

1116-VR-1815      **Younggon Bae\*** (baeyoun3@msu.edu). *Inquiry-based learning activities in multivariable calculus.*

Multivariable calculus is often a challenging course for undergraduate students because of the simultaneous need for abstraction and argumentation in addition to computation. Research on teaching has established the value of inquiry-based learning activities with interactions among students within the classroom to balancing instructors' lectures. We designed and implemented an inquiry-based multivariable calculus at a university in South Korea. In the flipped classroom setting of the course, students watch short video clips before the class, while in-class times are devoted to exercises, activities or discussions. It enabled the instructor's explanatory lectures to be replaced by the online video clips and allowed the students to experience inquiry-based learning activities with mathematical modeling, mathematical proof construction through discussions with their peers. In this presentation, we aim to introduce the overall process of class implementation and practices of inquiry-based learning activities in multivariable calculus, and sharing students' performance on their in-class writing and reflective journals. (Received September 22, 2015)