

COURSE TITLE	CHEMICAL ANALYSIS OF ROCKS AND ORES	CODE: GC 4101
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LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	M1	SEMESTER	I	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO
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NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	214	9	M	English

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	PhD Reader Traian Gavriiloaiei	Geology

PREREQUISITES	General Chemistry; Analytical Chemistry; Hydrogeochemistry; Pedogeochemistry
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OBJECTIVES	<ul style="list-style-type: none"> <li>- To develop the working skills and analysis for various types of rocks;</li> <li>- To perform a chemical analysis using a general scheme of working and to choose a suitable method of analysis for the main cations;</li> <li>- To perform bulk chemical analysis of minerals and rocks.</li> </ul>
COURSE CONTENTS	<ol style="list-style-type: none"> <li>1. Introduction. Preliminary operations.</li> <li>2. Methods for wet disintegration of geological samples.</li> <li>3. Methods for dry disintegration of geological samples.</li> <li>4. Disintegration under pressure; disintegration with microwaves.</li> <li>5. Chemical analysis of silicate rocks, the general procedure for silicates (limestones or dolomites/barites/phosphorites or apatites), scheme of working, main components (silicon, total iron, titanium, aluminium, calcium, magnesium, manganese, phosphorus, alkalies, water).</li> <li>6. Quick schemes for silicate analysis.</li> </ol>
PRACTICAL	<ol style="list-style-type: none"> <li>1. Preliminary operations for analysis.</li> <li>2. Analysis of water content from ores (<math>H_2O</math>, <math>H_2O^+</math>, <math>H_2O_t</math>, P.C.)</li> <li>3. Dry disintegration of the sample.</li> <li>4. Gravimetric analysis of silica and oxides group.</li> <li>5. Spectrophotometric analysis of total iron, phosphorus, manganese and titanium.</li> <li>6. Titrimetric analysis of calcium and magnesium.</li> <li>7. Analysis of alkaline metals.</li> </ol>
TEACHING METHODS	Lectures, discussions, problematization, inductive teaching

RECOMMENDED READING	<p>Easton A.J. (1972). Chemical Analysis of Silicate rocks, Elsevier Publishing Co., London.</p> <p>Gavriiloaiei T. (2007). analiza chimica a rocilor, Ed. Sedcom Libris, Iasi.</p> <p>Jeffery P.G. (1983). Metode chimice de analiză a rocilor, ed. a doua, Ed. Tehnică, București.</p> <p>Johnson W.M., Maxwell J.A. (1981). Rock and Mineral Analysis, John Wiley &amp; Sons, New York.</p> <p>Skoog D.A. et al. (2000). Analytical Chemistry, an introduction, 7<sup>th</sup> ed., Saunders Coll. Publishing, New York.</p>
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ASSESSMENT METHODS	Conditions	Attending courses, practical works and seminars
	Criteria	Cumulative evaluation
	Way of evaluation	Evaluation during the semester (VP) + examination (Ex)
	Formula of the final mark	0.75 E + 0.25 D