



UNIVERSITÀ DEGLI STUDI DI TORINO

ID

VP21_DIP_MAT

Visiting Professor Program Academic year 2020/2021

DEPARTMENT OF MATHEMATICS "GIUSEPPE PEANO"

TEACHING COMMITMENT: 16 hours

COURSE TITLE

Didactics of Mathematics 1

TEACHING PERIOD

2nd term

SCIENTIFIC AREA

Mathematics education

LANGUAGE USED TO TEACH

English/Italian

COURSE SUMMARY

Plato and the maieutic method. Comenius and Didactica magna. Learning according to Piaget. The theory of didactic situations according to Brousseau. The use of tools according to Vygotsky. Chevallard and the anthropological approach, didactical transposition. The instrumental approach of Rabardel. Emma Castelnuovo and laboratory method of teaching. The meta-didactical transposition of Arzarello et al.

The history of educational research in mathematics in Italy. The history of teaching mathematics in Italy. Proof in mathematics: in history, in research, in education, in the curriculum. Proof in Euclidean geometry. Problems of construction-proof, of exploration-proof, of modelling. The mediation of a dynamic geometry software in geometry problems, of spreadsheet in numeric and probability problems, of multi-representational software in modelling and calculus problems.

Italian institutional frames and projects: national curriculum, national assessment (INVALSI), OCSE-PISA, Matematica 2001 and 2003, DIFIMA, M@t.abel, EdUmatcs.

LEARNING OBJECTIVES

Knowing the main theoretical frameworks for research in mathematics education.

Knowing and understanding the main issues of teaching and learning.

Analyzing problematic situations in the light of the educational research theories.

Analyzing cognitive processes of students in mathematics activity.

Applying educational research methodologies.

Designing activities and educational courses for school even with the use of technologies.

TUTORSHIP ACTIVITIES (IF APPLICABLE)

LAB ACTIVITIES (IF APPLICABLE)

OTHER ACTIVITIES (IF APPLICABLE)

VISITING PROFESSOR PROFILE DESCRIPTION

The Visiting Professor has (in the field of Mathematics education and in relation to the course of Didactics of Mathematics 1):

- to be inserted in the most important research debates, theories, methodologies at international level;
- to have recent relevant publications;
- to participate to the most relevant international congresses with leader roles (plenarist, leader of groups, chair);
- to be in charge of research projects;
- to know school context in different countries.

CONTACT PERSON AT THE DEPARTMENT

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