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## DIDATTICA DELLA MATEMATICA 2

MAT/04 - 6 CFU - 2° Semester

### Teaching Staff

#### DANIELA FERRARELLO

**Email:** daniela.ferrarello@unict.it

**Office:** Dipartimento di Alimentazione, Agricoltura e Ambiente. Via S. Sofia, 100. Catania

**Phone:** 095 7147552

**Office Hours:** Martedì dalle 14:30 alle 15:30 | Giovedì dalle 11:30 alle 12:30 Ufficio M Teams, codice jj2peec. Si prega di mandare una e-mail per concordare un appuntamento

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### LEARNING OBJECTIVES

The course aims to provide those skills related to the role of mathematics' teacher (for middle and high school) through concrete experience. In particular, the following objectives are pursued:

- a. Knowledge and understanding:** analyse the main problems of teaching/learning mathematics in real contexts.
- b. Applied knowledge and understanding:** design effective educational paths for specific schools/classes and specific topics; Apply teaching methodologies in real class contexts, experimenting them.
- c. Making judgments:** analyse the carried out experimentations under the lens of the main theoretical research frameworks in mathematics' education.
- d. Communication skills:** learn to communicate mathematical contents in a simple way, highlighting the mathematical meanings underneath the contents; knowing how to communicate with colleagues, in order to enhance teamwork skills.
- e. Learning skills:** ability to work both in groups and independently; enhance creative skills; learn how to design teaching activities by adapting the topic to the most appropriate teaching transposition, acquire professional skills related to the teaching role.

### COURSE STRUCTURE

The course is divided into three parts:

In the first part of the course (about 18 hours) the main problems inherent to the topics chosen for the classroom experiments will be analysed. Students will choose appropriate didactic strategies and will design didactic paths suitable for the classes chosen to experiment (Objectives a., b., d. and e.).

In the second part of the course (about 15 hours) the designed paths will be applied in the classes. The experiments will be video-recorded. (Objectives b., c. and e.).

In the third part of the course (about 15 hours) the videos recorded in the experimentation phase will be analysed to evaluate their teaching effectiveness. (Objective c.).

If logistically possible, a visit to a science museum will take place. (Objectives d. And e.)

Activities related to teacher training are foreseen within the course. (Objectives e.).

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## **DETAILED COURSE CONTENT**

Analysis of problematic situations within the teaching of mathematics.

Planning of activities and didactic paths for schools also with the use of digital technologies.

Analysis of students in mathematics' activity under the lens of research theories in mathematics education.

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## **TEXTBOOK INFORMATION**

The main resource is attendance at the course, during which the didactic paths will be developed. If useful, research papers will be provided.

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