The College Readiness Math MOOC (Massive Open Online Course) was designed to enhance students’ mathematical skills in order to be successful in a college level mathematics course. The course is arranged into 10 modules covering topics that will enhance algebraic knowledge and skills in areas related to ratios and proportional relationships, geometry, and solving a variety of equations and inequalities. Using pre- and post-test data, item analysis, and user analytics, this session will focus on the following research questions: 1) What areas of college readiness were significantly enhanced by participation in the Math MOOC? and 2) What patterns in student activity enhanced performance in the Math MOOC? (Received September 10, 2014)