

Study programme: Astronomy and Astrophysics – PhD Studies			
Course: Selected topics in astronomy and astrophysics			
Teacher or teachers: Anđelka Kovačević, Dejan Urošević			
Status: optional			
ECTS credits: 9			
Requirements: none			
Course objective: Acquiring general and advanced knowledge of selected topics in astronomy and astrophysics.			
Course outcome: Upon completion of the course, the student has general and specific knowledge of astronomy and astrophysics. He is able to solve tasks and follow other advanced courses in this field.			
Course description: Basic equations of spherical trigonometry. Coordinate systems (horizontal, local equatorial, celestial equatorial, ecliptic, galactic). Solar system. Rocky planets (Mercury, Venus, Earth, Mars). Gas planets (Jupiter, Saturn, Uranus, Neptune). Moon. Satellites of other planets. Comets (Ort's Cloud), Asteroids. Trans-Neptunian objects (Kuiper belt), Meteors and meteorites. Two body problem. Newton's law of gravity. Differential equations of motion of planets and comets. Kepler's laws. The problem of three or more bodies. Electromagnetic radiation of celestial bodies and methods for its measurement. Photometry, spectroscopy and polarimetry. Stellar structure. The Sun. Binary stars. Variable stars. Stellar evolution. Star clusters. Our galaxy - the Milky Way. Interstellar medium. Extragalactic astronomy. Cosmology			
Recommended literature: R. Green: 1977, Spherical Astronomy, Cambridge Univ. Press M. Vukicevic-Karabin, O. Atanackovic: 2010, General Astrophysics Belgrade (in Serbian) B.W. Carroll and D.A. Ostlie: 2006, An Introduction to Modern Astrophysics - 2nd Edition, Addison-Wesley C.D. Murray and S.F.Dermott: 2001, Solar System Dynamics, Cambridge Univ. Press			
Total number of classes: 10	Theoretical classes: 4	Practical classes: 6	
Teaching methods: Frontal, group, practical work			
Grading system (maximum number of points: 100)			
Pre-exam requirements	points	Final exam	points
Activity in class	10	Written exam	25
Practical work	20	Oral exam	25
Colloquia			
Seminars	20		