In this paper we discuss how WebAssign can be used to supplement classroom lectures, providing students with a more complete learning experience, and saving time and energy for instructors. WebAssign is a fully customizable online instructional system designed to promote self-remediation among students. It offers many time-saving features for instructors which, when used properly, correlate to higher success and retention rates in students. These features include customizable mini video lessons, immediate homework grading and feedback, step-by-step tutorials, and more. We discuss how these features are utilized in our own classrooms to encourage self-guided learning, and their perceived advantages. We also explore ways of using the data analytics produced by WebAssign to improve in-class instruction and student retention. (Received September 08, 2014)