

COURSE OUTLINE

(1) GENERAL

SCHOOL	SCHOOL OF SCIENCES		
ACADEMIC UNIT	DEPARTMENT OF MATHEMATICS		
LEVEL OF STUDIES	UNDERGRADUATE PROGRAM		
COURSE CODE		SEMESTER	G
COURSE TITLE	FOURIER ANALYSIS		
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)	http://www.math.aegean.gr/index.php/en/academics/undergraduate-programs/undergraduate-math-en		

(2) LEARNING OUTCOMES

Learning outcomes
At the end of the semester the student will have been acquainted with the remarkably fruitful idea that a “quite general” periodic function can be represented as a series of trigonometric functions, as well as with the extension of that idea regarding non-periodic functions defined on the real line.
General Competences
Working independently. Team work. Working in an interdisciplinary environment.

(3) SYLLABUS

Trigonometric polynomials, Fourier coefficients and series, pointwise and L^2 -convergence of Fourier series, uniqueness theorem, principle of locality, convolution, Dirichlet’s kernel, Fejér’s theorem, Poisson’s kernel, Abel’s theorem, Bernstein’s inequality. The Fourier integral and some of its basic properties.	
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	<ul style="list-style-type: none"> • Communication with students via e-mail • Uploading course material on moodle system. 	
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.
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(5) ATTACHED BIBLIOGRAPHY

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| <ol style="list-style-type: none">1. Ανάλυση Fourier, Μιχάλης Κολουτζάκης και Χρήστος Παπαχριστόδουλος, Εκδόσεις Κάλλιπος (ebook).2. Fourier Series, Rajendra Bhatia (Mathematical Association of America Textbooks). |
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