MASTER'S DEGREE
ENVIRONMENTAL GEOCHEMISTRY
2ND YEAR OF STUDY, 1ST SEMESTER

COURSE TITLE	ENVIRONMENTAL GEOCHEMICAL RISKS
COURSE CODE	31020030010PM1212218
COURSE TYPE	full attendance
COURSE LEVEL	2nd cycle (master's degree)
YEAR OF STUDY, SEMESTER	2nd year of study, 1st semester
NUMBER OF ECTS CREDITS	7
NUMBER OF HOURS PER WEEK	4 (2 lecture hours + 2 seminar hours)
NAME OF LECTURE HOLDER	Professor Ovidiu Gabriel Iancu
NAME OF SEMINAR HOLDER	Professor Ovidiu Gabriel Iancu
PREREQUISITES	-

A GENERAL AND COURSE-SPECIFIC COMPETENCES

General competences:

→ The ability to formulate and defend logical arguments on topics pertaining to the academic discipline

Course-specific competences:

→ The creative application of the methods used in geochemical research for the understanding of issues related to the quality of Earth's subsystems

B LEARNING OUTCOMES

→ Students accumulate knowledge on the main geochemical hazards and risks (some known as "technological hazards") and on the measures taken to prevent or mitigate them

→ Students become capable of assessing the probability of a community being affected by an environmental hazard, despite the safety measures in place

C LECTURE CONTENT

Week	Title of lecture	Teaching methods	Duration
1	Risk, hazard, vulnerability – general notions	Lecture based on video projection	2 hours
2	Nuclear technological accidents	Lecture based on video projection	2 hours
3	Oil spills	Lecture based on video projection	2 hours
4	Gas emissions associated to eruptive volcanic processes	Lecture based on video projection	2 hours
5	Gas emissions associated to non-eruptive volcanic	Lecture based on video projection	2 hours

	processes		
6	Tailings piles and their environmental impact	Lecture based on video projection	2 hours
7	Tailings ponds and their environmental impact	Lecture based on video projection	2 hours
8	Solid waste and its impact (waste management)	Lecture based on video projection	2 hours
9	Soil pollution with heavy metals	Lecture based on video projection	2 hours
10	Pollutants in surface water bodies and groundwater	Lecture based on video projection	2 hours
11	The influence of the geological substrate on radon emissions	Lecture based on video projection	2 hours
12	Environmental risks related to radioactive waste	Lecture based on video projection	2 hours
13	Particulate matter and atmospheric pollution	Lecture based on video projection	2 hours
14	Global warming or climate change?	Lecture based on video projection	2 hours

D RECOMMENDED READING FOR LECTURES

Förstner U. (1998) Integrated pollution control, Springer Verlag, 505 p.

Pirone N., Mahaffey K. R. (2005) Dynamics of mercury pollution on regional and global scales, Springer Verlag, 744 p.

Reeve R. N. (2002) Introduction to environmental analysis, John Wiley & Sons.

Vallero D. A. (2004) Environmental contaminants: Assessment and control, Elsevier Academic Press, 801 p.

E SEMINAR CONTENT

Week	Title of seminar	Teaching methods	Duration
1	The Chernobyl nuclear accident	Video projection; debate	2 hours
2	The Exxon Valdez spill	Video projection; debate	2 hours
3	The Bhopal accident	Video projection; debate	2 hours
4	Icelandic eruptive processes whose gas emissions have impacted the environment	Video projection; debate	2 hours
5	Solid waste management case study: Naples	Video projection; debate	2 hours

	6	Tailings ponds and tailings piles and their environmental impact	Video projection; debate	2 hours
	7	The proper management of radioactive waste – examples	Video projection; debate	2 hours
	8	The assessment of air quality	Video projection; debate	2 hours
	9	The geochemistry of atmospheric radon and its environmental impact – case studies	Video projection; debate	2 hours
	10	Acid rain	Video projection; debate	2 hours
	11	The environmental impact of pesticides	Video projection; debate	2 hours
	12	The distribution of heavy metals in urban soils. Case study: the city of Iasi	Video projection; debate	2 hours
	13	Romanian and European legislation on the evaluation and remediation of contaminated sites	Video projection; debate	2 hours
	14	Paper presentations	Assessment	2 hours

F	RECOMMENDED READING FOR SEMINARS
	Bell F.G. (2003) Geological Hazards: Their Assessment, Avoidance and Mitigation, CRC Press, 660 p. Popek E. (2003) Sampling and analysis of environmental chemical pollutants. A complete guide. Academic Press, 366 p. Paul B. K. (2011) Environmental Hazards and Disasters: Contexts, Perspectives and Management, Wiley-Blackwell, 322p. Sigurdsson H., Houghton B. F., McNutt S. R., Rymer H., Stix J. (2000) Encyclopedia of Volcanoes, Academic Press, San Diego, California.
G	EDUCATION STYLE

LEARNING AND TEACHING METHODS	Lecture based on video projection; debate; individual study
ASSESSMENT METHODS	Written examination and continuous assessment (lecture) – 30%; paper presentations (seminar) – 70%
LANGUAGE OF INSTRUCTION	English