



UNIVERSITY OF NICOSIA ΠΑΝΕΠΙΣΤΗΜΙΟ ΛΕΥΚΩΣΙΑΣ

University of Nicosia, Cyprus

Course Code EDUE-431	Course Title Special topics in mathematics education	ECTS Credits 6
Department Paedagogical studies	Semester Fall	Prerequisites EDUE-331
Type of Course Specialization	Field Mathematics	Language of Instruction Greek
Level of Course Undergraduate	Year of Study 4 th	Lecturer(s) Dr Nicholas Mousoulides
Mode of Delivery face-to-face	Work Placement N/A	Co-requisites None

Course Objectives:

The purpose of this course is to further develop prospective teachers' understanding of specific topics from the field of mathematics education research. The course focuses on topics from the philosophy of mathematics and its didactics, contemporary trends in mathematics assessment, the importance of beliefs in mathematical learning, problem posing and problem solving, summative and multiplicative structures of the four operations, the integration of technological tools in the teaching of mathematics, project based learning, and the teaching of geometry and spatial reasoning.

Learning Outcomes

Upon completing the course students should be able to:

- Demonstrate sound knowledge of the philosophy of mathematics and its didactics
- Demonstrate sound knowledge of contemporary issues in mathematics assessment
- Design activities for teaching concepts and processes from school mathematics (ie, geometry, probabilities, problem solving and posing, number theory)
- Demonstrate sound knowledge and understanding of how technological tools can be used to enhance students' explorations and learning in mathematics.

Course Content

1. Philosophy of mathematics and its didactics

2. Contemporary issues on the assessment in mathematics education
3. Affect and learning in mathematics
4. School mathematics (geometry and spatial reasoning, probability and statistics, measurement)
5. Project based learning
6. Problem solving and posing
7. Contemporary technological tools in the teaching and learning of mathematics

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:

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

Streefland, L. (2000). *Realistic mathematics in elementary education*. Leader Books.

Recommended Textbooks/Reading:

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

Nunes, T., & Bryant, P. (2007). *Children doing mathematics*. Gutenberg.