

COURSE TITLE		RADIOACTIVE METAL GEOCHEMISTRY AND BIOGEOCHEMISTRY			CODE: GC 5102			
LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)		M2	SEMESTER	I	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO		
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	184	8	M	English
LECTURER	POSITION, NAME AND SURNAME			DEPARTMENT				
	PHD Smaranda Rădășanu			Geology				
PREREQUISITES		Metallogeny 1,2						
OBJECTIVES	The course presents the geochemistry and biogeochemistry of radioactive metals with special attention to uranium – the most mobile chemical element in the periodic system. It will suggestively examine aspects of the mineralogy and geochemistry of uranium, and genetic types of deposits of economic value. The course highlights aspects related to contamination of the environment with radioactive metals and techniques to remedy these. At the same time, on the basis of data from the literature relating to Romania and other countries, the uranium content of magmatite will be used as a metallogenic geochemical indicator.							
COURSE CONTENTS	<ol style="list-style-type: none"> Radioactivity: natural, artificial. Radioactive series Radioactive metals: actinids The geochemistry of uranium <ul style="list-style-type: none"> General geochemical observations. Abundance. Electronic configuration. States of oxidation. The mineralogy of uranium: minerals proper; minerals with concentrations of uranium The geochemistry of uranium in endogenic and exogenic processes Genetic types of uranium deposits The biogeochemistry of uranium <ul style="list-style-type: none"> Uranium in soils and sediments. Abundance. Sources. Transport. Stabilisation. Toxicity Uranium in waters. Abundance. Sources. Transport. Mobility. Uranium in living organisms. Abundance. Sources. Toxicity Contamination of the environment with uranium and techniques to remedy this 							
PRACTICAL	<ol style="list-style-type: none"> Methods of identifying radioactivity Methods of identifying uranium Modern methods of determining uranium: mass spectrometry, X-ray fluorescence, absorption spectrometry, spectrometry in IR, thermal analysis Partition coefficients: mineral – fusion Uranium in magmatites as a geochemical metallogenic indicator 							
TEACHING METHODS	Lectures, discussion, problem-solving and independent observation							
RECOMMENDED READING	Bourdon B., Henderson G.M., Lundstrom C.C., Turner S.P. (2003). Uranium series Geochemistry. Reviews in Mineralogy, 52. Burns P.C., Finch R. (1999). Uranium: Mineralogy, Geochemistry and the Environment. Reviews in Mineralogy, 38. Dahlkamp F.J. (1993). Uranium ore deposits. Springer-Verlag, Berlin. Murariu T. (2005). Geochimia și metalogenia uraniului. Ed.Univ.'Al.I.Cuza", Iași.							
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					