A group of STEM faculty at Northeastern Illinois University (NEIU) recently obtained an NSF Improving Undergraduate STEM Education (IUSE) grant to strengthen the mathematics and science curriculum at NEIU. The project seeks to engage STEM majors at NEIU and advance their research skills through the inclusion of research components in the curriculum. The curriculum changes and implementations are being done in the introductory 200-level (sophomore) courses of the STEM disciplines. The targeted mathematics courses are Calculus II and an applied and computational statistics course for non-math STEM majors. A group of peer leaders will be trained in an interdisciplinary 300 level (junior/senior) course to support the students taking the 200-level courses, with a goal for the peer leaders to develop a sense of the interdisciplinary nature of research in the STEM fields. In addition, the faculty have the opportunity to refocus their learning objectives and outcomes in these courses to allow for inquiry-based learning. The ultimate goal is to enhance the retention of students in the STEM fields. Each discipline has piloted the changes, and an overview of the modifications of the courses and an analysis of the effect of these changes on student learning outcomes will be presented. (Received September 22, 2015)