

COURSE OUTLINE

1. OVERVIEW

FACULTY	FACULTY OF HUMANITIES AND SOCIAL SCIENCES		
SECTION	DEPARTMENT OF PRIMARY EDUCATION		
LEVEL OF STUDY	UNDERGRADUATE		
COURSE TITLE			
Teaching Methods in Primary School Mathematics			
COURSE CODE	MA0303	SEMESTER	1
HOURS per WEEK	4	ECTS	5
COURSE CATEGORY	Compulsory	COURSE TYPE	General background
LANGUAGE OF INSTRUCTION AND EXAMINATIONS	Modern Greek	PREREQUISITES	MA0101 or MA0202
OFFERED TO ERASMUS	YES	ECLASS PAGE	https://eclass.uth.gr/courses/PRE_U_141/

2. LEARNING OUTCOMES

Learning Outcomes
Upon successful completion of the course, students are expected to: Teaching a subject in primary school requires a solid knowledge of the subject content. In addition, teaching is based on knowledge of the pedagogical content relevant to the subject in question, as well as knowledge of the Program of Study. In the context of this course, although this is not its primary objective, students will have the opportunity to 'test' the breadth of their knowledge of the basic mathematical concepts taught in primary school. In addition, they will become familiar with the mathematics curriculum for compulsory education, particularly for primary school, and its relationship with other subjects (e.g., science, language, literature, visual arts). Most importantly, students will strengthen and formalize their knowledge of the pedagogical content related to school mathematics by discerning and describing the challenges that children in primary school face in trying to construct understanding of the mathematical concepts. At the same time, students will become familiar with and use appropriate teaching approaches and instructional materials in both natural and digital settings (manipulatives and virtual manipulatives) that support the process of constructing mathematical knowledge.
General Competencies
Data and information search, analysis and synthesis, using IT as needed Adaptability to new situations Decision-making Teamwork Respect for diversity and multiculturalism Demonstration of social, professional and moral responsibility and sensitivity to gender issues Critical and self-critical thinking

3. CONTENT

Fundamental principles of the teaching of mathematics. Programs of Study for primary education – international experience and the Greek example. Exploring the meaning of the phrases “knowing mathematics” and “doing mathematics”. The process of constructing knowledge of mathematical concepts. Learning theories of mathematics. Developing early number concepts, the meanings for the operations, and basic fact fluency. Developing place value and the algorithms of the operations in the whole numbers system. The value of estimation in arithmetic and the use of pocket calculators in the mathematics classroom. Improvised and formal strategies in the four arithmetic operations. Developing fractional concepts and operations with fractions. Developing decimal numbers and percentages.

Ratios, proportions and proportional reasoning.
 Developing geometric, spatial and visual reasoning.
 Measurements: the measurement of length, area, and volume.

4. TEACHING AND LEARNING METHODS - ASSESSMENT

TEACHING MODE	In person								
USE OF ICT	Teaching and learning: Slide show / specialized applications Laboratory Training: use of computer Communication: Webmail / eClass / MSteams								
COMPULSORY ATTENDANCE	NO	MAXIMUM NUMBER OF ABSENCES:							
TEACHING ORGANIZATION	Activity		Semester Workload (hours)						
	Lectures		26						
	Laboratory exercise		26						
	Literature study & analysis		20						
	Implementation of a study (project)		10						
	Study		40						
	Course total		122						
EVALUATION	<table><tr><td>Type</td><td>Format</td><td>Weighting</td></tr><tr><td>Final written exam</td><td>Short Answer Questions Open-Ended Questions</td><td>100%</td></tr></table>			Type	Format	Weighting	Final written exam	Short Answer Questions Open-Ended Questions	100%
	Type	Format	Weighting						
	Final written exam	Short Answer Questions Open-Ended Questions	100%						
Description of other evaluation method / Evaluation criteria: The language of the assessment as well as of the course is Modern Greek. Short essay development questions during the meetings (participation is optional). Written final paper consisting of a composition of short answer questions and short and medium length essay development questions.									
The assessment procedure is announced in the first meetings of the course as well as in the online classroom of the course.									

5. RECOMMENDED BIBLIOGRAPHY

Core textbooks (available through the Eudoxus service)
John A. Van de Walle, Karen S. Karp, Lou Ann H. Lovin, and Jennifer M. Bay-Williams (2013). Teaching Student-Centered Mathematics : Developmentally Appropriate Instruction for Grades Pre K-8. Pearson Publ.
Streefland, L. (1991). Realistic mathematics education in primary school : on the occasion of the opening of the Freudenthal Institute (translation in Greek). Athens: Leader Books.
Other books / Notes
Scientific journals
Research in Mathematics Education (https://ejournals.epublishing.ekt.gr/index.php/enedim)
Scientific articles
Other
https://app.dwo.nl/wisweb/?header=less&hash=#s:603083 https://mathigon.org/activities https://polypad.amplify.com/ https://illuminations.nctm.org/ https://nrich.maths.org/ http://photodentro.edu.gr/aggregator/