# PR-LSAMP Phase IV Workplan

## ACTIVITY 1: ENHANCING STUDENTS KNOWLEDGE AND SKILLS FOR GRADUATE STUDIES

1. The target of this activity is STEM students at UPR-Rio Piedras and UPR-Mayaguez, the two alliance institutions with graduate programs. Sixty freshman STEM students will be selected (30 from UPR-Rio Piedras and 30 from UPR-Mayaguez) to participate in the following 10 core skill workshops and the 17 seminars on frontier science and engineering topics to be offered at each institution during the 5-year grant period. This core of students will be tracked for progress as they move through the undergraduate pipeline, from entrance to exit.

| Skill Workshops | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 |
|---|---|---|---|---|---|
| 1. Time management | → | | | | |
| 2. How to read and critically assess research papers and journal articles | → | → | → | → | → |
| 3. Development of oral, written, and visual presentation skills | → | → | → | → | → |
| 4. Team working skills | → | | | | |
| 5. How to present a poster | | | → | | |
| 6. Getting Ready for Graduate School: Time management to fulfill graduation requirements on time, and information on graduate schools and financial aid opportunities | | | → | → | |
| 7. Tips for surviving/excelling in a graduate program | | | → | → | |
| 8. Discussion on graduate school experience, including critical academic factors to be offered by PR-LSAMP BDP Fellows | | | | → | |
| 9. Preparing for the GRE | | | → | → | |
| 10. Career planning workshops and lectures to talk about career pathways fields and the contributions of PhD's to the development of science and technology in a global society | | → | → | → | |
| **Frontier Topics in Science and Engineering** | 4 | 5 | 1 | 1 | 6 |
| **TOTAL NUMBER OF WORKSHOPS AND SEMINARS PER YEAR** | 8 | 8 | 8 | 8 | 8 |

2. The seminars on frontiers topics in science and engineering will be open to STEM students from all the PR-LSAMP alliance institutions.

3. PR-LSAMP institutions will provide transportation arrangements for the group of students wishing to attend each seminar.

4. At the beginning of each semester, the calendar and topics for the science seminars will be posted on the PR-LSAMP Web page.

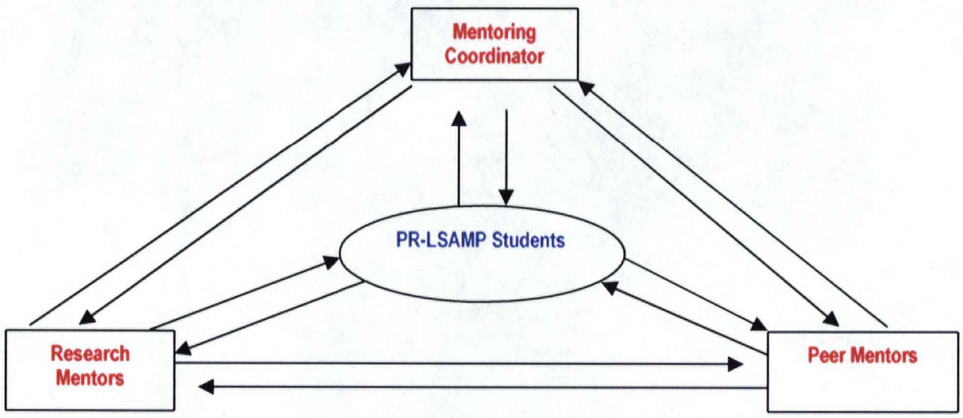
5. The PR-LSAMP Institutional Liaison at each institution will give ample dissemination and will encourage and make arrangements for STEM students at their institution to attend the seminars.

## ACTIVITY 2 – MENTORED UNDERGRADUATE RESEARCH EXPERIENCE

1. PR-LSAMP will offer between 275 and 280 research stipends per year to an average of 200 students per year (a student may participate more than once in a given year) to participate in a mentored research experience.

2. A multi-faceted mentoring program will be established at each institution, consisting of a Mentoring Coordinator, research mentors, and peer mentors. The goal is the establishment of a mentoring culture as an integral part of the research experience.

3. The extent of the Mentored Research Program at each PR-LSAMP institution will vary depending on the number of students participating in research experiences and the number of research mentors.




4. **The Mentoring Coordinator** will be responsible for the group mentoring activities. The Mentoring Coordinator will maintain constant communication with Research and Peer Mentors (by e-mails, visits to the labs or meetings) to support their mentoring activities and assure that students' needs are being met and that they are demonstrating academic progress. The Mentoring Coordinator will lead the mentorship experience at the three levels to ensure that mentoring is successfully being met at each stage.

5. The Mentoring Coordinator will coordinate eight seminars (three per semester and two during the summer) will be offered at each PR-LSAMP institution. The topics for the four core seminars to be offered at each PR-LSAMP institution are:

    a. using data bases
    b. ethics in research
    c. analytical reading and thinking skills
    d. basic lab safety.

    Topics for the remaining four seminars will be determined jointly by the mentoring coordinator, the Research Mentors and the Peer Mentors and will target specific identified needs of the participants at each institution. Workshop resources will be identified from the different PR-LSAMP institutions.

6. **The Research Mentor** – Each Research Mentor will assign a peer mentor to each PR-LSAMP protégé assigned to his/her lab. The Research Mentor will be responsible for helping PR-LSAMP students develop scientific research skills such as observing, classifying, inferring, identifying and

manipulating variables, predicting; forming hypotheses, organizing and interpreting data, and designing and conducting experiments. The Research Mentor will also assist PR-LSAMP students in developing/enhancing assessment and synthesis skills.

7. **The Peer Mentor** – The Peer Mentor will be the liaison between the PR-LSAMP student and the Research Mentor and will work with PR-LSAMP students participating in research experiences. Peer Mentors will:

    a. assist incoming PR-LSAMP students in becoming familiar with the research being conducted in the lab;
    b. develop the calendar of work for each research stage;
    c. be responsible for the day-to-day monitoring of the student's development of research skills and accomplishment of work assigned
    d. serve as role model;
    e. develop a nurturing relationship with the student to support his/her academic and personal growth.

8. PR-LSAMP will provide participants with travel stipends to present their research projects at national conferences.

### Activity 3 – Role Model Seminars

1. Role Model Seminars will be established at each participating PR-LSAMP institution to provide students an opportunity to hear and meet nationally renowned scientists, local researchers and scientists, and engineers working in industrial settings in Puerto Rico.

2. The program will have a dual purpose, to enhance students' academic preparation through the scientific topic to be covered by each speaker, and to have the speakers serve as role models.

3. Former and current PR-LSAMP BDP Fellows will attend these conferences to also serve as role models and share with undergraduate students their graduate experience.

4. The PR-LSAMP Liaison Officer together with the institution's STEM faculty members will identify and invite the speakers, giving priority to speakers whose topics cross STEM disciplines to ensure maximum impact among participants.

### Activity 4: The Annual Best Practices Conference on Teaching and Learning

PR-LSAMP will offer annually The Best Practices Conference on Teaching and Learning. Approximately 200 STEM faculty members attend this annual event.

### Activity #5: The Annual Puerto Rico Interdisciplinary Scientific Meeting

PR-LSAMP will offer annually the Puerto Rico Interdisciplinary Scientific Meeting, the largest local scientific forum, where undergraduate and graduate STEM students present their research projects to their peers and STEM faculty members. Approximately 600 participants attend this annual meeting, where over 300 students present their research projects in oral and poster sessions.