



# UNIVERSITY OF NICOSIA

## ΠΑΝΕΠΙΣΤΗΜΙΟ ΛΕΥΚΩΣΙΑΣ

University of Nicosia, Cyprus

<b>Course Code</b> EDUP-332	<b>Course Title</b> Mathematics Education in Pre-Primary Schools	<b>ECTS Credits</b> 6
<b>Department</b> Paedagogical studies	<b>Semester</b> Fall / Spring	<b>Prerequisites</b> EDUP-133
<b>Type of Course</b> Required	<b>Field</b> Mathematics	<b>Language of Instruction</b> Greek
<b>Level of Course</b> Undergraduate	<b>Year of Study</b> 3 <sup>rd</sup>	<b>Lecturer(s)</b> Dr Nicholas Mousoulides

### Course Objectives:

The purpose of this course is to assist students to become acquainted with the objectives, the methods, and the content of mathematics at the kindergarten school. The course focuses on the main emphases of mathematics education as well as cognitive psychology theories as they concern the development of primary mathematical concepts in pre-elementary school children. Emphasis is placed on the teaching methods of the subject as they have developed in recent years, the teaching aids, and the contemporary methods of evaluating the mathematical ability of pupils. The course also discusses the teaching of different topics and processes of mathematics such as pre-mathematical concepts, patterns, geometry, probability and statistics and problem solving.

### Learning Outcomes

Upon completing the course students should be able to:

- Analyze the most important theories of mathematics education
- Discuss about the mathematics curriculum in kindergarten school
- Design activities for teaching concepts and processes from pre-school mathematics (ie, pre-mathematical concepts, patterns, geometry, probability and statistics and problem solving)
- Develop lesson plans for teaching pre-mathematical concepts, patterns, geometry, probability and statistics and problem solving.
- Demonstrate sound knowledge and understanding of how technological tools can be used to enhance students' explorations and learning in mathematics.

## **Course Content**

1. Purpose and objectives of pre-school mathematics
2. Contemporary cognitive psychology theories of mathematics education
3. Models of teaching in mathematics
4. Assessment in mathematics
5. Pre-mathematical concepts
6. Patterns
7. Geometry and spatial reasoning
8. Probability and statistics
9. Measurement
10. Problem solving and contemporary technological tools

## **Learning Activities and Teaching Methods:**

Lecture, individual and group work, lab work, student presentations

## **Assessment Methods:**

Formative assessment (Midterm and Final Exams), Collaborative work, Presentations, Discussions

## **Required textbooks/reading:**

Philippou, G., & Christou, C. (2004). *Didactics of Mathematics*. Athens: Dardanos.

Tzekaki, M. (2005). *Mathematical Activities for the Preschool Students*. Athens: Gutenberg.

## **Recommended Textbooks/Reading:**

Koleza, E. (2010). *Theory and Applications in the Teaching of Mathematics*. Athens: Topos.