

## COURSE OUTLINE

### (1) GENERAL

SCHOOL	SCHOOL OF SCIENCES		
ACADEMIC UNIT	DEPARTMENT OF MATHEMATICS		
LEVEL OF STUDIES	UNDERGRADUATE PROGRAM		
COURSE CODE		SEMESTER	H
COURSE TITLE	CONVEX GEOMETRY		
INSTRUCTOR			
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)	<a href="http://www.math.aegean.gr/index.php/en/academics/undergraduate-programs">http://www.math.aegean.gr/index.php/en/academics/undergraduate-programs</a>		

### (2) LEARNING OUTCOMES

Learning outcomes
The course is an in-depth presentation of convex bodies in $R^n$ and of their elementary properties. At the core of the theory is the celebrated Brunn-Minkowski inequality. The student learns about the consequences of this inequality such as the solution of the classical isoperimetric inequality.
General Competences
Working independently. Working in an interdisciplinary environment. Production of free, creative and inductive thinking.

### (3) SYLLABUS

Convex functions, convex bodies. Support functions and support planes. Study of the boundary of a convex body. Mixed volumes and quermassintegrals. Valuations. The Brunn - Minkowski inequality. Steiner symmetrization. The isoperimetric inequality. Blaschke - Santal'o inequality. Rogers-Shephard inequality. Approximation of convex bodies. John's ellipsoid. Reverse isoperimetric inequality of K. Ball.	
<b>TEACHING MATERIAL DISTRIBUTION</b>	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)	<b>150</b>
<b>COURSE COMMITMENTS</b>	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 exam.
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(5) ATTACHED BIBLIOGRAPHY

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