

COURSE SYLLABUS

1. Data about the program

1.1 Higher education institution	Babeş-Bolyai University
1.2 Faculty	Faculty of Geography
1.3 Doctoral school	Physical and Technical Geography
1.4 Field of study	Geography
1.5 Study cycle	Doctorate
1.6 Study program / Qualification	Doctoral training / PhD in Geography

2. Course data

2.1 Name of discipline	Morphodynamics of the Romanian territory and associated risks						
2.2 Teacher responsible for lectures	Prof. Dr. Ioan Aurel IRIMUŞ						
2.3 Teacher responsible for seminars	Prof. Dr. Ioan Aurel IRIMUŞ						
2.4 Year of study	1	2.5 Semester	2	2.6. Type of evaluation	Written/oral	2.7 Course framework	compulsory

3. Estimated total time of teaching activities (hours per semester)

3.1 Hours per week	3	Out of which: 3.2 Lectures	2	3.3 Seminars / Laboratory classes	1
3.4 Total hours in the curriculum	36	Out of which: 3.5 Lectures	24	3.6 Seminars / Laboratory classes	12
3.7 Allocation of study time:					hours
Study supported by textbooks, other course materials, recommended bibliography and personal student notes					50
Additional learning activities in the library, on specialized online platforms and in the field					100
Preparation of seminars / laboratory classes, topics, papers, portfolios and essays					150
Tutoring					10
Examinations					13
Other activities: -					10
3.7 Individual study (total hours)					375
3.8 Total hours per semester					1500
3.9 Number of credits					15

4. Preconditions (where applicable)

4.1 Curriculum	<ul style="list-style-type: none"> A master's degree in geomorphology or in a discipline from physical geography;
4.2 Competences	<ul style="list-style-type: none"> Correct use of concepts, paradigms and notions from physical geography;

5. Conditions (where applicable)

5.1 Conducting lectures	x
5.2 Conducting seminars / laboratory classes	x

6. Specific competences acquired

Professional competences	<ul style="list-style-type: none"> • advanced systematic knowledge of the conceptual and methodological fundamentals used for the research of the morphodynamics of the Romanian territory; • student knowledge of the territorial models of evolution for riverbeds, slopes and watersheds in the Romanian territory and creating regional morphodynamic maps; • selecting and applying advanced methods of geomorphologic investigation of the field, in agreement with the European and worldwide schools of geographic thought; • evaluation through constructive criticism of projects and scientific research by correctly assessing the stage of theoretical and methodological knowledge in the Romanian and worldwide geomorphology.
Transversal competences	<ul style="list-style-type: none"> • the development of projects focused on creativity and innovation in field investigations; • assuming responsibility and developing the capacity of organising and leading a scientific project in a research team; • developing the capacity of organising a scientific reunion (workshop) on topics focusing on the morphodynamics of the Romanian territory (soil erosion, landslides, slope morphodynamics, geomorphologic risks and hazards, etc.)

7. Course objectives (based on the acquired competencies grid)

7.1 The general objective of the course	<ul style="list-style-type: none"> • forming the competences of advanced geomorphologic research applied to the morphodynamics of the Romanian territory and of developing the scientific doctoral project
7.2 Specific objectives	<ul style="list-style-type: none"> • knowledge of the conceptual fundamentals of general and applied geomorphology, of the research methodology of topography; • student knowledge of the territorial models of evolution for riverbeds, slopes and watersheds in the Romanian territory; • applying the general geomorphologic concepts to the local and regional space and the initiation of students in regional studies with transdisciplinary characteristics (projects of the type: PUD – Detailed Urban Plan, PUZ - Zonal Urban Plan, PUG – General Urban Plan), communication with specialists from adjacent fields (geology, biology, administration, economy, politics); • identifying and mapping geomorphologic processes; • the making of regional morphodynamic maps by doctoral students; • designing and analysing the maps of geomorphologic vulnerability, hazard and risk.

8. Content

8.1 Lectures	Teaching methods	Comments
Contemporary morphodynamics – concepts and paradigms	presentation, demonstration	2 hours
Slope morphodynamics	presentation, demonstration	2 hours
Riverbed morphodynamics	exposition, demonstration	2 hours
Contemporary geomorphological processes in the Carpathian and Subcarpathian regions	exposition, demonstration	2 hours
Contemporary geomorphological processes in watershed areas	exposition, modelling	2 hours
Contemporary geomorphological processes in the	exposition, modelling	2 hours

plain and seashore areas		
Contemporary anthropic processes on Romanian territory	exposition, demonstration	2 hours
Vulnerability of the Romanian territory to geomorphological and hydrological processes	presentation, demonstration	2 hours
Associated risks to geomorphological and hydrological processes in the context of climate change	exposition, demonstration	2 hours
Mapping techniques and development of geomorphological vulnerability and risk maps	presentation, demonstration	2 hours
Morphodynamic maps and their role in spatial planning	exposition, demonstration	2 hours
Geomorphological restrictiveness and the limits of urbanisation	exposition, demonstration	2 hours
Bibliography:		
Armaş, Iuliana , et al. (2003), <i>Vulnerabilitatea versanţilor la alunecări de teren în sectorul subcarpatic al văii Prahova</i> . Ed.Fundaţiei România de Măine, Bucureşti, p.207.		
Bălţeanu, D. (1983) , <i>Experimentul de teren în geomorfologie. Aplicaţii la subcarpaţii Buzăului</i> , Ed.Academiei, Bucureşti.		
Chorley, R.J., Schumm, S.A., Sugden, D.E. (1985) , <i>Geomorphology</i> . Methuen, London.		
Grecu, Florina, Palmentola, G. (2003) , <i>Geomorfologie dinamică</i> . Ed.Tehnică, Bucureşti.		
Huggett, J.T. (2003) , <i>Fundamentals of Geomorphology</i> . Routledge, London.		
Ichim, I., Bătucă,D., Rădoane, Maria, Duma, D. (1989) , <i>Morfologia şi dinamica albiilor de râu</i> . Ed. Tehnică, Bucureşti.7.		
Ichim, I., Rădoane, Maria, Rădoane, N., Grasu, C., Miclăuş, Crina (1998) , <i>Dinamica sedimentelor. Aplicaţie la râul Putna - Vrancea</i> . Editura Tehnică, Bucureşti.		
8.2 Seminars / laboratory classes	Teaching methods	Comments
Weathering, surface erosion and land degradation	Demonstration, modelling	2 hours
The slope – morphometry, morphology, morphodynamics	Exposition, modelling	2 hours
Slope processes and associated risks	Demonstration, modelling	2 hours
Riverbed evolution and associated risks	Demonstration, modelling	2 hours
Shoreline evolution and associated risks	Exposition, demonstration	2 hours
The planning of the Romanian geographical space and the limitations imposed by geomorphological and hydrological processes	Exposition, demonstration	2 hours

Bibliography:

- Ioniță, I.** (2000), *Formarea și evoluția ravenelor din Podișul Bârladului*. Ed. Carson, Iași.
- Irimuș, I.** (1997), *Cartografiere geomorfologică*. Editura Focul Viu, Cluj-Napoca, p.112.
- Irimuș, I.A** (2006), *Hazarde și riscuri asociate proceselor geomorfologice în aria cutelor diapire din Depresiunea Transilvaniei*. Editura Casa Cărții de Știință, Cluj-Napoca.
- Irimuș, I., Vescan, I., Man, T.** (2005), *Tehnici de cartografiere, Monitoring și Analiză GIS*, Edit. Casa Cărții de Știință, Cluj-Napoca, p.250.
- Kirkby, M.**(1988), *Hillslope runoff processes and models* .Journal of Hydrology, 100.
- Leopold, L.B., Wolman, M.G., Miller, J.P.** (1964), *Fluvial processes in geomorphology*, W.H.Freeman and C., San Francisco.
- Rădoane, Maria, Rădoane, N., Ichim, I., Surdeanu, V.** (1999), *Ravenele. Forme, procese, evoluție*.Ed.Presa Universitară Clujeană, Cluj-Napoca, p.435.
- Ritter, D.F.** (1986), *Processes Geomorphology*. WCP., Dubuke, Iowa.
- Surdeanu, V.** (1998), *Geografia terenurilor degradate*. Editura P. U.Clujeană.
- Thornes, J.B., Brunsten, D.**(1977),*Geomorphology and Time*. London, Methuen.
- Thornbury, W.D.**(1969),*Principles of Geomorphology*. Wiley&Sons, London.
- Tufescu V.** (1966), *Modelarea naturală a reliefului și eroziunea accelerată*, Edit. Acad.Române, București.

9. Aligning the contents of the discipline with the expectations of the epistemic community representatives, professional associations and standard employers operating in the program field

- The content of the discipline ensures the knowledge of the forms, mechanisms and rates of erosion, transport and accumulation of the geomorphological processes from the Romanian territory.
- The doctoral student develops the necessary competences for correctly evaluating the geomorphological potential of a region, the practical skills of field investigation, the intuition of the limits or restrictions imposed by the intensity, nature and cyclicity of the contemporary geomorphological processes.
- The employer requires: professional competences which confirm the expertise in a complex capitalization of the territory, environmental reconstruction, risk identification and mitigation measures, reconstruction of the areas affected by geomorphological hazards (processes); the capacity of innovation and the management of applied geomorphological projects; the capacity of communicating the research results and of organising teams of research; the capacity of interacting and collaborating in scientific projects with specialists from other European or worldwide schools of geomorphological thought.

10. Examination

Activity type	10.1 Evaluation criteria	10.2 Evaluation methods	10.3 Weight in the final grade
10.4 Lectures	Assessment of knowledge, notions and correlations	Exam (oral examination)	25%
	Degree of integration, level of application	Written test	25%
10.5 Seminars / laboratory classes	Applying concepts, techniques, interpretation of paradigms	Reports	25%
	Map creation	Project	25%
10.6 Minimum performance standard			
<ul style="list-style-type: none"> • Passing the exam at this discipline implies attaining a level of understanding, correlation and application of knowledge corresponding to a satisfactory rating or a mark of 5 (five). 			

Date of issue

Signature of the teacher responsible for lectures

Signature of the teacher responsible for seminars

Date of approval by the doctoral school council

Signature of the doctoral school director