

### Discipline sheet

The name of the discipline	<b>Support System and Decision Cycle</b>	cod:
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Year of study I	PhD	First semester		Discipline status (AP-deepening / CC-obtaining competencies / f-optional)	OBS.
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Number of hours per week				Total semester hours/ Total online hours	Total hours of individual activity	Number of credits	Type of evaluation (P-en route, C-colloquium, E-exam, M-mixed)	LANGUAGE OF TEACHING
C	S	L	Pr.					
				18/10	70	4	E	Romanian

<b>PURPOSE</b>	Introduction of doctoral students in the field (highly demanded by the political sphere, decision makers and those who apply integrated and adaptive management), design, development and use of decision support systems (DSS) or interfaces between "Global Science" and Decision Cycles (Science and Policy Interfaces)
Objectives	<ul style="list-style-type: none"> <li>-Comparative analysis of DSSs founded by Environmental Sciences, Biological Ecology, Ecosystem Ecology and Systemic Ecology / Sustainability</li> <li>-Presentation and debate of DSS developed and promoted for over 15 years by the DESS team</li> <li>-Understanding the role of the subject of the doctoral thesis and placing it in the context of DSS</li> </ul>
Competences	<ul style="list-style-type: none"> <li>- understanding the DSS needed to make the concept of sustainable development operational;</li> <li>- increased ability to select, combine and use data and knowledge from different sources to support the decision on sustainable development in an informed manner</li> <li>- enhanced ability to select, combine and use integrated methods and techniques to optimize infrastructure for sustainable development;</li> <li>- developed capacity to collaborate with specialists from different fields;</li> <li>- ability to apply (in practice) the knowledge acquired in some case studies</li> <li>-the ability to effectively communicate scientific knowledge</li> </ul>
The general theme of the course	<ol style="list-style-type: none"> <li>1. SSAD: an essential condition to operationalize the concept of sustainable development - 2 hours face to face</li> <li>2. The general framework for assisting the decision. The decision-making cycle – 3 hours, face to face.</li> <li>3. The infrastructure for long-term research and integrated monitoring required to produce: a) quality data and information for the assessment of trends in the dynamics</li> </ol>

	<p>of natural capital (CN) and socio-ecological systems (SES); and b) multi-knowledge and trans-disciplinary (integrates scientific knowledge with traditional expertise and practice of social groups);</p> <ol style="list-style-type: none"> <li>4. How to structure and operate information systems - equipment and spatial organization, databases and meta-databases, knowledge bases, mathematical model packages, powering databases and knowledge, user access and management - 2 hours online;</li> <li>5. Operational models (the ecosystem approach, spatial and temporal scales, DIPSIR model, sets of indicators for evaluating and monitoring the level of co-development or sustainability of SSE) – 3 hours, online;</li> <li>6. The institutional infrastructure and the package of methods for the analysis of the social capital (SC) and the participation of the SC in the decision cycle; economic evaluation of the services generated by the CN components; environmental impact assessment (EIA); the infrastructure for education, information and communication regarding the conservation and sustainable use of biodiversity and CN – 2 hours, online;</li> <li>7. Science-politics interfaces – 1 hour, online.</li> <li>8. Understanding the characteristic features of different socio-ecological research topics and integrating the results into the decision-making cycle; understanding and placing the topic of the doctoral thesis in the context of SSAD - 3 physical hours</li> </ol>
TEACHING METHODS	<p>The special importance of the compartments of: i) socio-ecological research and integrated monitoring is underlined; ii) education, information and communication; iii) participation, contextualization and social certification and iv) information system (interoperable databases and knowledge bases)</p> <p>The topics of the PhD theses in the context of feeding and operationalizing SSAD are analyzed and debated as case studies.</p> <p>SSAD projects for local, regional, national and European / global SECs are analyzed.</p> <p>Teaching methods: lecture, debate, problematization, case studies</p>

Mandatory bibliography (selective)	<ul style="list-style-type: none"> <li>• Compton P, D. Devuyst, Hens, B. Nath, 1999. Environmental Management in Practice: Instruments for Environmental Management, CRC Press</li> <li>• Kersten G.E., Z. Mikolajuk, A. Gar-On Yeh (eds.), 2002. Decision Support Systems for Sustainable Development: A Resource Book of Methods and Applications, Kluwer Academic Publishers London.</li> <li>• Vădineanu, A., 2001, Decision making and decision support systems for balancing socio-economic and natural capital development, Observatorio Medio-Ambiental 4(7-9), p. 19-49.</li> <li>• Vădineanu, A., 2001, Sustainable Development: Theory and Practice Regarding the Transition of Socio-economic Systems Towards Sustainability, UNESCO-CEPES</li> <li>• Huges T.J. , T Block, T Wright, F Benitez-Capistros, A. Verbruggen, 2014 Sustainability assessment and indicators: Tools in decision-making strategy for sustainable development. Sustainability, 6(9), 5512-5534;</li> </ul>
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Assessment	terms	Attendance at the course (minimum 90%) and involvement in the analysis and debate of case studies (100%)
	criteria	
	forms	Oral assessment
	final grade formula	50% exam + 50% debates / analysis of case studies / reporting the thesis issue to DSS