The Virginia Commonwealth University mathematics department offered pilot sections of a Modeling College Algebra course beginning in fall 2004, carefully assessed the experiences of students in this and subsequent courses, and continually modified the course to meet the needs of our students and instructional staff. Based on this experience, the department decided to offer, beginning in spring 2008, a Modeling Based College Algebra course to all of the approximately 2000 students who enroll in College Algebra in 65 sections each calendar year. Overall the instructors have been very pleased with the results. The DFW rate was reduced from 38% in traditional classes in 2004-2006 to 22.1% in the modeling sections in fall 2008 and, even though more students completed the modeling course, they were more successful in subsequent courses than students who completed the traditional course. (Received September 18, 2009)