

SYLLABUS

Dynamics of the geographical axes for sustainable economic development

University year 2025-2026

1. Information regarding the programme

1.1. Higher education institution	Universitatea Babeş-Bolyai din Cluj Napoca
1.2. Faculty	Faculty of Geography
1.3. Department	Doctoral School of Geography
1.4. Field of study	Geography
1.5. Study cycle	Doctoral
1.6. Study programme/Qualification	PHD
1.7. Form of education	Învățământ cu frecvență

2. Information regarding the discipline

2.1. Name of the discipline	Dynamics of the geographical axes for sustainable economic development			Discipline code	DG1108		
2.2. Course coordinator	Prof. dr. habil Pop Călin-Cornel						
2.3. Seminar coordinator	Prof. dr. habil Pop Călin-Cornel						
2.4. Year of study	I	2.5. Semester	I	2.6. Type of evaluation	E	2.7. Discipline regime	Optional

3. Total estimated time (hours/semester of didactic activities)

3.1. Hours per week	3	of which: 3.2 course	2	3.3 seminar/laboratory	1
3.4. Total hours in the curriculum	36	of which: 3.5 course	24	3.6 seminar/laborator	12
Time allotment for individual study (ID) and self-study activities (SA)					hours
3.5.1. Learning using manual, course support, bibliography, course notes (SA)					55
3.5.2. Additional documentation (in libraries, on electronic platforms, field documentation)					45
3.5.3. Preparation for seminars/labs, homework, papers, portfolios and essays					30
3.5.4. Tutorship					5
3.5.5. Evaluations					4
3.5.6. Other activities:					5
3.7. Total individual study hours					144
3.8. Total hours per semester					175
3.9. Number of ECTS credits					7

4. Prerequisites (if necessary)

4.1. curriculum	The acquired and deepened knowledge from the contents taught in other disciplines with the focus of economic geography and sustainable development facilitates understanding and will strengthen the conceptual, theoretical and practical basis.
4.2. competencies	Competencies to operate with concepts, categories, laws. Competencies of abstraction, structuring and modeling. Competencies of gradual understanding of contexts, related to the themes of previously studied disciplines. Transversal skills regarding the application of effective work techniques in multidisciplinary teams, ethical attitude towards the group, respect for diversity and multiculturalism, Skills regarding the acceptance of diversity of opinion, application of effective and responsible work strategies. Communication skills and assimilation of specialized information. Skills for analysis and synthesis of information acquired and transmitted. Skills for generalizing data and developing abstracted models of knowledge. Skills related to the predictive interpretation of scientific theories. Skills for communication and intuitive abstract thinking.

5. Conditions (if necessary)

5.1. for the course	Teaching activity room, equipped with laptop/computer, video projector and appropriate software, internet access (functional Microsoft Teams platform).
5.2. for the seminar /lab activities	Teaching activity room, equipped with laptop/computer, video projector and appropriate software, internet access (functional Microsoft Teams platform).

6.1. Specific competencies acquired ¹

Professional/essential competencies	<ul style="list-style-type: none"> Defining and mastering the main notions and concepts related to the sustainable management of geographical resources, the opportunities and challenges raised by the concept of geographical axis. Developing a critical and analytical spirit among doctoral students regarding the integrated interpretation of geographical reality along with the appreciation of the advantages of each type of territorial modeling and understanding their complementarity. Developing the capacity to identify geographical axis-type spaces (natural, social, economic, tourist). Developing the capacity to select scientific literature targeting communication axes, development axes, etc. Developing the capacity to critically analyze inhabited territories and natural spaces through the lens of the geographical axis model. Developing the capacity to develop specific models of geographical axes in the analyzed spaces.
Transversal competencies	<ul style="list-style-type: none"> Applying efficient and responsible work strategies, based on the principles, norms and values of the code of professional ethics regarding the development and coordination of a scientific project. Applying multidisciplinary teamwork techniques, ethical attitude towards the group, respect for diversity and multiculturalism, acceptance of diversity of opinion. Ability to organize scientific meetings. Self-assessment of the need for continuous professional training for the purpose of insertion and adaptability to the requirements of the labor market.

6.2. Learning outcomes

Knowledge	<p>The student knows:</p> <ul style="list-style-type: none"> the fundamental advanced theoretical and practical aspects that underlie the geographical component in the issue of identifying axis-shaped spaces; the characteristics of axis-shaped spaces in a region, area or settlement; the methods of identifying and analyzing specific data and information, geographic axis-shaped spaces; the use of specialized knowledge for the operational component, operations, territorial diagnosis and the development of studies to substantiate territorial planning policies and territorial development strategies; fundamental geographical characteristics, by using specialized approaches and efficient working methodologies for the development and implementation of strategies, policies and models for the planning and sustainable development of rural, urban, peri-urban, coastal, mountain spaces, etc.; ways of relating and communicating with different organizations involved in spatial planning and of mediating and facilitating the understanding of concepts relevant to territorial development; ways of designing and developing development, regeneration and integration strategies in local, regional, national development projects, etc.; ways of providing expertise and specialized advice in various geographical, cultural-historical and socio-economic contexts.
Skills	<p>The student is able to:</p> <ul style="list-style-type: none"> communicate, collaborate, build professional relationships and negotiate in formal and informal contexts; identify and develop appropriate solutions to solve territorial problems; design and develop plans, programs or specifications for the design of territorial products and systems; collect, store, monitor and use information, as well as carry out analyses, data processing, investigations and tests specific to the field of sustainable economic development; manage human resources within organizations with a technical scientific nature, including planning activities, coordinating, motivating, recruiting and supervising staff and teams; develop objectives and strategies, organize work activities and allocate, use and control available resources.

¹ One can choose either competences or learning outcomes, or both. If only one option is chosen, the row related to the other option will be deleted, and the kept one will be numbered 6.

Responsibility and autonomy:	<p>The student has the ability to work independently to obtain:</p> <ul style="list-style-type: none"> - manage complex professional activities and projects in the field of sustainable development and territorial planning, by assuming responsibility for making decisions in unpredictable, substantiated, innovative and purpose-adapted work or study situations; - carry out critical analysis of specialized literature; - use an appropriate combination of tools for analyzing and visualizing data and information in the field of sustainable economic development; - to provide specialized scientific consultancy and develop studies of planning and sustainable development; - to manage workflows, relate effectively in a team, make decisions and manage unforeseen situations, respecting deadlines and work schedules; - to develop creative ideas and apply innovative techniques; - to assume responsibility for the results of one's own professional activity; - to request feedback and use the feedback received constructively; - to relate with colleagues while respecting the principles of professional ethics.
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7. Objectives of the discipline (outcome of the acquired competencies)

7.1 General objective of the discipline	<ul style="list-style-type: none"> • Knowledge of the role and importance of the discipline in the context of social activities, understanding the need to use the theory and methodology of development axes in practice for prospecting, analysis, information, promotion and planning regarding the development of the doctoral thesis.
7.2 Specific objective of the discipline	<ul style="list-style-type: none"> • Use of specific indices to identify sustainable actions to capitalize on geographical resources such as axes; • Evaluation of development axes based on scientifically validated methodologies; • Acquisition of knowledge that lays the foundations for sustainable management of resources generated by development axes, communication axes, housing axes, etc.; • Students will be able to identify, analyze, interpret and represent data and information with territorial relevance, applying reference values at different scales of analysis, in the context of the complex spatio-temporal interaction of the elements involved in sustainable economic development; • Students will be able to identify the operational components of the territorial system and to develop functional, efficient and responsible territorial development strategies, based on the principles of sustainable development; • Students will be able to synthesize the theoretical knowledge acquired and apply it in real contexts, through case studies, practical applications and thematic debates; • Students will be able to develop a prospecting study for a complex territorial unit, correctly using algorithms for analysis, correlation, interpretation and presentation of information regarding the investigated territorial system; • Students will be able to achieve an objective, detailed and typological knowledge of the territorial reality, with an emphasis on super and infrastructural arrangements, highlighting the particularities and formulating scientifically substantiated assessments.

8. Content

8.1 Course	Teaching methods	Remarks
1. The concept of geographical axis for sustainable economic development	<ul style="list-style-type: none"> - exposition - presentation - conversation - discovery learning - problematization - debate 	2 hours
2. Research methodology		4 hours
3. Typology of geographical axes		4 hours
4. Relations of axes with territorial areas and poles		4 hours
5. Other normative geographical forms of territorial organization		4 hours

6. Geographic axes of development in Romania		4 hours
7. Geographic axes of development at European and global level		2 hours
<p>Bibliografie</p> <p>Albrechts, L., Tasan-Kok, Tuna (2009), Corridor and Axis Development, in International Encyclopedia of Human Geography, vol. 2, pg. 298-304.</p> <p>Crețan, R., Jucu, S., Antoni, M. (2016), Anisotropic spaces in Romania: a case study of the Timiș-Cerna Corridor, Acta Geographica Slovenica, 56-1, 2016, 45-56.</p> <p>Filip, S. (2009), Planning urban, Presa Universitară Clujeană, Cluj-Napoca.</p> <p>Ianoș, I. (2000), Sisteme teritoriale, Editura tehnică, București.</p> <p>Ielenicz, M., Comănescu, Laura (2006), România. Potențial Turistic, Editura Universitară, București.</p> <p>Iurea, D., Braghină, C. (2012), The role of development axes in Romania. Case Study: Iași County, Revista Română de Geografie Politică no 1, pg. 61-77, Oradea.</p> <p>Laitin, D.D., Moortgat, J., Robinson A.L. (2012), Geographic axes and the persistence of cultural diversity, Proceedings of the National Academy of Science, 109(26): 10263-10268.</p> <p>Pop, C.C. (2003), Dimensiunea geografică a axei Jibou-Zalău-Șimleu Silvaniei-Marghita. Studiu de geografie integrată, Editura Sylvania, Zalău.</p> <p>Pop, C.C. (2004), Model al stării axei geografice Jibou-Zalău-Șimleu Silvaniei-Marghita. Studia UBB, nr.1, Cluj-Napoca.</p> <p>Pop, C.C. (2004), Fenomenul de axă geografică. Aspecte teoretice, geography within the context of contemporary development, S.C. F&F International SRL, Cluj-Napoca.</p> <p>Pop, C. C. (2008), Turism și dezvoltare durabilă. Județul Sălaj, Editura Casa Cărții de Știință, Cluj-Napoca, ISBN 978-973-133-198-0, 195 pg. www.casacartii.ro</p> <p>Pop, C.C. (2013), Axele geografice. Structuri teritoriale inteligente, Casa Cărții de Știință, Cluj-Napoca.</p> <p>Pop, C.C. (2013), Funcția structurală și sistemică a axelor geografice, TERRA, volum al Societății de geografie din România, București.</p> <p>Pop, C. C. (2016), Axele geografice. Structuri teritoriale inteligente , Editura Casa Cărții de Știință, ClujNapoca, ISBN 978-606-17-1058-4, 135 pg. www.casacartii.ro</p> <p>Pop, C.C. (2016), Geographical axis theory. Role and function in Building Territorial Social Realities, Revista de Cercetare și Intervenție Socială, vol. 52/March 2016, pg. 283-293. www.rcis.ro</p> <p>Pop, C.C. et al (2021), Certain Aspects Regarding the Environmental Axes: Models in the Romanian Carpathian Space, Environmental Engineering and Management Journal, Vol. 20, No 7, pg. 1057-1063. http://www.eemj.icpm.tuiasi.ro/; http://www.eemj.eu</p>		
8.2 Seminar / laboratory	Teaching methods	Remarks
The historical, natural and social dimension of geographical axes	- scientific explanation, case studies	4 hours
Geographic axes and sustainable development	- demonstration	4 hours
Geographic axes - sustainable geoeconomic systems	- practical applications - individual work	4 hours
<p>Bibliography</p> <p>Brunet, R., Lehotsky, M., Podolak, P. (1990), Construction des modelesgraphiques des structures regionales, Exemple de la Plaine de Slovaquie Orientale, Revue roumaine de geographie, 34, 49-57.</p> <p>Ielenicz, M., Comănescu, Laura (2006), România. Potențial Turistic, Editura Universitară, București.</p> <p>Peptenatu, D. (2009) Polycentric development strategy - an efficient instrument in administrative decentralization, RRPG, pg. 99-111, Oradea.</p> <p>Pop, C.C. (2006), Anizotropie în axa geografică Jibou-Zalău-Șimleu Silvaniei-Marghita, Studia UBB, nr.1, Cluj-Napoca.</p> <p>Pop, C. C. (2008), Turism și dezvoltare durabilă. Județul Sălaj, Editura Casa Cărții de Știință, Cluj-Napoca, ISBN 978-973-133-198-0, 195 pg. www.casacartii.ro</p> <p>Pop, C.C., Ormenișan, S.V., Pop, C.D. (2016), Environmental Axes: Management and Economic Development. Regional and Local Aspects, Environmental Engineering and Mngement Journal, June 2016, Vol. 15, No. 5, pg. 1148-1153. http://www.eemj.eu</p> <p>Pop, C.C. (2016), Geographical axis theory. Role and function in Building Territorial Social Realities, Revista de Cercetare și Intervenție Socială, vol. 52/March 2016, pg. 283-293. www.rcis.ro</p> <p>Pop, C. C. (2016), Axele geografice. Structuri teritoriale inteligente , Editura Casa Cărții de Știință, Cluj-Napoca, ISBN 978-606-17-1058-4, 135 pg. www.casacartii.ro</p>		

9. Corroborating the content of the discipline with the expectations of the epistemic community, professional associations and representative employers within the field of the program

- The content of the discipline includes content elements similar to those studied in other university centers in the country and abroad, complemented with elements of originality.

10. Evaluation

Activity type	10.1 Evaluation criteria	10.2 Evaluation methods	10.3 Percentage of final grade
10.4 Course	Understanding and assimilating knowledge Active participation in class discussions	Written and oral assessment	60%
		Active participation in courses	10%
10.5 Seminar/laboratory	Knowledge and ability to understand the acquired knowledge	Seminar topic presentation, development and implementation of mini-research project	20%
		Active participation in seminars	10%
10.6 Minimum standard of performance			
<ul style="list-style-type: none"> • Knowledge of the fundamental elements of theory, solving a simple application through which to identify the elements that define spaces in the form of geographical axes (natural, social, economic, tourist, urban, rural, etc.). Part of the teaching activities of the course, respectively of the seminar, can be carried out exclusively in online format, in accordance with legal regulations, aspects communicated at the beginning of the semester. To pass the course, it is mandatory to attend at least 30% of the seminar activities according to the program, as well as to attend at least 60% of the course/seminar activities, cumulatively, regardless of the form of organization. Passing the course requires obtaining a final grade of at least 5 (five), grading on a scale from 1 (one) to 10 (ten). The evaluation is carried out through written tests and applied activities, with students having the obligation to fully address each issue (theoretical question and/or practical application) included in the evaluation test, lasting one hour. The individual or group project is presented orally in a period of 15–30 minutes/project, followed by the analysis, debate and critical evaluation of the projects, allocated in a period of approximately 15 minutes/project. 			

11. Labels ODD (Sustainable Development Goals)²

	General label for Sustainable Development
	

² Keep only the labels that, according to the [Procedure for applying ODD labels in the academic process](#), suit the discipline and delete the others, including the general one for *Sustainable Development* – if not applicable. If no label describes the discipline, delete them all and write „Not applicable.”.

Date:
10.09.2025

Signature of course coordinator

Prof. dr. habil. Pop Călin-Cornel

Signature of seminar coordinator

Prof. dr. habil. Pop Călin-Cornel

Date of approval:

Signature of the director of the Doctoral School of Geography

Prof. univ. dr. Iulian-Horia Holobacă