PART A: 1 - PROFESSIONAL SUMMARY

Molecular biology is the study of the structure, function, and interaction of biomolecules such as DNA, RNA, and proteins. Biotechnology is the application of molecular biology. It uses living cells to create pharmaceutical, agricultural, environmental, and other products to benefit society. There is a projected 9% growth in employment of biological scientists in the next eight years as biotechnological research and development continues to grow (see www.bls.gov). Career opportunities in molecular biology and biotechnology are in high demand. Cognizant and responsive to this shift in employment requiring skills in molecular biology, this proposed research training program aims to improve the competitiveness of TAMIU's biology graduates.

Critical thinking and analytical skills are deficient among U.S. undergraduate students. Studies have shown that classroom and out-of-class experiences make significant and independent contributions to student learning in both areas (Terenzini et al., 1995; Strauss & Terenzini, 2007). To contribute to students' out-of-class experiences, this proposed research training program aims to strengthen critical thinking and analytical skills by engaging them in actual laboratory work using molecular biology techniques. Although techniques are introduced in their courses; class size, time, and resources are limitations to be knowledgeable and competent with these techniques.