

COURSE OUTLINE

(1) GENERAL

SCHOOL	SCHOOL OF SCIENCES		
ACADEMIC UNIT	DEPARTMENT OF MATHEMATICS		
LEVEL OF STUDIES	UNDERGRADUATE PROGRAM		
COURSE CODE		SEMESTER	G
COURSE TITLE	GROUPS AND METRIC SPACES		
INSTRUCTOR	Michael Anousis		
INDEPENDENT TEACHING ACTIVITIES	WEEKLY TEACHING HOURS	CREDITS	
	4	6	
COURSE TYPE	Special background		
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 be able to distinguish the defining properties of non-positive curvature and how to use them in order to talk about curvature in metric spaces in the sense of Gromov. In particular, they will be able to construct the Cayley graph of a finitely presented group and recognize when this is a hyperbolic metric space, hence, understand the notion of hyperbolic group.
General Competences
Working independently. Team work. Working in an interdisciplinary environment.

(3) SYLLABUS

Group actions, isotropic subgroups, orbits, orbit spaces.	
Metric spaces, isometries	
Groups actions on metric spaces by isometries, examples.	
Geodesics in metric spaces, curvature in metric spaces.	
Metric spaces with non-positive curvature, properties and groups actions on them.	
Hyperbolic groups, properties and examples.	
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	Activity	Semester workload
	Lectures	52

	Independent study	98
	Course total (25 per ECTS)	150
COURSE COMMITMENTS	Attending course is not obligatory.	
STUDENT PERFORMANCE EVALUATION	Student's evaluation is done in Greek through a written examination which includes short-answers questions and problem solving. For students with disabilities, evaluation takes place via oral exams.	

(5) ATTACHED BIBLIOGRAPHY

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| 1. Ομάδες και Συμμετρία, Armostrong, M.A.. |
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