Water: The Challenge

Nothing can replace water, and it is vital for life. A growing world population must be provided with increasing amounts of water. The sustainable and efficient use of this resource is an important challenge. Meeting this challenge will be vital for our future. This challenge cannot be met by single disciplines such as chemistry, engineering or microbiology alone - it requires interdisciplinary knowledge. And this is the concept of the curriculum "Water Science".

The Master programme "Water Science"
The Master programme "Water Science" offers a 2-year interdisciplinary curriculum starting each year in mid October. You will learn how to understand and characterise chemical and microbiological processes in aqueous systems, how to quantify chemical and microbiological parameters and their effect on water quality, how drinking water is produced and waste water is treated at state of the art, including the technologies used for these purposes. You will learn how to interpret the data and you get insight in the chemical, biological and ecological aspects of the water cycle and acquire the skills required for protecting water resources.

Course contents
The Master programme "Water Science" shall impart in-depth knowledge and practical experience in natural science aspects of aquatic systems with focus in chemistry, microbiology and analytics. The course comprises compulsory modules in:

- Advanced analytical chemistry
- Chemometrics
- Water chemistry
- Environmental microbiology
- Biofilms
- Biofouling/biocorrosion

Within these areas, three practical courses are required. 32 out of 90 credits are allocated to optional courses that can be chosen from a variety of water-related topics to set a more individual study focus including:

- Environmental chemistry
- Biotechnology
- Hygiene and toxicology
- Technical engineering water including membrane technology
- Freshwater ecology
- Management and quality assurance
- Hydrochemical system modelling
- Stable isotope analysis
- Water engineering

The course is completed by a 6-month master thesis. The European Credit Transfer System (ECTS) will apply for the whole course. The course is fully accredited.

Employment prospects
As a graduate of this course, you will be well trained to meet high standards and have good job chances for fields of employment such as:

- Drinking water supply
- Sea water desalination
- Waste water treatment
- Responsibility for technical water systems, e.g. in power stations, food, pharmaceutical, semiconductor or automobile industries
- Regulatory authorities
- Analytical chemistry laboratories
- Microbiological water laboratories
- International aid and health organisations
- and many more…

Many of our graduates are already working in these areas. They have established an alumni network called "Water Science Club" in order to share experiences.

Furthermore, successful students may also continue their academic education aiming at a PhD.

Study location
The University of Duisburg-Essen is a young and modern university with approximately 33,000 students. You will benefit from the convenient and friendly atmosphere, the small working groups and the options for in-depth specialisation provided by the scientists involved in the course. A convenient public transport system makes it possible to arrive at the university at ease.

UNIVERSITÄT DUISBURG ESSEN

Admission Requirements
Students can enroll from a variety of backgrounds. Formal requirements are:

- a university bachelor degree in natural sciences or engineering with chemical AND biological or microbiological contents, including a bachelor thesis (final grade at least 66 grade points)
- a letter of recommendation by their home institution (non-EU/EEA)
- a letter of motivation explaining why you want to study Water Science (1 page)
- good command of English (a copy of a English language proficiency certificate is required with at least TOEFL 550 (paper based)/215 (computer based)/81(internet based) or IELTS 6.0)
- CHINESE students please note: You have to provide an APS certificate along with your application documents.

Enrollment
Germans, foreign students with a German Abitur and EU/EWR citizens should apply at:
University Duisburg-Essen
Department of Chemistry
Examination Committee
Prof. Dr. Torsten Schmidt
D-47048 Duisburg, Germany

Interested students from outside EU/EWR should apply at:
University of Duisburg-Essen
International Office
Universitaetsstraße 2
45141 Essen, Germany

All students need to apply to university by **July 15** at the latest for the course starting in October.

Funding
Highly qualified students can apply for a fellowship in the IPSWaT programme through the university (details at http://www.internationales-buero.de/de/777.php). If you want to apply for this fellowship you need to submit the following additional documents by **February 1** the latest for the course starting in October:

- letter of motivation explicitly explaining why you want to participate in the Master of Science programme Water Science and in the IPSWaT programme
- short description of planned or existing participation in bilateral cooperations
- one or better two letters of recommendation for the programme by your academic teachers (not more than 2 pages each)
- a statement that you only apply for IPSWaT via the University of Duisburg-Essen. Otherwise, you need to explicitly list the other universities.

For information on further funding opportunities see for example http://www.uni-due.de/international/en_finance.shtml

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http://www.uni-due.de/water-science

MSc in

WATER SCIENCE

International Master of Science Programme
University of Duisburg-Essen, Germany