Course description

1. GENERAL INFORMATION				
1.1. Course teacher	Marina Novina, PhD Assistant Professor		1.6. Year of the study	3
1.2. Name of the course	Question of Emergence		1.7. ECTS credits	2
1.3. Associate teachers			1.8. Type of instruction (number of hours L + E + S + e-learning)	30+0+0+0
1.4. Study programme (undergraduate, graduate, integrated)	Undergraduate		1.9. Expected enrolment in the course	15-20
1.5. Status of the course	☒ mandatory	☒ elective	1.10. Level of application of e-learning (level 1, 2, 3), percentage of online instruction (max. 20%)	
2.COUSE DESCRIPTION				
2.1. Course objectives	The objectives of this course are (a) to acquaint students with the basic concepts and issues of emergence, (b) to acquaint students with differences among philosophical and scientific inquiry of emergence and (c) to acquaint students with different concepts of emergent phenomena and emergence.			
2.2. Enrolment requirements and/or entry competences required for the course	Enrolled in at least the third year of study.			
2.3. Learning outcomes at the level of the programme to which the course contributes	Describe the fundamental problems dealt with by different philosophical disciplines, define them and reproduce them using philosophical concepts. Compare different philosophical directions and identify cause-and-effect relationships that have led to philosophical thought formation throughout history. Distinguish the subject of philosophy from other scientific disciplines and distinguish philosophical disciplines. Connect philosophical ideas and teachings with the philosophers to whom they belong. Form arguments in everyday and scientific use based on the literature read. Use scientific methodology and be able to write scientific papers.			
2.4. Expected learning outcomes at the level of the course (3 to 10 learning outcomes)	Describe the fundamental problems of emergence, define them and reproduce them using philosophical concepts. Compare different philosophical understanding of emergence and identify cause-and-effect relationships that have led to such philosophical understandings. Distinguish the emergence as philosophical problem from emergence as scientific problem. Connect philosophical teachings about the emergence with the philosophers to whom they belong. Form arguments on philosophical conceptions of emergence based on the literature read. Use scientific methodology and be able to write and present scientific report.			
2.5. Course content (syllabus)	The question of emergence finds its origin in ancient debates about the difference between parts and wholes. The fundamental question was: is there still some fundamental component of the whole, some foundation, some first beginning of everything, or is nature, on a fundamental level complex? The phenomenon of emergencies of complexity is a current issue in contemporary scientific discourse in			

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<tr><td></td><td colspan="9">the context of many scientific disciplines, from psychology, sociology, biology, chemistry, physics, cosmology to mathematics and, of course, philosophy. In this course, we will approach the issue of emergency through the following thematic units: 1) What is emergency; 2) Reductionism; 3) Emergencyism; 4) History of the idea of emergency; 5) Emergency levels (A); 6) Emergency levels (B); 7) Emergency levels (C); 8) Philosophical perspectives on the issue of emergency; 9) Emergency and supervenience; 10) Aggregativeness; 11) Emergency properties; 12) Causality from above and emergence; 13) Beliefs; 14) Holistic approach 15) Concluding remarks.</td></tr>
<tr><td>2.6. Format of instruction:</td><td colspan="4">☒ lectures
☐ seminars and workshops
☐ exercises
☐ online in entirety
☐ partial e-learning
☐ field work</td><td colspan="3">☒ independent assignments
☐ multimedia and the internet
☐ laboratory
☐ work with mentor
☐ (other)</td><td colspan="2">2.7. Comments:</td></tr>
<tr><td>2.8. Student responsibilities</td><td colspan="9">Regular class attendance (for signature min. 80% of arrivals), regular preparation for classes, class activity.</td></tr>
<tr><td rowspan="5">2.9. Monitoring student work</td><td>Class attendance</td><td>YES</td><td>NO</td><td>Research</td><td>YES</td><td>NO</td><td>Oral exam</td><td>YES</td><td>NO</td></tr>
<tr><td>Experimental work</td><td>YES</td><td>NO</td><td>Report</td><td>YES</td><td>NO</td><td>(other)</td><td>YES</td><td>NO</td></tr>
<tr><td>Essay</td><td>YES</td><td>NO</td><td>Seminar paper</td><td>YES</td><td>NO</td><td>(other)</td><td>YES</td><td>NO</td></tr>
<tr><td>Preliminary exam</td><td>YES</td><td>NO</td><td>Practical work</td><td>YES</td><td>NO</td><td>(other)</td><td>YES</td><td>NO</td></tr>
<tr><td>Project</td><td>YES</td><td>NO</td><td>Written exam</td><td>YES</td><td>NO</td><td>ECTS credits (total)</td><td colspan="2"></td></tr>
<tr><td rowspan="6">2.10. Required literature (available in the library and/or via other media)</td><td colspan="6">Title</td><td>Number of copies in the library</td><td colspan="2">Availability via other media</td></tr>
<tr><td colspan="6">Bedau, Mark A.; Humphreys, Paul (ur.) (2008). Emergence: Contemporary Readings in Philosophy and Science. Cambridge: A Bradford book.</td><td></td><td colspan="2">+</td></tr>
<tr><td colspan="6">Bedau, M. Downward Causation and the Autonomy of Weak Emergence. Principia 65 (1)</td><td></td><td colspan="2">+</td></tr>
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<tr><td>2.11. Optional literature</td><td colspan="9">John D. Barrow, Paul C. W. Davies i Charles L. Harper (ur.) (2004). Science and Ultimate Reality: Quantum Theory, Cosmology, and Complexity. Cambridge: CUP.
Davis, Paul i Gregersen, Niels H. (ur.) (2010). Information and the Nature of Reality: From Physics to Metaphysics. Cambridge: CUP
Ellis, George (2016). How Can Physics Underlie the Mind? Top-Down Causation in the Human Context. Berlin, Heidelberg: Springer-Verlag.
Fromm, Jochen (2004). The Emergence of Complexity. Kassel: Kassel University Press.
Morowitz, Harold J. (2002). The Emergence of Everything: How the World became Complex. New York: Oxford University Press.
Novina, Marina i Stanković, Nikola (2018). Tvar — emergentni fenomen i poziv fizike na metafiziku. Obnovljeni život, 73. (2.), 153-156.</td></tr>
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	Pullman, Bernard (ur). (1997). *The Emergence of complexity im Mathematics, Physics, Chemistry and Biology*. Pontificiae Academiae Scientiarum Scripta Varia (Book 89). Princeton: Princeton University Press.
2.12. Other (as the proposer wishes to add)	