

# MSc IN GEOPHYSICS\*

FROM LAB TO FIELD – A CRITICAL, COLLABORATIVE AND HANDS-ON EXPLORATION OF THE EARTH



◀ The major research centres and forward-thinking mind-set at Aarhus University made this master's a perfect choice to boost my career in geoscience. Aarhus is a vibrant city, and the Danes are addressing the problems of the future in a feasible, friendly and hard-working way with their goal of becoming CO<sub>2</sub> neutral by 2030.

**MARCOS JOSÉ LUIS FERNÁNDEZ**  
MSc in Geophysics, from Venezuela

The MSc in Geophysics at Aarhus University provides a compelling learning experience, integrating skills in physics and mathematics with proper geoscience. Students get to choose their own specific area of focus while exploring a variety of fields at a range of scales, from past and present climate and shallow quaternary structures and materials, through the development of groundwater aquifers and sedimentary basins, to the structure and dynamics of the lithosphere and the Earth's mantle. Numerical modelling is generally used.

## HIGH-CALIBRE RESEARCH

Teaching on the programme is integrated with research at the highest international level. The Department of Geoscience is renowned for its research in hydrogeophysics (airborne and surface electromagnetic methods) for use in hydrogeology and mineral exploration. Further specialities are reflection seismic acquisition (on board the research vessel *Aurora*), processing, and interpretation, as used in subsurface mapping of hydrocarbon and geothermal reservoirs; seismology and potential fields; and numerical modelling of surface and mantle processes.

The thesis, which is heavily weighted, is a chance for students to tailor their degree to their own personal and career interests while benefiting from close collaboration with fellow students and faculty members.

## STUDENT LIFE

The Department of Geoscience is a small community of about 200 students brought together by shared research, team field trips, and common interests.

Classes are held in modern facilities with well-established labs. You will have access to cosy study areas, quiet reading rooms, wi-fi, computers and, of course, a classic Danish pop-up Friday bar. As a Geoscience Master's student, you will also have access to a communal office where you can sit and study, or just hang out with other students.

## CAREERS

Geophysics graduates have found jobs across a wide range of fields, including groundwater management, geophysical exploration for water and minerals in engineering companies and in the energy sector (including oil and gas), and for geothermal energy and CO<sub>2</sub> deposits. They also frequently move into higher education and government research.

## ADMISSION REQUIREMENTS

A bachelor's degree amounting to at least 60 ECTS credits in geophysics and physics can qualify the student for admission, provided the combined academic demands regarding the Master's programme in Geophysics are met.



### PLACE OF STUDY

Aarhus

### ANNUAL TUITION FEE

EU/EEA/Swiss citizens: FREE  
Others: EUR 13,500

### WWW

masters.au.dk/geophysics

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## SELECTION CRITERIA

As the Master's programme admits only a limited number of students each year, meeting the admission requirements does not in itself guarantee admission to the programme. Student places are allocated on the basis of an overall assessment. In evaluating qualified applicants, the admissions committee assesses applicants according to the following criteria: academic background; overall grade level of bachelor's degree; grades achieved on relevant courses; and relevant courses (measured in credit units) included in the bachelor's degree.

Relevant courses include core courses within the subject areas of geology, chemistry, mathematics, statistics, programming and probability calculus.

### Specialisation in Water:

1 <sup>ST</sup> SEMESTER	2 <sup>ND</sup> SEMESTER
Hydrogeology and Groundwater Modelling 10 ECTS	Electrical and Electromagnetic Methods (+ Field Course) 10 ECTS
Glacial Geology and Sedimentology 10 ECTS	Elective Courses 10 ECTS or 5+5 ECTS
Elective Courses 10 ECTS or 5+5 ECTS	Elective Courses 10 ECTS or 5+5 ECTS
30 ECTS	30 ECTS

### Specialisation in Energy:

1 <sup>ST</sup> SEMESTER	2 <sup>ND</sup> SEMESTER
Structures in Basins 10 ECTS	Basin Analysis and Modelling 10 ECTS
Physical Structure and Dynamics of the Lithosphere or Introduction to Numerical Geo-modelling and Inversion 10 ECTS	Elective Courses 10 ECTS or 5+5 ECTS
Elective Courses 10 ECTS or 5+5 ECTS	Elective Courses 10 ECTS or 5+5 ECTS
30 ECTS	30 ECTS

## SPECIALISATIONS IN MSc IN GEOPHYSICS

The MSc in Geophysics is a two-year programme offering four different specialisations. The specialisation is chosen in the first year, and the second year is dedicated to the master's thesis.

Modules in each specialisation are either 5 or 10 ECTS. A full year of study is 60 ECTS.

For more information visit our webpages

<http://geo.au.dk/en/studies/>

### Specialisation in Ice and Climate:

1 <sup>ST</sup> SEMESTER	2 <sup>ND</sup> SEMESTER
Introduction to Computational Geomodelling and Geoinversion 10 ECTS	Advanced Geomodelling and Geoinversion 10 ECTS
Climate through Earth's History 5 ECTS	Quaternary Geochronology 5 ECTS
Geohazards 5 ECTS	Elective Courses 5 ECTS
Elective Courses 10 ECTS	Elective Courses 5+5 ECTS
30 ECTS	30 ECTS

### Specialisation in Deep Earth:

1 <sup>ST</sup> SEMESTER	2 <sup>ND</sup> SEMESTER
Petrology (+ Field Course) 10 ECTS	Ore Deposit Geology 10 ECTS
Physical Structure and Dynamics of the Lithosphere 10 ECTS	Elective Courses 10 ECTS or 5+5 ECTS
Elective Courses 10 ECTS or 5+5 ECTS	Elective Courses 10 ECTS or 5+5 ECTS
30 ECTS	30 ECTS