

<b>Study programmes: Phd studies – Mathematics</b>			
<b>Course name:</b> Symplectic manifolds and Hamiltonian mechanics			
<b>Lecturers:</b> Darko Milinković, Jelena Katić, Anđelka Kovačević			
<b>Status:</b> Optional			
<b>ECTS:</b> 8			
<b>Attendance prerequisites:</b> Analysis 2, Linear algebra			
<b>Course aims:</b> Acquiring basic knowledge of Hamiltonian mechanics and symplectic manifolds and preparing for eventual master or research work in this or some related field of Mechanics, Analysis, Geometry or Topology.			
<b>Course outcome:</b> The student should master the basic knowledge of Hamilton's mechanics and be ready to connect them with other areas of mathematics and mechanics.			
<b>Course content:</b> Symplectic manifolds. Hamilton's flow and its invariants. Hamilton equations in coordinates and invariant notation. The cotangent bundle, the canonical Liouville form. Lie algebra of Hamiltonian functions. Poincare – Cartan integral invariant and applications. Haygens principle. Hamilton - Jacobi's method of solving Hamilton equations, generating functions.			
<b>Literature:</b> V. I. Arnold, <i>Mathematical Methods of Classical Mechanics</i> , Springer, 1997.			
<b>Number of hours:</b> 7	<b>Lectures:</b> 3	<b>Tutorials:</b> 2 + 2	
<b>Teaching and learning methods:</b> Frontal , Interactive, Exercises			
<b>Assessment (maximal 100 points)</b>			
<b>Course assignments</b>	<b>points</b>	<b>Final exam</b>	<b>points</b>
Lectures	-	Written exam	-
Exercises / Tutorials	10	Oral exam	-
Colloquia	10	Written-oral exam	60
Essay / Project	20		