Study programmes: MASTER STUDIES - Mathematics	
Course name: Lagrangian Mechanics and Riemannian Manifolds	
Lecturers: Darko Milinković, Jelena Katić, Anđelka Kovačević	
Status: Optional	
ECTS: 8	
Attendance prerequisites: Analysis 2, Linear algebra	

Course aims: Acquisition of basic knowledge in Lagrangian mechanics and Riemannian manifolds. Preparing students for possibly master or research work in this or some related area of mechanics, analysis, geometry or topology.

Course outcome: The student needs to master the basic knowledge of Lagrangian mechanics and be prepared to bring them in connection with other areas of mathematics and mechanics.

Course content: Variational calculus. Lagrange's equations. Legendre transformations. Hamilton's equations. Liouville's theorem. Holonomic systems. Lagrangian dynamical systems on manifolds. D'Alembert's principle. Mechanics of rigid body.

Literature:
1. V. I. Arnold, Mathematical Methods of Classical Mechanics, Springer, 1997.

Number of hours: 7	**Lectures**: 3	**Tutorials**: 2	**Laboratory**: -	**Research**: 2

Teaching and learning methods: Frontal / Tutorial

Assessment (maximal 100 points)			
Course assignments	**points**	**Final exam**	**points**
Lectures	-	Written exam	-
Exercises / Tutorials	10	Oral exam	-
Colloquia	10	Written-oral exam	60
Essay / Project	20		