



UNIVERSITA' DEGLI STUDI DI MILANO
PROGRAMME DESCRIPTION - ACADEMIC YEAR 2026/27
BACHELOR
GEOLOGICAL SCIENCES (Classe L-34 R)
Enrolled in the 2026/2027 academic year

HEADING

Degree classification - Denomination and code:	L-34 R
Degree title:	Dottore
Length of course:	3
Total number of credits required to complete programme:	180
Years of course currently available:	1st
Access procedures:	Open, subject to completion of self-assessment test prior to enrolment
Course code:	FAJ

PERSONS/ROLES

Head of Study Programme

Prof. Michele Zucali

Degree Course Coordinator

Prof. Michele Zucali

Tutors - Faculty

Per la laurea Triennale sono disponibili vari tutori che forniscono assistenza per raggiungere gli obiettivi che gli studenti vogliono perseguire e per la scelta degli insegnamenti opzionali.

Docenti Tutor, e per la compilazione dei piani di studio:

Prof. Marco Balini, (ambito geologico stratigrafico paleontologico-strutturale);

Prof.ssa Tiziana Apuani, (ambito geologico applicativo-geomorfologico);

Prof. Giovanni Grieco, (ambito mineralogico-petrografico geochimico).

Docenti Tutor per stages e tirocini:

Proff. Tiziana Apuani, G. Diego Gatta

Degree Course website

<https://geologia.cdl.unimi.it/it>

Contact person for Disability: Prof Maria Rose Petrizzo

Via Luigi Mangiagalli, 34 Milano solo per appuntamento via mail Email: mrose.petrizzo@unimi.it

Department Library, Director Dr. Fabio Bottazzi

Via Luigi Mangiagalli, 34 Milano (piano terra) Phone 0250315496 solo per appuntamento via mail Email: fabio.bottazzi@unimi.it

Student Secretariats

Via Celoria, 18 Milano Phone 0250325032 Per informazioni o appuntamento InformaStudenti <https://www.unimi.it/it/studiare/servizi-gli-studenti> <https://informastudenti.unimi.it/saw/ess?AUTH=SAML>

Teaching Office

Via Botticelli, 23 Milano (piano terra) Per informazioni o appuntamento solo attraverso InformaStudenti <https://informastudenti.unimi.it/saw/ess?AUTH=SAML>

CHARACTERISTICS OF DEGREE PROGRAMME

General and specific learning objectives

The degree programme aims to provide a solid grounding in geological sciences, enabling graduates to pursue a Master's degree or to enter the job market directly, particularly in the fields of geology, applied geology for land management, georesources and geomaterials. The programme is structured to provide students with an in-depth understanding of the fundamentals of scientific disciplines applied to the study of Earth, while providing the practical skills required to work in the geological sciences.

The programme aims to provide students with:

- a sound understanding of the fundamentals of mathematics, physics, chemistry and computer science, which

- will then enable them to quantify and interpret geological processes and the Earth's structure;
- a solid grounding in all areas of the geological sciences to be able to recognise and interpret natural processes in geological environments;
 - analytical skills in field geology for basic geological mapping in diverse terrains;
 - analytical laboratory skills for characterising geomaterials and their behaviour;
 - technical skills in the use of tools for basic geological investigations;
 - the ability to collect and process data using general computational methods and those specific to geological sciences;
 - the ability to apply mathematical models for simulating geophysical and geological processes.

Expected learning outcomes

Knowledge and understanding

The study programme in Geological Sciences aims to provide students with a solid grounding in core subjects, focusing on geological processes and the sustainable use of the planet's resources. Courses in chemistry, physics, mathematics and computer science are essential for building a strong scientific knowledge base and for equipping students with the tools to quantitatively describe both exogenous and endogenous geological processes. These courses are designed to develop students' knowledge and understanding through the application of basic scientific principles.

The core geoscience courses, together with the internship and the final exam, provide a more focused preparation. The aim is for students to acquire in-depth knowledge in the various fields of geoscience, to develop technical and operational skills for laboratory and field activities, and to learn to apply specific methodologies to geological research and investigations. This knowledge will be acquired through a training programme that integrates theoretical lectures, practicals, laboratory activities and fieldwork. During lectures, students learn the fundamentals of core science disciplines such as chemistry, physics, mathematics and computer science, which provide them with a solid basis for the quantitative understanding of geological phenomena. Through practicals, students apply the concepts studied and develop problem-solving skills and the ability to use quantitative methods. Laboratory work, essential for technical training, offers students hands-on experience in sample processing and the use of analytical instruments for studying the physicochemical characteristics of rocks, minerals and geological processes. Field activities are an essential part of geology education, as they allow students to observe and analyse geological phenomena directly in their natural environment. During these outings, students learn to identify geological structures, conduct field surveys and use mapping tools; they develop a critical eye and acquire the skills necessary to work in complex natural environments. The activities described develop the ability to reason in large-scale spatiotemporal contexts and to understand how multidisciplinary and interdisciplinary approaches can be applied to complex natural systems; students

learn safety rules and how to work independently or in a team. In terms of practical skills, they learn how to accurately record and describe natural materials, to independently analyse geomaterials in the field or the laboratory, to describe, analyse, document and report results. The knowledge and skills of students in the Geological Sciences study programme is assessed through a combination of theory and practical exams, in the lab and in the field, and through written and oral exams. Through these, students must not only demonstrate their understanding of concepts but also their ability to apply them in describing and solving geological problems. Lastly, the internship and the final exam are key components of the overall evaluation process. During the internship, students are expected to demonstrate autonomy and the practical application of their knowledge in real-world settings. This type of training prepares graduates to not only work independently but also collaborate effectively with professionals in the field. The final exam aims to assess the scientific and methodological competencies acquired, as well as the ability to analyse and synthesise information and to present results clearly and with scientific rigour. The study programme aims to provide students with a broad, adaptable education, equipping them with technical skills in the field of geology so that they are able to collect and analyse data using modern tools both in the field and in the lab. Students can also personalise their educational pathway through elective courses that allow them to explore areas of particular interest within the geosciences. Applying knowledge and understanding In the Geological Sciences degree programme, the ability to apply knowledge and understanding is developed through a teaching approach that combines lectures with practical laboratory and field activities. Lectures in chemistry, physics, mathematics and computer science, along with classroom and laboratory practicals, provide students with the tools required to understand and describe Earth system phenomena using multidisciplinary methodologies. These activities enable them to apply experimental protocols for data acquisition and processing, and to develop skills in the representation of results, communication and information management. A key aspect of this study programme is that it fosters the use of written and spoken English to communicate scientific and technical information effectively. Activities with educational collections of minerals, fossils, rocks, thematic maps and multimedia materials, as well as laboratory practicals and fieldwork, give students the opportunity to put their acquired knowledge into practice. Through these experiences, students not only develop the ability to apply theoretical knowledge but also learn how to work independently and assess their own level of competence. The study programme also promotes seminars and conferences on emerging professional topics and geological legislation, fostering the acquisition of knowledge useful for professional work in the conservation and sustainable use of georesources. Meetings with industry professionals and representatives from public institutions further enrich the educational experience, allowing students to engage with various professional settings and apply the acquired technical skills and theoretical knowledge. The expected learning outcomes include the ability to reason within the broad spatial and temporal contexts typical of the geosciences, to analyse complex natural systems using a systemic, interdisciplinary approach, and to work independently, developing practical solutions to problems encountered during studies. These outcomes will be assessed through the preparation of technical and scientific reports (either individually or in groups), the

production of thematic maps, and the written and oral presentation of results. Making judgements The ability to make judgments is a key competence of graduates in Geological Sciences, as it involves the ability to critically assess the complexities of the natural environment and to make responsible decisions regarding land planning and the sustainable use of resources. Students shall develop a strong commitment to the quality and integrity of geological data, with a full understanding of the ethical and social implications of their work. Earth sciences play a crucial role in society, contributing to environmental protection and the responsible, sustainable management of natural resources. To ensure they have acquired autonomy of judgement, during exams students are required to demonstrate their ability to apply ethical principles and standards of conduct to the environment. Exams test their ability to judge the quality and reliability of geological data, with particular regard to geological risk management and the conservation of natural resources. The ability to make informed decisions, based on accurate data and respect for the environment, is essential in meeting current and future challenges in the field of geology and land management. In this context, students must be able to accurately assess geological risk, thereby contributing to safe and sustainable land planning. Moreover, their judgment should reflect a deep awareness of the social, environmental and economic implications of decisions made within the field of Earth sciences. The ability to make judgments will be developed through both individual and group work, and will be assessed through written and oral presentations of results, as well as the scientific reasoning underpinning their considerations. Communication skills Communication skills are essential for Geological Sciences graduates, enabling them to convey effectively information, ideas, problems and solutions to both specialists in the field and non-experts. Training aims to develop oral and written communication skills in one's native language and to impart a good understanding of technical language in a second language, usually English. In addition, the programme fosters teamwork, encouraging the exchange and proper transfer of knowledge and skills among team members. These communication skills are particularly important because they facilitate dialogue with other professions and ensure that scientific information pertaining to the geological sciences is understood and used appropriately even by non-experts. Verification of these skills takes place mainly through the preparation and defence of the final thesis on a topic generally linked to the internship. The thesis must be drafted using clear technical language and be presented orally before the Degree Board. In addition, students must use common software applications to produce digital outputs that communicate effectively and concisely, thereby demonstrating their ability to use modern tools to convey information clearly and professionally. Learning skills Learning skills are fundamental for graduates in Geological Sciences, enabling them to develop further competences and to handle complex information deriving from the multidisciplinary study of the natural environment. Students must be able to consult databases and online resources to ensure that their knowledge is constantly updated, thereby maintaining a high level of competence in a constantly evolving scientific field. Assessment of these skills takes place mainly through exams relating to third-year courses, which call for advanced skills and increasingly autonomous study. Another important moment is the preparation of the final thesis. This often involves accessing databases and bibliographic sources in foreign languages, as well as the independent study of topics not covered during teaching activities. By working on their thesis, students demonstrate their ability to learn independently and to address complex issues, thereby preparing themselves for continuous learning in the professional world and in research.

Professional profile and employment opportunities

Geological data collection and management specialist for land analysis

Environmental, land and resource monitoring technician

Natural resource exploration, management and use specialist

Laboratory analyst for natural materials and geomaterials

Graduates work in public administration offices (both national and local) involved in acquiring knowledge of the region, in research institutes and in private companies engaged in the management of land and natural resources.

They are employed in private companies involved in land planning and in the design of structures interacting with soil and rocks, in public administration offices (national and local) directly responsible for land management, and they provide operational support to research institutes.

They work in medium to large-sized companies (such as energy companies, service providers and mineral exploration companies) as technical specialists, or in private companies focused on natural and synthetic materials and their transformation (geomaterials) for various applications. They may also work in public institutions responsible for verifying the use of natural materials and their derivatives in civil applications and

for monitoring mineral pollutants. They also provide operational support to research institutes.

Lastly, there are opportunities to freelance.

The license to practice as a Junior Geologist is officially granted by the State Board of Geologists (Section B - Junior Geologist) upon successful completion of the licensing exam. Junior geologists are assigned specific and primarily operational responsibilities relating to the acquisition and representation of field and laboratory data, under the supervision of a Senior Geologist holding a Master's degree (Section A ? Geologist). The Department of Earth Sciences serves as the main academic body responsible for coordinating the programme.

Initial knowledge required

Qualifications and knowledge required for admission To be admitted to the Bachelor's degree programme in Geological Sciences, applicants must hold an upper secondary school-leaving certificate or a suitable equivalent foreign qualification. In addition, an adequate personal preparation is required, particularly in the basic sciences and in elementary logic. Admission assessment: although the Bachelor's degree programme in Geological Sciences has open admissions, a compulsory but non-selective entrance exam is used to assess the applicant's knowledge and preparation prior to enrolment. Assessment is carried out through the TOLC (CISIA Online Test), which students must take either at the University of Milan or at any other university participating in the CISIA network (Interuniversity Consortium for Integrated Access Systems). Registration for the TOLC must be completed on the CISIA website (www.cisiaonline.it). The TOLC tests accepted for admission to the Bachelor's degree programme in Geological Sciences are TOLC-B, TOLC-S and TOLC-I. Students may enrol only after having taken one of the following TOLCs, REGARDLESS OF THE OUTCOME: TOLC-B, the test structure and topics and other useful information are available at <https://www.cisiaonline.it/en/tolc/tolc-b/structure-and-syllabus> TOLC-S, the test structure and topics and other useful information are available at <https://www.cisiaonline.it/en/tolc/tolc-s/structure-and-syllabus> TOLC-I, the test structure and topics and other useful information are available at <https://www.cisiaonline.it/en/tolc/tolc-i/structure-and-syllabus> Each TOLC test contains an additional English section, consisting of 30 questions to be completed in 15 minutes, the outcome of which does not count towards the test score. Registration procedures, dates, deadlines and other useful information can be found in the call for applications. Please also see <https://www.unimi.it/en/study/bachelor-and-master-study/degree-programme-enrolment/enrolment-first-degree-programme>. Candidates must show up with a valid identity document at the time and date indicated on the TOLC registration receipt. Admission of transfer or graduate students: Students already enrolled in a degree programme at the University of Milan or at another university or who have already graduated may be exempted from the test only if admitted to years after the first. To this end, a request for evaluation of academic records must be submitted by accessing the online service indicated in the call for applications. Interested parties must declare all the exams they have taken, specifying the relevant scientific-disciplinary sector (SSD), credits and grades, and must attach the syllabuses of courses. For further details on the procedure, please see the call for applications. The deadline for submitting the request for the evaluation of academic records is specified in the call for applications. The outcome of the request will be communicated by email. Students admitted to the first year must take the test. Additional learning requirements (OFA) and remedial activities: First-year students who do not achieve a score of at least 10 in the Mathematics section will be assigned additional learning requirements (OFA). Remedial courses will be organised between October and December for students who have been assigned additional learning requirements (OFA). Said students must then pass a remedial exam to demonstrate that they have improved their preparation, or they will not be allowed to take any second-year exams until they have passed the Mathematics I and Information Technology exam. For further information see <https://geologia.cdl.unimi.it/it/studiare/le-matricole>

Compulsory attendance

In addition to required field training, attendance is mandatory for practical laboratories. Attendance is essential for students to learn and pass exams.

Internship criteria

The internship represents a training period in direct contact with real-world professional activities. It contributes to the student's scientific and technological education and to the acquisition of technical and practical skills of professional relevance to the geologist's field of expertise. The internship lasts 125 hours and awards 5 university credits (CFUs). It can be carried out in professional firms, companies, public or private institutes or within the University.

Further information on the procedures for activating, conducting and completing the internship can be found at

the following pages:

<https://geologia.cdl.unimi.it/it/studiare/stage-e-tirocini>

<https://www.unimi.it/en/study/traineeships-and-work/traineeships-and-internships/activating-curricular-internship>

Degree programme final exams

To be admitted to the final exam, the student must:

- 1) have obtained 176 university credits (CFUs), including 3 CFUs for foreign language proficiency;
- 2) write a thesis.

The preparation and presentation of the thesis awards 4 CFUs.

The final exam consists in the presentation of a thesis prepared by the student. The thesis must relate to a field study and/or laboratory measurements for the basic geological investigation of geomaterials and/or an area.

Alternatively, it may concern the processing of geological data using computer-based methods, or the application of mathematical models capable of simulating geological or geophysical processes.

The credits awarded for the thesis must reflect the time dedicated to its preparation. The thesis may be written in English.

Admission to the final exam:

- submit the FINAL THESIS REQUEST to cclsg@unimi.it using the form available at <https://geologia.cdl.unimi.it/it/studiare/laurearsi> and well in advance of starting work on it;
- submit the GRADUATION APPLICATION online to the Student Desk by the established deadline;
- submit a hard copy of the thesis to the Degree Board on the day of its defence and upload the abstract to www.riassuntitesi.scienzemfn.unimi.it by the deadline communicated by the Student Desk.

The following points are awarded during the final exam and contribute to the final mark:

- 0 to 3 points for the internship;
- 0 to 2 points for assessment of compulsory field-based educational activities in the first and second years;
- 0 to 6 points for the thesis defence (evaluation of the final thesis).

Further information is available at <https://www.unimi.it/en/study/bachelor-and-master-study/graduation>

Campus

The teaching facilities of the Degree Course in Geological Sciences are located in the two structures of the Department of Earth Sciences "A. Desio":

The two main teaching areas are the Geology and Paleontology structure (via Luigi Mangiagalli, 34) and that of Mineralogy, Petrography, Geochemistry, Mineral Deposits and Geophysics (via Botticelli, 23).

The specific exercises of the Minerals and Rocks, Introduction to Geology and Laboratory Laboratory (with Geological Cartography) and the Paleontology and Laboratory are held in dedicated educational laboratories.

Laboratories

Teaching laboratories take place both in departmental structures, equipped with technical-scientific instruments and collections, and on-field, using customised logistics solutions.

Educational collections for the recognition and study of fossils, minerals, rocks, thin sections of rocks, topographic and geological maps are available in classrooms and in ad-hoc teaching laboratories. Computerized classrooms offer software for data processing and for the simulation of geological processes.

Scientific instruments available at the Department of Earth Sciences (<https://distad.unimi.it/it/didattica/progetti-laboratori/didattica-laboratorio>) help provide an introduction to optical, chemical and physical-mechanical characterization of minerals, fossils, rocks, soils, other natural or synthetic materials, as well as water and other terrestrial fluids. Practical exercises are carried out in laboratories of optical microscopy, scanning electron microscopy, transmission electron microscopy, mechanics of rocks, sedimentology, X-ray diffraction, X-ray spectrometry, absorption and emission spectrophotometry, visible and infrared spectroscopy.

Field laboratories take place in areas where students can learn geological cartography, process geological data and reconstruct the genetic processes of terrestrial materials (e.g. Valchiavenna Station).

Notes

In order to obtain their degree, students are required to have a B2 level of proficiency according to the Common European Framework of Reference for Languages (CEFR). This level of proficiency can be certified as follows:

- by submitting an official language certificate at B2 level or higher, issued no more than three years before the submission date. The list of language certificates recognized by the University is available at <https://www.unimi.it/en/node/39322>.

The certificate must be uploaded during enrolment or later through the portal <http://studente.unimi.it/uploadCertificazioniLingue>.

- By taking a placement test administered by the University Language Centre (SLAM) between October and January of the first year. Students who do not pass the test will be required to attend a language course offered by SLAM.

The placement test is compulsory for all students who do not already hold a valid certificate.

Students who do not take the placement test by the end of January or fail the end-of-course exam after six attempts must obtain a language certificate privately before graduating.

EXPERIENCE OF STUDY ABROAD AS PART OF THE TRAINING PROGRAM

The University of Milan supports international mobility by providing its students with the opportunity to spend study and internship periods abroad. It is a unique chance to enrich your educational path in a new exciting environment.

The agreements entered into by the University with over 300 universities from the 27 EU member countries under the European Erasmus+ programme allow regularly enrolled students to carry out part of their studies at one of the partner universities or to undertake internships at companies, training and research centres and other organisations.

Similar international mobility opportunities are provided outside Europe, through agreements with a number of prestigious institutions.

The University of Milan is a member of the 4EU+ European University Alliance that brings together eight public multidisciplinary universities: University of Milan, Charles University of Prague, Heidelberg University, Paris-Panthéon-Assas University, Sorbonne University of Paris, University of Copenhagen, University of Geneva, and University of Warsaw. The 4EU+ Alliance offers integrated educational pathways and programmes to promote the international mobility of students (physical, blended and virtual).

Study and internships abroad

The Department of Earth Sciences offers opportunities for spending time as guest students at European universities and research centres both for attending courses/exams and for research and internship related to projects for graduate, post-graduate and PhD students. Studying and doing research in foreign universities is not only an important life experience and the occasion for thorough learning of a foreign language, but is also, and primarily, the opportunity for experiencing and acquiring different and more flexible learning approaches. Doing research and internship abroad may allow the access to facilities not available here (e.g., highly specialized labs), the performance of applied research on specific fields as well as the first-hand interaction with wider, international research groups. At present our partner universities in official Erasmus exchange agreements devoted to course/exams and, where indicated, research activity, are located in France, Germany, Greece, Spain, Holland, Switzerland. However the agreements for bursaries specifically devoted to applied research/internship can be stipulated with any other university or research centre with which any members of our department have or may establish collaboration on common research interests. For these research bursaries and, in general, for the correct validation of the research activity done by our students abroad, the role and the active involvement of a local member of the department is of fundamental importance, as he/she will act as official, competent internal scientific tutor for the student hosted in the guest foreign university. Students may access to “normal” Erasmus bursarships, allowing course/exam in addition to research activities in partner universities, as well as Erasmus Student Placement bursaries exclusively devoted to research/internship activities. The access to the different types of bursary is done by means of separate application procedures. The activity (course/exam or research) that the candidate will do in the guest foreign university has to be agreed with the local professors/tutors in both original and guest universities by means of the “Learning Agreement”. This document is of prime importance for the final validation and official administrative registration of the activity done abroad.

How to participate in Erasmus mobility programs

How to participate in Erasmus+ mobility programmes

The students of the University of Milan can participate in mobility programmes, through a public selection procedure.

Ad hoc commissions will evaluate:

- Academic career
- the candidate's proposed study programme abroad
- his/her foreign language proficiency
- the reasons behind his/her application

Call for applications and informative meetings

The public selection for Erasmus+ mobility for study generally begins around February each year with the publication of a call for applications specifying destinations and requirements. Regarding the Erasmus+ Mobility for Traineeship, the University of Milan usually publishes two calls a year enabling students to choose a destination defined by an inter-institutional agreement or to find a traineeship position on their own.

The University organises informative meetings to illustrate mobility opportunities and rules for participation.

Erasmus+ scholarship

The European Union grants the winners of the Erasmus+ programme selection a scholarship to contribute to their mobility costs, which may be supplemented by the University funding for disadvantaged students.

Language courses

Students who pass the selections for mobility programmes can benefit from intensive foreign language courses offered each year by the University Language Centre (SLAM).

<https://www.unimi.it/en/node/8/>

Learn more at <https://www.unimi.it/en/node/274/>

For assistance, please contact:

International Mobility Office

Via Santa Sofia 9 (second floor)

Tel. 02 503 13501-12589-13495-13502

Contacts: InformaStudenti;

Student Desk booking through InformaStudenti

1st COURSE YEAR Core/compulsory courses/activities common		
Learning activity	Ects	Sector
Chemistry and Laboratory	9	CHEM-03/A
English proficiency B2 (3 ECTS)	3	NN
Geomorphology and Laboratory	10	GEOS-03/A
Introduction to Geology and Laboratory	7	(4) GEOS-02/A, (1) GEOS-01/B, (1) GEOS-02/B, (1) GEOS-02/C
Mathematics I and Information Tecnology	9	(6) MATH-03/A, (3) INFO-01/A
Mineralogy and Lithology Practicals	10	(4) GEOS-01/B, (3) GEOS-02/B, (3) GEOS-01/A
Paleontology and Laboratory	9	GEOS-02/A
Physics I	6	(3) PHYS-03/A, (3) PHYS-01/A
Total compulsory credits		63
2nd COURSE YEAR (available as of academic year 2027/28) Core/compulsory courses/activities common		
Learning activity	Ects	Sector
Mathematics II	6	MATH-03/A
Mineralogy	6	GEOS-01/A
Petrography and Laboratory	10	GEOS-01/B
Physics II	6	(3) PHYS-03/A, (3) PHYS-01/A
Physics of the Earth and Laboratory	9	GEOS-04/A
Sedimentary Geology and Laboratory	10	GEOS-02/B
Structural Geology and Tectonics and Laboratory	10	GEOS-02/C
Total compulsory credits		57
3rd COURSE YEAR (available as of academic year 2028/29) Core/compulsory courses/activities common		
Learning activity	Ects	Sector
Engineering Geology and Laboratory	9	GEOS-03/B

Geochemistry	6	GEOS-01/C
Geological Mapping and fieldwork practicals	9	(1) GEOS-01/D, (2) GEOS-01/B, (3) GEOS-02/B, (3) GEOS-02/C
Georesources and Laboratory	9	GEOS-01/D
Topography and GIS	6	CEAR-04/A
	Total compulsory credits	39
<i>Elective courses</i>		
<p>The student must also acquire 12 ECTS in training activities freely chosen from those activated by the University as long as they are consistent with the study plan, subjected to the judgment of the competent commission of the Teaching Board of the course of study.</p> <p>The Teaching Board of the study course provides for the activation of the following courses for free choice (third year courses) starting from the 2027-28 academic year.</p>		
Applied Geophysics	6	GEOS-04/B
Facies Analysis	6	GEOS-02/B
Geotechnical field test and measures	6	GEOS-03/B
Mineralogy of Earth and Planets and analytical methods	6	GEOS-01/A
Palaeoecology	6	GEOS-02/A
Photogeology	6	GEOS-03/A
Raw Materials and Industry	6	GEOS-01/D
Structural Analysis I	6	GEOS-02/C
Volcanology	6	GEOS-01/C
<i>End of course requirements</i>		
Final Dissertation	4	NN
Training	5	NN
	Total compulsory credits	9

COURSE PROGRESSION REQUIREMENTS

Prerequisites are recommended for the following courses:

Physics I on Physics II;

Mineralogy on Geochemistry.

Consult the following table for the compulsory preparatory courses.

Learning activity	Prescribed foundation courses	O/S
Mineralogy	Mineralogy and Lithology Practicals	Core/compulsory
	Chemistry and Laboratory	Core/compulsory
Mathematics II	Mathematics I and Information Tecnology	Core/compulsory
Sedimentary Geology and Laboratory	Mineralogy and Lithology Practicals	Core/compulsory
Physics II	Physics I	Core/compulsory
Physics I	Mathematics I and Information Tecnology	Core/compulsory
Geochemistry	English proficiency B2 (3 ECTS)	Core/compulsory
	Mineralogy	Core/compulsory
	Sedimentary Geology and Laboratory	Core/compulsory
	Mineralogy and Lithology Practicals	Core/compulsory
	Geomorphology and Laboratory	Core/compulsory
	Introduction to Geology and Laboratory	Core/compulsory
	Chemistry and Laboratory	Core/compulsory
	Paleontology and Laboratory	Core/compulsory
	Physics I	Core/compulsory
	Petrography and Laboratory	Core/compulsory
Topography and GIS	English proficiency B2 (3 ECTS)	Core/compulsory
	Mineralogy	Core/compulsory
	Mineralogy and Lithology Practicals	Core/compulsory
	Geomorphology and Laboratory	Core/compulsory
	Introduction to Geology and Laboratory	Core/compulsory
	Chemistry and Laboratory	Core/compulsory
	Paleontology and Laboratory	Core/compulsory
	Physics I	Core/compulsory
Geological Mapping and fieldwork practicals	English proficiency B2 (3 ECTS)	Core/compulsory
	Mineralogy	Core/compulsory
	Sedimentary Geology and Laboratory	Core/compulsory
	Mineralogy and Lithology Practicals	Core/compulsory
	Geomorphology and Laboratory	Core/compulsory
	Introduction to Geology and Laboratory	Core/compulsory
	Chemistry and Laboratory	Core/compulsory
	Paleontology and Laboratory	Core/compulsory

	Petrography and Laboratory	Core/compulsory
	Structural Geology and Tectonics and Laboratory	Core/compulsory
Georesources and Laboratory	English proficiency B2 (3 ECTS)	Core/compulsory
	Mineralogy	Core/compulsory
	Sedimentary Geology and Laboratory	Core/compulsory
	Mineralogy and Lithology Practicals	Core/compulsory
	Geomorphology and Laboratory	Core/compulsory
	Introduction to Geology and Laboratory	Core/compulsory
	Chemistry and Laboratory	Core/compulsory
	Paleontology and Laboratory	Core/compulsory
	Physics I	Core/compulsory
	Petrography and Laboratory	Core/compulsory
	Structural Geology and Tectonics and Laboratory	Core/compulsory
Engineering Geology and Laboratory	English proficiency B2 (3 ECTS)	Core/compulsory
	Mineralogy	Core/compulsory
	Sedimentary Geology and Laboratory	Core/compulsory
	Mineralogy and Lithology Practicals	Core/compulsory
	Geomorphology and Laboratory	Core/compulsory
	Introduction to Geology and Laboratory	Core/compulsory
	Chemistry and Laboratory	Core/compulsory
	Paleontology and Laboratory	Core/compulsory
	Structural Geology and Tectonics and Laboratory	Core/compulsory
Petrography and Laboratory	Mineralogy	Core/compulsory
	Mineralogy and Lithology Practicals	Core/compulsory
Structural Geology and Tectonics and Laboratory	Mineralogy	Core/compulsory
	Sedimentary Geology and Laboratory	Core/compulsory
	Mineralogy and Lithology Practicals	Core/compulsory
	Petrography and Laboratory	Core/compulsory
Physics of the Earth and Laboratory	Physics I	Core/compulsory