

<b>Study programmes:</b> Master studies - Astronomy and Astrophysics				
<b>Course name:</b> Astrobiology				
<b>Lecturers:</b> Anđelka Kovačević				
<b>Status:</b> Optional				
<b>ECTS:</b> 8				
<b>Attendance prerequisites:</b> None				
<b>Course aims:</b> Multidisciplinary knowledge in astronomy, chemistry, biology, geology and technology.				
<b>Course outcome:</b> Upon completion of the course, the student is well trained for multidisciplinary research.				
<b>Course content:</b> Basic concepts and aspects of astrobiology. Anthropic principle and cosmological preconditions for existence of life. Chemical evolution of the universe. Extrasolar planets. Formation of planetary systems. Habitability: Circumstellar and Galactic Habitable Zone. Carbon cycle and climate feedback. Extremophiles: Earthly organisms in “cosmic” environments. Oparin-Holdein’s paradigm. Panspermia: history, classes, contemporary review. Early evolution of life on Earth. Evolution of planetary atmospheres. Episodes of global glaciation. Episode of mass extinction. Earth vs. extra-terrestrial mechanisms of extinction. Astrobiology view of some bodies of the Solar System. SETI - history and present status. Types of civilizations by Kardashev. Fermi’s paradox. Carter’s argument; arguments from biological contingency; Is the Earth “rare”? “Third question”: astrobiology and the future evolution of astrophysical objects. Physical eschatology.				
<b>Literature:</b>				
1. Anđelka Kovačević: Astrobiologija				
2. Complete Course in Astrobiology, Edited by G.Hordneck and P. Rettberg, Wiley, 2007				
Interactive laboratory exercises:				
- Extrasolar planet database				
- Java System console				
<b>Number of hours:</b> 3 + 2 +2	<b>Lectures:</b> 3	<b>Tutorials:</b> 2 + 2	<b>Laboratory:</b> -	<b>Research:</b> -
<b>Teaching and learning methods:</b> Frontal / Group / Practical				
<b>Assessment (maximal 100 points)</b>				
<b>Course assignments</b>	<b>points</b>	<b>Final exam</b>	<b>points</b>	
Lectures	4	Written exam	-	
Exercises / Tutorials	-	Oral exam	-	
Colloquia	32	Written-oral exam	60	
Essay / Project	4			