

COURSE TITLE	GEOCHEMISTRY OF STABLE ISOTOPES	CODE: GC 4105
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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)	OP
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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.					
1		1		28	152	6	M	English

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	PhD Professor Titus Murariu	Geology

PREREQUISITES	Chemistry; Metallogeny 1,2
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OBJECTIVES	The course presents the theoretical bases of isotopes, the use and importance of stable isotopes (O, H, S, C, Li) in environmental research, with theoretical and practical implications based on examples from Romania and other countries
COURSE CONTENTS	<ol style="list-style-type: none"> <li>Theoretical bases of isotopes</li> <li>Fractionation of isotopes</li> <li>Stable isotopes. Abundance</li> <li>Stable isotopes in the environment. International standards. Examples from Romania and other countries <ul style="list-style-type: none"> <li>The isotopes of oxygen</li> <li>The isotopes of hydrogen</li> <li>The isotopes of sulphur</li> <li>The isotopes of lithium</li> </ul> </li> <li>Isotopes in spectrometry</li> </ol>
PRACTICAL	<ol style="list-style-type: none"> <li>Methods of separating isotopes</li> <li>Applications of stable isotopes in environmental research <ul style="list-style-type: none"> <li>Isotopic composition of fluids: sea water, meteoric water, magmatic and juvenile water, metamorphic water, connate water and reservoir salts</li> </ul> </li> <li>Applications of stable isotopes in geothermometry</li> </ol>
TEACHING METHODS	Lectures, discussion, problem-solving and independent observation

RECOMMENDED READING	Attendorn H.G., Bowen R.N. (1997). Radioactive and stable isotope geology. Chapman and Hall. Hoefs I. (1997). Stable isotope geochemistry. Springer-Verlag, Berlin. Javoi M. (1977). Stable isotope and geothermometry. J.Geol., 133. Ohmoto H. (1986). Stable isotope geochemistry of ore deposits. Review in Mineralogy, 16. Sobotovich E.V., Bartnitzki E.H., Kononenko L.V. (1982). Spravochnik po izotopnoy geokhimiy. Energoizdat, Moskva. Stable isotope geochemistry (2001). Review in Mineralogy and Geochemistry, 43. Mineral Society of America.
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ASSESSMENT METHODS	Conditions	Fulfilment of professional obligations (courses and practical work)
	Criteria	Cumulative evaluation
	Way of evaluation	Examination
	Formula of the final mark	0.70 E + 0.30 P