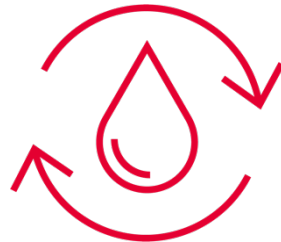


# SDC

The university partnership  
Denmark – China

Master's Programme in

# Water and Environment



Academic Regulations

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## Legal Frame

Students enrolled in this programme are admitted as full-time students at University of Chinese Academy of Sciences.

This curriculum applies to students enrolled in the programme from 2019.

This master's programme is established within the framework of the following:

- Partnership Agreement between Graduate University of Chinese Academy of Sciences and University of Copenhagen (KU), Aarhus University (AU), University of Southern Denmark (SDU), Aalborg University (AAU), Roskilde University (RUC), Technical University of Denmark (DTU), Copenhagen Business School (CBS), IT University of Copenhagen (ITU), on the establishment of the Sino-Danish Centre for Education and Research, Graduate University of Chinese Academy of Sciences, signed on 12 April 2010
- Agreement between Graduate University of Chinese Academy of Sciences (GUCAS) and University of Copenhagen (KU), Aarhus University (AU), University of Southern Denmark (SDU), Aalborg University (AAU), Roskilde University (RUC), Technical University of Denmark (DTU), Copenhagen Business School (CBS), IT University of Copenhagen (ITU) concerning Master's Programmes at Sino-Danish Centre for Education and Research, Graduate University of Chinese Academy of Sciences, signed on 29 August 2011
- Agreement between Graduate University of Chinese Academy of Sciences and University of Copenhagen concerning Provision of the Master's Programme in Water and Environment at Sino-Danish Centre for Education and Research (SDC), Graduate University of Chinese Academy of Sciences, signed on 29 August 2011.

Students must observe and act accordingly to the following rules issued by the SDC Directors:

- Courses and Exams
- Exam regulations
- Thesis regulations 10 steps
- Avoid cheating on exams
- Student complaints

Students must also observe and act accordingly to Rules and Regulations for UCAS International Students.

## Title and degree

The degree awarded by University of Copenhagen is Master of Science in Water and Environment. The degree awarded by University of Chinese Academy of Sciences is Master of Environmental Science

## Duration

The master's programme has a duration of two academic years equivalent to 120 ECTS points (European Credit Transfer System). 60 ECTS points correspond to one year of full-time studies.

### 4-YEARS LIMIT

All SDC students must complete their Danish and UCAS degree within 4 years from the enrolment. This period includes leave of absence. It is possible to apply for an exemption due to illness or other extraordinary circumstances.

The 4-year limit for the Danish degree applies for the 2016 cohort and onward. Students in the 2012-2015 cohorts have to complete their studies before the 1st of January 2020 to obtain their Danish degree.

When choosing thesis period *Danish/International students* must be aware of UCAS' 4 years limit for awarding diploma. UCAS' degree application procedure **STEP 10 CN**(see Thesis regulations 10 steps) has to be completed within 4 years from enrolment. This period includes leave of absence.

## Admission requirements

To be admitted to the MSc programme in Water and Environment, you must have:

- A successfully completed bachelor's degree (or equivalent) or higher in a natural science field such as Agricultural Science, Biology, Environmental Sciences, Engineering or Natural Resources. The Bachelor's degree must as a minimum include basic courses in mathematics, chemistry, biology and statistics.
- High-level English language proficiency.

The following BSc programmes give direct access to the MSc programme in Water and Environment:

- BSc in Natural Resources, specialisation in Environmental Science
- BSc in Biology
- BSc in Biotechnology
- BSc in Agriculture, Food and the Environment, specialisation in Agriculture and the Environment
- BSc in Geology
- BSc in Environmental Technology

## General programme regulations

DK	12	10	7	4	02	00	-3
CN	100-95	94-90	89-76	75-61	60	59-40	39-0

The language of instruction in the SDC Master's programmes is English. Teaching, supervision and assessment will be carried out in English.

Students will be graded according to both the Chinese and the Danish grading scale. However, for the Master's Thesis, students will be graded according to the Chinese 4-point scale. See Thesis regulations 10 steps.

Leave of absence can be granted to students on the grounds of becoming a parent, illness, military service or exceptional circumstances.

Students who wish to complete degree programme elements at another university or institution of higher education in Denmark, China or abroad as part of their degree programme may apply the Teaching Committee for advance approval of transfer credit for planned subject elements.

Students can maximum be granted 30 ECTS credit transfer.

Either the Teaching Committee or the SDC Directors may grant exemptions to this curriculum or other SDC rules. Application for exemption shall be submitted to the SDC Secretariat.

## Qualifications

### Purpose

The objective of the programme is to train graduates with the required expertise, quantitative understanding and solution-oriented skills to understand and research integrated use and safe management of world water resources at a high academic level.

The graduates possess a strong combination of knowledge within natural science, management and socioeconomic aspects and a profound insight into the sustainable use of water and management. This combination aims at employment within research, administration, consultancy, and project management requiring profound academic insight.

### Qualification Profile

During the programme, the students must acquire the following knowledge, skills and competences within the disciplines of the programme:

#### *Knowledge and understanding*

- Describe and demonstrate general knowledge of hydrology; hydrogeology; biogeochemistry; freshwater ecology; sustainable land use; restoration ecology and technology; modelling; statistics, data treatment and legislation and management
- Demonstrate knowledge of the fundamental principles and processes of the fate of contaminants in soil, water and air
- Quantify and describe key elements and processes, which are relevant for water resources and water quality management
- Reflect critically on international original specialist literature on water resources, hydrology, modelling, environmental chemistry, ecotoxicology, management and governance
- Describe and quantify the processes in soils, plants, animals etc. affecting carbon, nitrogen, phosphorus and pollutants cycling and greenhouse gas emissions from ecosystems and the measures for reducing greenhouse gases
- Describe and demonstrate general knowledge of the governing processes of the hydrologic cycle and formulate hydrological processes in mathematical terms
- Describe the properties and discuss the fate of a given contaminant in the environment
- Explain the fundamental ecotoxicological principles
- Understand experimental design and choose proper statistical models
- Analyse and apply international scientific literature on water resources aspects

#### *Skills*

- Ability to acquire knowledge of the use of equipment and analysis methods for environmental monitoring, ecotoxicity and quantification of contaminants
- Apply and demonstrate the use of a catchment hydrology and nutrient transport and surface water quality model
- Quantify the effects of various management strategies on water resources and surface water quality
- Set up mass and energy flows and quantify substance transformations, in particular the transformation of pollutants, using modern models and be able to validate model predictions
- Be able to integrate components of the hydrological cycle in a water resource assessment
- Conduct a scientific evaluation of the environmental and ecotoxicological effects of a contaminant
- Use the most important databases on chemical, microbiological and toxicological substances in relation to pollutants

- Evaluate the critical variables and methods that may be used to quantify a contaminant's distribution, transformation rates, transport and biological effect in the soil-water-air system
- Identify relevant tools and models that can quantify interactions between climate forcings, land use, water resources and surface water quality
- Ability to apply theory and methodological approaches to solve simple problems in the field as well as propose solutions to more complex problems
- Solve problems related to water resources development and transport phenomena
- Apply basic scientific principles in connection with the analysis of large data volumes
- Assess, discuss and propose how various management scenarios may influence water resources and water quality
- Communicate complex information to a wide range of national as well as international audiences using modern and appropriate information and communication tools

### *Competences*

- Collect, combine, handle and evaluate complex data and information from different sources
- Diagnose the processes critical for the paths of important contaminants and select the tools for analysis and evaluation of the critical paths
- Explore complex relationships between the basic scientific aspects of environmental problems and the economic, social and political obstacles that have to be overcome in order to implement solutions on a national and international scale
- Handle and solve complex environmental issues in specific work situations or in relation to research
- Cooperate with fellow students on preparation and completion of a written report
- Assess the impact of new technology on current values and ethics and take this into account when involved in research, risk and uncertainty assessments or the introduction of new technologies
- Work independently and effectively on an individual basis, as well as in project teams and interdisciplinary environments, cooperate with relevant partners, discuss solutions and reach consensus
- Engage in national as well as international research
- Apply life-long learning as a principle to independently assess and structure learning processes and assume responsibility for continuous academic development

## Structure

The programme contains the following elements

Semester	Course / Programme element	Exam	Grading	Examiners	ECTS
1	Hydrology, Freshwater Ecology and Biogeochemistry	Assignments and written	7/100 scale	Internal	15
	Pollutants and Pollution Control	Assignments, oral and written	7/100 scale	Internal	15
2	Statistics, Modelling and Global Change	Written	7/100 scale	Internal	15
	Integrated Water Management and Legislation	Assignments and written	7/100 scale	Internal	15
3	Thesis	Assignment and oral	7/4 scale	External	60
4					

All programme elements are mandatory.

The first two semesters provide the common core of the programme. In the 3rd and 4th semester, the student will write the thesis.

## Commencement

Effective as of 01.09.2019

### Changes to the Academic Regulations

2018.09.01: A maximum completion time has been added to the study program. All students from cohort 2016 and onwards has to complete their studies within 4 years from their enrolment. Students in the 2012-2015 cohorts have to complete their studies before the 1<sup>st</sup> of January 2020 to obtain their Danish degree. This has been approved by the SDC Directors.

2019.09.01: Changes to the re-exam in *Pollutants and Pollution Control (Module 2)*. From a written presence exam to an oral exam.

2019.09.01: Course descriptions are now placed in a separate course catalogue for the autumn and spring semesters.