Mathematics teaching and learning can be seen, through a cultural lens, as an exchange of information. The richness of that exchange, and in turn of the culture of the mathematics classroom, depends upon the way in which inquiry is employed. This presentation describes the implementation of a rigorously inquiry-based approach to mathematics education in the context of a developmental-level mathematics course. Over the first two years of this implementation, students enrolled in inquiry-based learning developmental mathematics sections were significantly more likely to pass the course than students taking the traditional developmental course. Furthermore, of the students who went on to take credit-bearing mathematics, the students from the inquiry-based sections were more likely to pass that course than the students from the traditional developmental course. (Received September 16, 2014)