

Undergraduate course on Mathematics Education

Visiting Prof. Osama Swidan (Ben Gurion University of the Negev) - 2021

The course (CFU 1, 8 hours), that will be given online (Teams Code: ib0sc04), consists of the following three lectures:

1. Interacting with Functions in an Augmented Reality Rich Environment: The Case of Covariational Reasoning - November 29th, 16:00-19:00

This talk will discuss the design of a new prototype for an augmented reality technology for teaching and learning mathematics of change. We will focus mainly on covariational reasoning as a particular case for mathematics of change. In the talk, we will walk over the design journey of the prototype, discuss the educational principles for designing such technology, discuss the tasks designs, and the outcomes of the learning processes.

2. Lingual Features of Covariational Reasoning in an Augmented Reality-Rich Environment - December 2nd, 16:00-19:00

In this talk, we will discuss our results on features of covariational reasoning in an augmented reality-rich environment. In contrast to the research literature that focuses on covariational reasoning through levels aspect, this study addresses the lingual features of covariational reasoning. It sheds light on language characteristics that feature students' engagement in covariational reasoning.

3. A model for analysing the explanatory writing of undergraduate students when solving mathematical tasks - December 9th, 16:00-18:00

Considering the recent interest in mathematical competencies and how students communicate their ideas, this talk discusses how undergraduate students communicate their ideas about mathematical tasks through written texts. In the talk, we will discuss the results of a study that included Forty-three first-year undergraduate students. We will discuss a model of the students' communication about mathematical ideas that emerge from the data analysis. The model sheds light on the relationship between the discourse of a student solving a mathematical task and how she performs the related problem-solving activity.