SYLLABUS

1. Information regarding the programme

1.1 Higher education institution	Babeș–Bolyai University Cluj-Napoca
1.2 Faculty	Faculty of Geography
1.3 Department	Department of Geography's Extension, Gheorgheni Extension
1.4 Field of study	Geography
1.5 Study cycle	BSc
1.6 Study programme / Qualification	Ecotourism and sustainable development

2. Information regarding the discipline

2.1 Name of the discipline			**GIS IN ECOTOURISM RESOURCE MANAGEMENT**				
2.2 Course coordinator			dr. Magyari-Sáska Zsolt, lecturer				
2.3 Seminar coordinator			dr. Magyari-Sáska Zsolt, lecturer				
2.4 Year of study	I	2.5 Semester	II	2.6. Type of evaluation	exam	2.7 Type of discipline	compulsory

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	42	of which: 3.5 course	28	3.6 seminar/laboratory	14
Time allotment:					hours
Learning using manual, course support, bibliography, course notes					20
Additional documentation (in libraries, on electronic platforms, field documentation)					20
Preparation for seminars/labs, homework, papers, portfolios and essays					30
Tutorship					10
Evaluations					3
Other activities:					

3.7 Total individual study hours	83
3.8 Total hours per semester	125
3.9 Number of ECTS credits	5

4. Prerequisites (if necessary)

4.1 curriculum	-
4.2 competencies	-

5. Conditions (if necessary)

5.1 for the course	video projector, laptop
5.2 for the seminar /lab activities	computer network, internet, video projector

6. Specific competencies acquired

Professional competencies	PC1. GIS software proficiency: Expert knowledge of QGIS or other relevant GIS software, including data management, analysis, and visualization. PC2. Spatial data analysis: Ability to conduct spatial analyses such as overlay, buffering, distance calculations, and network analysis to assess ecotourism resources and their interactions. PC3. Remote sensing: Understanding of remote sensing techniques (e.g., aerial photography, satellite imagery) to monitor and assess ecotourism resources, land use changes, and environmental impacts. PC4. Data modelling: Skill in creating and using spatial data models to represent ecotourism resources, their attributes, and relationships. PC5. Spatial statistics: Knowledge of spatial statistical methods to analyze patterns and relationships in ecotourism data.
Transversal competencies	TC1. Problem-solving: Ability to identify and solve complex problems related to ecotourism resource management using GIS tools. TC2. Critical thinking: Skill in analyzing information, evaluating arguments, and making informed decisions. TC3. Teamwork: Ability to work collaboratively with colleagues and stakeholders to achieve common goals. TC4. Adaptability: Flexibility to adapt to changing circumstances and new technologies in the field of ecotourism and GIS.

7. Objectives of the discipline (outcome of the acquired competencies)

7.1 General objective of the discipline	The general objective of the discipline is to equip students with the knowledge and skills necessary to apply GIS tools and techniques effectively in the field of ecotourism resource management. This includes understanding the principles of ecotourism, assessing ecotourism resources, planning and managing ecotourism activities, and evaluating their impacts using GIS-based methods.
7.2 Specific objective of the discipline	The discipline aims to equip students with the knowledge and skills necessary to apply GIS effectively in ecotourism resource management. Students will develop expertise in GIS software and techniques, understand the principles of ecotourism, assess the suitability of natural areas for ecotourism activities, evaluate the impacts of ecotourism activities using GIS tools, develop ecotourism plans and manage ecotourism sites effectively, apply remote sensing techniques for monitoring and assessing ecotourism resources, create and use spatial data models, analyze patterns and relationships in ecotourism data using spatial statistics, solve problems related to ecotourism resource management using GIS tools, and understand ethical principles and their application in the field.

8. Content

8.1 Course	***Teaching methods***	***Remarks***
Basic notions of remote sensing	Oral presentation with demonstration and interactive sections	4 hours
Supervised and unsupervised image classification	Oral presentation with demonstration and interactive sections	4 hours
Multiple criteria evaluation	Oral presentation with demonstration and interactive sections	3 hours
Ecological modelling	Oral presentation with demonstration and interactive sections	3 hours
Establishment of a GIS database	Oral presentation with demonstration and interactive sections	4 hours
Specific GIS operations for multiple criteria analysis	Oral presentation with demonstration and interactive sections	3 hours
Suitability analysis	Oral presentation with demonstration and interactive sections	4 hours
Multiple Objective Land Allocation	Oral presentation with demonstration and interactive sections	3 hours

Bibliography

1. Dean, M. (2022), A Practical Guide to Multi-Critera Analysis [PDF file]
2. Fung, T., Wong, F.K.K. (2007), Ecotourism planning using multiple criteria evaluation with GIS, Geocarto International, 22:2, pp.87-105 [PDF file]
3. Jorgensen, S.E. (2011), Handbook of Ecological Models Used in Ecosystem and Environmental Management, CRC Press [PDF file]
4. Leeuw, J.D., Ottichilo, W.K., Toxopenus, A.G., Prins, H.T. (2002), Application of remote sensing and geographic information systems in wildlife mapping and modelling. In Environmental Modeling with GIS and Remote Sensing, A. Skidmore (Ed.), pp. 121–144 (New York: Taylor & Francis).
5. Malczewski, J. (1999) GIS and Multicriteria Decision Analysis (New York: JohnWiley & Sons).
6. Martensson, U. (2011), Introduction to Remote Sensing and Geographical Information Systems, Lund University [PDF file]
7. ***, Fundamentals of Remote Sensing [PDF file]
8. *** (2009), Multi-criteria analysis: a manual, Department for Communities and Local Government: London [PDF file]

8.2 Seminar / laboratory	***Teaching methods***	***Remarks***
Supervised image classification – practical case study	Presentation, explanation, individual work	4 hours
Ecological modelling – practical case study	Presentation, explanation, individual work	3 hours
Suitability analysis – practical case study	Presentation, explanation, individual work	4 hours
Multiple criteria evaluation – practical case study	Presentation, explanation, individual work	3 hours

Bibliography

1. Carver, S.J. (1991), Integrating multi-criteria evaluation with geographical information systems. International Journal of Geographical Information Systems, 5, 321–339. https://doi.org/10.1080/02693799108927858
2. Dunnett, A., Shirsath, P.B., Aggarwal, P.K., Thornton, P., Joshi, P.K., Pal, B.D., Khatri-Chhetri, A., Ghosh J. (2018), Multi-objective land use allocation modelling for prioritizing climate-smart agricultural interventions, Ecological Modelling, Volume 381, https://doi.org/10.1016/j.ecolmodel.2018.04.008.
3. Fung, T., Wong, F.K.K. (2007), Ecotourism planning using multiple criteria evaluation with GIS, Geocarto International, 22:2, pp.87-105 [PDF file]
4. García G.A., Rosas E.P., García-Ferrer A., Barrios P.M. (2017) Multi-Objective Spatial Optimization: Sustainable Land Use Allocation at Sub-Regional Scale. Sustainability; 9(6):927. https://doi.org/10.3390/su9060927
5. Jiang, H., Eastman, J.R. (2000), Application of fuzzy measures in multi-criteria evaluation of GIS. International Journal of Geographical Information Science, 14, 173–184. https://doi.org/10.1080/136588100240903
6. Store, R., Kangas, J. (2001), Integrating spatial multi-criteria evaluation and expert knowledge for GIS based habitat suitability modelling. Landscape and Urban Planning, 55, 79–93. https://doi.org/10.1016/S0169-2046(01)00120-7
7. Ywumasi, Y.A. (2001), The use of GIS and remote sensing techniques as tools for managing nature reserves: the case of Kakum National Park in Ghana. Proceedings of IGARSS 2001, pp. 3227–3229 (Sydney: IEEE). https://doi.org/10.1109/IGARSS.2001.978311

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 course and seminars highlights the latest ecotourism research guidelines and practices. The focus on understanding the problems and interrelations in the sphere of ecotourism is obvious. The discipline meets the needs of the employers in the field, interested in specialists able to efficiently and fully utilize the field in question.

10. Evaluation

Type of activity	10.1 Evaluation criteria	10.2 Evaluation methods	10.3 Share in the grade (%)
10.4 Course	Knowledge of the presented information, logic and clarity, knowledge of terminology	Written exam	50%
10.5 Seminar/lab activities	Knowledge and correct practical application of the methods presented	Practical exam	50%
10.6 Minimum performance standards			
Final grade of at least 5.			

Date
02.09.2024

Signature of course coordinator

Signature of seminar coordinator

Date of approval
06.09.2024

Signature of the head of department