Geothermal Energy is an interdisciplinary and forward-looking field that deals with the use of heat and energy from the earth’s interior. Here, geothermal resources such as hot water, steam or geothermal heat are used to generate environmentally friendly energy or to heat buildings. The Geothermal Energy master’s degree program is designed to meet the needs of students who want to delve deeper into this subject and deepen their knowledge of geology, geophysics, chemistry, and engineering. Graduates have excellent career opportunities in academia, engineering, or the energy industry.

The degree program teaches modern exploration methods for locating resources, such as seismic interpretation, tectonics, reservoir geology and modeling. In addition, the knowledge of geomechanics, rock physics, hydrochemistry, flow and heat transport modeling, production, energy and drilling technology required for sustainable and resource-conserving development and exploitation is acquired. The economic-ecological and legal framework is complemented by courses in energy economics, business administration in the context of energy, environmental and public procurement law, and citizen participation.

Further special features of the degree program are:

1st semester (WiSe): Introductory

Courses to complete geoscience fundamentals acquired in the bachelor’s program and introduction to geo-energy resources, borehole geology, process machinery and equipment engineering, drilling technology and borehole geophysics, and permitting and energy/commodity law. Non-lecture time: block courses.

2nd semester (SoSe): Consolidation phase

Consolidation and extension of knowledge on geophysical exploration and on compositional, petrophysical, geomechanical and geophysical characterization and evaluation of reservoir rocks. Introduction to business administration and energy economics & environmental law. Non-lecture time: block courses, key skills module 1 (citizen participation).

3rd semester (WiSe): Research phase

Further deepening of knowledge via research modules on seismic reservoir interpretation, reservoir geology, reservoir petrology and fluids, reservoir hydraulics and energetic systems, the contents of which serve the immediate preparation and professional orientation for the master thesis. Lecture-free period: key qualification module 2 (industrial internship, project work or field exercises).

4th semester (SoSe):

Master thesis + master colloquium

The master’s degree program Geothermal Energy is a joint degree program with the Technical University of Munich.

Industrial locations worldwide are dependent on the long-term availability of affordable, base-load energy. Increasing demand with simultaneously dwindling “conventional” energy sources such as crude oil and natural gas, the complexity of “unconventional” energy sources, but also the high demand for “clean” renewable energy such as geothermal energy due to the aspired energy transition create new challenges. As a result, there is an increasing need for interdisciplinary geoscientists who can overview and apply interdisciplinary contexts and decision-making processes in the exploration, economic development and sustainable use of geoenergy resources.

Potential fields of employment are diverse:

15.07.

Currently, a qualification score of 2.5 applies to the Geothermal Energy master’s program, and those who do not meet the qualification score have a chance to be admitted through a selection process.

Our Student Advice and Career Service (IBZ) is the central point of contact for all questions about studying and starting a degree programme.

Our Student Service Centres and subject advisors support you in planning your studies.

Degree: Master of Science
Duration of studies in semester: 4
Start of degree program: Winter semester
Study location: Erlangen, Erlangen and Munich
Number of students: 1-50
Subject group: Mathematics, Natural sciences
Teaching language: completely in German
Admission Requirements: Qualification assessment
Admission requirements (first semester): Qualification assessment
Application deadline winter semester: 15.07.
Content-related admission requirements: Currently, a qualification score of 2.5 applies to the Geothermal Energy master’s program, and those who do not meet the qualification score have a chance to be admitted through a selection process.