

Each laboratory core course in the program provides students with an opportunity to demonstrate mastery of a specific set of laboratory skills. Although students may have worked in teams during the initial learning of the skill, each student must independently demonstrate mastery of the skill for confirmation by their supervisor (typically a member of the program faculty). The student gradually builds a Biotechnology Skills Portfolio by writing a report for each skill mastered. Typically, a total of 10-12 skills would be included in the portfolio. Both the student and supervisor must sign a "Biotechnology Laboratory Skill Competency Form" for each skill placed in the portfolio (see sample form below). Among the skills included in such portfolios are: polyacrylamide and agarose gel electrophoresis, DNA quantification by UV spectrophotometry, ligation and bacterial transformation, Southern blotting and hybridization, polymerase chain reaction (PCR), use and calibration of light microscopes, cell counting and cell viability assays, immunoblotting, immunocytochemistry, size exclusion and affinity chromatography, high performance liquid chromatography (HPLC), high speed centrifugation, enzyme kinetics, protein purification and assay techniques. The Biotechnology Skills Portfolio would also typically include: 1) evaluation forms (e.g., tests) that reflect development of both theory content and laboratory skills, 2) a student volunteer teaching report describing how they have shared their biotechnology knowledge with K-12 classrooms, and 3) an internship evaluation by their off-campus supervisor. The portfolio becomes an asset that students can carry forward to their professional activities along with course-specific laboratory notebooks and research notebooks.