

New Program

Institution New Mexico Institute of Mining and Technology

Contact Person Dr. Snezna Rogelj, Chair, Biology Department

Date March 7, 2013

Degree Program Under Development Ph.D., Biology

Department Submitting Proposal Biology

Date of Proposal Submission to NMHED November 2013

Desired Implementation Date August 2014

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Use one page to describe the following

Purpose of the Program

The purpose of the program is to provide educational and research opportunities in specialized areas of biology, leading to completion of a doctoral degree in Biology. Research will focus on biotechnology and bioengineering. The Ph.D. program in Biology will complement those of existing, related degree programs in sciences at New Mexico Tech, specifically in Chemistry and in Earth and Environmental Sciences. Graduating students will be prepared to enter the workforce in academia, private industry, and government. Ph.D.-level research will raise the quality and quantity of biotechnology and biomedical engineering research at NMT, with associated economic development in the form of extramurally funded support for graduate assistantships, technicians, and postdoctoral researchers, as well as the potential for spin-off biotechnology/bioengineering private companies.

Need

Biotechnology and bioengineering are growth fields within New Mexico, the U.S., and the world (we will provide data demonstrating this trend). This growth is expected to continue in the coming decades, with the need for top-level scientists and engineers who can innovate and develop new biologically based technologies in energy science, biocatalysis, and biomedicine. Within New Mexico, we have national laboratories with growing investments in biotechnology and bioengineering. We will obtain supporting letters from both Los Alamos National Laboratory and Sandi National Laboratory, attesting to the need for more Ph.D.s in this area and also supporting our proposed program. While UNM and NMSU each offer Ph.D.s in Biology and also UNM offers a Ph.D. in Biomedicine, these have significantly different emphases from our new proposed program at NMT. Our Ph.D. program will not only build on NMT's existing expertise in biology, it will also capitalize on NMT's recognized strengths in the physical sciences and engineering to create a unique, problem-solving biology doctoral program. There is also a need within New Mexico Tech and the Socorro area for a Ph.D. program in the life sciences. The many research entities at NMT, including doctoral programs in other science disciplines and in engineering has created a large community of scientists, engineers, technicians, and others who have committed to living in Socorro along with their families, either for the duration of their graduate careers or, for many, as a permanent home. There are a significant number of family members who wish to pursue Ph.D.s in a life science field here at New Mexico Tech. These trailing spouses and other family members are among those who would benefit from a Ph.D. program in Biology. We will include several stories demonstrating this phenomenon.

Institutional Commitment to the Program

Biology has received strong support from the Institute throughout its nearly 50-year existence as a degree program at New Mexico. We've had a Masters degree program for nearly that entire time, with a vigorous graduate research program. We have modern laboratory facilities on the second and third floors of Jones Annex, with potential for expansion into the first floor as civil/environmental engineering outgrows that space. We currently have five full-time, tenure-track, research-active faculty members with plans to recruit a sixth member soon. Additionally, there are tenure-track faculty members performing research in biology-related fields in Chemistry, Earth, and Environmental Science, Psychology, and Materials Engineering. NMT is also committed to developing B.S. degree programs in Biomedical Science and Biomedical Engineering, with the expectation that these will attract new students to NMT and thus will require the hiring of more tenure-track faculty members. NMT has thus made a long-term commitment to graduate study in the life sciences with close ties to the physical sciences and engineering.