

## 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</b>	DIDACTICS OF MATHEMATICS		
<b>INSTRUCTOR</b>			
<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>
Objectives of the course are to acquaint students with and understand of the contemporary approach aspects of teaching and learning mathematics, in all educational levels, especially the secondary one. To acquaint them with the main stream learning theories of mathematics (cognitivism and constructivism) along with their subcategories and to learn how to use them in teaching practice. To acquaint them with and understand the mathematics teaching models and to learn how to apply them in teaching practice. To learn and understand the relation of philosophy and mathematics with the mathematics education based on historical evolution of mathematics. To learn combining the contemporary teaching / learning theories with the current philosophical streams in mathematics, in mathematical practice. To learn the learning difficulties in mathematics and the mean facing them in educational practice – with emphasis in dyslexia.
<b>General Competences</b>
Working independently. Team working. Working in an interdisciplinary environment.

### (3) SYLLABUS

Philosophy and Teaching of Mathematics (Absolutism, Logicism, Formalism, Intuitionism, Platonism, Constructivism). Learning Theories (Thorndike, Gagne, Piaget, Bruner, Constructivism). Teaching Models - Problem Solving. Teaching Mathematical Concepts. Teaching Algebra. Teaching Negative Numbers. Teaching Mathematical Induction. Teaching Analysis. Teaching Geometry - Van Hiele. Teaching Mathematical Proof. Mathematics and Dyslexia. The pedagogical value of error in teaching mathematics.	
<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 lectures
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<b>USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY</b>	Communication with students via e-mail	
<b>TEACHING METHODS</b>	<b>Activity</b>	<b>Semester workload</b>
	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. For students with disabilities, evaluation takes place via oral exams.	

#### (5) ATTACHED BIBLIOGRAPHY

1. Κολέζα Ευγενία. (2010). Θεωρία και Πράξη στη Διδασκαλία των Μαθηματικών. Αθήνα: Τόπος.
2. Τουμάσης Μπάμπης, (1999). Σύγχρονη διδακτική των μαθηματικών. Αθήνα: Gutenberg - Γιώργος & Κώστας Δαρδανός.