

## COURSE OUTLINE

### (1) GENERAL

<b>SCHOOL</b>	SCHOOL OF SCIENCES		
<b>ACADEMIC UNIT</b>	DEPARTMENT OF MATHEMATICS		
<b>LEVEL OF STUDIES</b>	UNDERGRADUATE PROGRAM		
<b>COURSE CODE</b>		<b>SEMESTER</b>	E
<b>COURSE TITLE</b>	NUMBER THEORY		
<b>INSTRUCTOR</b>	Vasileios Metaftsis		
<b>INDEPENDENT TEACHING ACTIVITIES</b>	<b>WEEKLY TEACHING HOURS</b>	<b>CREDITS</b>	
	4	6	
<b>COURSE TYPE</b>	Special background		
<b>PREREQUISITE COURSES:</b>	NO		
<b>LANGUAGE OF INSTRUCTION and EXAMINATIONS:</b>	GREEK		
<b>IS THE COURSE OFFERED TO ERASMUS STUDENTS</b>	YES		
<b>COURSE WEBSITE (URL)</b>	<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

<b>Learning outcomes</b>
Understanding the divisibility properties of integers and the properties of prime numbers, Understanding the operations between equivalence classes modulo integers, Applications and computation of the Euler function and computations of the group of units of a finite mod n ring of integers, Study of the arithmetic functions and their applications. Study of the properties of the Riemann zeta function, especially those related with the properties of primes, Application in the computation of the sum of squares. Presentation of Fermat's Last Theorem and its proof in special cases.
<b>General Competences</b>
Working independently. Team work. Working in an interdisciplinary environment.

### (3) SYLLABUS

Divisibility, Prime numbers, mod n equivalence, Euler Function, The group $U(\mathbb{Z}/n\mathbb{Z})$ . Quadratic residues, Arithmetic Functions, Riemann zeta function, Sums of squares, Fermat's Last Theorem.	
<b>TEACHING MATERIAL DISTRIBUTION</b>	The teaching material of the course is uniformly distributed during the semester.

### (4) TEACHING and LEARNING METHODS - EVALUATION

<b>DELIVERY</b>	Face-to-face	
<b>USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY</b>	Communication with students via e-mail	
<b>TEACHING METHODS</b>	<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.	

<b>STUDENT PERFORMANCE EVALUATION</b>	Student's evaluation is done in Greek through a written examination which includes short-answers questions, problem solving and written work. For students with disabilities, evaluation takes place via oral exams.
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**(5) ATTACHED BIBLIOGRAPHY**

1. Θεωρία αριθμών, Πουλάκης Δημήτριος.
2. Μια εισαγωγή στη θεωρία αριθμών, Δεριζιώτης Δημήτρης.