

COURSE OUTLINE

(1) GENERAL

SCHOOL	SCHOOL OF SCIENCES		
ACADEMIC UNIT	DEPARTMENT OF MATHEMATICS		
LEVEL OF STUDIES	UNDERGRADUATE PROGRAM		
COURSE CODE		SEMESTER	G
COURSE TITLE	DIFFERENTIABLE MANIFOLDS		
INSTRUCTOR			
INDEPENDENT TEACHING ACTIVITIES	WEEKLY TEACHING HOURS	CREDITS	
	4	6	
COURSE TYPE	Specialised general knowledge		
PREREQUISITE COURSES:	NO		
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	GREEK		
IS THE COURSE OFFERED TO ERASMUS STUDENTS	YES		
COURSE WEBSITE (URL)	http://www.math.aegean.gr/index.php/en/academics/undergraduate-programs		

(2) LEARNING OUTCOMES

Learning outcomes
<p>The principal aim of the course is the student's introduction to the notions of the differentiable manifolds and submanifolds. During the course, emphasis is given in the demonstration of these notions by a great variety of examples and exercises.</p> <p>After completing this course, students should have understood the notions of differentiable manifolds, tangent bundle, submanifolds, Riemannian metric, connections and geodesics.</p>
General Competences
Working independently. Team work. Working in an interdisciplinary environment.

(3) SYLLABUS

Elements of linear algebra, topology and calculus. Differentiable manifolds, differentiable functions, tangent space, differential of a function, tangent bundle, vector fields. The inverse function theorem on manifolds, immersions, embeddings, submanifolds. Riemannian metric, connections, geodesics.	
TEACHING MATERIAL DISTRIBUTION	The teaching material of the course is uniformly distributed during the semester.

(4) TEACHING and LEARNING METHODS - EVALUATION

DELIVERY	Face-to-face	
USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY	Communication with students via e-mail	
TEACHING METHODS	<i>Activity</i>	<i>Semester workload</i>
	Lectures	52
	Independent study	98
	Course total (25 per ECTS)	150
COURSE COMMITMENTS	Attending course is not obligatory.	
STUDENT PERFORMANCE	Student's evaluation is done in Greek through a written	

EVALUATION	examination which includes short-answers questions and problem solving. For students with disabilities, evaluation takes place via oral exams.
-------------------	--

(5) ATTACHED BIBLIOGRAPHY

1. Παπαντωνίου Βασίλειος, Διαφορίσιμες Πολλαπλότητες. Εκδόσεις Πανεπιστημίου Πατρών, 2013.