

Study program: PhD studies – Astronomy and astrophysics			
Course Title: Classical Cosmology			
Teacher: Segan D. Stevo			
Status of course: optional			
Credits: 9			
Pre-requisites: none			
Course goal: The acquisition of advanced knowledge of classical cosmology.			
Summary of Intended Learning Outcomes: Upon completion of the course, PhD student is capable of understanding problems in modern cosmology and the capability for further research work in this field.			
Course content: Outside of the Milky Way. Large scale structures. Metric theory of the gravitation and its role in cosmology. Einstein's equations. Empirical foundation of modern cosmology. Expansion of the Universe and Hubble's law. Cosmological red shift and its properties. Friedman's solutions of Einstein's equations. Robertson-Walker metrics: basic quantities, scale factor, curvature, density parameter Ω . Cosmological constant. De Sitter model. Cosmology nowadays. Discovery of quasars; discovery of background microwave radiation. Standard model of the Big Bang. Anthropic principles in cosmology. Problems of standard model. Basics of quantum cosmology. Cosmological inflation.			
Literature: 1. Islam, J. N. 2002 (2nd ed.), An Introduction to Mathematical Cosmology , University Press, Cambridge			
Number of teaching hours: 10		Theoretical lessons: 4	Practical lessons: 6
Methods of teaching: Frontal, Group, Individual Research Approach			
Grading Score (maximum 100 points)			
Pre-exam obligations	points	Final exam	points
In-class activity	10	Written exam	
Practical training		Oral exam	50
Midterm	40		
Seminars			