

<b>Study programmes:</b> Master studies - Astronomy and Astrophysics				
<b>Course name:</b> Compact objects in astrophysics				
<b>Lecturers:</b> Bojan Arbutina				
<b>Status:</b> Optional				
<b>ECTS:</b> 8				
<b>Attendance prerequisites:</b> None				
<b>Course aims:</b> Acquiring advanced knowledge about compact objects in astrophysics.				
<b>Course outcome:</b> At the end of the course, student has enough skills for advanced courses about final phases of evolution of stars (compact objects in astrophysics – white dwarfs, neutron stars, black holes) in PhD studies. He has enough skills to start research.				
<b>Course content:</b> Introduction to the general theory of relativity. An overview of the final stages of the evolution of a star. White dwarfs. Chandrasekar's mass. Neutron stars. Openhajmer-Volkov's equation. Black holes. Schwarzschild's and Ker's solution. Double systems with compact objects. Gravitational radiation. Evolution of compact detached binaries.				
<b>Literature:</b>				
1. Shapiro S. L., Teukolsky S. A., 1983, Black Holes, White Dwarfs and Neutron Stars: The Physics of Compact Objects, Weinheim: Wiley-VCH				
2. Camenzind M., 2004, Compact Objects in Astrophysics: White Dwarfs, Neutron Stars and Black Holes, Berlin, Heidenberg: Springer-Verlag				
3. Misner C. W., Thorne K. S., Wheeler J. A., 1973, Gravitation, San Francisco: W.H. Freeman & Company				
Exercises:				
1. Lightman A., Press W. H., Price R. H., Teukolsky S. A., 1975, Problem Book in Relativity and Gravitation, Princeton: Princeton University Press				
<b>Number of hours:</b> 7	<b>Lectures:</b> 3	<b>Tutorials:</b> 2 + 2	<b>Laboratory:</b> -	<b>Research:</b> -
<b>Teaching and learning methods:</b> Frontal / Individual / Interactive / Tutorials / Lectures / Exercises				
<b>Assessment (maximal 100 points)</b>				
<b>Course assignments</b>	<b>points</b>	<b>Final exam</b>	<b>points</b>	
Lectures	20	Written exam	-	
Exercises / Tutorials	20	Oral exam	60	
Colloquia	-	Written-oral exam	-	
Essay / Project	-			