University of Koblenz-Landau

The University of Koblenz-Landau is a young and modern university on the upswing, located in the west of Germany. There are two campuses - one in Koblenz and one in Landau. At the campus in Koblenz about 8000 highly-motivated students experience the modern, open-minded environment and benefit from excellent technical equipment, short distances, and a large variety of cultural and sports activities.

The new master’s program in Mathematical Modeling of Complex Systems is just one prominent example of the innovative study programs on offer. It is set up by the Faculty of Mathematics and Natural Sciences and the Faculty of Computer Science. While the former focuses on mathematical simulation and optimization as well as materials and environment, the latter concentrates on mobile systems engineering.

Koblenz - long-standing traditions meet modernity

Koblenz is a lively student city with a rich history. It is located in one of the most attractive regions in Germany - right where the two major rivers Moselle and Rhine meet. Its surrounding landscape, the Upper Middle Rhine Valley, is honored as UNESCO World Cultural Heritage.

Together with the neighboring Metropolitan areas of Frankfurt and Cologne, this region features many cultural attractions and recreational offers. And with a history of more than 2000 years, Koblenz holds a variety of historic sites which are just waiting to be explored.

Why study in Koblenz?

Quality of the Program
- Degree programs with a future and good job prospects
- Excellence in research and teaching through international, collaborative research
- Interdisciplinary approach

Organisational and Financial Advantages
- No tuition fees! (German universities are funded heavily by the state)
- Very good student-staff ratio and individual support
- International master’s program taught completely in English

Ideal Location
- Beautiful region with a rich history and culture
- Close to Belgium, Luxemburg and France
- Well-connected to Germany’s „finance city“ Frankfurt, as well as Cologne, the biggest city in the Rhine region

Get a grip on complexity!

Mathematical Modeling of Complex Systems

Master of Science (M.Sc.)

University of Koblenz-Landau
Faculty of Mathematics / Natural Science
Universitätsstr. 1
56070 Koblenz
Germany

Email: mmcs@uni-koblenz.de
http://mmcs.uni-koblenz.de
www.uni-koblenz-landau.de/en/welcome
Complex systems with a technological, biological or socio-economic background are present in everyday life. We meet cross-linked systems for example in engineering, life sciences or logistics. The key to tackle the challenges imposed by these systems is mathematical modeling in a broad sense; based on a profound knowledge of

- mathematics,
- physics, and
- computer sciences

The goal of this program is to train talented students to become experts capable of mastering a repertoire of modern mathematical and computer based methods for modeling, simulation, and optimization of complex systems. As a result, graduates are well prepared for upcoming tasks.

**Study Program**

The innovative, interdisciplinary and research-oriented two-year master’s program is the first of its kind in Germany.

The first two semesters consist of core courses in Applied Mathematics and Applied Physics. Elective courses in these fields, as well as in Computer Sciences allow each student to set an individual focus. During a project seminar students can make use of their knowledge to solve real-world problems. This application-oriented seminar can be carried out in a three-month period at a research institution, enterprise or at university. The master’s thesis in the last semester completes the program and shows the student’s ability to perform independent research work.

**Specialty Areas**

- Applied Differential Equations
- Numerics for PDE
- Applied Optimization
- Integer Optimization
- Physics in Applications
- Solid State Physics
- Computer Based Methods

**Who can apply?**

**Admission Requirements**

B.Sc. or equivalent in Applied Mathematics, Applied Physics, Computer Science or related fields.

- Knowledge of English language equivalent to level B2 or certificate that previous education was carried out in English

**Program Start**

The program starts every winter semester (October) and every summer semester (April).

Details about the admission process and frequently asked questions regarding organisational matters can be found under [www.uni-koblenz-landau.de/en/welcome](http://www.uni-koblenz-landau.de/en/welcome)

**Supported by the Welcome Center Koblenz**

Our Welcome Center in Koblenz supports international applicants with all administrative steps before and after arrival.

Welcome Center Koblenz
D 116, Campus Koblenz
welcome@uni-koblenz-landau.de

**Employment Outlook**

Having experienced this unique program in mathematical modeling, graduates will be generalists rather than specialists. With a broad range of knowledge and skills, they will be the versatile and conjunctive backbone of interdisciplinary teams coping with future challenges.

Consequently, they find interesting jobs in major companies for example in the fields of

- engineering
- consulting
- finance

Alternatively, the master’s degree allows graduates to pursue a Ph.D. in mathematics, physics or computer sciences in Koblenz, in Germany or abroad.

**International Aspect...**

A mobility window enables the students to study abroad and gain scientific and cultural experience at international partner universities.

- This program uses English as medium of instruction since its graduates will enter a highly globalized work and research community.