

Technische Universität München

# Summer Schools

Programme 2012

Technische Universität München

International Office

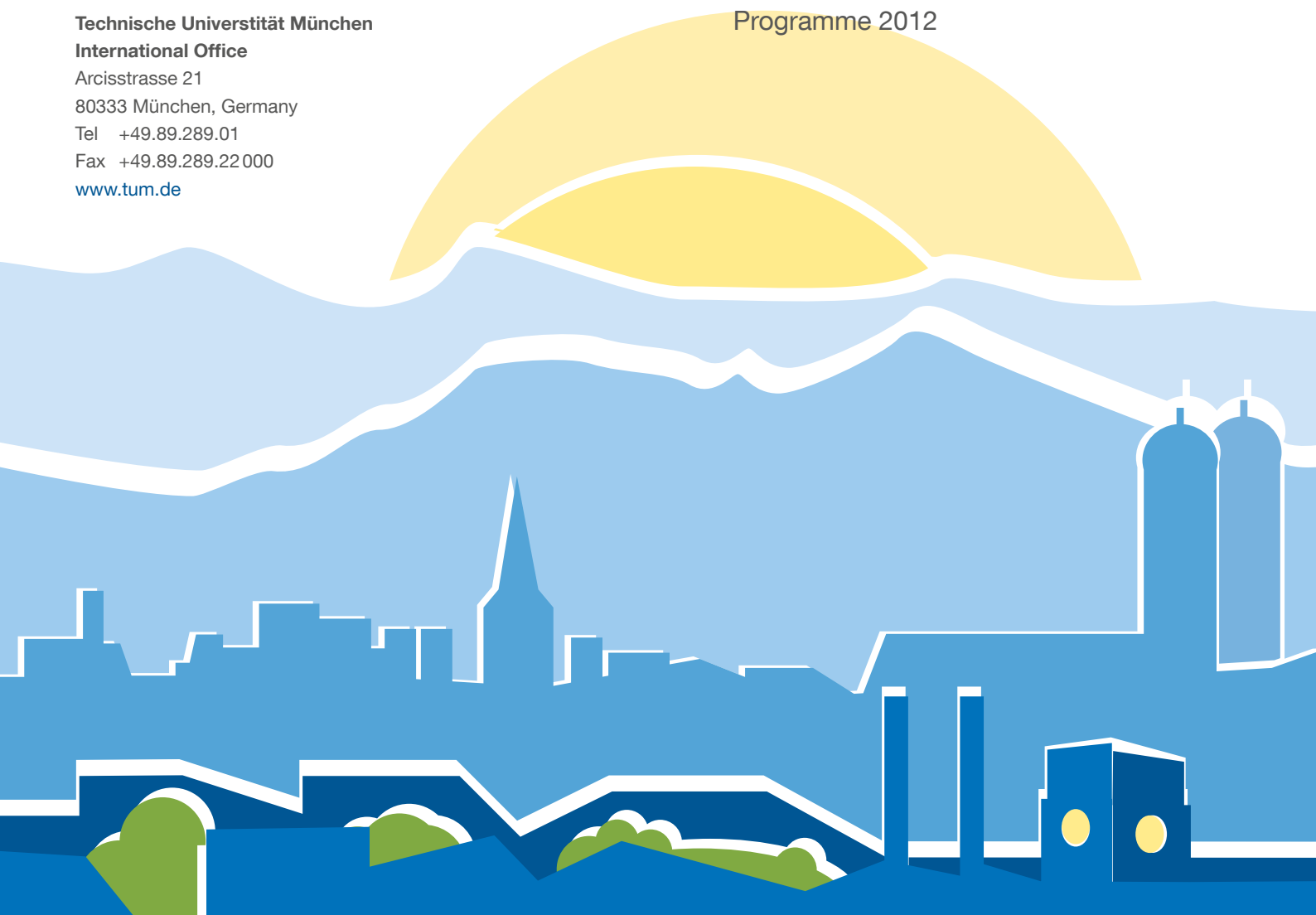
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**Herzlich Willkommen!**

**Bienvenido!**

**Bienvenue!**

**歡迎你！**

**欢迎你！**

**ようこそ！**

**دی دم آ شوخ!**

**Welcome!**

**Powitanie!**

**आपका स्वागत है!**

**Добро дошао!**

**Добро пожаловать!**

**Bem vindo!**

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# Welcome by Vice President Liqiu Meng



## Vice President Prof. Dr.-Ing. Liqiu Meng

The globalized society increasingly requires universities to prepare cosmopolitans with leadership capability and mindset. An entrepreneurial university like Technische Universität München (TUM) with its international staff and students has already taken the whole world as its playground for the cultivation of human capital. We are proud of our inspiring and interdisciplinary teaching and research environment. Meanwhile, we enjoy the unique privilege of being located in Bavaria – the heart of many world-renowned research institutions and enterprises in addition to its cultural and natural attraction. Following the motto “at home in Bavaria, successful in the world”, we are relentlessly striving for closer international collaborations. Being tailored to international students, our summer school programmes are provided as extension and enrichment of the regular degree programs and life-long training courses. In addition to educational opportunities, we anticipate a

number of added values from summer school programmes. First of all, summer schools are excellent platforms that not only bring lecturers with the students together through the intensive interactions in the classrooms, but also promote multicultural networking activities among the participants during and after the class. Second, summer schools serve very well as a foretaste of the delights to continue with a degree programme. Third, in spite of short duration, summer schools authentically reflect our learning environment, the campus life and its connections with the outside world. Last but not least, summer schools emphasize learning as an enjoyable and entertaining activity during a summer vacation. Therefore, they will likely leave a pleasant and life-long impression on their participants. For all these reasons, we warmly welcome international students to attend our summer schools.

A handwritten signature in blue ink, reading "Liqiu Meng".

Prof. Dr.-Ing. Liqiu Meng  
TUM Vice President for International Affairs

# Summer Schools at TUM

With this brochure we would like to give you an overview of the wide range of summer programmes offered at Technische Universität München, one of Germany's leading research universities.

TUM offers summer schools for a number of different target groups in a variety of fields of study in Germany and abroad. The topics cover subjects varying from computer science to civil engineering, life and food sciences, nanotechnology and medicine. Applicants do not have to be enrolled as students to participate. Some of the programmes are for Ph.D. candidates or professionals with work experience.

**Participating in one of TUM's summer schools offers the unique opportunity to:**

- Become a member of the TUM community
- Meet international and German students, researchers and employees
- Deepen your knowledge in a specific field of study
- Enjoy the summer months while widening your academic and personal horizons

Here's what some alumni of past TUM summer schools have written about their experiences:



**We hope this brochure will help you to find the programme that best suits your needs and expectations.**

**Please contact the respective contact persons for detailed information about the individual programmes (application, deadline cost etc.)!**

## Impressions of former participants



**Gelu  
Trisca**  
Eftimie Murgu  
University  
Resita  
Romania

*“Words are not enough to really express what Munich Winter University meant to me on the academic, cultural and personal level. Through workshops and seminars I was exposed to interesting topics for my future research career and the people that I met here (academics, staff, tutors and colleagues) enriched me as a person and scholar. The memories of Munich Winter University will always be very precious to me.”*



**Blaga Vladkova**  
Technical University of Sofia  
Bulgaria

*“The Winter University was a valuable, successful and awesome experience for me. Because of the very good organization, the whole group has learnt a lot, has encountered many unforgettable things and has made many new friendships.”*

## Mourad Ghanem

Al Akhawayn University Ifrane Morocco



*“Innovation is the best summer programme that I have been taken part in so far. It helps me to interact with international students. I gained a lot of knowledge from those students. The programme gave me an idea about my future work as a computer science student. The summer programme of Innovation, Technology and Society in Germany seems to be a small world in which we studied with students from seven different countries and cultures and religions. This is a good experience for me because it will help me in my future when I will study abroad.”*



**Hui Qing  
Yap**  
University of  
Illinois, Urbana-  
Champaign  
USA

*“I liked the exposure to a wide range of thriving research centres in Munich and the rare opportunities we had to speak to experts in their respective fields. The programme definitely educated me both on the future potential of nanotechnology and possible applications, as well as the complications that may result. The staff and tutors were all very helpful and friendly and I really enjoyed the occasional excursions out of school!”*

## Jorge Fillela

University of Alberta Canada



*“TUM’s Finding Nano Summer University Programme gives students insight to the exciting research landscape in Germany while also getting them immersed in the country’s unique culture. For me specifically, it was an unforgettable experience. As an engineering student, visits to research and academic sites were exceptionally interesting. However, getting to know the culture and language of one of the most history-rich countries in the world was equally fascinating. I also made a lot of friends and visited major sites during my stay. Overall the programme is an excellent opportunity for those interested in the world of nanotechnology, and who are willing to have fun while discovering it!”*



## Roman Karlstetter

Technische Universität München  
Germany

*“Ferienakademie has been a really enriching experience for me. The course topics are very interesting and all the presentations we have had were truly fascinating. However, it is all the other people from different study programmes, universities and countries that make this a really amazing event. Furthermore, it is probably one of the best organized Summer Schools existing, so you can fully concentrate on your course and enjoy hiking and all the other activities during course breaks.”*



## Astrini

Nanyang  
Technological  
University  
Singapore

*“Having spent 3 wonderful weeks in the TUM Summer University is truly a priceless experience for me. In the programme, I did not only have the chance to improve my German language, but also immerse myself into the German culture and experiencing the social life in Germany. I truly enjoyed the activities offered, from the enriching workshops in research institutes and production factories, to the fun and relaxing tours around the cities and places of attractions. I am glad to be one of the members of the Summer University, and I will take with me all the unforgettable lifelong memories and experiences.”*

# Engineering and Management across Cultures

**Dates:** 1st – 22nd August 2012

**Location:** TUM Munich, Germany

## Description:

In this Summer University programme students are introduced to various fields of civil engineering, geodesy, physics as well as natural science at TUM, the leading research university in Germany. One important component of the programme is the intensive seminar at one of TUM's facilities outside of Munich. The programme also includes trips to cultural and historical sites in and around Munich.

## Programme overview:

- An intensive German language course (3 credits ECTS)
- Workshops in the following fields: general engineering, civil engineering, geodesy
- An intensive seminar at one of TUM's facilities outside of Munich focusing on satellite geodesy
- Social and cultural activities, including trips to historical sites in Bavaria.

## Target group and requirements:

International students of engineering and science

## Course languages:

English (Workshops), German (German course)

## Costs:

1.500 € (includes: German course, TUM workshops, cultural programme, excursions, health insurance, accommodation in dorm, half-board (Mon – Fri), public transportation pass, pick-up service, social programme, tutors.)

## Services:

Accommodation, pick-up service, half-board, social programme



**Application:** [www.tum-summer.com](http://www.tum-summer.com)

**Application deadline:** 1st May 2012

**Number of participants:** up to 25

**Scholarships/grants:** not available

## Contact:

TUM International Office – Summer University

Arcisstrasse 21

80333 München, Germany

Tel +49.89.289.22151

[sommeruni@zv.tum.de](mailto:sommeruni@zv.tum.de)

[www.tum-summer.com](http://www.tum-summer.com)

**Course focus:** Civil engineering, geodesy, physics and international project management, German language and culture



# Entrepreneurial Impact International Summer School

**Dates:** 20th – 28th September 2012

**Location:** Munich, Germany

## **Description:**

"Billion Dollar Projects to foster societal change" – that is the vision of the Entrepreneurial Impact International Summer School (EISS). During the EISS international students from all disciplines will develop new business ideas that alternately focus on a list of different topics, all of which strongly impact our lives.

The EISS 2012 is a joint initiative of Munich's four universities and their Entrepreneurship Centers. This ensures an excellent standard in teaching as well as a large network and intellectual basis for business ideas.

## **Programme overview:**

- International and interdisciplinary teamwork to develop business ideas addressing society's challenges
- Keynote talks, lectures, workshops and discussion rounds by leading experts
- Training in presentation and teambuilding skills
- Social and cultural activities (incl. Oktoberfest visit)
- Students receive certificates of participation

## **Target group and requirements:**

The course is open to undergraduate students who have successfully completed 4 semesters and are

- open-minded, curious and highly motivated
- able to express themselves in English
- enjoy working in international and interdisciplinary teams
- willing to think and act entrepreneurially.

**Course languages:** English

**Costs:** 100 € (includes: workshops, cultural programme, excursions)

## **Services:**

Assistance on finding accommodation in Munich, social programme, mentors/coaches who will provide feedback and assistance throughout the project.

**Application:** Please send your application documents (CV, letter of motivation) via e-mail to [info@seakademie.de](mailto:info@seakademie.de)

**Application deadline:** 31st July 2012

**Number of participants:** up to 30 students

**Scholarships/grants:** Travel scholarships up to 400 €, covering travel expenses. Please include the scholarship application along with your general application for the programme.

**Partners:** Haniel Stiftung

## **Contact:**

Social Entrepreneurship Akademie

Heßstraße 89

80797 München, Germany

[info@seakademie.de](mailto:info@seakademie.de)

[www.seakademie.de/summerschool](http://www.seakademie.de/summerschool)

## **Course focus:**

Interdisciplinary and international teamwork to develop new business ideas addressing global societal challenges.





# Executive Training: Social Networks

**Dates:** 19th – 20th July 2012

**Location:** Burg Schwarzenstein, Rheingau, Germany

## **Description:**

Facebook, Youtube or Xing – all these social networks connect customers, employees and company profiles. German organizations and companies have already found their way into the World Wide Web and have had varying experiences. But where does your company stand in this process? What does "Social Media" mean for the corporate culture? How do the structures and communication channels change because of the new possibilities in the World Wide Web?

In the Executive Training course you will discuss these topics and others with representatives from a range of organizations and you will have a chance to connect yourself to new social networks. In addition to working in small groups, you will benefit from the scholarship of top scientists. During the fireside chat you will have the opportunity to exchange experiences and ideas with world-class experts from the business world.

## **Programme overview:**

- Morning sessions
- Top scientists
- Practice-oriented group tasks
- Exchange with experts
- Idea generation at fireside chat

## **Target group and requirements:**

Senior Managers from corporate groups, medium-sized businesses, or non-profit organizations and freelancers who want to explore the topic of social networks.

**Course language:** German

## **Costs:**

1.600 € (includes: lecture, catering and dinner menu, course materials)

## **Services:**

course materials, social programme

**Application:** [www.eec.wi.tum.de](http://www.eec.wi.tum.de)

**Application deadline:** rolling admission

**Number of participants:** up to 18

**Scholarships/grants:** early bird discount (10%)

## **Contact:**

Executive Education Center – TUM School of Management  
*Christian Raab*

Arcisstrasse 21

80333 München, Germany

Tel: +49.89.289.28474

[info@eec.tum.de](mailto:info@eec.tum.de)

[www.eec.wi.tum.de](http://www.eec.wi.tum.de)

## **Course focus:**

Social Media, Social Networks



Photo: Thomas Linkel

# Ferienakademie

**Dates:** 23rd September – 5th October 2012

**Location:** Sarntal, South Tyrol, Italy

## Description:

The Ferienakademie is a seminar programme for highly motivated and gifted students from the three organizing universities, Technische Universität München (TUM), FAU Erlangen-Nürnberg, and Universität Stuttgart. The Ferienakademie in Sarntal has been held since 1984. With currently about 200 participating students and professors, it is not only the oldest but also the largest event of its kind. From the very beginning it has been fully financed by sponsors from universities and companies.

## Programme overview:

- The Ferienakademie takes place annually in September in Sarntal, Italy, and offers about 8 – 13 seminar courses for 14 students each typically taught by three professors, one from each university. The courses address cutting-edge research topics chiefly in science and engineering, but also more recently in medicine and the philosophy of science. These courses are not part of any regular study programmes but are intended to augment these.
- All seminar groups bring together students from the different universities and typically from different fields.
- Recreational activities like hiking tours and excursions to nearby places of interest are included in the programme.
- Presentations by and seminars with leading experts and executive representatives from industry and politics complement the programme.

## Target group:

The courses address undergraduate, graduate and Ph.D. level students from the three organizing universities and from their partner institutes in St. Petersburg. The various courses cover a wide range of fields from mathematics, informatics, physics, chemistry, and engineering sciences to medicine. There are courses for first year as well as for advanced students. Participation at the Ferienakademie requires an application followed by a highly competitive

selection process based on students' performance in their study programme as well as their personal qualifications.

## Course languages:

German or English, depending on the individual course.

**Costs:** Participation is free and includes accommodation in hotels with full board, transportation and excursions.

**Application:** [www.ferienakademie.de](http://www.ferienakademie.de)

**Application deadline:** 20th May 2012

**Number of participants:** 10 courses, 14 students per course

## Contact:

TUM Faculty of Informatics – Chair of Informatics V

*Prof. Dr. Hans-Joachim Bungartz*

Boltzmannstrasse 3, 85748 Garching, Germany

Tel +49.89.289.18604

[bungartz@in.tum.de](mailto:bungartz@in.tum.de)

[www.ferienakademie.de](http://www.ferienakademie.de)

**Course focus:** Various topics mainly in science and engineering, but also in medicine and the philosophy of science.



# Finding Nano – Discovering Nanotechnology and Culture in Germany

**Dates:** 11th June – 22nd July 2012

**Location:** TUM Munich/Garching, Germany

## Description:

Experience nanotechnology and German culture at the TUM. In this wonderful setting near the Alps, students enjoy a 6-week intensive summer programme with a nanotechnology lecture, a lab course and site visits to 10 leading research centers. The Summer University includes a German language course and trips to cultural and historical sites in and around Munich.

## Programme overview:

- Electronic properties of nanoengineered materials (NanoSCI)  
This course introduces students to the rapidly developing field of nanoengineered materials with special focus on their electronic properties.  
30 Lecture hours = 2 Semester Credit Hours/  
1 Quarter Course Credit
- Nanotechnology in Germany: Implementing Science, Research and Technology in Germany (NanoTECH)  
This course gives students an overview of the technological landscape of Germany, with an emphasis on nanotechnology centers.  
30 Lecture hours = 2 Semester Credit Hours/  
1 Quarter Course Credit
- German Language Course  
50 Lecture hours = 3 Semester Credit Hours/  
1,5 Quarter Course Credits
- German Culture and History  
Visits to cultural and historical sites

## Target group and requirements:

Undergraduates of science and engineering who have completed an introduction to quantum mechanics or quantum chemistry.

## Course languages:

German (German course), English (NanoSCI and NanoTECH)

## Costs:

3.300 €  
TUM workshops, German course, cultural programme, excursions, health insurance, accommodation in dorm, half-board (Mon – Fri), public transportation pass

## Services:

Accommodation, pick-up service, half-board, social programme

**Application:** [www.tum-summer.com](http://www.tum-summer.com)

**Application deadline:** 15th March 2012

Early admission applications accepted starting January 1st 2012

**Number of participants:** up to 20

**Scholarships/grants:** not available

**Partners:** Prof. Dr. Matthew Grayson (Northwestern University); Prof. Paolo Lugli (TUM); Dr. José Antonio Garrido Ariza (Walter Schottky Institut, TUM); Dr. Ian Sharp (Walter Schottky Institut, TUM)

## Contact:

TUM International Office – Summer University  
Arcisstrasse 21  
80333 München, Germany  
Tel +49.89.289.22.151  
[sommeruni@zv.tum.de](mailto:sommeruni@zv.tum.de)  
[www.tum-summer.com](http://www.tum-summer.com)

**Course focus:** Nanotechnology



Photo: Matthew Grayson



Photo: TUM/Eckert/Heidegott

# 2012 IEEE European School of Information Theory

**Dates:** 16th – 20th April 2012

**Location:** Antalya, Turkey

## Description:

The 2012 School of Information Theory is organized by TUM, CTTC (Centre Tecnològic de Telecomunicacions de Catalunya), and Bahçeşehir Üniversitesi, and is sponsored by the IEEE Information Theory Society. The school provides a venue where doctoral and postdoctoral students can meet to learn from distinguished professors in information theory, form friendships and collaborations, and actively participate in scientific research. Although the focus is on information theory, interdisciplinary topics are welcome, e.g., topics related to mathematics, physics, biology, control, networking, etc.

## Programme overview:

Mornings: Lectures by invited speakers

- Frans Willems (Eindhoven): Introduction to Universal Source Coding and Biometrics
- Sennur Ulukus (University of Maryland): Information Theoretic Security
- Meir Feder (Tel Aviv University): Efficient Lattice Codes
- Alex Dimakis (USC): Network Coding for Distributed Storage
- Michael Gastpar (Berkeley and EPFL): Algebraic Structure in Network Information Theory

Afternoons: Presentations by students.



Photo: Institute of Communications Engineering



Photo: Institute of Communications Engineering

## Target group and requirements:

Graduate students and postdocs interested in information theory and related topics.

**Course languages:** English

**Costs:** 450 € per person in a double room and 590 € in a single room.

## Services:

The registration fee covers

- Hotel accommodation with unlimited food and drinks
- Half-day tour to nearby tourist attractions in a coach with a tourist guide, including all entrance fees
- Transfers between the Antalya airport and the hotel

**Application deadline:** 12th January 2012

**Number of participants:** up to 60

**Scholarships / grants:** not available

## Contact:

TUM Faculty of Electrical Engineering  
and Information Technology  
Institute for Communications Engineering  
*Prof. Gerhard Kramer*  
Theresienstrasse 90  
80333 München, Germany  
Tel: +49.89.289.23491  
gerhard.kramer@tum.de  
[www.itsoc.org/european-school](http://www.itsoc.org/european-school)

## Course focus:

Information theory and its applications: communications, mathematics, physics, biology, control, networking, etc.

# Innovation, Technology and Society in Germany

**Dates:** 4th – 24th June 2012

**Location:** TUM Munich, Germany

## Description:

This Summer University course introduces innovations and international cooperation in the fields of scientific computing, project management and business administration. It also contributes to a deeper understanding of modern German society. Students visit high-tech and traditional industrial locations in and around Munich (e.g. Siemens, BMW) as well as get to know the most famous historical sites in Bavaria.

## Programme overview:

- An intensive German language course (ca. 50 hours, 3 credits ECTS)
- Workshops in the following fields: innovations in scientific computing, project management & leadership, bioinformatics/medical engineering, and German culture and society (worth 3 credits ECTS)
- Visit to TUM research labs
- Introduction to the German automotive industry
- Social and cultural activities, including trips to historical sights in Bavaria.

## Target group:

International students of business administration, computer science and engineering in general

## Course languages:

English (Workshops), German (German course)

**Costs:** 1.500 €

## Services:

German course, TUM workshops, cultural programme, excursions, health insurance, accommodation in dorm, half-board (Mon – Fri), public transportation pass, tutors



Photo: TUM/Benz



Photo: Sarah Thiam

**Application:** [www.tum-summer.com](http://www.tum-summer.com)

**Application deadline:** 26th February 2012

**Number of participants:** up to 25

**Scholarships/grants:** not available

**Partners:** Al Akhawayn University, Morocco;  
Nanyang Technological University, Singapore

## Contact:

TUM International Office – Summer University  
Arcisstrasse 21

80333 München, Germany

Tel +49.89.289.22151

[sommeruni@zv.tum.de](mailto:sommeruni@zv.tum.de)

[www.tum-summer.com](http://www.tum-summer.com)

## Course focus:

Business administration, computer science, international project management, German language and culture



# International Summer School Marktobendorf

**Dates:** 31st July – 12th August 2012

**Location:** Marktobendorf, Germany

## Description:

The Summer School Marktobendorf is a two-week course for young computer scientists working in the field of formal and provable, secure software systems and their development. The course aims at the dissemination of advanced scientific knowledge and the promotion of international contacts among scientists.

The lecturers come from 12 universities and research labs from 8 different countries. The Summer School 2012 will demonstrate how research in computer science is able to build a bridge between research in industry and in scientific environments. The course focuses on formal software engineering by modeling, describing and building correct and reliable software systems.

## Programme overview:

- 12 intensive courses/special CS topics
- Intensive communication and networking with
  - international leading experts in CS
  - young computer scientists/PhD students

## Target group and requirements:

Previous training and experience in computer science as well as a solid background in computer logic are indispensable. Applicants should have a degree comparable to an M.Sc. The Summer School is targeted for computer scien-

tists who want to pursue an academic career. International applications from all over the world are welcome.

**Course languages:** English

**Costs:** 1.540 €

(includes: CS tutorials, cultural programme, excursions, accommodation, full-board, social events, proceedings)

## Services:

Accommodation, full-board, course materials, social programme

**Application:** [asimod.in.tum.de](http://asimod.in.tum.de)

**Application deadline:** 5th March 2012

**Number of participants:** up to 80

**Scholarships / grants:** possible

**Partners:** NATO, DAAD

## Contact:

TUM Faculty of Informatics

*Dr. Katharina Spies*

Boltzmannstrasse 3

85748 Garching, Germany

Tel +49.89.289.17829

[asimod@in.tum.de](mailto:asimod@in.tum.de)

[asimod.in.tum.de](http://asimod.in.tum.de)

## Course focus:

Software Engineering, Engineering Theories, Model Checking, Modelling Languages, Cyber-physical Systems



# Latest Achievements in Transportation Planning and Traffic Control

**Dates:** 16th – 27th July 2012

**Location:** Tsinghua University, Beijing, PR China

## Description:

The summer school consists of a two-week training course comprising the latest achievements in transportation planning and traffic control. The course has been set up for students from the Peoples Republic of China and is organized by Technische Universität München (TUM) and Tsinghua University and supported by the German Academic Exchange Service (DAAD) and the German Foreign Office (Auswärtiges Amt).

## Programme overview:

- Module 1: Land use and traffic demand
- Module 2: Transport and environment/sustainable transport
- Module 3: Traffic flow theory
- Module 4: Traffic control systems/  
intelligent transportation systems
- Module 5: Traffic planning simulation models
- Module 6: Assessment of transport infrastructure projects
- Module 7: Selected aspects of intermodal traffic concepts
- Module 8: Transport demand management

## Target group and requirements:

The summer school is open exclusively to applicants from the Peoples Republic of China.

**Course language:** English

**Costs:** Participation is free of charge for all students.

**Services:** Social programme

**Application:** [www.summerschool.bv.tum.de](http://www.summerschool.bv.tum.de)

**Application deadline:** 31st May 2012

**Number of participants:** up to 45

**Scholarships/grants:** not available

**Partner:** Tsinghua University, Institute of Transportation Engineering, Beijing, China

## Contact:

TUM Faculty of Civil Engineering and Surveying  
Chair for Traffic Engineering and Control  
Arcisstrasse 21

80333 München, Germany

Tel +49.89.289.22443

Fax +49.89.289.22333

[transportation@vt.bv.tum.de](mailto:transportation@vt.bv.tum.de)

[www.summerschool.bv.tum.de](http://www.summerschool.bv.tum.de)

**Course focus:** Transportation engineering





# MB-JASS' 2012

**Dates:** 27th March – 2nd April 2012

**Location:** Haus der bayerischen Landwirtschaft  
Herrsching, Germany

## **Description:**

The spring programme for advanced students, now in its 6th year, takes place this year in Herrsching and is jointly organized by the National Research University of Electronic Technology and Technische Universität München. It aims to bring together the top students in all fields of science that Bavarian universities have to offer. For further information, see [www14.in.tum.de/konferenzen/JASS.html](http://www14.in.tum.de/konferenzen/JASS.html)

## **Programme overview:**

Course directors from Moscow and Bavarian universities introduce state-of-the-art research areas and assign specific topics to students for presentation.

Students receive an official certificate of participation upon completion of the programme.

## **Target group and requirements:**

The summer school seeks highly motivated and interested students who are willing to participate actively. The course is open to graduate and upper-level undergraduate students from both participating universities in the faculties of engineering, natural sciences, mathematics, economics and informatics.

**Course language:** English

**Costs:** Airfare, airport pick-up and delivery, accommodation, and meals are covered by the MB-JASS programme.

**Services:** Airport pick-up, accommodation, full-board, social programme



**Application:** [www14.in.tum.de/konferenzen](http://www14.in.tum.de/konferenzen)

**Application deadline:** 2nd February 2012

**Number of participants:** up to 16

**Scholarships/grants:** MB-JASS' 2012 is fully supported by grants from industry and the participating universities.

**Partner:** National Research University of Electronic Technology ("MIET") [www.miet.ru](http://www.miet.ru)

## **Contact:**

Chair for Efficient Algorithms (IN LEA, IN14)

*Prof. Dr. Ernst W. Mayr*

Boltzmannstrasse 3

85748 Garching, Germany

Tel +49.89.289.17704

[mayr@in.tum.de](mailto:mayr@in.tum.de)

[www14.in.tum.de/konferenzen/JASS.html](http://www14.in.tum.de/konferenzen/JASS.html)

**Course focus:** Courses on Biomedical Engineering, Nanoscale IC Design, and Nanotechnology in Electronics

# Molecular and structural complexity of soil organic matter formation and turnover

Dates: 25th – 30th March 2012

Location: Kardinal-Döpfner-Haus, Freising, Germany

## Description:

The programme aims at bringing together young and established scientists from various disciplines in soil science (biology, chemistry, physics, modelling) to interact in an interdisciplinary course related to studying soil organic matter (SOM), its formation, properties and function. The course is organized by Technische Universität München and is sponsored by MOLTER ([www.molter.no](http://www.molter.no)).

## Programme overview:

- Soil organic matter formation and properties at different scales: Aggregate formation, nanoscale characteristics, interfaces – surface charge – nanoscale
- Soil system processes: SOM formation processes, microbial ecology, dissolved organic matter, nitrogen stabilization and turnover, vegetation fires, black carbon formation, SOM turnover in subsoils
- Modelling of SOM turnover

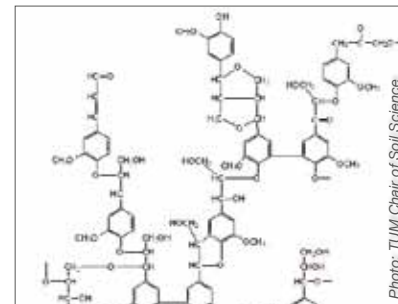
## Target group and requirements:

Ph.D. students and early post-doctoral researchers working on problems related to the summer school topics are invited to participate in the school.

**Course language:** Workshop language will be English

**Costs:** The course fee is set at EUR 200 including course materials. Accommodation during the course from March 25 – March 30, 2012 (double room for 5 nights) is sponsored by MOLTER. It covers also breakfast, lunch, dinner and coffee during the course

**Services:** Airport pick-up, accommodation, full-board, social programme



**Application:** [www.soil-science.com/index.php?id=249](http://www.soil-science.com/index.php?id=249)

**Application deadline:** 15th November 2011

**Number of participants:** 30

**Scholarships/grants:** Room and board will be sponsored by MOLTER and includes breakfast, lunch, dinner and coffee during the course.

## Contact:

TUM Chair of Soil Science  
Department Ecology and Ecosystem Management  
Center of Life and Food Sciences Weihenstephan  
*Prof. Dr. Ingrid Kögel-Knabner*  
Emil-Ramann-Straße 2  
85354 Freising, Germany  
Tel: +49.8161.71.3677  
[skuerz@wzw.tum.de](mailto:skuerz@wzw.tum.de)  
[www.soil-science.com](http://www.soil-science.com)

## Course focus:

The focus of the Summer School will be on the study of processes of soil organic matter (SOM) formation and turnover. The challenge is to link processes operative on the molecular and organism scale to processes at and within biogeochemical interfaces in soils and to understand their functions across different scales.

# Pre-Study Course

**Dates:** 3rd – 30th September 2012

**Location:** TUM Munich, Germany

## Description:

Summer University Pre-Study Course prepares international or exchange students enrolled at TUM for a period of study at the university. The course is an ideal way to improve German language skills, make friends and become familiar with the university before the semester begins. The course aims to highlight innovative technology and business in Germany while at the same time offering students the opportunity to try out different subjects of study and experience European and German culture first hand. Participants will receive an introduction to the German automotive industry as well as state of the art research at TUM. This is a unique chance to discover new fields of interest in science and technology while living in an intercultural environment surrounded by the cultural traditions of society in modern Germany.

## Programme overview:

- An intensive German language course (80 hours, 4 credits ECTS)
- Project work and lectures on German and European culture
- Workshops in technology, science and business (50 hours, 3 credits ECTS)
- Visits to state of the art TUM research labs
- Social and cultural activities, including trips to cultural and historical sights in Munich and Bavaria.

## Target group:

international/exchange students at TUM

## Course languages:

English (Workshops), German (German course)

## Costs (three options):

1. All inclusive 1.200 €: German course, language tutorial, TUM workshops, cultural programme, excursions, health insurance, half board (Mon – Fri) and public transporta-

- tion pass with accommodation in a student dorm
2. Full programme without accommodation 850 €: German course, language tutorial, TUM workshops cultural programme, excursions, health insurance half board (Mon – Fri) and public transportation pass
3. German course only 400 €: German course, language tutorial, books and other materials

**Application:** [www.tum-summer.com](http://www.tum-summer.com)

**Application deadline:** 31st July 2012

**Number of participants:** up to 70

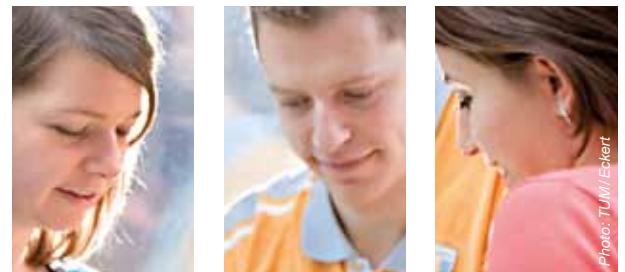
**Scholarships/grants:** not available

## Contact:

TUM International Office – Summer University  
Arcisstrasse 21  
80333 München, Germany  
Tel +49.89.289.22151  
[sommeruni@zv.tum.de](mailto:sommeruni@zv.tum.de)  
[www.tum-summer.com](http://www.tum-summer.com)

## Course focus:

Preparation course for studying at TUM



# Stable Isotopes in Environmental Sciences, Ecology and Physiology

**Dates:** 16th – 22nd April 2012

**Location:** TUM Munich, Germany

**University of South Bohemia, Budweis, Czech Republic**

## Description:

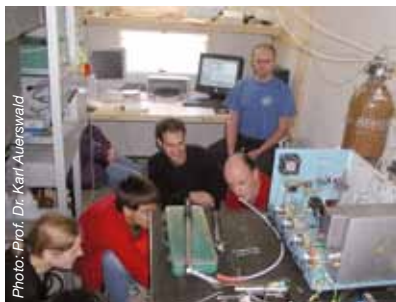
The use of stable isotopes has increased greatly in ecology, ecophysiology, and environmental and land use sciences providing insight in the functioning of ecosystems and organisms. The aim of the programme is to give a broad introduction into the theory of stable isotopes, methodology and instrumentation, and into the application of stable isotopes in afore mentioned fields of science.

## Programme overview:

The course is composed of two main elements: lectures in the morning and research projects in the afternoon. The lectures will be presented by scientists from TUM, the University of South Bohemia as well as external experts, all of whom are well-experienced in a broad range of stable isotope applications.

Research projects will address scientific questions in plant and animal physiology, food authenticity, hydrology and related areas. Within a project, participants will be introduced to sampling procedures, sample preparation and measurements with state-of-the-art mass spectrometers, data analysis, evaluation and presentation.

The course is equivalent to 5 credit points (ECTS).



## Target group and requirements:

Young graduates or post-graduates with BSc, MSc or PhD in Agriculture, Biology, Plant Physiology or a related academic field

**Course language:** English

## Costs:

External Participants 260 €

Domestic Participants 80 €

**Services:** accommodation, half-board, social programme

**Application:** [www.wzw.tum.de/isotopeschool](http://www.wzw.tum.de/isotopeschool)

**Application deadline:** 31st January 2012

**Number of participants:** up to 18

**Scholarships/grants:** not available

## Lecturers:

Prof. Hans Schnyder, Prof. Karl Auerwald, Dr. Rudi Schäuferle, Dr. Fernando Lattanzi, PD Dr. Thorsten Grams, Prof. (em.) Ludwig Schmidt, TU München  
Prof. Hana Santruckova, Prof. Jiri Santrucek  
University of South Bohemia,  
Dr. Frank Monahan, University College Dublin  
Dr. Andreas Rossmann, isolab GmbH

## Contact:

TUM Lehrstuhl für Grünlandlehre

*Melitta Sternkopf*

Alte Akademie 12

85350 Freising, Germany

Tel: +49.8161.71.3242

[sternkopf@wzw.tum.de](mailto:sternkopf@wzw.tum.de)

[www.wzw.tum.de/isotopeschool](http://www.wzw.tum.de/isotopeschool)

**Course focus:** Stable isotopes in ecology, plant and animal physiology, food authenticity, hydrology

# Sustainable resource management and conservation strategies in the context of global change

**Dates:** 15th – 28th July 2012 (to be confirmed April 2012)

**Location:** Davis, California USA

## Description:

The Summer School "Sustainable resource management and conservation strategies in the context of global change" focuses on the effects of global climate change on natural and human constructed aquatic systems and will take place at TUM's partner university, the University of California Davis. California permits the unique opportunity to comparatively investigate marine, estuarine and freshwater systems. The participants will visit the highly modified rivers and estuaries of northern California to examine what is being done to reduce vulnerability to climate change, as well as to determine what research is needed.

## Programme overview:

- Keynote talks, lectures, workshops and discussion rounds by leading experts in the fields of life and water sciences from University of California Davis and Technische Universität München
- Excursions and day-trips (Lake Tahoe Environmental Research Center, Bodega Marine Laboratory, rafting trip, Sacramento River and Suisun marshes, Butte Creek Restoration)
- Social and cultural activities



## Target group and requirements:

The course is open to graduate and upper-level undergraduate students, PhD students and early Post-Docs from TUM and UCD in the fields of life sciences (e.g. ecology, biology, agricultural sciences) and engineering with an interest in water-related challenges and solutions. Due to the limited number of participants, preference will be given to advanced students.

**Course language:** English

**Costs:** \$ 380

**Application:** Please send your application documents (CV, short motivation letter, short abstract of your research project) to Dr. Richard Connon (reconnon@ucdavis.edu)

**Application deadline:** 15th April 2012

**Number of participants:** up to 30

**Scholarships / grants:** not available

## Partner:

Chair of Aquatic Systems Biology TUM (Prof. Jürgen Geist),  
International Office TUM

## Contact:

Aquatic Toxicology Programme, Department of Anatomy,  
Physiology and Cell Biology  
University of California Davis

*Dr. Richard Connon*

1321 Haring Hall, One Shields Avenue  
Davis, 95616, USA

Tel: +1 530 752-3141

reconnon@ucdavis.edu

[www.vetmed.ucdavis.edu/apc/ConnonLab.html](http://www.vetmed.ucdavis.edu/apc/ConnonLab.html)

**Course focus:** Life Sciences



# Trilateral Summer School

**Dates:** 22nd – 27th July 2012

**Location:** Nice, France

## Description:

Trilateral Summer School

Partner universities:

Technische Universität München

Université de Nice Sophia Antipolis, France

Medical University of Silesia, Katowice, Poland

The Trilateral Summer School for medical students includes lectures, seminars, workshops and practical training. It takes place once a year at one of the three partner universities and deals with a specific topic each year, e.g. Emergency Medicine, Cardiology and Cardiac Surgery or Infectious Diseases in the previous years. In 2012 the topic will be Allergology. 10 students and three professors from each partner university participate in the summer programme.

## Target group and requirements:

Medical students from the 3 partner universities

**Course language:** English

## Services:

Lectures, seminars, workshops and practical training, social programme, excursions, travel costs, half-board and lodging.



**Application:** [summerschool@meditum.de](mailto:summerschool@meditum.de)

**Application deadline:** 1st May 2012

**Number of participants:** up to 10 medical students from each partner university

## Contact:

TUM Faculty of Medicine

TUM MeDiCAL Center of Medical Education

*Dipl.-Psych. U. v. Wolffersdorff / A. Hesse, M.A*

Klinikum rechts der Isar

Ismaningerstrasse 22

81675 München, Germany

Tel +49.89.4140.6305 / .6304

[summerschool@meditum.de](mailto:summerschool@meditum.de)

[www.meditum.de](http://www.meditum.de)

**Course focus:** Medicine



Photo: TUM MeDiCAL



Photo: TUM MeDiCAL



Photo: TUM MeDiCAL

# TUM Spring School on Systems Engineering

**Dates:** 26th – 30th March 2012

**Location:** Garching, Germany

## Description:

The TUM Spring School on Systems Engineering TUM S<sup>3</sup>E is offered for PhD students from all departments working in areas related to systems engineering.

The aim of the five-day course is to encourage the international scientific exchange among different disciplines. The course will enable students to gain insights into the industrial implementation and application of systems engineering.

The programme will be a combination of presentations given by participants and speeches given by invited guests. After each talk there will be time for extensive discussion. Workshops will allow an in-depth consideration of specific topics.

## Programme overview:

- Tutorials on systems engineering and research in that area
- Presentations and discussions about the research projects of the participants
- Workshops on current research topics and methods in systems engineering
- Presentations on industrial applications and current research trends

## Target group and requirements:

PhD students whose work is related to any aspects of systems engineering are invited to participate in the TUM Spring School on Systems Engineering. Applicants should send a short outline containing the following:

- Introduction to their research topic
- Abstract and results
- Relationship to systems engineering

**Course language:** English



Photo: David Hellerbrand



Photo: David Hellerbrand



Photo: Thomas Ormeier

**Costs:** 250 € (includes: tutorials, presentations, workshops, proceedings, beverages and food during the courses)

**Services:** Course materials, social programme

**Application:** [www.tums3e.org](http://www.tums3e.org)

**Application deadline:** 15th January 2012

**Number of participants:** up to 12

**Scholarships / grants:** not available

**Partners:** Stevens Institute of Technology, GfSE (German Chapter of INCOSE), Design Society

## Contact:

TUM Institute of Product Development

*Wieland Biedermann*

Boltzmannstr. 15

85478 Garching, Germany

Tel: +49.89.289.15129

[info@tums3e.org](mailto:info@tums3e.org)

[www.tums3e.org](http://www.tums3e.org)

**Course focus:** Systems engineering, PhD research, PhD projects



# Vibrations of Structures due to Rail Road Traffic-Measurements of Vibrations – Predictions with Computer Models

**Dates:** October 2012

**Location:** Belgrade, Serbia

## Description:

Traffic induced vibrations are increasingly being considered as a nuisance. The generation mechanism of the vibrations, their propagation in the ground, the pollution to the environment, and the countermeasures against this problem, including the reduction of vibration sources, the attenuation and cutting of vibration transmission paths in ground soil and the isolation of buildings, are all under study in many European countries. In a programme which is jointly established by the chair of Baumechanik, TUM and the Faculty of Civil Engineering in Belgrade the following topics are taught: Mechanisms of excitation, prediction of transmission (layered-elastic-isotropic half-space, solution techniques), assessment of resulting vibrations, measures for attenuation, aspects concerning measurements, high frequent vibrations (SEA).

## Programme overview:

- Selected topics presented by students of both schools prepared at the home university. Overview and specialized topics presented by the professors
- Every day starting with a short workshop
- Cultural programme – getting to know Serbia
- Worth 3 credits

## Target group and requirements:

- Graduate students of civil engineering or computational mechanics
- Good knowledge of structural dynamics (SDOF and MDOF-systems under dynamic loads)
- Knowledge about the mechanical systems applied in structural dynamics (beams, plates)

- Good knowledge of mathematics for engineers
- Basic knowledge of FEM

## Course language:

English (workshops and all courses)

## Costs:

Max. 100 € (includes: cultural programme, excursions, accommodation in hostels, half-board from Mon – Fri)

## Services:

Accommodation, pick-up service, half-board, social programme

**Application:** [baumechanik@bv.tum.de](mailto:baumechanik@bv.tum.de)

**Application deadline:** 1st June 2012

**Number of participants:** max. 8 students from TUM

**Scholarships / grants:** DAAD

## Contact:

Chair for Structural Mechanics

*Karen Art*

Arcisstrasse 21

80333 München, Germany

Tel: +49.89.289.28345

[baumechanik@bv.tum.de](mailto:baumechanik@bv.tum.de)

[www.bm.bv.tum.de](http://www.bm.bv.tum.de)

**Course focus:** Civil engineering



# Winter University Technology and Culture in Munich

**Dates:** 9th – 29th January 2012

**Location:** TUM Munich, Germany

## **Description:**

The Winter University course provides an insight into German language and culture as well as into top research and student life at TUM. Visits to cultural and historical sites and to famous companies brings out the best of what today's Germany can offer. This programme is oriented towards students of science and engineering, computer science, business administration and social sciences.

## **Programme overview:**

- An intensive German language course (60 hours, 4 credits ECTS)
- Project work and lectures on German and European culture
- Workshops on technology, science and business (50 hours, 3 credits)
- Visits to famous TUM-Research-Labs
- Social and cultural activities, including trips to cultural and historical sights in Munich and Bavaria (e.g. Augsburg and castle Neuschwanstein)

## **Target group:**

International students of science and engineering

## **Course languages:**

English (Workshops), German (German course)

**Costs:** 1.500 € (includes German course, TUM workshops, cultural programme, excursions, health insurance, accommodation in a dorm, half board (Mon – Fri), public transportation pass.)

**Application:** [www.tum-summer.com](http://www.tum-summer.com)

**Application / deadline:** 30th October 2011

**Number of participants:** up to 40

**Scholarships / grants:** not available

## **Contact:**

TUM International Office – Summer University

Arcisstrasse 21

80333 München, Germany

Tel +49.89.289.22151

[sommeruni@zv.tum.de](mailto:sommeruni@zv.tum.de)














[www.tum-summer.com](http://www.tum-summer.com)

## **Course focus:**

TUM workshops in various fields of study, German language and culture, intercultural communication



# TUM Departments

	<b>1. Mathematics</b> (Garching)
	<b>2. Physics</b> (Garching)
	<b>3. Chemistry</b> (Garching)
	<b>4. Business Administration</b> (München)
	<b>5. Civil Engineering and Surveying</b> (München)
	<b>6. Architecture</b> (München)
	<b>7. Mechanical Engineering</b> (Garching)
	<b>8. Electrical and Information Engineering</b> (München)
	<b>9. Informatics</b> (Garching)
	<b>10. Nutrition, Land-Use and Environment</b> (Weihenstephan)
	<b>11. Medicine</b> (München)
	<b>12. Sports Science</b> (München)
	<b>13. TUM School of Education</b> (München)

## Location

### Campus München

Arcisstrasse 21

(U2 "Königsplatz" or U2 "Theresienstraße")

### Garching

Lichtenbergstrasse 4

(20 km from the main campus,

U6 "Garching-Forschungszentrum")

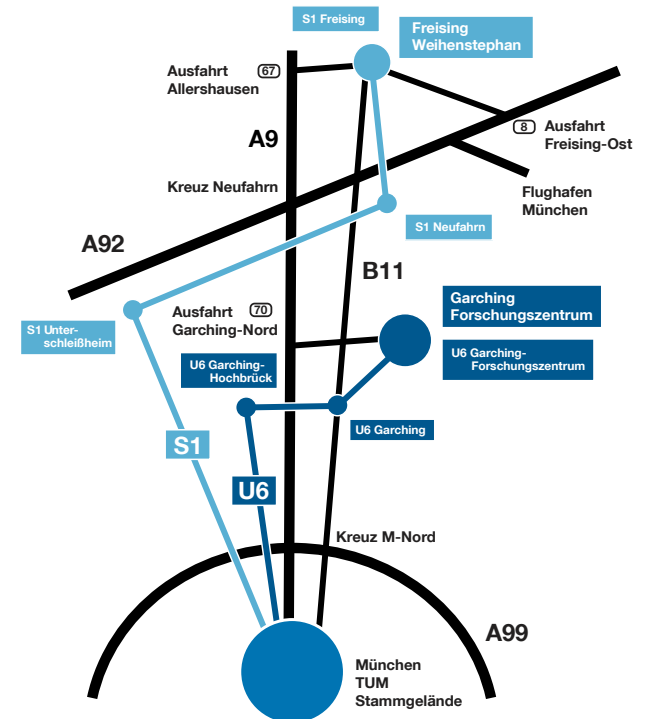
### Freising – Center of Life and Food Sciences

#### Weihenstephan

Vöttingerstrasse 45

(40 km from the main campus,

S1 to "Freising", then by Bus)



# TUM Facts and Figures 2011

## 13 departments, 142 study programmes

Students: 31.500

- Proportion of women: 33 %
- International Students: 18 %
- Freshmen: 7.777
- Graduates: 4.199

Doctorates: 788

Professorial theses: 60

## Staff

(including Klinikum Rechts der Isar university hospital)

- Professors: 460  
Number of women: 64
- Academic staff: 5.564  
Proportion of women: 33 %
- Non-Academic Staff: 2.918  
Proportion of women: 57 %

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