

MATH 624A (MAST 652AA)
Topics in Mathematics Education
Fall 2016

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Class Schedule: Thursdays, 6:00-8:15 pm, in LB 921-4.

Outline: In this course we focus on *the mathematical content* of the college level calculus course: we discuss the choices of motivating questions for various topics, of examples and problems, as well as their sequencing, in the teaching of calculus. We will first study these choices at a macro level by looking at different approaches for the overall organization of the calculus content, such as the genetic (or historic) approach, the visual approach, and the procedural approach. Then we zoom in to a micro level, where, for a punctual topic (e.g., limits at infinity) we discuss the didactical variables that influence the choices of questions, examples, and problems that best convey the targeted concept.

We will touch on other aspects (i.e., besides the mathematical content and its organization) that bear on students' learning, such as the *institutional context* in which the course is taught or the *psychology of young adults* who take college calculus courses, in particular with regards to their interests and motivation for taking the course.

Text: There is no single textbook for the course; various sources – books or journal articles – will be used. Required readings will be made available via Moodle.

Evaluation:	Attendance and participation	10%
	5 biweekly homework assignments (5)	20%
	A reading presentation	30%
	Final paper/report	40%

Notes: the topic of the presentation must be chosen by the 3rd week of classes (September 22); a two-page outline of the final paper must be submitted by the 8th week of classes (October 27). The final paper is due on December 15, 2016.