Investigating Professional Obligations in Teaching
Trigonometry in Community Colleges

In this talk I present work in progress on understanding the professional obligations to which community college mathematics faculty respond to when teaching trigonometry. I have located my work in the community college, a very particular higher education American institution that provides, among several other things, the first two years of a university degree. This context provides us with an excellent setting to investigate instruction, in particular, the obligations that impinge upon teachers’ decision-making process in teaching. Using the idea of a breaching experiment, and modeling instructional situations with animated characters of trigonometry lessons, we investigate how faculty respond to breaches of the norms that regulate teacher actions in the classroom, seeking to discern the conditions in which suggestions for reforming undergraduate teaching can take place. In this talk I illustrate how we use the animations with faculty, what have we gained with this methodology, and preliminary results regarding differences between part-time and full-time faculty.

Biography

Vilma Mesa is an Assistant Professor of Mathematics Education at the University of Michigan. She investigates the role that resources play in developing teaching expertise in undergraduate mathematics. She has conducted several analyses of textbooks and has been involved in evaluation projects that study the impact of innovative teaching practices in mathematics for students in science, technology, engineering, and mathematics fields. Currently she is investigating the nature of mathematics teaching in community colleges and in inquiry-based learning mathematics. She is co-PI in the Characteristics of Successful College Calculus Programs, a large national research study, that seeks to develop a theoretical framework that articulates the factors under which students are likely to succeed in calculus. Dr. Mesa holds undergraduate degrees in computer science and mathematics from the University of Los Andes, in Bogotá, Colombia, and a MA and a PhD in mathematics education from the University of Georgia.