In this talk, I will describe a mastery-based grading scheme that I have used for several years in upper-division mathematics courses including abstract algebra, discrete mathematics, and advanced calculus. Rather than receiving numerical grades on tests and other assessments, students are awarded improvable marks that indicate their level of mastery of course objectives. Through formative feedback and multiple opportunities to demonstrate mastery, students are encouraged to learn from their mistakes and strive to improve their understanding of course concepts. In addition to discussing practical details, I will also reflect on some of the benefits and challenges of using a mastery-based system, including responses from students. (Received August 26, 2013)