

Ilia State University
Faculty of Natural Sciences and Medicine
Program Level_Master
Earth Sciences
Curriculum

Faculty/School	Faculty of Natural Sciences and Medicine
Program Title	Earth Sciences
Academic Degree Awarded	Master's degree in Earth Sciences
Program Duration/ECTS	4 semesters, 120 ECTS (1 ECTS - 25 hours)
Launching Date of the Program & Program Update	The program was developed in 2011 and updated in 2020, the program can be updated at the beginning of each study year.
Language of Instruction	Georgian
Head/Heads of the Program	Professor Archil Magalashvili
Admission Prerequisites for the program (requirements)	
<p>Admission to the Master's program is based on the outcomes of the National master's exam and internal University Examination. At the internal University Exam attention is paid to the motivation of the student and their general knowledge in the field of Earth Sciences as well as the knowledge of the English language (minimum B1+ level) which is necessary to follow up with the teaching material (partly in English).</p> <p>Applicants for the Master's program should have Bachelor's degree or equivalent in any specific specializations of the broad fields of Natural Sciences, Mathematics, Statistics or Information Technologies.</p> <p>Detailed information on the conditions, requirements and assessment of the internal university examination components, and criteria are given in the "Program Admission Document" and can be found on the university website under the heading "Admission".</p>	
Program Objectives	
<p>The goal of the master's program is to prepare graduates for a successful scientific and/or professional career in the Earth sciences who:</p> <ul style="list-style-type: none"> • will have modern and in-depth knowledge of the Earth as a unified system and its geological structure; • will be able to define and evaluate the threats, risks, causes of natural disasters and the factors that affect the processes on the surface and in the depth of the Earth, • will be able to use modern methods, technologies and software to research and study the processes occurring on the surface of the earth and in its depths. • will be able to expand existing knowledge in the field based on original research; 	

- will be able to communicate effectively, in front of specialists and a wide audience, observing the principles of academic integrity.

Learning outcomes

The graduate:

1. Demonstrates specific knowledge and expertise in various fields of earth sciences, which includes theoretical concepts, modern developments and their application in professional practice and research;
2. Can identify and assess the dangers, risks, causes and factors of natural disasters, which affect the geological processes taking place on the Earth's surface and in its depths;
3. Can use modern technologies in Earth Sciences and for planning as well, particularly, geographic information systems (GIS), spatial data visualization and analysis, satellite and aerial image analysis methods;
4. Can independently use relevant theories, methods of data collection and analysis, and/or mathematical modeling to study processes/phenomena taking place in the earth's crust or on its surface;
5. In the process of research and in professional activities acts in accordance with the principles of academic good faith;
6. Observes safety rules during laboratory and field works;
7. Is able to effectively visualize and convey the results, ideas and opinions of his/her research to the academic/professional community, using modern information technologies;
8. Is able to identify needs for learning, plan and implement further learning independently.

Structure of the Program

During the MA program student must accumulate 120 ECTS according to the following structure:

From the mandatory courses **90 ECTS** including:

- Mandatory courses - 60 ECTS;
- Industry practice - 6 ECTS;
- Master's thesis - 24 ECTS

From the electives - **30 ECTS**

Teaching methods

To achieve the objectives of the program, following teaching methods are used:

- Lectures and seminars;
- Laboratory work;
- Practical work, including field work;
- Working on projects individually and in groups;
- Analysis and synthesis;
- Supervision;
- Reflection;
- Demonstration method.

Note: Teaching methods in the program are described in detail in each course syllabus.

Evaluation

The assessment is conducted using a 100 point system. The points are distributed and allocated as follows

(A) 91-100 Excellent

(B) 81-90 Very Good

(C) 71-80 Good

(D) 61-70 Satisfactory

(E) 51-60 Sufficient

(FX) 41-50 Unsatisfactory - meaning a student needs more effort to pass an examination and is given an extra chance to pass an additional examination through independent work.

(F) Failure - 40 and less of the maximum of grades, meaning the student's effort is not enough and he has to learn the subject anew.

Note: Evaluation criteria of the program are described in detail in course syllabus.

Employment Opportunities

The graduate can be employed at:

The scientific research, public institutions or any non-governmental or private company whose work is related to earth sciences: geology, geophysics, hydrology and hydrogeology, engineering-geology, climatology, cartography, Geological prospecting and mining, environmental protection and ecological monitoring, Geo-information technologies, etc. Graduates of the program can continue studies at the PhD level programs.

Necessary auxiliary conditions/resources for learning

The faculty has material and technical facilities that are used for teaching and technical training:

- Well-equipped field and teaching-research bases of the University in Akhalkalaki, Stepantsminda, Dedoplistskaro and Grigoleti;
- Institute of Earth Sciences and National Center for Seismic Monitoring, equipped with state-of-the-art research and other related equipment (differential GPSs, seismic prospecting equipment, GPR, bottom-scan sonar and sub-bottom profiling equipment, etc.)
- Cultural Heritage and Environmental Research Center, which has at its disposal various models of unmanned aerial vehicles for aerial photography, both visual and multispectral bands, as well as geodetic survey equipment, equipment for bathymetric surveys.
- Complex Environmental Research-Training Laboratory, equipped with a continuous soil core drilling equipment and appropriate laboratory analysis tools (granulometry, geochemical analysis, microscopic examination, etc.), as well as a special field geo-chemical laboratory.
- Specialized software (ArcGIS, MICROMINE, etc.);
- Scientific ship "St. Iliia" and boats, as well as a number of equipment for underwater research.

Other material resources of the University are also used in the learning process:

- Geodetic planning equipment (digital theodolites, levelers, etc.)
- Lecture auditoriums equipped with modern audio-visual equipment;
- Training laboratories;
- Computer classes;
- University Library, which has access to a number of international scientific databases;
- Argus (e-learning web platform)
- Moodle, Turnitin, etc.

Partner organizations:

- Ltd. "Remote Sensing and Geoinformation Systems Consulting Center Geographic";

- Grigol Tsulukidze Mining Institute, LEPL;
- Consulting company "Gamma Consulting" Ltd;
- Georgian National Agency for Cultural Heritage Protection

International partner:

Bridgewater State University.