the written homework will be in english language.

Literature:

Required readings (available from the beginning of September in the SoWi library):

1. Cooper, Andrew F. (2010): The G20 as an improvised crisis committee and/or a contested ,steering committee' for the world, in: International Affairs 86: 3, 741-757.

2. Garrett, Geoffrey (2010): G2 in G20: China, the United States and the World after the Global Financial Crisis, in: Global Policy 1: 1, 29-39.

3. Schirm, Stefan A. (2011): Global Politics are Domestic Politics. How Societal Interests and Ideas Shape Ad Hoc Groupings in the G20 which Supersede International Alliances, paper prepared for the Annual Convention of the ISA, March 2011 (www.sowi.rub.de/lsip).

4. Schirm, Stefan A. (2011): The G20, Emerging Powers, and Transatlantic Relations, Paper Series, The Transatlantic Academy, Washington DC, May 2011 (www.transatlanticacademy.org).

5. Vestergaard, Jakob (2011): The G20 and Beyond. Towards Effective Global Economic

Governance, Danish Institute for International Relations Report 2011: 04, Copenhagen.

6. Wood, Ngaire (2010): Global Governance after the Financial Crisis: A New Multilateralism or the Last Gasp of the Great Powers? In: Global Policy 1: 1, 51-63.

**Proofs of academic achievement:** Delivery of reports in due time, presentation and handout, regular attendance of the meetings and active participation in the discussion, term paper.

## LANGUAGE COURSES CENTER FOR FOREIGN LANGUAGE TRAINING

www.rub.de/zfa

Contact: Ms. Jennifer Wenderoth Tel: 0234/32- 28182 Email: zfa@rub.de

#### a) Language Courses

The Centre for Foreign Language Training (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 Language Centre currently offers classes for 20 different languages, such as:

Arabian, Chinese, Danish, Dutch, English, French, Hungarian, Italian, Japanese, Croatian/Bosnian/Serbian, Greek, Norwegian, Polish, Portuguese, Russian, Swedish, Spanish and Turkish.

#### 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 in addition to regular studies. These courses are designed for the special needs of foreign students, doctorals and guest 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® (English, French, Italian, Polish, Russian, Swedish, Spanish) DELE (Spanish) CNaVT (Dutch) Swedex (Swedish)

#### d) Individual Learning

The ZFA also provides various opportunities for individual learning and offers support via counselling individual assistance:

- Tandem (Partners with different mother tongue that exchange and support one another in learning the other language)

- Centre for self- organized learning
- Language- learning counselling

### **OPTIONALBEREICH**

#### http://www.ruhr-uni-bochum.de/optionalbereich/

The Optionalbereich offers a broad spectrum of language courses in cooperation with the ZfA. Additionally to these courses the Optionalbereich also offers different modules, lectures and seminars taught in English in cooperation with the faculties of the Ruhr-Universität Bochum:

#### INTRODUCTION TO MEDIA TRANSLATION

Language: English

Department: Optionalbereich Degree programme: various Module: Introduction to media translation Module taught entirely in foreign language: yes Course type: Module Credit Points: 10 Teacher/Lecturer: Paul F. Botheroyd Requirements: n.s.

#### **Course description:**

The module consists of four parts. Successful participants in all four parts will be awarded 10CP.

- 1.) 432851: Paul F. Botheroyd: Filming the Royals WS 2011/12 Monday 10-12 MMSZ Audi-Max 02.6
- 2.) 432852: Sylvia Botheroyd: Translating the Royals WS 2011/12 Monday 12-14 MMSZ Audi-Max 02.6.
- 3.) 432853: Paul F. Botheroyd / Sylvia Botheroyd: Film Viewings WS 2011/12 Monday 18-20 MMSZ Audi-Max 02.6
- 4.) 432854: Paul F. Botheroyd / Sylvia Botheroyd and guest teachers from Spanish and Belgian universities: Workshop on Filming/ Translating the Royals. Time and place will be announced later.

Parts 1-3 will begin in the second week of the semester.

In part 1 we will be analysing the depiction in English-language film of British kings and queens from King Arthur and the Tudors via the queens Elizabeth I and Victoria to King George VI and Queen Elizabeth II.

In part 2 we will be examining the transfer of English-language films concerned with the British kings and queens to German screens and their translation.

In part 3 we will be viewing full length films.

The contents of part 4 are under discussion with our guests and will be announced later.

## **IRISH LANGUAGE AND CULTURE**

Language: English

Department: Optionalbereich Degree programme: none Module: n.s. Module taught entirely in foreign language: yes Course type: Module Credit Points: 10 Teacher/Lecturer: Paul F. Botheroyd Requirements: n.s.

#### **Course description:**

Module 1: Ireland: Language and Culture, consisting of two parts: 5CP

 431000 Sylvia Botheroyd: Irish for Beginners (Irish 1) A WS 2011/12 Monday 14-16 GBCF 04/711

431004 Laura Fenger/ Sarah Pluschke: Irish for Beginners (Irish I) B WS 2011/12 Wednesday 12-14 GBCF 04/ 614

 431005 Paul F.Botheroyd / Dennis Edler: Ireland: An Introduction WS 2011/12 Wednesday 14-16 MMSZ Audi-Max 02/6

Module 2: Irish Language (Irish II and III), consisting of two parts: 5CP

- 431001 Sylvia Botheroyd: Irish for Beginners with Basic Knowledge (Irish II) WS 2011/12 Wednesday 14-16 GBCF 04/711. The second part will take place in the SS 2012.
- 431003 Sylvia Botheroyd: Irish for Advanced Students (Irish III) WS 2011/12 Wednesday 16-18 GBCF 04/11This is the second part of a module beginning in SS 2011.

Module 3: Irish Language (Irish IV) and Culture for Advanced Students, consisting of two parts: 5CP

- 431001 Sylvia Botheroyd: Irish for Advanced Students (Irish IV), WS 2011/12 Monday 16-18 GC04 300
- 431006 Paul F. Botheroyd: Workshop for Advanced Students: Images of Ireland in Film. WS 2011/12. 5 plenum meetings, time and place by arrangement. First coordinating meeting in first session of course no. 431005: Ireland: An Introduction (see above)
- All of the above Irish modules will start in the second week of the semester.

#### <u>Impressum</u>

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