

COURSE OUTLINE

(1) GENERAL

SCHOOL	SCHOOL OF SCIENCES		
ACADEMIC UNIT	DEPARTMENT OF MATHEMATICS		
LEVEL OF STUDIES	UNDERGRADUATE PROGRAM		
COURSE CODE		SEMESTER	E
COURSE TITLE	ELEMENTARY SET THEORY		
INSTRUCTOR			
INDEPENDENT TEACHING ACTIVITIES <i>if credits are awarded for separate components of the course, e.g. lectures, laboratory exercises, etc. If the credits are awarded for the whole of the course, give the weekly teaching hours and the total credits</i>	WEEKLY TEACHING HOURS	CREDITS	
	3	4,5	
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
The main aim of this course is to provide the students with the basic notions of Set Theory such as, set; basic operations between sets; cartesian products; relations and functions; ordered sets, countable and uncountable sets; the axiom of choice and its relation to Analysis, Algebra and Topology.
General Competences
Working independently. Team working. Working in an interdisciplinary environment.

(3) SYLLABUS

1. Sets and subsets. Union, intersection, difference and symmetric difference of sets.	
2. Cartesian products.	
3. Relations.	
4. Functions.	
5. Ordered sets (partially ordered, linearly ordered and well ordered). Mathematical and transfinite Induction.	
6. Axiom of choice, Zorn's lemma and the principle of well ordering.	
7. Applications of the axioms of choice in Algebra.	
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 lectures
USE OF INFORMATION AND	<ul style="list-style-type: none"> Communication with students via e-mail.

COMMUNICATIONS TECHNOLOGY	• Uploading course material on moodle system.	
TEACHING METHODS	Activity	Semester workload
	Lectures	39
	Independent study	73,5
	Course total (25 per ECTS)	112,5
COURSE COMMITMENTS	Attending course is not obligatory.	
STUDENT PERFORMANCE EVALUATION	Student's evaluation is done in Greek through a written examination which includes sort-answer questions and problem solving. For students with disabilities, evaluation takes place via oral exams.	

(5) ATTACHED BIBLIOGRAPHY

1. Paul R. Halmos, Naïve Set Theory, Springer.