Discipline sheet

Course title	Spatial methodologies for data collection and analysis (GIS, Remote Sensing)	code:

Study year First	PhD	Semester I		Status of the discipline (AP-deepening/CC-acquiring competences/f-optional)	OB

Number of hours				Total amount hours	Total amount Individual activity	ECTS	The type of assessment (P-on course, C-conversation, E-exam, M-mixed)	LANGUAGE OF TEACHING
C	S	L	Pr.					
18				18		4	Verification	Romanian

Aim	1. Guidance of PhD students towards the use of spatial data collection and analysis methodologies1. Understanding the steps required to collect and analyze environmental data using spatial methodologies
Objectives	1. Knowledge of the main sources of spatial data and the methods of their use. 2. Knowing and understanding the specific conditions and restrictions in data collection 3. Developing the skills to use data collection and analysis methods for different categories of research
Skills	C1. Collection and analysis of environmental data, obtained through different methods and means (mapping, field observations, surveys, measurements of environmental parameters using specialized equipment, statistical methods, modeling, GIS techniques, remote sensing, etc.) C2. The substantiated application of specific methods and means in relation to clearly defined criteria for the purpose of producing quantitative and qualitative environmental data. C3. Communication of the results of studies carried out and proposals for environmental rehabilitation, using methods and strategies for communicating adequate environmental information.
The main topics of the course	1. Basic principles of data collection usable in geospatial analysis 2. Geospatial databases – main sources and use in environmental studies. 3. Systematized collection of data from existing sources. 4. Collection of environmental data through observation sheets and observation protocols. 5. Use of mobile phone applications to collect data 6. Using GIS to represent and analyze environmental data – case studies. 7. Use of remote sensing for environmental data analysis – case studies. 8. Multicriteria analyzes in environmental research – analytical ranking, mathematical

	programming, expert opinion, network analysis. Use of specialized software.
TEACHING METHODS	Lecture, exercises, case studies.

Bibliography (selective)	Dalezios, N.R. (2021), Remote Sensing Applications in Environmental and Earth System Sciences, CRC Press, Boca Raton. Ioja, C. (2015), Metode de evaluare și cercetare a mediului, Editura Etnografica, Bucuresti Longley P A, Goodchild M F, Maguire D J, Rhind D W (2015) Geographic information science and systems. 4th ed., J Wiley, Chichester, UK Munier, N. (2004), Multicriteria Environmental Assessment, Kluver Academic Publisher, Dordrecht Okabe A, Okukuki K-I, Shiode S (2006a) The SANET Toolbox: New methods for network spatial analysis. Trans in GIS, 10(4), 535-550 Okabe A, Okukuki K-I, Shiode S (2006b) SANET: A toolbox for spatial analysis on a network. Geog. Anal., 38, 57-66 Saaty, T. L. (1990). *Multicriteria Decision Making - The Analytic Hierarchy Process* (Vol. 1). New York: Mc-Graw Hill. Saaty T L (1999) Fundamentals of the Analytical Network Process. Proc. Of ISAHP 1999, Kobe

Evaluation	Conditions	There are no special conditions/
	Criteria	Adaptation of spatial methodologies at the level of the doctoral thesis.
	Format	Questions Grid
	Final degree calculation	100% verification