The application of biotechnology techniques has become critical to the analysis of evidence. Applications include identifying suspects using DNA left at a crime scene, exonerating the innocent, identifying mass disaster victims, establishing paternity and familial relationships, identifying endangered and protected species, and detecting microbial pathogens. Fluorescence plays a pivotal role in a significant number of applications in forensic biotechnology and beyond, yet there are no courses on the application of fluorescence in molecular biology and forensics at any CSUs. The long-term goal of the grant is to develop a CSU-collaborative, undergraduate forensic science, chemistry and biotechnology training and research program with contributions from different departments, campuses and forensic DNA laboratories. In order to further develop the program, this proposal aims to develop and deliver a CSU undergraduate course on Fluorescence Applications in Molecular Biology and Forensic Science. **This hands-on lab class is a missing course requirement for accreditation of the forensic science program.** Development of the course will be done in conjunction with two departments (Justice Studies and Chemistry), from two colleges (CASA and COS) and will include external guest speakers (Imperial College, UK) and other CSU campuses: CSU LA and CSU Fresno where we have established collaborations. There are several significant benefits of this project. First, the course will move the SJSU FS Chemistry program closer to accreditation. Second, course materials will be offered to all CSU undergraduates, high schools, community colleges, other universities, biotech and forensic science laboratories by web posting. Third, biotechnology programs already in place will benefit as materials will be developed in the application of fluorescence not only for solving crimes but also for other applications such as high throughput screening, molecular diagnostics, and cancer and stem cell research. The modules will be presented and published in appropriate educational journals (JCST) and freely shared with the biotechnology community at large. Finally, this course will serve as a model for the development of other cross-disciplinary curricula to enhance course offerings for SJSU and all CSUs.