



Establishment of a New BS Biotechnology Program and Capacity-building workshops for faculty

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INTRODUCTION

Pontifical Catholic University of Puerto Rico (PCUPR) main campus is located in the city of Ponce, on the southern coast of Puerto Rico and has Branch campuses in Arecibo (north) and Mayaguez (west). PCUPR is an accredited comprehensive university with an enrollment of 99.9 % Hispanic students of about 9,000. Most of them are from towns outside the San Juan metropolitan area.



SUMMARY

❖ This project consists of two main phases: new curriculum development and faculty capacity building workshops (FCBW).

❖ Agrobiotechnology (AgBio) is a fast-growing discipline in Puerto Rico (PR). Eight US and foreign AgBio companies are expanding their operations locally. The presence of these companies has contributed to increase the demand for high-skilled professionals in this area.

❖ The College of Sciences has reviewed its goals and plans for updating curriculum and research programs. PCUPR proposes the creation of a new Bachelor in Science (BS) in Biotechnology with an emphasis in AgBio and the establishment of a Biotechnology Learning and Research Center (BLRC). BS-Biotechnology seeks to provide students with training in several aspects, which lack our current science courses. Some of these include: scientific principles with special focus in AgBio and management, new laboratory techniques in biotechnology and current bioethical issues. This special focus is of great interest to pharmaceutical-biotechnology and AgBio industry. Acquired expertise will better-prepare students for high-skilled jobs and for continuing graduate studies in related fields.

❖ This project will provide well-trained personnel for the agro-industrial and technological development of the southern region of Puerto Rico.

❖ FCBW will provide support for faculty to learn state of the art methodologies in Biotechnology. They will better-prepare faculty members for the creation of new courses, incorporation of new methodologies in ongoing science courses and development of future research projects.

ACTIVITIES

- ❖ Curriculum development: application submission and approval from the Puerto Rico Council of Higher Education (PRCHE) of new BS in Biotechnology curriculum.
- ❖ Revision and update of existing science courses.
- ❖ FCBW: Bioinformatics I & II, Responsible Conduct in Research and Molecular Techniques in Biotechnology I & II
- ❖ Acquisition of scientific instrumentation to enhance and create new laboratory experiences.
- ❖ Implementation of the new BS in Biotechnology Program.

OUTCOMES

- ❖ The academic proposal for the new BS program has been submitted to the PRCHE for approval.
- ❖ The FCBW on Responsible Conduct in Research and Bioinformatics I were offered. The remaining FCBW (Molecular Techniques in Biotechnology I & II, Bioinformatics II) will be offered during the following year of this grant.

Itemized evaluation for both workshops: Responsible Conduct & Bioinformatics I	Satisfaction rate %
Lecturer's field of expertise	100
General organization of the activity	94
Topics intelligibility	88
Time distribution	94
Audience interest	94
Audience Participation	94
Environment & facilities used	94
Materials & audiovisual resources	97
Distribution of Handouts & study materials	78
Application of the material	91
Objectives were met	91
Topics help to enrich course content and teaching strategies	79
Workshop helps enrich teaching-learning process and my professional development	84

Seventy percent (70%) of the faculty from the departments of Biology, Chemistry and Mathematics participated in the FCBW. The overall evaluation for the Responsible conduct in research workshop was of 98% satisfaction and 88% satisfaction for the Bioinformatics I: Principles and Applications. In general, participant faculty expressed to be very pleased, the topics were very interesting, well presented and were of great help in their professional development and for the improvement and enhancement of the courses they teach.

Bioinformatics I: Principles & Applications, by Dr. Humberto Ortiz-Zuazaga, Director of the High Performance Computing Facility UPR-Rio Piedras



Responsible Conduct in Research, by Dr. Nancy Arroyo: faculty and undergraduate students participated in case-study discussion on current ethical issues in Biotechnology



BIOTECHNOLOGY LEARNING AND RESEARCH CENTER

- ❖ The establishment of the BLRC will be geared toward the development and implementation of the new academic program in Biotechnology.
- ❖ Remodeling of the BLRC is 90% completed.
- ❖ This initiative is a collaborative project between Puerto Rico Industrial Development Company (PRIDCO) and PCUPR. It is funded by the Economic Development Agency (EDA), Project No. 01-01-08609, Total Budget \$2.8 million.
- ❖ The BLRC will house administration area, four research laboratories, two teaching laboratories, one plant tissue culture and one animal tissue culture laboratory.

