Abstract

The central focus is the development and implementation of a research/lab module for first year chemistry courses. Electrochemical techniques are utilized to study oxidation and reduction reactions of neurotransmitters with a poly(2,2’-Bithiophene) modified electrode. The goal is to excite students about chemistry and encourage them to continue studies in Science, Technology, Engineering, and Mathematics (STEM) during their undergraduate education. The lab module was created for Project REEL (Research Experiences to Enhance Learning) and will be illustrated with results typically obtained by students. The experiment is inquiry-based, which includes challenging questions students have to do collaboration and research to answer, as opposed to a traditional step by-step lab. The effectiveness of the lab is assessed with pre/post-tests and a survey response. Analysis of the pre/post-test scores indicates the students’ content gain was high. Overall, the students responded positively to their experience with this innovative lab module.