

Study programmes: PhD – Mathematics				
Course name: Methods of differential geometry in statistics				
Lecturers: Miroslava Antić, Mirjana Đ. Đorić				
Status: Optional				
ECTS: 9				
Attendance prerequisites: -				
Course aims: Acquisition of general and specific knowledge about applications of methods of differential geometry in statistics. Preparing student for individual scientific work: studying of literature in this theory and gradually including student for individual research work.				
Course outcome: Upon completion of the course, the student has necessary knowledge about: differential geometry of statistical models, statistical manifolds, Gauss and gamma manifolds, geometric structures of statistical models. Student is qualified to individual understanding basic examples and solving problems from this area. Also, student is qualified for individual studying of scientific papers from this area.				
Course content: Differential geometry of statistical models. Statistical manifolds. The Gauss manifolds. Gamma manifold. Geometric structures of statistical models. Parametric model of stationary Gauss time series.				
Literature:				
<ol style="list-style-type: none"> 1. S. Amari, Differential geometric methods in statistics, 1985, Lecture Notes in Statistics 28, Springer, Berlin-Heidelberg-New York. 2. S. Amari, O. E. Berndorff-Nielsen, R. E. Kass, S. S. Lauritzen, C. R. Rao, Statistical manifolds, 1987, IMS Lecture Notes-Monographs Series. 				
Number of hours: 10	Lectures: 4	Tutorials: -	Laboratory: -	Research: 6
Teaching and learning methods: Lectures/ Tutorials				
Assessment (maximal 100 points)				
Course assignments	points	Final exam		points
Lectures	-	Written exam		-
Exercises / Tutorials	20	Oral exam		60
Colloquia	-	Written-oral exam		-
Essay / Project	20			