
Research Topics

The following is a list of selected Master Theses completed by TropHEE students, to give an idea on the research topics that our students work on:

- Chlorine Isotope Effects During Sorption of Organic Compounds on Carbonaceous Materials
- GIS-based landslide susceptibility and hazard modelling in the Lesser Himalaya of Nepal
- Hydrochemical Investigation of Groundwater Quality in Viotic Kifissos Basin (Greece) with Special Focus on Nitrate pollution
- Environmental Impact Assessment of Ordovician Oil Shale using ARCGIS: a case study of Northern Estonia
- Hydraulic Characteristics and Hydrochemistry of Nairobi Area, Kenya
- GIS-based Water Budget Model and Stable Isotope Variation in Surface Waters of the Western East African Rift
- The use of Multipurpose Artificial Reefs for Coastal Protection
- The Geothermal Potentials of the Middle and Lower Benue Trough Nigeria
- Composition of Groundwater from Hand-dug Wells within the Precarious Settlements of Southern Abidjan, Cote d'Ivoire
- Water Quality in Western Uganda - Evaluation of Human Impact
- Using Surface and Borehole Geophysics to Detect Permeability in Silts at Cape Cod, Massachusetts
- Experimental Investigation of Thermal In-situ Remediation of a CHC Contamination in Low Permeability Zones using Steam Flow
- Reservoir Characterization of the Paleozoic Wajid Sandstone Aquifer, Saudi Arabia
- Potential for Groundwater Recharge in an Arid Catchment in Mexico

Further Information

TU Darmstadt doesn't raise tuition fees. Course participants must cover all their personal expenses and study costs (books, photocopies etc.). A buddy service will support you after your arrival in Germany. Intercultural workshops are offered to help you overcome cultural barriers. The TropHEE team is offering all necessary assistance and support.

TropHEE is part of the DAAD scholarship program for developing countries.

www.trophee.tu-darmstadt.de



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TropHEE Master of Science

Tropical Hydrogeology and Environmental
Engineering

Institute of Applied Geosciences



TECHNISCHE
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General Information

The Master Course TropHEE aims at combining a comprehensive understanding of geoscientific fundamentals with applied topics that are essential in hydrogeology and environmental management. Special focus is put on arid to semi-arid regions with strong water scarcity, but emphasis is also placed on water and soil quality problems within growing mega-cities with dense population and industrial areas. In the broader context of international development cooperation, TropHEE offers a research-oriented education that prepares graduates to work in international organizations, consultancies, and administrations.

The Institute of Applied Geosciences at TU Darmstadt offers an international study environment with modern infrastructure and up to date laboratories enabling hands-on experience.

Main Subjects

Hydrogeology Water is the essential resource for life and the provision of water in sufficient quantity and quality is one of the major challenges of our society. Hydrogeology deals with the presence, flow, and chemical properties of groundwater, including interactions with surface water, soils, and rocks. TropHEE addresses the practical relevance of e.g. exploration, exploitation, treatment, and protection of groundwater, but also modern approaches to groundwater management are included.

Environmental Engineering addresses geoscientific aspects in land planning and engineering. TropHEE places its emphasis on the management of water scarcity, saltwater intrusions, soil erosion, and persistent pollutants and presents engineering solutions.

Preliminary Phase

Special online course material is offered to give prospective students the opportunity to refresh their geoscientific knowledge even before joining the course. Additionally, an intensive four-week German language course is part of the welcome phase at TU Darmstadt.



Practical Experiences

Field work is an essential part of the Geoscientist's tasks. Therefore, the curriculum contains field trips and a two-week excursion to a semi-arid region.

Many of the different lectures of the syllabus contain exercises including practical work on the computer, in the laboratory and in the field.

The Scientific Training is a special form of independent study. During this part of the program students will learn special geoscientific methods such as terrain analysis and mapping, chemical analyses, or the collection and interpretation of external data to investigate a specific topic. The results will be summarized in a final report and presented in a seminar.

Course Syllabus

	1st Semester	2nd Semester	3rd Semester	4th Semester
Compulsory Modules		<ul style="list-style-type: none"> Scientific Methods 	<ul style="list-style-type: none"> Scientific Training Semi-arid Hydrology Field Course 	Master Thesis
Basic Modules (elective)	<ul style="list-style-type: none"> Geology Rocks and Minerals Hydrogeology Hydrochemistry 	<ul style="list-style-type: none"> GIS I 	<ul style="list-style-type: none"> GIS II 	
Special Modules (elective)	<ul style="list-style-type: none"> Hydraulic Engineering Integrated Water Resources Management 	<ul style="list-style-type: none"> Aquifer Sedimentology Hydrogeochemistry Geophysical Methods 	<ul style="list-style-type: none"> Remote Sensing and Statistics Hydrogeology of Semi-arid Areas Isotope and Tracer Techniques Water Treatment 	
	<ul style="list-style-type: none"> Soil and Unsaturated Zone Hydrogeological Lab and Field Methods 	<ul style="list-style-type: none"> Clay Mineralogy Groundwater Modelling Geoenvironmental Engineering 		