

Single-Subject Bachelor

Dual-Subject Bachelor

Master ◀

Master of Education

PhD

► Numbers and Facts

Start: Winter semester
Duration: 4 semesters
Degree: Master of Science

► Application and Enrolment

Entry requirements

Generally, applicants may be admitted to a Master Study Course if they hold a Bachelor degree or equivalent qualification in the same or related subject.

Please refer to admission regulations for further details about admission requirements and application procedures.

Application

Applicants with a German university entrance qualification: Please apply online at University Oldenburg.

EU or International applicants: Please apply via uni-assist e. V.

For more detailed information and deadlines, refer to: www.uni-oldenburg.de/en/students/application-and-enrolment

► Contacts

For questions regarding your course of study

Academic Advisor
Prof. Dr. Ulrike Feudel
Phone: +49(0)441-798-2790
E-mail: u.feudel@icbm.de

General advice regarding studies

Study and Career Counselling Service - Zentrale Studien- und Karriereberatung

Application procedures / Entry requirements

Admissions Office - Immatrikulationsamt

StudierendenServiceCenter
Campus Haarentor A12
26129 Oldenburg
0441-798-2728
studium@uni-oldenburg.de
www.uni-oldenburg.de/en/students/service-advice

► Further Information

Homepage Environmental Modelling

www.icbm.de/en/study-and-teaching/courses-of-study/environmental-modelling-msc

Range of study courses

www.uni-oldenburg.de/en/students/degree-programmes

Funding

www.uni-oldenburg.de/studium/finanzierung

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Environmental Modelling (M.Sc.)

Single-Subject Bachelor

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In order to sustainably use our environment and give sound policy advice, it is essential to have a comprehensive knowledge of different environmental systems (ecosystems, ocean, climate) as well as to understand how these are linked to the social-economic system.

To understand and predict the impact of natural or human-made environmental changes, models of differing complexity are necessary. To achieve this, all over the globe large data volumes of differing spatial and temporal resolution are collected. These data are used for calibrating and validating models as well as for making forecasts.

The Master's programme Environmental Modelling therefore aims at providing the necessary knowledge for the development of models and methods of data analysis. The study course deals in a cross-disciplinary way with different methods of modern environmental modelling, environmental data analysis, and environmental informatics. It also deals with the applications of these methods in all spheres of the earth system, including sustainable economy. In addition to linking a general understanding of environmental systems with economic and social issues, the research-oriented Master's programme places particular emphasis on the use of mathematical-scientific and informatics-related methods.

The Master programme in Environmental Modelling is organised by scientists at the Centre for Environmental Modelling (CEM) and is located in the Institute for Chemistry and Marine Biology (ICBM).

The lecturers come from the departments of biology and environmental sciences, chemistry and marine biology, mathematics, physics, economics, and computing science. This inter-disciplinary structure allows for a consistent cross-disciplinary programme of education, as well as a linkage to current research projects in various areas of environmental modelling.

The study course is also integrated into the cluster of Master courses on environment and sustainability at the University of Oldenburg.

► Structure and contents

The Master's programme Environmental Modelling has a duration of four semesters. Students acquire 120 credit points in total, with the conclusion module being worth 30 credit points. During the first semester, a canon of courses from different scientific fields will be individually determined depending on the student's qualifications as demonstrated by the Bachelor's degree.

All students have to take the module "Introduction to Environmental Modelling". In addition, 12 credit points have to be chosen from one of the following profile modules – Environmental Systems and Biodiversity (USB), Energy Systems (ES) or Environmental and Resource Economy (URÖ). During the subsequent course of study, students have the opportunity to specialise according to their own inclinations by choosing from the following major subjects:

- Process and system-oriented environmental modelling (PSM)
- Statistical environmental modelling (SM)
- Modelling of large systems (MGU)

In addition to these modules (18 credit points), students choose supplementary modules (18 credit points) from the remaining two subjects or from the profiling programmes in the Master's cluster "Environment and Sustainability". Students also have to take the module "practical seminar modelling study". Here, students already work independently on a small modelling project.

An internship or research project (12 credit points) allows students to learn to know their future career opportunities while still studying.

The study course "Environmental Modelling" is organised as follows:

Individual modules	18 CP
Introduction to Environmental Modelling	6 CP
Profiling Module	12 CP
Modules of the major subject	18 CP
Practical seminar Modelling Study	6 CP
Supplementary modules or modules from the profiling programme	18 CP
Internship/research project	12 CP
Master's thesis module	30 CP
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	120 CP

Examples for classes within the Master's programme are:

- Theory of ecological communities (PSM)
- Theory of dynamic systems (PSM)
- Climate models: theory and praxis (PSM)
- Statistical ecology (SM)
- Time series analysis (SM)
- Stochastic processes (SM)
- Software Engineering (MGS)
- Modelling and simulation of ecosystems (MGS)
- Environmental information systems (MGS)
- Ecology of plants and animals within landscaped (USB)
- Hydrogeology (USB)
- Energy Meteorology (ES)
- Wind Energy (ES)
- Environmental economy and environmental politics (URÖ)
- Resource and Energy Economics (URÖ)
- Careers and Areas of Employment

► Careers and Areas of Employment

Based on their complex and diverse qualifications, a large proportion of graduates may fill positions in various fields of disciplinary and interdisciplinary environmental research. Depending on the graduate's specialisation, other areas of occupation include self-employed work in environmental monitoring, environmental statistics, management of environmental databases, development of environmental information systems, environmental planning or environmental education. In most cases, graduates may fill positions in planning offices, statistics agencies, ministries and public authorities, management of medium-sized enterprises, policy advice and environmental education. Thanks to the broad interdisciplinary training and the methodological focus, students have the opportunity to individually open up new occupational niches.