



MINISTRY OF EDUCATION AND RESEARCH
 "VALAHIA" UNIVERSITY OF TÂRGOVIȘTE
 FACULTY OF HUMANITIES
 DEPARTMENT OF GEOGRAPHY

COURSE DESCRIPTION

1. Programme Information

1.1 Higher education institution	"Valahia" University of Târgoviște
1.2 Faculty / Department	Humanities
1.3 Department	Geography
1.4 Field of study	Geography
1.5 Cycle of studies	Master's Degree
1.6 Programme of study / Qualification	Geographical Risk Phenomena and Environmental Quality

2. Course Information

2.1 Course Title	GEOMORPHOLOGICAL RISK PHENOMENA						
2.2 Course Lecturer	Lect. univ. dr. Eduard Păunescu						
2.3 Instructor for practical activities	Lect. univ. dr. Eduard Păunescu						
2.4 Year of Study	I	2.5 Semester	I	2.6 Evaluation type	E	2.7 Course status	Compulsory

3. Total Estimated Time (hours per semester of teaching activities)

3.1 Number of hours per week	3	of which: 3.2 Course	2	3.3 Seminar / Laboratory	1
3.4 Total hours according to the curriculum	42	of which: 3.5 Course	28	3.6 Seminar / Laboratory	14
Distribution of time allocation					hours
Study using textbooks, course materials, bibliography, and notes					30
Additional research (library, electronic resources, fieldwork, etc.)					25
Preparation for seminars/laboratories, assignments, reports, portfolios, and essays					30
Tutorials					9
Examinations					1
Other activities.....					30
3.7 Total hours of individual study					83
3.8 Total hours per semester					125
3.9 Number of credits (ECTS)					5

4. Prerequisites (where applicable)

4.1 Curriculum-related	General Geomorphology
4.2 Competency-related	General Geomorphology

5. Requirements (where applicable)

5.1 Lecture delivery requirements	Lecture hall, video projector, smart board, thematic maps / internet access, PC or laptop.
5.2 Seminar/Laboratory delivery requirements	Seminar room, flipchart, video projector, geographical atlases / internet access, PC or laptop, atlas.

6. Learning outcomes

6.1 Knowledge <i>The student/graduate analyses, compares and differentiates types of risk phenomena (natural and anthropic) and their manifestation mechanisms.</i> <i>The student/graduate explains, classifies and highlights environmental quality indicators and pollution sources.</i>
6.2 Skills <i>The student/graduate applies methods for assessing geographical risk phenomena in diverse territorial contexts.</i> <i>The student/graduate interprets geographical data (geomorphological, climatic, hydrological, biogeographical, socio-economic) and correlates them with geographical risk phenomena.</i>
6.3 Responsibility and autonomy <i>The student/graduate proposes solutions for managing risk situations in collaboration with local authorities and communities.</i> <i>The student/graduate elaborates environmental reports and suggestions for public policies.</i>

7. Objectives (derived from the framework of acquired competencies)

7.1 General objective of the course	Highlighting the role of geomorphological risk phenomena within the general morphodynamics of the relief.
7.2 Specific objectives	Understanding geomorphological risk phenomena as a dual system: morphogenetic and morphodynamic.

8. Contents

8.1 Course	Teaching methods	Remarks
1. Geomorphological risk phenomena derived from slope morphodynamics: 1.1. Sudden gravitational displacements; 1.2. Slow gravitational displacements; 1.3. Runoff; 1.4. Torrentiality	Lecture Exposition Conversation Problematization Teams and Moodle Platforms	2 hours 2 hours 2 hours 2 hours
2. Geomorphological risk phenomena derived from channel morphodynamics: 2.1. Meandering; 2.2. Lateral erosion; 2.3. Floods	Lecture Exposition Conversation Problematization Teams and Moodle Platforms	2 hours 2 hours 2 hours
3. Geomorphological risk phenomena derived from glacial and periglacial morphodynamics: 3.1. Glaciers; 3.2. Avalanches	Lecture Exposition Conversation Problematization Teams and Moodle Platforms	2 hours 2 hours
4. Geomorphological risk phenomena derived from volcanic activity: 4.1. Ash and gas emissions; 4.2. Lava flows; 4.3. Lahars	Lecture Exposition Conversation Problematization Teams and Moodle Platforms	2 hours 2 hours 2 hours
5. Geomorphological risk phenomena derived from coastal morphodynamics: 5.1. Erosion of cliffs and beaches; 5.2. Tsunami wave action	Lecture Exposition Conversation Problematization Teams and Moodle Platforms	2 hours 2 hours
Bibliography <i>Ielenicz M, 2004, Geomorfologie, Ed. Universitară, București.</i> <i>Păunescu E., 2007, Geomorfologie, Note de curs.</i> <i>Posea, Gr, 2002, Geomorfologia României, Ed. Fundației România de Măine, București.</i> <i>***, 2010, Hazardurile naturale, Editura Știința.</i>		
8.2 Seminar / Laboratory	Teaching methods	Remarks
1. Presentation of the plan and bibliography for practical works	Conversation, explanation; Teams and Moodle platforms	2 hours
2. Carrying out the practical works	Conversation, explanation; Teams and Moodle platforms	5 hours
3. Presentation of the practical works	Conversation, explanation; Teams and Moodle platforms	5 hours

4. Discussions and conclusions based on the practical works	Conversation, explanation; Teams and Moodle platforms	2 hours
Bibliography <i>Ielenicz M, 2004, Geomorfologie, Ed. Universitară, București.</i> <i>Păunescu E., 2007, Geomorfologie, Note de curs.</i> <i>Posea, Gr, 2002, Geomorfologia României, Ed. Fundației România de Măine, București.</i> <i>***, 2010, Hazardurile naturale, Editura Știința.</i>		

9. Correlation of the course contents with the expectations of representatives of the epistemic community, professional associations, and representative employers in the field related to the study programme

There are correlations between the course contents and professional associations and employers (land improvement, hydrology, hydro-amelioration).

10. Evaluation

Activity type	10.1 Evaluation criteria	10.2 Evaluation methods	10.3 Percentage of final grade
10.4 Course	- answers in the exam/colloquium	Final evaluation	50%
10.5 Seminar / Laboratory / Project	- final answers for the laboratory practical work		40%
	- other activities		10%
10.6 Minimum performance standard			
Sudden gravitational displacements; Torrentiality; Floods			

Date
28.09.2026

Course lecturer
[Name, Surname, Signature]
Lect.univ.dr.Păunescu Eduard

Instructor(s) for practical activities
[Name, Surname, Signature]
Lect.univ.dr.Păunescu Eduard

Date of approval by the
Department
29.09.2026

Department Director
Conf.univ.dr. Dănuț Tanislav

Date of approval by the
Faculty Council
29.09.2026

Dean
Conf.univ.dr. Adrian-Aurel Baltălungă



MINISTRY OF EDUCATION AND RESEARCH
 "VALAHIA" UNIVERSITY OF TÂRGOVIȘTE
 FACULTY OF HUMANITIES
 DEPARTMENT OF GEOGRAPHY

COURSE DESCRIPTION

1. Programme Information

1.1 Higher education institution	"Valahia" University of Târgoviște
1.2 Faculty / Department	Humanities
1.3 Department	Geography
1.4 Field of study	Geography
1.5 Cycle of studies	Master
1.6 Programme of study / Qualification	Geographical Risk Phenomena and Environmental Quality

2. Course Information

2.1 Course Title	<i>Extreme weather phenomena</i>				
2.2 Course Lecturer	Assoc. prof. phd. Ovidiu Murărescu				
2.3 Instructor for practical activities	Assoc. prof. phd. Ovidiu Murărescu				
2.4 Year of Study	I	2.5 Semester	I	2.6 Evaluation type	E
				2.7 Course status	Obs.

3. Total Estimated Time (hours per semester of teaching activities)

3.1 Number of hours per week	3	of which: 3.2 Course	2	3.3 Seminar / Laboratory	1
3.4 Total hours according to the curriculum	42	of which: 3.5 Course	28	3.6 Seminar / Laboratory	14
Distribution of time allocation					hours
Study using textbooks, course materials, bibliography, and notes					28
Additional research (library, electronic resources, fieldwork, etc.)					20
Preparation for seminars/laboratories, assignments, reports, portfolios, and essays					28
Tutorials					1
Examinations					1
Other activities.....					5
3.7 Total hours of individual study					83
3.8 Total hours per semester					125
3.9 Number of credits (ECTS)					5

4. Prerequisites (where applicable)

4.1 Curriculum-related	
4.2 Competency-related	

5. Requirements (where applicable)

5.1 Lecture delivery requirements	Classroom, video projector, smart board, thematic maps/internet access, PC or laptop
5.2 Seminar/Laboratory delivery requirements	Seminar room, flipchart, video projector, geographical atlases/ internet access, PC or laptop

6. Objectives (derived from the framework of acquired competencies)

6.1 General objective of the course	Analysis of the main types of extreme climate phenomena – assessment, associated risks, emergency management
6.2 Specific objectives	- the mechanisms of formation extreme climatic phenomena and their impact on accidental malfunctions in the design and management of built structures, transport systems or industrial activities: their causes, their spatio-temporal distribution, the effects on the environment, including on human society; - knowledge of the methodology used in their analysis; - analysis of the possibilities of forecasting and combating the negative effects of extreme climatic phenomena.

7. Learning outcomes

7.1 Knowledge <i>(The result of knowledge acquisition through learning. The knowledge represents the totality of facts, principles, theories and practices for a given work or study field. They can be theoretical and/or factual.)</i>
7.2 Skills <i>(The capacity to apply the knowledge and use the know-how for completing tasks and solving problems. The skills are described as being cognitive (requiring the use of logical, intuitive and creative thinking) or practical (implying manual dexterity and the use of methods, materials, tools and instrumentation))</i>
7.3 Responsibility and autonomy <i>(The student's capacity to autonomously and responsibly apply their knowledge and skills)</i>

8. Contents

8.1 Course	Teaching methods	Remarks
1. Terminology, methodology of research on extreme climate phenomena, classifications.	lecture, heuristic conversation, explanation, demonstration, problematization; Teams and Moodle platforms	2 hours
2. Evolution of Earth's climates.	lecture, heuristic conversation, explanation, demonstration, problematization; Teams and Moodle platforms	2 hours
3. Short-term extreme climate phenomena associated with frontal Cumulonimbus clouds: tornadoes, storms, lightning, hail	lecture, heuristic conversation, explanation, demonstration, problematization; Teams and Moodle platforms	2 hours
4. Short-term extreme climate phenomena associated with thermal convection Cumulonimbus clouds: solid deposits and avalanches	lecture, heuristic conversation, explanation, demonstration, problematization; Teams and Moodle platforms	2 hours
5. Medium-term extreme climate phenomena induced by cyclonic activity.	lecture, heuristic conversation, explanation, demonstration, problematization; Teams and Moodle platforms	2 hours
6. Medium-term extreme climate phenomena: blizzard, intense non-periodic winds.	lecture, heuristic conversation, explanation, demonstration,	2 hours

	problematization; Teams and Moodle platforms	
7. Medium-term extreme climate phenomena: dust and sandstorms, heat and cold waves, fog.	lecture, heuristic conversation, explanation, demonstration, problematization; Teams and Moodle platforms	2 hours
8. Long-term extreme climate phenomena: periods of excess and deficit rainfall.	lecture, heuristic conversation, explanation, demonstration, problematization; Teams and Moodle platforms	2 hours
9. Very long-term extreme climate phenomena. Theoretical considerations	lecture, heuristic conversation, explanation, demonstration, problematization; Teams and Moodle platforms	2 hours
10. Very long-term extreme climate phenomena: global warming.	lecture, heuristic conversation, explanation, demonstration, problematization; Teams and Moodle platforms	2 hours
11. Extreme climatic phenomena of very long duration: associated events and consequences.	lecture, heuristic conversation, explanation, demonstration, problematization; Teams and Moodle platforms	2 hours
12. Prevention and combating the negative effects of extreme climatic phenomena.	lecture, heuristic conversation, explanation, demonstration, problematization; Teams and Moodle platforms	2 hours
13. Estimates regarding the prospective evolution of extreme climatic phenomena at a global level.	lecture, heuristic conversation, explanation, demonstration, problematization; Teams and Moodle platforms	2 hours
14. Estimates regarding the prospective evolution of extreme climatic phenomena in Romania.	lecture, heuristic conversation, explanation, demonstration, problematization; Teams and Moodle platforms	2 hours
Bibliography 1. Box Michael A, Box P. Gail (2024) The Science of Our Changing Climate Ed Cambridge 2. Ciulache S. (2004), Meteorologie și climatologie, Editura Universitară, București, 3. Ekeland I., Lécroart E. (2021) Urgence climatique Ed. Casterman 4. Konisky, D.M., Hughes, L. & Kaylor, C.H. (2016) Extreme weather events and climate change concern. Climatic Change 134, 533–547 5. McGuire Bill (2024) Geophysical and Climate Hazards: A Very Short Introduction Ed: OUP OXFORD 6. Mercier D., (2021) Les impacts spatiaux du changement climatique Ed. ISTE 7. Metzger A., (2021) Catastrophes climatiques 21 idées reçues pour comprendre et agir Ed: Le Cavalier Bleu 8. Murărescu O, (2013) Meteorologie, Editura Cetatea de Scaun, Târgoviște, 9. Séchet Guillaume (2019) Météo extrême - Au coeur des phénomènes climatiques Ed. Hugo Image		

10. Sorocovschi V. <i>Riscuri și catastrofe</i> , Editura Casa Cărții de Știință, Cluj-Napoca.- editii multianuale 11. *** (2008), <i>Clima României</i> , Editura Academiei Române, București		
8.2 Seminar / Laboratory	Teaching methods	Remarks
1. Short-term extreme climatic phenomena associated with Cumulonimbus clouds: tornadoes, storms, lightning, hail, solid deposits and avalanches.	heuristic conversation, explanation; Teams and Moodle platforms	2 hours
2. Medium-term extreme climatic phenomena: cyclones	lecture, heuristic conversation, explanation, comparison; Teams and Moodle platforms	2 hours
3. Medium-term extreme climatic phenomena: blizzards, intense non-periodic winds, dust and sandstorms, fog.	heuristic conversation, explanation, demonstration, problematization, case study, comparison; Teams and Moodle platforms	2 hours
4. Medium-term extreme climatic phenomena associated with heat and cold waves.	heuristic conversation, explanation, demonstration, problematization, case study, comparison; Teams and Moodle platforms	2 hours
5 Long-term extreme climatic phenomena: periods of excess and deficit rainfall.	heuristic conversation, explanation, demonstration, problematization, case study, comparison; Teams and Moodle platforms	2 hours
6. Very long-term extreme climatic phenomena associated with global warming, associated events and consequences.	heuristic conversation, explanation, demonstration, problematization, case study, comparison; Teams and Moodle platforms	2 hours
7. Case studies - climate records in Romania and around the world	comparison, case study, modeling; Teams and Moodle platforms	2 hours
Bibliography 1. Bogdan Octavia, Niculescu Elena (1999), <i>Riscurile climatice din România</i> , Editura SEGA Internațional, București. 2. Climate risk indicators: developing indicators of climate risk UKCP 18 to suport risk assessments and enhance resilience at https://www.ukclimateresilience.org/ 3. Climte Index Risk at https://www.germanwatch.org/en/cri 4. Extreme Weather and Climate Change. <i>NASA Science</i> . Available at: https://science.nasa.gov 5. Extreme Weather. <i>World Meteorological Organization</i> . Available at: https://wmo.int 6. Global risks – a worldwide climate challenge at https://globalclimaterisks.org 7. Weather and Climate Extreme Events in a Changing Climate and the Role of Geneva at https://www.genevaenvironmentnetwork.org 8. Zscheischler, J., Westra, S., van den Hurk, B.J.J.M. et al. Future climate risk from compound events. <i>Nature Clim Change</i> 8 , 469–477 (2018). https://doi.org/10.1038/s41558-018-0156-3		

- 9.** Correlation of the course contents with the expectations of representatives of the epistemic community, professional associations, and representative employers in the field related to the study programme

The discipline will follow the requirements of employers (National Meteorological Administration, County

School Inspectorate, National Institute of Hydrology and Water Management, Emergency Situations Inspectorat, reresearch centers) expressed in the information gathering sheet:

- operating with specialized concepts;
- informing, documenting and processing scientific information;
- efficient communication with partners.

10.Evaluation

Activity type	10.1 Evaluation criteria	10.2 Evaluation methods	10.3 Percentage of final grade
10.4 Course	- explaining the main types of hazards and associated risks; - explaining cause-effect relationships for the main categories of extreme phenomena; - locating and using geographical elements on the physical map of the world.	Oral examination	50%
10.5 Seminar / Laboratory / Project	- involvement in discussions and the relevance of taking a position; - completion of individual assignments/papers.	Oral examination	50%

10.6 Minimum performance standard

- carrying out a project in which the principles that lead to the reduction of the impact of extreme climatic phenomena on the environment and human society in the context of sustainable development are applied, including the use of GIS techniques (e.g. Analysis of extreme climatic phenomena at regional or local level - physical - geographical unit of order II/III or administrative - territorial);

- knowledge and understanding of the following topics: (1) Extreme climatic phenomena associated with Cumulonimbus clouds; (2) Extreme climatic phenomena associated with the activity of low-pressure baric systems; (3) Impact of extreme phenomena on the environment and human society; (4) Perception of extreme phenomena.

Date
25.09.2026

Course lecturer
[Name, Surname, Signature]
Assoc.prof.phd Ovidiu Murărescu

Instructor(s) for practical activities
[Name, Surname, Signature]
Assoc.prof.phd Ovidiu Murărescu

Date of approval by the
Department
29.09.2026

Department Director
[Name, Surname, Signature]
Assoc.prof.phd Dănuț Tanislav

Date of approval by the
Faculty Council
29.09.2026

Dean
[Name, Surname, Signature]
Assoc.prof.phd Adrian Aurel Baltălungă



MINISTRY OF EDUCATION AND RESEARCH
 "VALAHIA" UNIVERSITY OF TÂRGOVIȘTE
 FACULTY OF HUMANITIES
 DEPARTMENT OF GEOGRAPHY

COURSE DESCRIPTION

1. Programme Information

1.1 Higher education institution	Valahia University of Targoviste
1.2 Faculty / Department	Of Humanities
1.3 Department	Geography
1.4 Field of study	Geography
1.5 Cycle of studies	Master
1.6 Programme of study / Qualification	Geographical Risk Phenomena and Environmental Quality

2. Course Information

2.1 Course Title	WATERSHED MANAGEMENT						
2.2 Course Lecturer	Associate professor Petre Bretcan						
2.3 Instructor for practical activities	Associate professor Petre Bretcan						
2.4 Year of Study	I	2.5 Semester	I	2.6 Evaluation type	E	2.7 Course status	M

3. Total Estimated Time (hours per semester of teaching activities)

3.1 Number of hours per week	3	of which: 3.2 Course	2	3.3 Seminar / Laboratory	1
3.4 Total hours according to the curriculum	42	of which: 3.5 Course	28	3.6 Seminar / Laboratory	14
Distribution of time allocation					hours
Study using textbooks, course materials, bibliography, and notes					28
Additional research (library, electronic resources, fieldwork, etc.)					20
Preparation for seminars/laboratories, assignments, reports, portfolios, and essays					28
Tutorials					1
Examinations					1
Other activities.....					5
3.7 Total hours of individual study					83
3.8 Total hours per semester					125
3.9 Number of credits (ECTS)					5

4. Prerequisites (where applicable)

4.1 Curriculum-related	
4.2 Competency-related	

5. Requirements (where applicable)

5.1 Lecture delivery requirements	Classroom, video projector, smart board, thematic maps/internet access, PC or laptop
5.2 Seminar/Laboratory delivery requirements	Classroom, video projector, smart board, thematic maps/internet access, PC or laptop

6. Objectives (derived from the framework of acquired competencies)

6.1 General objective of the course	Analysis of the main types of river basin management - assessment, associated risks, emergency management Students' knowledge of how to manage river basins and their effects on aquatic ecosystems as well as adapting requirements to resources.
6.2 Specific objectives	- knowledge of the role and importance of river basin management in modifying liquid runoff; - knowledge of the impact of hydrotechnical developments on aquatic ecosystems - exemplification and highlighting of river basin management in Romania

7. Learning outcomes

7.1 Knowledge (<i>The result of knowledge acquisition through learning. The knowledge represents the totality of facts, principles, theories and practices for a given work or study field. They can be theoretical and/or factual.</i>) The student/graduate analyzes, compares and differentiates the types of river basin management. The student/graduate identifies, selects and highlights the changes in the hydrological regime of rivers, at global and regional levels due to river basin management and their impact on aquatic ecosystems
7.2 Skills (<i>The capacity to apply the knowledge and use the know-how for completing tasks and solving problems. The skills are described as being cognitive (requiring the use of logical, intuitive and creative thinking) or practical (implying manual dexterity and the use of methods, materials, tools and instrumentation)</i>) The student/graduate applies methods for evaluating geographical risk phenomena in diverse territorial contexts. The student/graduate builds scenarios for the evolution of hazards and risks, using specialized software.
7.3 Responsibility and autonomy (<i>The student's capacity to autonomously and responsibly apply their knowledge and skills</i>) The student/graduate proposes solutions for managing risk situations in collaboration with local authorities and communities. The student/graduate is involved in applied research activities in the field of geographical risk phenomena.

8. Contents

8.1 Course	Teaching methods	Remarks
L1. General considerations regarding the development of river basins	lecture, demonstration, comparison; Teams and Moodle platforms	2 h
L2. Factors influencing basin planning / Morphometric characteristics of watersheds	lecture, demonstration, comparison; Teams and Moodle platforms	2 h
L3. Factors influencing basin design / Hydrological characteristics of runoff.	lecture, demonstration, comparison; Teams and Moodle platforms	2 h
L4. Factors influencing basin design / Flow regime: average flow, high waters (floods, floods), low waters (drying of rivers)	lecture, demonstration, comparison; Teams and Moodle platforms	2 h
L5. Development of torrential watersheds / Land consolidation works; Water retention works on slopes	lecture, demonstration, comparison; Teams and Moodle platforms	2 h
L6. Development of torrential hydrographic basins / Water collection works on slopes Afforestation works on the slopes of torrential hydrographic basins	lecture, demonstration, comparison; Teams and Moodle platforms	2 h
L7. Riverbed development / History of dam construction around the world and in Romania Reservoirs (types of reservoirs)	lecture, demonstration, comparison; Teams and Moodle platforms	2 h
L8. Riverbed development / Characteristic hydrological parameters (levels, surfaces, volumes, etc.)	lecture, demonstration, comparison; Teams and Moodle platforms	2 h
L9. Riverbed development. / Other development works (diversion, dams, etc.)	lecture, demonstration, comparison; Teams and Moodle platforms	2 h
L10. River basin management in Romania (examples in the river basins: Argeș, Ialomița, Buzău)	lecture, demonstration, comparison; Teams and Moodle platforms	2 h

L11. Maintenance and operation of flood protection works / Maintenance and operation of dams	lecture, demonstration, comparison; Teams and Moodle platforms	2 h
L12. Maintenance and operation of flood protection works / Maintenance and operation of reservoirs	lecture, demonstration, comparison; Teams and Moodle platforms	2 h
L13. The impact of hydrotechnical developments on the environment / Development works causing impact	lecture, demonstration, comparison; Teams and Moodle platforms	2 h
L14. The impact of hydrotechnical developments on the environment / Effects of developments on the human habitat	lecture, demonstration, comparison; Teams and Moodle platforms	2 h
Bibliography 1. Chang, H. H. (2008). River morphology and river channel changes. <i>Transactions of Tianjin University</i> , 14(4), 254-262. 2. Chang, M. 2006. Forest hydrology—An introduction to water and forests. Boca Raton, CRC Press. 3. Chow, V.T., D.R. Maidment and L.W. Mays. 1988. Applied hydrology. Int. Edition, McGraw-Hill Book Co., New York. 4. Diaconu C., Șerban P. (1994), <i>Sinteze și regionalizări hidrologice</i> , Edit. Tehnică, București, 388 p. 5. Diaconu, D. C. (2023). <i>Force Majeure in the Hydropower Industry: Concepts and Case Studies</i> . Springer Nature. 6. Diaconu, S. (1999), <i>Cursuri de apă. Amenajare, impact, reabilitare</i> , Edit. HGA, București, 190 p. 7. Giurma, I. (1997), <i>Colmatarea lacurilor de acumulare</i> , Edit. HGA, București, 124 p. 8. Giurma, I. (2003), <i>Viituri și măsuri de apărare</i> , Edit. Gheorghe Asachi, Iași, 135p. 9. Global Water Partnership (GWP). (2012). The handbook for integrated water resources management in transboundary basins of rivers, lakes and aquifers (120 pp). International Office for Water (Permanent Technical Secretariat of the International Network of Basin Organizations). ISBN: 978-91-85321-85-8. 10. Gulbenkian Think Tank (GTT). (2014). Water and the future of humanity. Revaluating Water Security, Calouste Gulbenkian Foundation, New York: Springer. ISBN: 978-3-319-01456-2. doi:10.1007/ 978-3-319-01457-9_1 11. GWP (Global Water Partnership). (2000). Integrated water resources management. TAC Background Papers No. 4. Stockholm, Sweden: GWP. 12. Ichim, I., Rădoane, Maria (1986), <i>Efectele barajelor în dinamica reliefului</i> , Edit. Academiei RSR, 157 p. 13. Ilie, Aurel Constantin. (2007), <i>Amenajarea complexă a bazinelor hidrografice</i> , Edit. Fundației „România de Măine”, 208 p. 14. Ionescu, Șt. (2001), <i>Impactul amenajărilor hidrotehnice asupra mediului</i> , Edit. HGA, București, 246 p. 15. Loucks, D. P., & Van Beek, E. (2017). <i>Water resource systems planning and management: An introduction to methods, models, and applications</i> . Springer. 16. Maity, R. (2022). <i>Statistical methods in hydrology and hydroclimatology</i> . Springer. 17. Mustățeș A. (2005), <i>Viituri excepționale pe teritoriul României – geneză și efecte</i> , Onesta Com Prod 94, București, 408 p. 18. Prasad, V., Yousuf, A., & Sharma, N. (2020). Hydrological modeling for watershed management. <i>Journal of Natural Resource Conservation and Management</i> , 1(1), 29-34. 19. Rădoane Maria, Rădoane N., Ichim I., Surdeanu V. (1999), <i>Ravenele. Forme, procese, evoluție</i> , Edit. Presa Universitară Clujeană, Cluj Napoca, 266 p. 20. Roșu, Corina, Crețu, Gh. (1998), <i>Inundații accidentale</i> , Edit. HGA, București, 189 p. 21. Stănescu, V.A., Corbuș, C., Simota, Marinela (1999), <i>Modelarea schimbărilor climatice asupra resurselor de apă</i> , Edit. HGA, București, 277 p. 22. Stematiu, D., Ionescu, Șt. (1999), <i>Siguranță și risc în construcții hidrotehnice</i> , Edit. Didactică și Pedagogică, București, 532 p. 23. Tockner, K., Uehlinger, U., & Robinson, C. T. (2009). <i>Rivers of Europe</i> . Academic Press. 24. Yousuf, A., & Singh, M. (Eds.). (2019). <i>Watershed hydrology, management and modeling</i> (pp. 77-97). Boca Raton, FL, USA: CRC Press. 25. Zavoianu, Ion. <i>Morphometry of drainage basins</i> . Vol. 20. Elsevier, 2011		
8.2 Seminar / Laboratory	Teaching methods	Remarks
PW1. Romanian and European legislative framework in the field of river basin management	heuristic conversation, explanation; Teams and Moodle platforms	2 h
PW2. Development of torrential hydrographic basins (measures, examples, etc.)	heuristic conversation, explanation; Teams and Moodle platforms	2 h
PW3. Prioritizing the intervention for the development of sub-basins (creation of the database)	heuristic conversation, explanation; Teams and Moodle platforms	2 h
PW4. Evaluation of the morphometric characteristics of the basins (surface area, water level, slope, etc.)	heuristic conversation, explanation; Teams and Moodle platforms	2 h
PW5. Evaluating the shape of watersheds	heuristic conversation, explanation; Teams and Moodle platforms	2 h
PW6. Evaluation of the morphometric characteristics of the hydrographic network (network length, drainage density,	heuristic conversation, explanation; Teams and	2 h

etc.)	Moodle platforms	
PW7. Evaluation of prioritization methods/models (types, advantages, limitations)	heuristic conversation, explanation; Teams and Moodle platforms	2 h
Bibliography 26. Chang, H. H. (2008). River morphology and river channel changes. <i>Transactions of Tianjin University</i>, 14(4), 254-262. 27. Chang, M. 2006. Forest hydrology—An introduction to water and forests. Boca Raton, CRC Press. 28. Chow, V.T., D.R. Maidment and L.W. Mays. 1988. Applied hydrology. Int. Edition, McGraw-Hill Book Co., New York. 29. Diaconu C., Șerban P. (1994), <i>Sinteze și regionalizări hidrologice</i>, Edit. Tehnică, București, 388 p. 30. Diaconu, D. C. (2023). <i>Force Majeure in the Hydropower Industry: Concepts and Case Studies</i>. Springer Nature. 31. Diaconu, S. (1999), <i>Cursuri de apă. Amenajare, impact, reabilitare</i>, Edit. HGA, București, 190 p. 32. Giurma, I. (1997), <i>Colmatarea lacurilor de acumulare</i>, Edit. HGA, București, 124 p. 33. Giurma, I. (2003), <i>Viituri și măsuri de apărare</i>, Edit. Gheorghe Asachi, Iași, 135p. 34. Global Water Partnership (GWP). (2012). The handbook for integrated water resources management in transboundary basins of rivers, lakes and aquifers (120 pp). International Office for Water (Permanent Technical Secretariat of the International Network of Basin Organizations). ISBN: 978-91-85321-85-8. 35. Gulbenkian Think Tank (GTT). (2014). Water and the future of humanity. Revaluating Water Security, Calouste Gulbenkian Foundation, New York: Springer. ISBN: 978-3-319-01456-2. doi:10.1007/978-3-319-01457-9_1 36. GWP (Global Water Partnership). (2000). Integrated water resources management. TAC Background Papers No. 4. Stockholm, Sweden: GWP. 37. Ichim, I., Rădoane, Maria (1986), <i>Efectele barajelor în dinamica reliefului</i>, Edit. Academiei RSR, 157 p. 38. Ilie, Aurel Constantin. (2007), <i>Amenajarea complexă a bazinelor hidrografice</i>, Edit. Fundației „România de Măine”, 208 p. 39. Ionescu, Șt. (2001), <i>Impactul amenajărilor hidrotehnice asupra mediului</i>, Edit. HGA, București, 246 p. 40. Loucks, D. P., & Van Beek, E. (2017). <i>Water resource systems planning and management: An introduction to methods, models, and applications</i>. Springer. 41. Maity, R. (2022). <i>Statistical methods in hydrology and hydroclimatology</i>. Springer. 42. Mustățea A. (2005), <i>Viituri excepționale pe teritoriul României – geneză și efecte</i>, Onesta Com Prod 94, București, 408 p. 43. Prasad, V., Yousuf, A., & Sharma, N. (2020). Hydrological modeling for watershed management. <i>Journal of Natural Resource Conservation and Management</i>, 1(1), 29-34. 44. Rădoane Maria, Rădoane N., Ichim I., Surdeanu V. (1999), <i>Ravenele. Forme, procese, evoluție</i>, Edit. Presa Universitară Clujeană, Cluj Napoca, 266 p. 45. Roșu, Corina, Crețu, Gh. (1998), <i>Inundații accidentale</i>, Edit. HGA, București, 189 p. 46. Stănescu, V.A., Corbuș, C., Simota, Marinela (1999), <i>Modelarea schimbărilor climatice asupra resurselor de apă</i>, Edit. HGA, București, 277 p. 47. Stematiu, D., Ionescu, Șt. (1999), <i>Siguranță și risc în construcții hidrotehnice</i>, Edit. Didactică și Pedagogică, București, 532 p. 48. Tockner, K., Uehlinger, U., & Robinson, C. T. (2009). <i>Rivers of Europe</i>. Academic Press. 49. Yousuf, A., & Singh, M. (Eds.). (2019). <i>Watershed hydrology, management and modeling</i> (pp. 77-97). Boca Raton, FL, USA: CRC Press. 50. Zavoianu, Ion. <i>Morphometry of drainage basins</i>. Vol. 20. Elsevier, 2011		

9. Correlation of the course contents with the expectations of representatives of the epistemic community, professional associations, and representative employers in the field related to the study programme

The discipline will follow the requirements of employers (ISJ, INHGA, ISU, research centers) expressed in the information gathering form:

- operating with specialized concepts;
- informing, documenting and processing scientific information;
- efficient communication with partners.

10. Evaluation

Activity type	10.1 Evaluation criteria	10.2 Evaluation methods	10.3 Percentage of final grade
10.4 Course	- explaining the main types of development in river basins; - explaining cause-effect relationships (basin development/environmental impact);	Oral evaluation	50%
10.5 Seminar / Laboratory / Project	- Elaboration of a project to highlight the hydrotechnical arrangements in a river basin	homework (uploaded to Moodle platform)	50%
10.6 Minimum performance standard			
- carrying out a project in which to apply models for prioritizing sub-basins according to morphometric characteristics - knowledge and understanding of the following topics: (1) Development of torrential hydrographic basins (2) Development of riverbeds (3) Impact of hydrotechnical developments on the environment.			

Date
 28.09.2026
 Course lecturer
[Name, Surname, Signature]
 Assoc.prof.PhD. Petre Brețcan

Instructor(s) for practical activities
[Name, Surname, Signature]
 Assoc.prof.PhD. Petre Brețcan

Date of approval by the
 Department
 29.09.2026

Department Director
 Assoc.prof.PhD. Dănuț Tanislav

Date of approval by the
 Faculty Council
 29.09.2026

Dean
 Assoc.prof.PhD. Adrian-Aurel Baltălungă



MINISTRY OF EDUCATION AND RESEARCH
"VALAHIA" UNIVERSITY OF TÂRGOVIȘTE
FACULTY OF HUMANITIES
DEPARTMENT - GEOGRAPHY

COURSE DESCRIPTION

1. Programme Information

1.1 Higher education institution	Valahia University of Târgoviște
1.2 Faculty / Department	Faculty of Humanities
1.3 Department	Geography
1.4 Field of study	Geography
1.5 Cycle of studies	Master's Programme
1.6 Programme of study / Qualification	Geographical Risk Phenomena and Environmental Quality

2. Course Information

2.1 Course Title	Scientific Research Methodology						
2.2 Course Lecturer	Lect. univ. dr. Mădălina Nicoleta Frînculeasa						
2.3 Instructor for practical activities	Lect. univ. dr. Mădălina Nicoleta Frînculeasa						
2.4 Year of Study	I	2.5 Semester	I	2.6 Evaluation type	E	2.7 Course status	Ob

3. Total Estimated Time (hours per semester of teaching activities)

3.1 Number of hours per week	3	of which: 3.2 Course	1	3.3 Seminar / Laboratory	2
3.4 Total hours according to the curriculum	42	of which: 3.5 Course	14	3.6 Seminar / Laboratory	28
Distribution of time allocation					hours
Study using textbooks, course materials, bibliography, and notes					28
Additional research (library, electronic resources, fieldwork, etc.)					20
Preparation for seminars/laboratories, assignments, reports, portfolios, and essays					28
Tutorials					1
Examinations					1
Other activities.....					5
3.7 Total hours of individual study					83
3.8 Total hours per semester					125
3.9 Number of credits (ECTS)					5

4. Prerequisites (where applicable)

4.1 Curriculum-related	
4.2 Competency-related	

5. Requirements (where applicable)

5.1 Lecture delivery requirements	Interactive whiteboard, video projector, computer, internet access, Moodle platform.
5.2 Seminar/Laboratory delivery requirements	Interactive whiteboard, video projector, computer, internet access, Moodle platform.

6. Objectives (derived from the framework of acquired competencies)

6.1 General objective of the course	Deciphering the scientific research process and its purpose.
6.2 Specific objectives	Development of research projects that demonstrate an understanding of the mechanisms involved in designing a scientific paper/research study, the methods of presentation and dissemination, and the acquisition of the ability to operationalise a concept. Performance of professional tasks requiring the use of tools and methods specific to scientific research in the analysis of geographical risk phenomena.

7. Learning outcomes

7.1 Knowledge <i>The student/graduate creates, tests, and adapts research methods specific to environmental analysis and associated risks.</i> <i>The student/graduate identifies, selects, and presents theoretical and computational models for the simulation of hazards and risks.</i>
7.2 Skills <i>The student/graduate designs and conducts field studies and interdisciplinary analyses.</i> <i>The student/graduate develops scenarios of hazard and risk evolution using specialised software.</i>
7.3 Responsibility and autonomy <i>The student/graduate publishes scientific results and participates in specialised symposia and conferences.</i> <i>The student/graduate engages in applied research activities in the field of geographical risk phenomena.</i>

8. Contents

8.1 Course	Teaching methods	Remarks
Introductory elements. Basic concepts and the semantics of fundamental terms in scientific research. Historical landmarks. Contemporary realities and trends in scientific research methodology.	Lecture, heuristic conversation	2 hours
Objectives and functions of scientific research. Types and forms of scientific research.	Lecture, heuristic conversation	2 hours
Methods and tools in scientific research.	Lecture, heuristic conversation	2 hours
Operational scientific techniques and strategies.	Lecture, heuristic conversation	2 hours
The research algorithm: stages and dynamics of the scientific research process.	Lecture, heuristic conversation	2 hours
Scientific research in the field of natural sciences (with particular reference to geographical risk phenomena and environmental protection).	Lecture, heuristic conversation, problem-based learning	2 hours
Applied-practical and theoretical valorisation of scientific research in the field of natural sciences (with particular reference to geographical risk phenomena and environmental protection).	Lecture, heuristic conversation, problem-based learning	2 hours
Bibliography		
1.Armaş I. (2006), Teorie şi metodologie geografică, Ed. Fundaiei România de Măine, Bucureşti, p. 128-144 2. Biggs, R., de Vos, A., Preiser, R., Clements, H., Maciejewski, K., Schlüter, M. (2021) The Routledge Handbook of Research Methods for Social-Ecological System. Routledge London and New York. 3.Chelcea, S. (2007) Metodologia cercetării sociologice. Metode cantitative şi calitative. ediția 3-a, Ed. Economică, Bucureşti. 4.Clifford, Nicholas, Valentine, Gill (ed.) (2007) Key methods in geography, SAGE Publications, 572 p 5.Gomez B., Jones J.P. (2010). Research methods in Geography. A Critical Introduction 459 p. 6.Ilovan, O-R., Mihalca, I.A. (2013) Utilizarea metodelor calitative în cercetarea geografică regională: sondajul de opinie şi focus grupul, in C. Vert (ed.) Volumul conferinței naționale a Societății de Geografie din România, Timișoara, 24-26 mai 2013, ediția a X-a, cu tema Geografia – Știință a întregului teritorial, pp. 848-863, Editura EUROBIT, Timișoara. 7.Lovell, S.A., Coen, S.E., Rosenberg, M.W. (eds) (2023) The Routledge handbook of methodologies in human geography.Routledge International Handbook. Taylor and Francis Group. 8.Noveanu, E. (1995) Metodologia cercetării experimentale. Curs introductiv, Universitatea din Bucuresti, Facultatea de Sociologie, Psihologie, Pedagogie, Bucuresti. 9.Pohoață,I. (1994) Paradigme de gândire, Editura Universității „Alexandru I. Cuza”, Iași. 10.Popper R. K. (1998) Mitul contextului. În apărarea științei și a raționalității, București, Ed. Trei. 11.Popper, R. K. (1981) Logica cercetării, Editura Științifică și Enciclopedică, București. 12.Rad, I. (2008) Cum se scrie un text științific, Iași, Ed. Polirom. 13.Rădoane, M., Ichim, I., Rădoane, N. (1996) Analiza cantitativă în geografia fizică: metode şi aplicații, Editura Universității "Al. I. Cuza", 248p		

14.Tishkov, A. A. (2022) Geography Is a Science of the Future. Her. Russ. Acad. Sci. 92, 277–284. https://doi.org/10.1134/S1019331622030169		
15.Thomas, D. S. (2022). Geography needs science, science needs Geography. Environment and Planning F, 1(1), 41–51. https://doi.org/10.1177/26349825221082161		
16.Yeung, H. W. (2024). Method in relational-explanatory geography. Progress in Human Geography, 48(4), 391–420. https://doi.org/10.1177/03091325241248847		
8.2 Seminar / Laboratory	Teaching methods	Remarks
The role and specific characteristics of scientific papers/studies.	Heuristic conversation, explanation	2 hours
Classification of studies (descriptive vs. analytical, observational vs. experimental, cross-sectional vs. experimental).	Heuristic conversation, problem-based learning	2 hours
Ethics in the scientific research process – plagiarism and the use of falsified data.	Heuristic conversation, problem-based learning	2 hours
Case study. The research team. Topic selection. Definition of the research subject.	Guided activity: exemplification, exercise	2 hours
Research design – purpose, objectives, hypotheses.	Guided activity: exemplification, exercise	2 hours
Establishing the research methodology. Methods and techniques.	Guided activity: exemplification, exercise	2 hours
Documentation – classical and modern bibliographic research techniques for a given topic; searching for and selecting documentation sources; evaluation and ranking of documentation sources.	Guided activity: exemplification, exercise	2 hours
Documentation – types of data collection sources; storage and use of scientific data in the context of plagiarism prevention and the avoidance of falsified data.	Guided activity: exemplification, exercise	2 hours
Analysis of research data – considerations in selecting the method of analysis; main directions of statistical analysis; presentation of statistical analysis results (text, tables, graphs).	Guided activity: exemplification, exercise	2 hours
Definition of study variables. Sampling. Systematic errors	Guided activity: exemplification, exercise	2 hours
Study results. Hypothesis validation.	Guided activity: exemplification, exercise	2 hours
Scientific paper writing.	Guided activity: exemplification, exercise	2 hours
Methods of presentation and dissemination of scientific research.	Guided activity: exemplification, exercise	2 hours
Sustainable strategies for continuing research conducted during the semester.	Heuristic conversation, problem-based learning	2 hours
Bibliography		
1.Al-Ababneh, M. (2020) Linking Ontology, Epistemology and Research Methodology. Science & Philosophy. 8(1):75–91, Available at SSRN: https://ssrn.com/abstract=3708935 .		
2.Anderson, G. (2009) How to write a paper in Scientific Journal style and format, Bates College Department of Biology, http://www.bates.edu/~ganderso/ , http://abacus.bates.edu/~ganderso/biology/resources/writing/HTWtoc.html		
3. Braun, V., Clarke, V., Boulton, E., Davey, L., McEvoy, C. (2020). The online survey as a qualitative research tool. International Journal of Social Research Methodology, 24(6), 641–654. https://doi.org/10.1080/13645579.2020.1805550		
4. Cope, M. (2010) Chapter 2: A History of Qualitative Research in Geography, în DeLyser, Dydia, Herbert, S., Aitken, S.,Crang, M., McDowell, Linda (ed.) The SAGE Handbook of Qualitative Geography, 24– 45, Sage Publications London, California, New Delhi, Singapore.		
5.Eco, U. (2000) Cum se face o teză de licență. Pontica, Craiova.		
6.Frînculeasa A., Simalcsik A., Petruneac M., Focșăneanu M., Sirbu R., Frînculeasa Mădălina. (2023) From the Eurasian steppe to the Lower Danube: the tradition of intentional cranial deformation during the Bronze Age, Archaeological and Anthropological Sciences, 15, 125. https://doi.org/10.1007/s12520-023-01826-0.3 .		
7.Frînculeasa A., Garvăn D., Mărgărit M., Bălășescu A., Lazăr I., Frînculeasa Mădălina, Soficar D.A., Molnár M., Georgescu M. (2020) Between worlds and elites at the beginning of Early Bronze Age at the Lower Danube: an pluridisciplinary approach to personal ornaments, Archaeological and Anthropological Sciences, 12(9) 213–227.		
8.Frînculeasa, A. P, Frînculeasa Mădălina, Dumitru, I.F., Buterez, C. (2017) The dynamics of prehistoric burial mounds of Ploiești metropolitan area (Romania) as reflected by cartographic documents of the 18th–20th centuries, Area, 49 (4), 533–544.		
9. Frînculeasa Mădălina, Frînculeasa, A. P., David, C. (2014) Evaluation and archaeological potential of geophysical investigations of the Roman fort and baths in Northern Muntenia, România. Studia Geophysica et Geodaetica, 58 (2), 289–302.		
10.Frînculeasa Mădălina, Chițescu, R. (2018) The perception and attitude of the resident and tourists regarding the local public administration and the tourism phenomenon, HOLISTICA – Journal of Business and Public Administration, 9 (2), 137–152		
11.Gioia, D. (2021). A Systematic Methodology for Doing Qualitative Research. The Journal of Applied Behavioral Science, 57(1), 20–29. https://doi.org/10.1177/0021886320982715		
12.Janowicz, K., Gao, S., McKenzie, G., Hu, Y., Bhaduri, B. (2019). GeoAI: spatially explicit artificial intelligence techniques for geographic knowledge discovery and beyond. International Journal of Geographical Information		

Science, 34(4), 625–636. <https://doi.org/10.1080/13658816.2019.1684500>

13.Latham, A. (2012) Diaries as a Research Method, în Clifford, N., French, S., Valentine, G. (eds), Key Methods in Geography, second edition, pp. 189-201, Sage, London.

14.Strijker, D., Bosworth, G., Bouter, G. (2020) Research methods in rural studies: Qualitative, quantitative and mixed methods, Journal of Rural Studies, 78:262-270.

***LEGEA Nr. 206/2004 privind buna conduită în cercetarea științifică, dezvoltarea tehnologică și inovare.

9. Correlation of the course contents with the expectations of representatives of the epistemic community, professional associations, and representative employers in the field related to the study programme

The course is aligned with labour market requirements identified by employers (County School Inspectorates, the National Institute of Hydrology and Water Management, the Inspectorate for Emergency Situations, research centres), as reflected in the information collection form, and aims to develop the following competencies:

- use of specialised terminology;
- retrieval, documentation, and processing of scientific information;
- effective communication with institutional and professional partners.

10. Evaluation

Activity type	10.1 Evaluation criteria	10.2 Evaluation methods	10.3 Percentage of final grade
10.4 Course	Accuracy of the knowledge presented during the course;	Continuous assessment	30%
	Completion of the required bibliography.		
10.5.Seminar/Laboratory/Project	Preparation and presentation of a research project (six topics are provided at the beginning of the semester);	Portfolio assessment 80%	70%
	Active involvement in discussions and relevance of contributions; Completion of the required bibliography; Completion of assignments within the agreed terms.	Continuous assessment 20%	
10.6 Minimum performance standard			
Course: Semantics of fundamental terms in scientific research. Types of scientific research. Scientific research methods specific to the field of natural sciences. Seminar: Active involvement in teamwork and in activities required for project completion.			

Date
20.09.2026

Course lecturer
*Lect. univ. dr. Mădălina Nicoleta
FRÎNCULEASA*

Instructor(s) for practical activities
Lect. univ.dr. Mădălina Nicoleta FRÎNCULEASA

Date of approval by the
Department
29.09.2026

Department Director,
Conf. univ. dr. Dănuț TANISLAV

Date of approval by the
Faculty Council
29.09.2026

Dean,
Conf. univ. dr. Adrian-Aurel BALTĂLUNGĂ



MINISTRY OF EDUCATION AND RESEARCH
"VALAHIA" UNIVERSITY OF TÂRGOVIȘTE
FACULTY OF HUMANITIES
DEPARTMENT OF GEOGRAPHY

COURSE DESCRIPTION

1. Programme Information

1.1 Higher education institution	Valahia University of Targoviste
1.2 Faculty / Department	Of Humanities
1.3 Department	Geography
1.4 Field of study	Geography
1.5 Cycle of studies	Master
1.6 Programme of study / Qualification	Geographical Risk Phenomena and Environmental Quality

2. Course Information

2.1 Course Title	WATER RESOURCES MANAGEMENT						
2.2 Course Lecturer	Associate professor Petre Bretcan						
2.3 Instructor for practical activities	Associate professor Petre Bretcan						
2.4 Year of Study	I	2.5 Semester	II	2.6 Evaluation type	E	2.7 Course status	M

3. Total Estimated Time (hours per semester of teaching activities)

3.1 Number of hours per week	3	of which: 3.2 Course	2	3.3 Seminar / Laboratory	1
3.4 Total hours according to the curriculum	42	of which: 3.5 Course	28	3.6 Seminar / Laboratory	14
Distribution of time allocation					hours
Study using textbooks, course materials, bibliography, and notes					28
Additional research (library, electronic resources, fieldwork, etc.)					20
Preparation for seminars/laboratories, assignments, reports, portfolios, and essays					28
Tutorials					1
Examinations					1
Other activities.....					5
3.7 Total hours of individual study					83
3.8 Total hours per semester					125
3.9 Number of credits (ECTS)					5

4. Prerequisites (where applicable)

4.1 Curriculum-related	
4.2 Competency-related	

5. Requirements (where applicable)

5.1 Lecture delivery requirements	Classroom, video projector, smart board, thematic maps/internet access, PC or laptop
5.2 Seminar/Laboratory delivery requirements	Sală de seminar, flipchart, videoproiector, atlase geografice/ acces internet, PC sau laptop, atlas

6. Objectives (derived from the framework of acquired competencies)

6.1 General objective of the course	Transmission and acquisition by students of the properties, formation and manifestation of water flow in a watershed in extreme situations: floods Students' knowledge of the impact of climate change on water resources.
6.2 Specific objectives	Exemplifying and highlighting the way floods are formed and their effects Developing a specialized language

7. Learning outcomes

7.1 Knowledge (<i>The result of knowledge acquisition through learning. The knowledge represents the totality of facts, principles, theories and practices for a given work or study field. They can be theoretical and/or factual.</i>)
The student/graduate creates, tests and adapts research methods specific to the analysis of the environment and associated risks.
7.2 Skills (<i>The capacity to apply the knowledge and use the know-how for completing tasks and solving problems. The skills are described as being cognitive (requiring the use of logical, intuitive and creative thinking) or practical (implying manual dexterity and the use of methods, materials, tools and instrumentation)</i>)
The student/graduate designs and conducts field studies and interdisciplinary analyses. The student/graduate builds scenarios for the evolution of hazards and risks, using specialized software.
7.3 Responsibility and autonomy (<i>The student's capacity to autonomously and responsibly apply their knowledge and skills</i>)
The student/graduate publishes scientific results and participates in symposiums and specialized conferences.

8. Contents

8.1 Course	Teaching methods	Remarks
L1. The Romanian legislative framework in the field of flood protection	lecture, demonstration, comparison; Teams and Moodle platforms	2 h
L2. European legislative framework in the field of flood protection	lecture, demonstration, comparison; Teams and Moodle platforms	2 h
L3. Hydrological characteristics of the runoff	lecture, demonstration, comparison; Teams and Moodle platforms	2 h
L4. Flow regime: average flow, high waters (floods, floods), low waters (drying of rivers)	lecture, demonstration, comparison; Teams and Moodle platforms	2 h
L5. Flow regime: high waters (floods, floods)	lecture, demonstration, comparison; Teams and Moodle platforms	2 h
L6. Flow regime: low water (drying of rivers)	lecture, demonstration, comparison; Teams and Moodle platforms	2 h
L7. Changes in the flow regime as a result of dams	lecture, demonstration, comparison; Teams and Moodle platforms	2 h
L8. Information and decision-making system in case of floods / Information-decision flow for emergency situations in case of floods	lecture, demonstration, comparison; Teams and Moodle platforms	2 h
L9. Flash floods and floods in Romania. Genesis-effects	lecture, demonstration, comparison; Teams and Moodle platforms	2 h
L10. Flash floods and inundations in Romania Case study - 2005-2006	lecture, demonstration, comparison; Teams and Moodle platforms	2 h
L11. Scenarios regarding the failure of hydrotechnical structures and systems	lecture, demonstration, comparison; Teams and Moodle platforms	2 h
L12. The impact of climate change on water runoff and resources / Consequences of changes in hydrological resources as a	lecture, demonstration, comparison; Teams and Moodle platforms	2 h

result of climate change		
L13. The impact of climate change on water runoff and resources / Determining the vulnerability of water resources under climate change conditions	lecture, demonstration, comparison; Teams and Moodle platforms	2 h
L14. Climate change impacts on water runoff and resources / Water resource adaptations Water demand adaptations	lecture, demonstration, comparison; Teams and Moodle platforms	2 h
Bibliography 1. Chow, V.T., D.R. Maidment and L.W. Mays. 1988. Applied hydrology. Int. Edition, McGraw-Hill Book Co., New York. 2. Diaconu C., Șerban P. (1994), <i>Sinteze și regionalizări hidrologice</i> , Edit. Tehnică, București, 388 p. 3. Diaconu, S. (1999), <i>Cursuri de apă. Amenajare, impact, reabilitare</i> , Edit. HGA, București, 190 p. 4. Giurma, I. (1997), <i>Colmatarea lacurilor de acumulare</i> , Edit. HGA, București, 124 p. 5. Giurma, I. (2003), <i>Viituri și măsuri de apărare</i> , Edit. Gheorghe Asachi, Iași, 135p. 6. Global Water Partnership (GWP). (2012). The handbook for integrated water resources management in transboundary basins of rivers, lakes and aquifers (120 pp). International Office for Water (Permanent Technical Secretariat of the International Network of Basin Organizations). ISBN: 978-91-85321-85-8. 7. Gulbenkian Think Tank (GTT). (2014). Water and the future of humanity. Revaluating Water Security, Calouste Gulbenkian Foundation, New York: Springer. ISBN: 978-3-319-01456-2. doi:10.1007/978-3-319-01457-9_1 8. GWP (Global Water Partnership). (2000). Integrated water resources management. TAC Background Papers No. 4. Stockholm, Sweden: GWP. 9. Ichim, I., Rădoane, Maria (1986), <i>Efectele barajelor în dinamica reliefului</i> , Edit. Academiei RSR, 157 p. 10. Ilie, Aurel Constantin. (2007), <i>Amenajarea complexă a bazinelor hidrografice</i> , Edit. Fundației „România de Măine”, 208 p. 11. Ionescu, Șt. (2001), <i>Impactul amenajărilor hidrotehnice asupra mediului</i> , Edit. HGA, București, 246 p. 12. Loucks, D. P., & Van Beek, E. (2017). <i>Water resource systems planning and management: An introduction to methods, models, and applications</i> . Springer. 13. Maity, R. (2022). <i>Statistical methods in hydrology and hydroclimatology</i> . Springer. 14. Mustățea A. (2005), <i>Viituri excepționale pe teritoriul României – geneză și efecte</i> , Onesta Com Prod 94, București, 408 p. 15. Rădoane Maria, Rădoane N., Ichim I., Surdeanu V. (1999), <i>Ravenele. Forme, procese, evoluție</i> , Edit. Presa Universitară Clujeană, Cluj Napoca, 266 p. 16. Prasad, V., Yousuf, A., & Sharma, N. (2020). Hydrological modeling for watershed management. <i>Journal of Natural Resource Conservation and Management</i> , 1(1), 29-34 17. Roșu, Corina, Crețu, Gh. (1998), <i>Inundații accidentale</i> , Edit. HGA, București, 189 p. 18. Sorocovschi V. (2002), <i>Riscurile hidrice</i> , în „Riscuri și catastrofe” (ed. V.Sorocovschi), I, Edit. Casa Cărții de Știință, Cluj Napoca, p. 55-65 19. Stănescu, V.A., Corbuș, C., Simota, Marinela (1999), <i>Modelarea schimbărilor climatice asupra resurselor de apă</i> , Edit. HGA, București, 277 p. 20. Stematiu, D., Ionescu, Șt. (1999), <i>Siguranță și risc în construcții hidrotehnice</i> , Edit. Didactică și Pedagogică, București, 532 p. 21. Tockner, K., Uehlinger, U., & Robinson, C. T. (2009). <i>Rivers of Europe</i> . Academic Press. 22. Yousuf, A., & Singh, M. (Eds.). (2019). <i>Watershed hydrology, management and modeling</i> (pp. 77-97). Boca Raton, FL, USA: CRC Press.		
8.2 Seminar / Laboratory	Teaching methods	Remarks
PW1. Romanian legislative framework in the field of flood protection	heuristic conversation, explanation; Teams and Moodle platforms	2 h
PW2. European legislative framework in the field of flood protection	heuristic conversation, explanation; Teams and Moodle platforms	2 h
PW3. Factors influencing liquid leakage	heuristic conversation, explanation; Teams and Moodle platforms	2 h
PW4. Floods in Romanian river basins: causes and effects	heuristic conversation, explanation; Teams and Moodle platforms	2 h
PW5. Accidental floods: causes and effects	heuristic conversation, explanation; Teams and Moodle platforms	2 h
PW6. The impact of river basin management on the hydrological regime of rivers	heuristic conversation, explanation; Teams and Moodle platforms	2 h
PW7. The impact of climate change on the hydrological regime of rivers	heuristic conversation, explanation; Teams and Moodle platforms	2 h

Bibliography

1. Chow, V.T., D.R. Maidment and L.W. Mays. 1988. Applied hydrology. Int. Edition, McGraw-Hill Book Co., New York.
2. Diaconu C., Șerban P. (1994), *Sinteze și regionalizări hidrologice*, Edit. Tehnică, București, 388 p.
3. Diaconu, S. (1999), *Cursuri de apă. Amenajare, impact, reabilitare*, Edit. HGA, București, 190 p.
4. Giurma, I. (1997), *Colmatarea lacurilor de acumulare*, Edit. HGA, București, 124 p.
5. Giurma, I. (2003), *Viituri și măsuri de apărare*, Edit. Gheorghe Asachi, Iași, 135p.
6. Global Water Partnership (GWP). (2012). The handbook for integrated water resources management in transboundary basins of rivers, lakes and aquifers (120 pp). International Office for Water (Permanent Technical Secretariat of the International Network of Basin Organizations). ISBN: 978-91-85321-85-8.
7. Gulbenkian Think Tank (GTT). (2014). Water and the future of humanity. Revaluating Water Security, Calouste Gulbenkian Foundation, New York: Springer. ISBN: 978-3-319-01456-2. doi:10.1007/ 978-3-319-01457-9_1
8. GWP (Global Water Partnership). (2000). Integrated water resources management. TAC Background Papers No. 4. Stockholm, Sweden: GWP.
9. Ichim, I., Rădoane, Maria (1986), *Efectele barajelor în dinamica reliefului*, Edit. Academiei RSR, 157 p.
10. Ilie, Aurel Constantin. (2007), *Amenajarea complexă a bazinelor hidrografice*, Edit. Fundației „România de Măine”, 208 p.
11. Ionescu, Șt. (2001), *Impactul amenajărilor hidrotehnice asupra mediului*, Edit. HGA, București, 246 p.
12. Loucks, D. P., & Van Beek, E. (2017). *Water resource systems planning and management: An introduction to methods, models, and applications*. Springer.
13. Maity, R. (2022). *Statistical methods in hydrology and hydroclimatology*. Springer.
14. Mustătea A. (2005), *Viituri excepționale pe teritoriul României – geneză și efecte*, Onesta Com Prod 94, București, 408 p.
15. Rădoane Maria, Rădoane N., Ichim I., Surdeanu V. (1999), *Ravenele. Forme, procese, evoluție*, Edit. Presa Universitară Clujeană, Cluj Napoca, 266 p.
16. Prasad, V., Yousuf, A., & Sharma, N. (2020). Hydrological modeling for watershed management. *Journal of Natural Resource Conservation and Management*, 1(1), 29-34
17. Roșu, Corina, Crețu, Gh. (1998), *Inundații accidentale*, Edit. HGA, București, 189 p.
18. Sorocovschi V. (2002), *Riscurile hidrice, în „Riscuri și catastrofe”* (ed. V.Sorocovschi), I, Edit. Casa Cărții de Știință, Cluj Napoca, p. 55-65
19. Stănescu, V.A., Corbuș, C., Simota, Marinela (1999), *Modelarea schimbărilor climatice asupra resurselor de apă*, Edit. HGA, București, 277 p.
20. Stematiu, D., Ionescu, Șt. (1999), *Siguranță și risc în construcții hidrotehnice*, Edit. Didactică și Pedagogică, București, 532 p.
21. Tockner, K., Uehlinger, U., & Robinson, C. T. (2009). *Rivers of Europe*. Academic Press.
22. Yousuf, A., & Singh, M. (Eds.). (2019). *Watershed hydrology, management and modeling* (pp. 77-97). Boca Raton, FL, USA: CRC Press.

9. Correlation of the course contents with the expectations of representatives of the epistemic community, professional associations, and representative employers in the field related to the study programme

The discipline will follow the requirements of employers (ISJ, INHGA, ISU, research centers) expressed in the information gathering form:

- operating with specialized concepts;
- informing, documenting and processing scientific information;
- efficient communication with partners.

10. Evaluation

Activity type	10.1 Evaluation criteria	10.2 Evaluation methods	10.3 Percentage of final grade
10.4 Course	Knowledge acquisition	Oral or written exam - face to face or using the https://moodle.valahia.ro/ platform and the Microsoft Teams application	50%
10.5 Seminar / Laboratory / Project	Developing a project to highlight hydrotechnical developments in a river basin	Test and conversation or writing - face to face or using the https://moodle.valahia.ro/ platform and the Microsoft Teams application	50%
10.6 Minimum performance standard			

Assimilation of concepts and problems in a declarative manner
A satisfactory spatial-temporal representation of hydrological elements and processes

Date
28.09.2026

Course lecturer
[Name, Surname, Signature]
Assoc.prof.PhD. Petre Brețcan

Instructor(s) for practical activities
[Name, Surname, Signature]
Assoc.prof.PhD. Petre Brețcan

Date of approval by the
Department
29.09.2026

Department Director
Assoc.prof.PhD. Dănuț Tanislav

Date of approval by the
Faculty Council
29.09.2026

Dean
Assoc.prof.PhD. Adrian-Aurel Baltălungă



MINISTRY OF EDUCATION AND RESEARCH
"VALAHIA" UNIVERSITY OF TÂRGOVIȘTE
FACULTY OF HUMANITIES
DEPARTMENT OF GEOGRAPHY

COURSE DESCRIPTION

1. Programme Information

1.1 Higher education institution	Valahia University of Târgoviște
1.2 Faculty / Department	Humanities
1.3 Department	Geography
1.4 Field of study	Geography
1.5 Cycle of studies	Master
1.6 Programme of study / Qualification	Geographical Risk Phenomena and Environmental Quality

2. Course Information

2.1 Course Title	SOIL PROTECTION AND RECLAMATION						
2.2 Course Lecturer	Lecturer PhD George Murătoreanu						
2.3 Instructor for practical activities	Lecturer PhD George Murătoreanu						
2.4 Year of Study	I	2.5 Semester	2	2.6 Evaluation type	E	2.7 Course status	Ob

3. Total Estimated Time (hours per semester of teaching activities)

3.1 Number of hours per week	3	of which: 3.2 Course	1	3.3 Seminar / Laboratory	2
3.4 Total hours according to the curriculum	42	of which: 3.5 Course	14	3.6 Seminar / Laboratory	28
Distribution of time allocation					hours
Study using textbooks, course materials, bibliography, and notes					28
Additional research (library, electronic resources, fieldwork, etc.)					20
Preparation for seminars/laboratories, assignments, reports, portfolios, and essays					28
Tutorials					1
Examinations					1
Other activities.....					5
3.7 Total hours of individual study					83
3.8 Total hours per semester					125
3.9 Number of credits (ECTS)					5

4. Prerequisites (where applicable)

4.1 Curriculum-related	Cartography-Topography; Physical Geography; Climatology; Hydrology; Soil Geography
4.2 Competency-related	Knowledge and skills appropriate to the year of study

5. Requirements (where applicable)

5.1 Lecture delivery requirements	Lecture hall, projector, smart board, internet access
5.2 Seminar/Laboratory delivery requirements	Seminar room, GIS software, atlases, internet access

6. Objectives (derived from the framework of acquired competencies)

6.1 General objective of the course	Development of professional competencies in soil protection and improvement.
6.2 Specific objectives	Understanding pedological concepts and applying soil remediation techniques.

7. Learning outcomes

7.1 Knowledge <i>Students analyze and classify soil types (according to SRTS) in relation to productivity and improvement needs.</i>
7.2 Skills <i>Students use GIS and statistical methods to evaluate soil quality</i>
7.3 Responsibility and autonomy <i>Students propose soil remediation solutions and participate in applied research.</i>

8. Contents

8.1 Course	Teaching methods	Remarks
1. Introductory concepts	Lecture	2 hours
2. Soil degradation by erosion and landslides	Lecture	2 hours
3. Soil acidification and salinization	Lecture	2 hours
4. Excess soil moisture	Lecture	2 hours
5. Desertification and irrigation impact	Lecture	2 hours
6. Soil pollution	Lecture	2 hours
7. Other degradation forms	Lecture	2 hours

Bibliography

Dornik A., Chețan M.A., Crișan T.A., Heciko R., Gora A., Drăguț L., Panagos P, (2024), Geospatial evaluation of the agricultural suitability and land use compatibility in Europe's temperate continental climate region, *International Soil and Water Conservation Research*, Volume 12, Issue 4, 2024, Pages 908-919, ISSN 2095-6339, <https://doi.org/10.1016/j.iswcr.2024.01.002>.
(<https://www.sciencedirect.com/science/article/pii/S2095633924000029>)

Ispas Ș., Murătoareanu G., Leotescu R., Ciulei S., (2005), *Pedologie - Cercetarea solului pe teren*, Ed. Valahia University Press, Târgoviște;

Ispas Ș., Stănilă A.L., (2015), *Solurile României*, Ed. Valahia University Press, Târgoviște

Loghin V., (1996), *Degradarea reliefului și a solului*, Ed. Univ. din București;

Puiu Ș., Ispas Ș., (1997), *Pedologie - Manual practic*, Ed. Domino, Târgoviște;

Grigoraș C., et.al., (2024), *Solurile României*, Ed a II-a, Edit. Universitaria, Craiova

***, (2003), *Sistemul român de taxonomie a solurilor*, I.C.P.A., București

***, (2013), *Sistemul român de taxonomie a solurilor*, I.C.P.A., București

Soil Science Society of America (SSSA) - <https://www.soils.org/>
<https://esdac.jrc.ec.europa.eu/DocumentsPublications>

8.2 Seminar / Laboratory	Teaching methods	Remarks
1. Protection and improvement of soils affected by rainfall erosion and torrential runoff	Explanation, individual and team work, synchronous computer-based work	2 hours
2. Protection and improvement of soils affected by landslides	Explanation, individual and team work, synchronous computer-based work	2 hours
3. Identification of soils degraded by erosion using satellite imagery	Explanation, individual and team work, synchronous computer-based work	2 hours
4. GIS applications in the assessment of degraded lands	Explanation, individual and team work, synchronous computer-based work	2 hours
5. The RUSLE model for land degradation assessment	Explanation, individual and team work, synchronous computer-based work	2 hours
6. Cartographic representations in pedology and soil improvement	Explanation, individual and team work, synchronous computer-based work	2 hours
7. Calculation of soil amendments for acidic soils, saline soils, and alkaline soils	Explanation, individual and team work, synchronous	2 hours

	computer-based work	
8. Land reclamation and improvement works	Explanation, individual and team work, synchronous computer-based work	2 hours
9. Indices for estimating soils affected by aridization and their importance for agriculture	Explanation, individual and team work, synchronous computer-based work	2 hours
10. Indices for estimating soils affected by excess moisture (NDWI)	Explanation, individual and team work, synchronous computer-based work	2 hours
11. Improvement of eroded soils	Explanation, individual and team work, synchronous computer-based work	2 hours
12. Improvement of polluted soils	Explanation, individual and team work, synchronous computer-based work	2 hours
13. Agricultural land evaluation (land grading)	Explanation, individual and team work, synchronous computer-based work	2 hours
14. Soil protection policies in Europe and Romania	Explanation, individual and team work, synchronous computer-based work	2 hours

Bibliography

Dornik A., Chețan M.A., Crișan T.A., Heciko R., Gora A., Drăguț L., Panagos P, (2024), Geospatial evaluation of the agricultural suitability and land use compatibility in Europe's temperate continental climate region, International Soil and Water Conservation Research, Volume 12, Issue 4, 2024, Pages 908-919, ISSN 2095-6339, <https://doi.org/10.1016/j.iswcr.2024.01.002>.
(<https://www.sciencedirect.com/science/article/pii/S2095633924000029>)
Ispas Ș., Murătoareanu G., Leotescu R., Ciulei S., (2005), *Pedologie - Cercetarea solului pe teren*, Ed. Valahia University Press, Târgoviște;
Ispas Ș., Stănilă A.L., (2015), *Solurile României*, Ed. Valahia University Press, Târgoviște
Loghin V., (1996), *Degradarea reliefului și a solului*, Ed. Univ. din București;
Puiu Ș., Ispas Ș., (1997), *Pedologie - Manual practic*, Ed. Domino, Târgoviște;
Grigoraș C., et.al., (2024), *Solurile României*, Ed a II-a, Edit. Universitaria, Craiova
***, (2003), *Sistemul român de taxonomie a solurilor*, I.C.P.A., București
***, (2013), *Sistemul român de taxonomie a solurilor*, I.C.P.A., București
Soil Science Society of America (SSSA) - <https://www.soils.org/>
<https://esdac.jrc.ec.europa.eu/DocumentsPublications>

9. Correlation of the course contents with the expectations of representatives of the epistemic community, professional associations, and representative employers in the field related to the study programme

Representative employers: County Offices for Pedological and Agrochemical Studies, I.C.P.A., Cadastral Offices, County School Inspectorates, research institutes.
The course content has been primarily aligned with the following requirements of these institutions:
- the use of specialized terminology;
- information retrieval, documentation, and processing of scientific data in the field of specialization.

10. Evaluation

Activity type	10.1 Evaluation criteria	10.2 Evaluation methods	10.3 Percentage of final grade
10.4 Course	- explanation of the characteristics of the main soil types in Romania; - explanation of the main processes of soil degradation; - explanation of the main methods of soil improvement.	Oral examination	50%
10.5 Seminar / Laboratory / Project	- active participation in discussions and relevance of expressed viewpoints; - completion of individual assignments.	Homeworks	50%
10.6 Minimum performance standard			
- knowledge and explanation of basic theoretical concepts; - completion of laboratory work and homework assignments.			

Date
28.09.2026

Course lecturer
Lect.PhD. George Murătoreanu

Instructor(s) for practical activities
Lect.PhD. George Murătoreanu

Date of approval by the
Department
29.09.2026

Department Director
Assoc.prof.PhD. Dănuț Tanislav

Date of approval by the
Faculty Council
29.09.2026

Dean
Assoc.prof.PhD. Adrian Aurel Baltălungă



MINISTRY OF EDUCATION AND RESEARCH
"VALAHIA" UNIVERSITY OF TÂRGOVIȘTE
FACULTY OF HUMANITIES
DEPARTMENT OF GEOGRAPHY

COURSE DESCRIPTION

1. Programme Information

1.1 Higher education institution	Valahia University of Târgoviște
1.2 Faculty / Department	Humanities
1.3 Department	Geography
1.4 Field of study	Geography
1.5 Cycle of studies	Master
1.6 Programme of study / Qualification	Geographical Risk Phenomena and Environmental Quality

2. Course Information

2.1 Course Title	TECHNOLOGICAL HAZARDS AND RISKS						
2.2 Course Lecturer	Assoc. Prof. PhD Dănuț Tanislav						
2.3 Instructor for practical activities	Assoc. Prof. PhD Dănuț Tanislav						
2.4 Year of Study	I	2.5 Semester	2	2.6 Evaluation type	E	2.7 Course status	Ob

3. Total Estimated Time (hours per semester of teaching activities)

3.1 Number of hours per week	3	of which: 3.2 Course	2	3.3 Seminar / Laboratory	1
3.4 Total hours according to the curriculum	42	of which: 3.5 Course	28	3.6 Seminar / Laboratory	14
Distribution of time allocation					hours
Study using textbooks, course materials, bibliography, and notes					28
Additional research (library, electronic resources, fieldwork, etc.)					20
Preparation for seminars/laboratories, assignments, reports, portfolios, and essays					28
Tutorials					1
Examinations					1
Other activities.....					5
3.7 Total hours of individual study					83
3.8 Total hours per semester					125
3.9 Number of credits (ECTS)					5

4. Prerequisites (where applicable)

4.1 Curriculum-related	
4.2 Competency-related	

5. Requirements (where applicable)

5.1 Lecture delivery requirements	Lecture room, video projector, smart board, thematic maps, internet access, PC or laptop.
5.2 Seminar/Laboratory delivery requirements	Seminar room, flipchart, video projector, geographic atlases, internet access, PC or laptop

6. Objectives (derived from the framework of acquired competencies)

6.1 General objective of the course	Analysis of the main types of technological hazards – assessment, associated risks, and emergency management.
6.2 Specific objectives	- understanding accidental malfunctions in the design and management of built structures, transportation systems, or industrial activities: their causes, spatial and temporal distribution, and effects on the environment, including human society; - knowledge of the methodology used in their analysis; - analysis of possibilities for forecasting and mitigating the negative effects of technological hazards.

7. Learning outcomes

7.1 Knowledge	<i>The student/graduate analyzes, compares, and differentiates types of risk phenomena (natural and anthropogenic) and their mechanisms of occurrence. The student/graduate identifies, selects, and presents theoretical and computational models for the simulation of hazards and risks.</i>
7.2 Skills	<i>The student/graduate applies methods for assessing geographical risk phenomena in diverse territorial contexts. The student/graduate develops scenarios for the evolution of hazards and risks using specialized software.</i>
7.3 Responsibility and autonomy	<i>The student/graduate proposes solutions for managing risk situations in collaboration with authorities and local communities. The student/graduate engages in applied research activities in the field of geographical risk phenomena.</i>

8. Contents

8.1 Course	Teaching methods	Remarks
1. Introductory concepts (terminology, classification)	Lecture, heuristic discussion, explanation, demonstration, problem-based learning; Teams and Moodle platforms.	2 hours
2. Industrial pollution	Lecture, heuristic discussion, explanation, demonstration, problem-based learning; Teams and Moodle platforms.	2 hours
3. Nuclear radiation	Lecture, heuristic discussion, explanation, demonstration, problem-based learning; Teams and Moodle platforms.	2 hours
4. Toxic waste	Lecture, heuristic discussion, explanation, demonstration, problem-based learning; Teams and Moodle platforms.	2 hours
5. Dam failures	Lecture, heuristic discussion, explanation, demonstration, problem-based learning; Teams and Moodle platforms.	2 hours
6. Transportation accidents	Lecture, heuristic discussion, explanation, demonstration, problem-based learning; Teams and Moodle platforms.	2 hours
7. Factory explosions	Lecture, heuristic discussion, explanation, demonstration, problem-based learning; Teams and Moodle platforms.	2 hours
8. Fires	Lecture, heuristic discussion, explanation, demonstration, problem-based learning; Teams and Moodle platforms.	2 hours
9. Chemical spills	Lecture, problem-based learning; Teams and Moodle platforms.	2 hours
10. Technological hazards in Romania	Lecture, demonstration, problem-based learning; Teams and Moodle platforms.	2 hours
11. Perception of technological hazards	Lecture, demonstration, problem-based learning; Teams and Moodle platforms.	2 hours

12. Assessment of technological hazards	Lecture, demonstration, problem-based learning; Teams and Moodle platforms.	2 hours
13. Estimation of associated risk	Lecture, demonstration, problem-based learning; Teams and Moodle platforms.	2 hours
14. Emergency management	Lecture, demonstration, problem-based learning; Teams and Moodle platforms.	2 hours

Bibliography

Bălțeanu D., Șerban Mihaela (2005), *Modificările globale ale mediului. O evaluare interdisciplinară a incertitudinilor*, Edit. CNI Coresi, București

Burton I., Kates R., White G. (1993), *The Environment as Hazard*, Guilford Press, New York

Cutter Susan (1993), *Living with risk*, Edward Arnold, London

Dauphine A. (2005), *Risques et catastrophes. Observer, spatialiser, comprendre, gerer*, Armand Colin, Paris

Ebert C. (2000), *Disasters – an analysis of natural and human-induced hazards*, Kendall/Hunt Publishing Company, Dubuque, Iowa

Fărcaș I., Croitoru Adina (2003), *Poluarea atmosferei și schimbările climatice. Cauze, efecte, măsuri de protecție*, Edit. Casa Cărții de Știință, Cluj Napoca

Hewitt K. (1997), *Regions of Risk: A Geographical Introduction to Disasters*, Longman, London

Ianoș I. (1994), *Riscul în sistemele geografice*, St. cerc. geogr., XLI

Lewis H.W. (1992), *Technological risk*, W.W.Norton & Company, New York

Mărunțeanu C. (1994), *Urbanism și protecția mediului geologic*, Edit. Universității București

Pigeon P. (2005), *Geographie critique des risques*, Ed. Economica, Paris

Prunache D., Nemeș L., Trandafir P., Genată Șt. (2003), *Accidentul nuclear*, Protecția Civilă, București

Smith K. (2001), *Environmental Hazards: Assessing Risk and Reducing Disaster*, Routledge, London

Tanislav D., Costache Andra (2007), *Geografia hazardelor naturale și antropice*, Edit. Transversal, Târgoviște

Zăvoianu I., Dragomirescu Ș. (1994), *Asupra terminologiei folosite în studiul fenomenelor naturale extreme*, St. cerc. geogr., XLI

* * * (2002), *Encyclopedia of global change. Environmental change and human society*, Oxford University Press

* * * (2005), *România. Spațiu, societate, mediu*, Edit. Academiei, București

8.2 Seminar / Laboratory	Teaching methods	Remarks
1. Diversity and classification of technological hazards. Data sources used in the analysis of technological hazards	Heuristic discussion, explanation, demonstration, problem-based learning, case study, comparison; Teams and Moodle platforms.	2 hours
2. Vulnerability assessment. Risk analysis and assessment	Heuristic discussion, explanation, demonstration, problem-based learning, case study, comparison; Teams and Moodle platforms.	2 hours
3. Assessment of the risk of industrial hazards. Applications at local, national, and regional scales	Heuristic discussion, explanation, demonstration, problem-based learning, case study, comparison; Teams and Moodle platforms.	2 hours
4. Assessment of the risk of transportation-related hazards. Applications at local, national, and regional scales	Heuristic discussion, explanation, demonstration, problem-based learning, case study, comparison; Teams and Moodle platforms.	2 hours
5. Assessment of the risk of nuclear accidents. Applications at local, national, and regional scales	Heuristic discussion, explanation, demonstration, problem-based learning, case study, comparison; Teams and Moodle platforms.	2 hours
6. Dam risk assessment	Heuristic discussion, explanation, demonstration, problem-based learning, case study, comparison; Teams and Moodle platforms.	2 hours
7. Management of crisis situations generated by technological hazards	Heuristic discussion, explanation, demonstration, problem-based learning, case study, comparison; Teams and Moodle platforms.	2 hours

Bibliography

Bălțeanu D., Șerban Mihaela (2005), *Modificările globale ale mediului. O evaluare interdisciplinară a incertitudinilor*, Edit. CNI Coresi, București

Fărcaș I., Croitoru Adina (2003), *Poluarea atmosferei și schimbările climatice. Cauze, efecte, măsuri de protecție*, Edit. Casa Cărții de Știință, Cluj Napoca

Hewitt K. (1997), *Regions of Risk: A Geographical Introduction to Disasters*, Longman, London

Ianoș I. (1994), *Riscul în sistemele geografice*, St. cerc. geogr., XLI

Mărunțeanu C. (1994), *Urbanism și protecția mediului geologic*, Edit. Universității București

Prunache D., Nemeş L., Trandafir P., Genată Şt. (2003), *Accidentul nuclear*, Protecţia Civilă, Bucureşti
 Smith K. (2001), *Environmental Hazards: Assessing Risk and Reducing Disaster*, Routledge, London
 Tanislav D., Costache Andra (2007), *Geografia hazardelor naturale şi antropice*, Edit. Transversal, Târgovişte
 Zăvoianu I., Dragomirescu Ş. (1994), *Asupra terminologiei folosite în studiul fenomenelor naturale extreme*, St. cerc. geogr., XLI
 * * * (2005), *România. Spaţiu, societate, mediu*, Edit. Academiei, Bucureşti

9. Correlation of the course contents with the expectations of representatives of the epistemic community, professional associations, and representative employers in the field related to the study programme

The course will address the requirements of employers (County School Inspectorates – ISJ, the National Institute of Hydrology and Water Management – INHGA)

10. Evaluation

Activity type	10.1 Evaluation criteria	10.2 Evaluation methods	10.3 Percentage of final grade
10.4 Course	- explanation of the main types of hazards and their associated risks; - explanation of cause–effect relationships for the main categories of extreme phenomena; - identification and use of geographical elements on the physical map of the world.	Oral examination	50%
10.5 Seminar / Laboratory / Project	- active participation in discussions and relevance of expressed viewpoints; - completion of individual assignments.	Methods specific to continuous assessment Methods specific to continuous assessment	50%
10.6 Minimum performance standard			
- completion of a project applying principles aimed at reducing environmental impact in the context of sustainable development, including the use of GIS techniques (e.g., analysis of technological hazards at the county level – industrial units listed in the E-PRTR register; dams; transportation accidents); - knowledge and understanding of the following topics: (1) Nuclear radiation; (2) Dam failures; (3) Transportation accidents; (4) Perception of technological hazards.			

Date
28.09.2026

Course lecturer
Assoc.prof.PhD. Dănuţ Tanislav

Instructor(s) for practical activities
Assoc.prof.PhD. Dănuţ Tanislav

Date of approval by the
Department
29.09.2026

Department Director
Assoc.prof.PhD. Dănuţ Tanislav

Date of approval by the
Faculty Council
29.09.2026

Dean
Assoc.prof.PhD. Adrian Aurel Baltălungă



MINISTRY OF EDUCATION AND RESEARCH
"VALAHIA" UNIVERSITY OF TÂRGOVIȘTE
FACULTY OF HUMANITIES
DEPARTMENT - GEOGRAPHY

COURSE DESCRIPTION

1. Programme Information

1.1 Higher education institution	Valahia University of Târgoviște
1.2 Faculty / Department	Faculty of Humanities
1.3 Department	Geography
1.4 Field of study	Geography
1.5 Cycle of studies	Master's Programme
1.6 Programme of study / Qualification	Geographical Risk Phenomena and Environmental Quality

2. Course Information

2.1 Course Title	Environmental Geology						
2.2 Course Lecturer	Lect. univ. dr. Mădălina Nicoleta Frînculeasa						
2.3 Instructor for practical activities	Lect. univ. dr. Mădălina Nicoleta Frînculeasa						
2.4 Year of Study	I	2.5 Semester	II	2.6 Evaluation type	E	2.7 Course status	Ob

3. Total Estimated Time (hours per semester of teaching activities)

3.1 Number of hours per week	2	of which: 3.2 Course	1	3.3 Seminar / Laboratory	1
3.4 Total hours according to the curriculum	28	of which: 3.5 Course	14	3.6 Seminar / Laboratory	14
Distribution of time allocation					hours
Study using textbooks, course materials, bibliography, and notes					28
Additional research (library, electronic resources, fieldwork, etc.)					28
Preparation for seminars/laboratories, assignments, reports, portfolios, and essays					28
Tutorials					1
Examinations					1
Other activities.....					11
3.7 Total hours of individual study					97
3.8 Total hours per semester					125
3.9 Number of credits (ECTS)					5

4. Prerequisites (where applicable)

4.1 Curriculum-related	General Geology. Geomorphology. Geography of Natural and Anthropogenic Hazards and Risks.
4.2 Competency-related	

5. Requirements (where applicable)

5.1 Lecture delivery requirements	Interactive whiteboard, video projector, computer, internet access, Moodle platform, video materials
5.2 Seminar/Laboratory delivery requirements	Interactive whiteboard, video projector, computer, internet access, Moodle platform, mineral and rock collection, maps, video materials.

6. Objectives (derived from the framework of acquired competencies)

6.1 General objective of the course	The student/graduate will be able to integrate knowledge of ambient geology to analyse, assess, and manage geological and geophysical hazards and risks, environmental changes, and their impacts on society and the built environment.
6.2 Specific objectives	The student/graduate will be able to actively participate in research and educational projects addressing the impact of geological factors on the environment and human health; to identify and apply the main laws, principles, notions, and concepts specific to the field of ambient geology and to establish connections with related disciplines; to acquire theoretical knowledge and practical skills in environmental management (particularly of vulnerable environments), with a primary focus on environmental protection as a prerequisite for ensuring the safety of human communities and sustainable development.

7. Learning outcomes

7.1 Knowledge <i>The student/graduate analyses, compares, and differentiates types of risk phenomena (natural and anthropogenic) and their mechanisms of occurrence. The student/graduate identifies, selects, and highlights environmental changes at global and regional levels, as well as their impacts on society and the environment.</i>
7.2 Skills <i>The student/graduate applies methods for assessing geographical risk phenomena in diverse territorial contexts. The student/graduate interprets geographical data (geomorphological, climatic, hydrological, biogeographical, and socio-economic) and correlates them with geographical risk phenomena.</i>
7.3 Responsibility and autonomy <i>The student/graduate proposes risk management solutions in collaboration with authorities and local communities. The student/graduate actively participates in research and educational projects addressing environmental issues.</i>

8. Contents

8.1 Course	Teaching methods	Remarks
The conceptual framework of Ambient Geology. Categories of monitored parameters in geological and geophysical hazards. Quality standards of the geological environment.	Lecture, heuristic conversation	2 hours
Paleoclimate and current climate change.	Lecture, heuristic conversation	2 hours
Mining activities and their environmental impact. Mineral resources of the future.	Lecture, heuristic conversation	2 hours
Risk engineering in major infrastructure projects.	Lecture, heuristic conversation	2 hours
The effects of minerals and rocks on human health.	Lecture, heuristic conversation	2 hours
Waste: storage, processing, recycling, and impacts on the social-geological environment.	Lecture, heuristic conversation, problem-based learning	2 hours
Urban geology and the built environment	Lecture, heuristic conversation, problem-based learning	2 hours
Bibliography		
1.Baker, J., Bradley, B., Stafford, P. (2021) Seismic Hazard and Risk Analysis. Cambridge University Press. 2.Benhammam, K., AlHosani, K.A. 2021, Geological hazards and their effect on infrastructure. Sixth International Conference on Engineering Geophysics, Virtual, 25–28 October 2021. December 2021, 328-331. 3.Chen, J., Xu, C. (2024). Geological Hazards and Risk Management. Sustainability, 16(8), 3286. https://doi.org/10.3390/su16083286. 4. Cooper, J., Stamford, L., Azapagic, A. (2016). Shale Gas: A Review of the Economic, Environmental, and Social Sustainability, Energy Technol. 4:772. 5.Darda, S.A., Gabbar, H.A., Damideh, V. et al. A comprehensive review on radioactive waste cycle from generation to disposal. J Radioanal Nucl Chem 329, 15–31 (2021). https://doi.org/10.1007/s10967-021-07764-2. 6.Finkelman, R.B., Orem, W.H., Plumlee, G.S., Selinus, O. (2024) Applications of geochemistry to medical geology, Editor(s): Benedetto De Vivo, Harvey E. Belkin, Annamaria Lima, Environmental Geochemistry (Third Edition) - Chapter 18, Elsevier, pp. 619-656, https://doi.org/10.1016/B978-0-443-13801-0.00002-5. 7.Gomes, C.S.F., Rautureau, M. (2021). Historical Evolution of the Use of Minerals in Human Health. In: Gomes, C., Rautureau, M. (eds) Minerals latu sensu and Human Health. Springer, Cham. https://doi.org/10.1007/978-3-030-65706-2_3. 8.Hasan, S.E. (2022) Introduction to Waste Management: A Textbook.Wiley and Sons Ltd. 9.Hunt, R.E. (2007). Geologic Hazards: A Field Guide for Geotechnical Engineers (1st ed.). CRC Press. https://doi.org/10.1201/9781420052510		

10.Kramer, S.L., Stewart, J.P. (2025) Geotechnical Earthquake Engineering. Second Edition. CRC PRESS, Taylor&Francis Group.		
11.Kvashnina, K., Claret, F., Clavier, N. et al. Long-term, sustainable solutions to radioactive waste management. Sci Rep 14, 5907 (2024). https://doi.org/10.1038/s41598-024-55911-y		
12. Marker, R.B. (2009) Geology of megacities and urban areas. Geological Society, London, Engineering Geology Special Publications. 22: 33 – 45, https://doi.org/10.1144/EGSP22.3 .		
13. Mărunțeanu, C. (1994) Urbanism și protecția mediului geologic, Editura Universității București.		
14. Mărunțeanu, C., Stănciuc, M. (2019) Geologie inginerească. Ed. Universității București.		
15. Pescatore, E., Gallo, M., & Giano, S. I. (2024). Urban Geoscience: The Challenge of Street Geology. Urban Science, 8(3), 139.		
16. Wang, S. (2018) Shale gas exploitation: Status, problems and prospect, Natural Gas Industry B, 5(1): 60-74, https://doi.org/10.1016/j.ngib.2017.12.004 .		
8.2 Seminar / Laboratory	Teaching methods	Remarks
Minerals and rocks. Typology. Characteristics. Identification.	Heuristic conversation, explanation	2 hours
Climate change. Case studies: volcanism and cosmic impact phenomena.	Heuristic conversation, problem-based learning, group project	2 hours
Mining activities. Case studies: shale gas extraction and cyanide leaching.	Heuristic conversation, problem-based learning, group project	2 hours
Risk engineering. Case studies: transport infrastructure (metro systems, high-altitude roads, bridges).	Heuristic conversation, problem-based learning, group project	2 hours
Medical geology. Case studies: radon and asbestos.	Heuristic conversation, problem-based learning, group project	2 hours
Waste. Case studies: tailings ponds, waste rock dumps, radioactive waste disposal sites.	Heuristic conversation, problem-based learning, group project	2 hours
Urban geology. Case studies: Mexico City, Jakarta, Venice, Tokyo, San Francisco, Naples	Heuristic conversation, problem-based learning, group project	2 hours
Bibliography		
1.Andreastuti, S.D., Paripurno, E.T., Subandriyo, S. (2023). Volcano disaster risk management during crisis: implementation of risk communication in Indonesia. J Appl. Volcanol. 12, 3 https://doi.org/10.1186/s13617-023-00129-2 .		
2.Barsotti, S., Parks, M.M., Pfeffer, M.A. (2023). The eruption in Fagradalsfjall (2021, Iceland): how the operational monitoring and the volcanic hazard assessment contributed to its safe access. Nat Hazards 116, 3063–3092 https://doi.org/10.1007/s11069-022-05798-7 .		
3.Biggs, J., Ayele, A., Fischer, T.P. et al. (2021). Volcanic activity and hazard in the East African Rift Zone. Nat Commun 12, 6881 https://doi.org/10.1038/s41467-021-27166-y .		
4.Deaconu, A., Filip, C. I. (2021). Gold Mining Stakeholders: Diversity and Influence. Roșia Montană Case Study. Journal of East European Management Studies, 26(1), 117–146. https://www.jstor.org/stable/27284498		
5.Dolce, M., Prota, A., Borzi, B. (2021). Seismic risk assessment of residential buildings in Italy. Bull Earthquake Eng 19, 2999–3032 https://doi.org/10.1007/s10518-020-01009-5 .		
6.Garcia Ferrari, S., Morales, E.R., Bain, A.A (2022) Mexico City—Ambitions and Challenges of Integrated Risk Management in a Fractured Urban Planning Context. Earth Science, Systems and Society. 2:10059, https://doi.org/10.3389/esss.2022.10059 .		
7.Grecu, E., Aceleanu, M. I., Albulescu, C. (2018) The economic, social and environmental impact of shale gas exploitation in Romania: A cost-benefit analysis, Renewable and Sustainable Energy Reviews, 93:691-700. https://doi.org/10.1016/j.rser.2018.05.026 .		
8.Gugg, G. (2024). Afar from Vesuvius but Still at Risk: The Unstoppable Urbanization of the Naples Volcano's Yellow Zone. In Disasters and Changes in Society and Politics (pp. 102-117). Bristol University Press.		
9. Guoyu, R., Dabang, J., Qing, Y. (2021) Characteristics, drivers and feedbacks of paleo-climatic variations and the implications for modern climate change research[J]. Quaternary Sciences. 41(3): 824-841. doi: 10.11928/j.issn.1001-7410.2021.03.17		
10.Murao, O., Fujiwara, K., Kato, H., Yonemura, F., Inagaki, K., & Meguro, K. (2023). Reconsideration of Urbanization in Tokyo Metropolitan Area Since 1923 Great Kanto Earthquake from the Perspective of Exposure. Journal of Disaster Research, 18(6), 611-631.		
11.Papatulica, M. (2014) Arguments Pro and Against Shale Gas Exploitation Worldwide and in Romania, Procedia Economics and Finance, 8:529-534, ISSN 2212-5671, https://doi.org/10.1016/S2212-5671(14)00124-5 .		
12.Pateda, S. M., Sakakibara, M., & Sera, K. (2021). Element Rich Area Associated with Human Health Disorders: A Geomedical Science Approach to Potentially Toxic Elements Contamination. International Journal of Environmental Research and Public Health, 18(22), 12202. https://doi.org/10.3390/ijerph182212202		
13.Sarah, D. (2022). Land subsidence hazard in Indonesia: Present research and challenges ahead. Riset Geologi dan Pertambangan, 32(2), 83.		
14.Valler, V., Franke, J., Brugnara, Y. et al. ModE-RA: a global monthly paleo-reanalysis of the modern era 1421 to 2008. Sci Data 11, 36 (2024). https://doi.org/10.1038/s41597-023-02733-8		
15.Ward, P. J., Blauhut, V., Bloemendaal, N., Daniell, J. E., de Ruiter, M. C., Duncan, M. J., Emberson, R., Jenkins, S. F., Kirschbaum, D., Kunz, M., Mohr, S., Muis, S., Riddell, G. A., Schäfer, A., Stanley, T., Veldkamp, T. I. E., Winsemius, H. C.:(2020) Review article: Natural hazard risk assessments at the global scale, Nat. Hazards Earth Syst. Sci., 20, 1069–1096, https://doi.org/10.5194/nhess-20-1069-2020 .		

9. Correlation of the course contents with the expectations of representatives of the epistemic community, professional associations, and representative employers in the field related to the study programme

The course content strictly complies with the specializations listed in the national occupational classification, ensuring that graduates acquire the competencies required for employment in positions corresponding to their certified qualifications.

10. Evaluation

Activity type	10.1 Evaluation criteria	10.2 Evaluation methods	10.3 Percentage of final grade
10.4 Course	Accuracy of the knowledge presented during the course;	Oral examination	50%
	Completion of the recommended bibliography.		
10.5.Seminar/Laboratory/Project	Preparation and presentation of a research project.	Portfolio assessment	50%
10.6 Minimum performance standard			
1.Course: Explanation of terms defining the conceptual framework of Ambient Geology. The impact of waste, minerals, and rocks on human health and the social-geological environment. Justification of the role of urban geology in the sustainable planning of the built environment. 2.Seminar: Active involvement in teamwork and in activities required for project completion. Discussion of a relevant national or international case study on the impact of waste on the geological environment. Presentation of two types of geological or geotechnical risks to be considered in construction			

Date
20.09.2026

Course lecturer
Lect. univ. dr. Mădălina Nicoleta FRÎNCULEASA

Instructor(s) for practical activities
Lect. univ.dr. Mădălina Nicoleta FRÎNCULEASA

Date of approval by the
Department
29.09.2026

Department Director,
Conf. univ. dr. Dănuț TANISLAV

Date of approval by the
Faculty Council
29.09.2026

Dean,
Conf. univ. dr. Adrian-Aurel BALTĂLUNGĂ