

COURSE OUTLINE

(1) GENERAL

SCHOOL	SCHOOL OF SCIENCES		
ACADEMIC UNIT	DEPARTMENT OF MATHEMATICS		
LEVEL OF STUDIES	POSTGRADUATE Studies in Mathematics		
COURSE CODE	A2	SEMESTER	A
COURSE TITLE	DIFFERENTIAL GEOMETRY		
INDEPENDENT TEACHING ACTIVITIES	WEEKLY TEACHING HOURS	CREDITS	
	3	7,5	
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
Students successfully completing the course will understand the notions of differentiable manifolds, the differential of a function, tangent bundle, submanifolds, Riemannian manifolds and the theorems that appears in the course.
General Competences
Understanding problems needing new theoretic considerations. Search for, analysis and synthesis of ideas and data, with the use of the basic theoretic background. Production of creative and inductive thinking.

(3) SYLLABUS

Elements of linear algebra, topology and calculus. Definition of differentiable manifolds and examples, real projective space, differentiable functions, tangent space, differential of a function, curves in manifolds, tangent bundle, vector fields, the inverse function theorem on manifolds, immersions, embeddings, submanifolds, Whitney theorem, Lie bracket, Riemannian manifolds, linear connections.

(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	39
	Independent study	148.5
	Course total (25 per ECTS)	187.5
STUDENT PERFORMANCE EVALUATION	<p>Student evaluation is done in Greek through a written examination which includes short-answer equations and problem solving.</p> <p>For students with disabilities, evaluation takes place via oral exams.</p>	

(5) ATTACHED BIBLIOGRAPHY

1. Ανδρέας Αρβανιτογεώργος, «Γεωμετρία Πολλαπλοτήτων: Πολλαπλότητες Riemann και ομάδες Lie» Αθήνα (2015), Ελληνικά Ακαδημαϊκά Συγγράμματα, διαθέσιμο από <https://repository.kallipos.gr/handle/11419/146>
2. Δημήτριος Κουτροφιώτης, Διαφορική Γεωμετρία, Πανεπιστήμιο Ιωαννίνων, 1994.
3. *Manfredo do Carmo*, Riemannian Geometry, Birkhauser Boston, Inc., Boston, MA, 1992.