



## 2022 Application Form

### National Science Foundation (NSF) Partnerships in International Research & Education *Neural Mechanisms of Reward & Decision (NMR&D)*

This PIRE research program consists of a consortium of four interdisciplinary subprojects that are unified by the goal of increasing our understanding of brain mechanisms mediating reward and decision processes. Each subproject partners investigators and students from the University of Puerto Rico (UPR) with a team of international researchers. Countries represented include Canada, Chile, Egypt, Italy, France, Greece, Spain, and Turkey. **Undergraduate students will receive training in UPR labs (March – May, 2022). All students will participate in an international research experience (5-7 weeks) during the summer of 2022.** The research projects range from the effects of parasites on brain function in snails to specific genes and membrane channels that participate in the reward circuitry of mammals:

**Project 1. Dopaminergic signaling and the modification of host behavior by parasites (M.W. Miller, PI).** This project will advance the collaboration of Dr. Mark Miller (Institute of Neurobiology, UPR), Dr. Roger Croll (Dalhousie Univ., Canada), and Dr. Mohamed Habib (Theodor Bilharz Research Institute [TBRI], Cairo, Egypt). The project explores how the behavior and choices that an animal makes are affected by parasitism. In 2022, students will travel to Spain.

**Project 2. Dopaminergic signaling during adolescence: Effects of sex and stress. (A.C. Segarra, Co-PI).** This project supports the collaborative efforts of Dr. Annabell C. Segarra (University of Puerto Rico) and Dr. Katia Gysling (Pontificia Universidad Católica de Chile, Santiago, Chile). This research explores whether differences in dopaminergic circuitry between adolescent and adult rats renders the adolescent brain more susceptible to environmental insults that may impair decision making and the reward circuitry.

**Project 3. Biophysical properties of dopaminergic neurons (C.A. Jiménez-Rivera, Co-PI).** This project supports a collaboration between Dr. Carlos Jiménez-Rivera (Dept. of Physiology, University of Puerto Rico) and Dr. François Georges (University of Bordeaux, Neurodegeneratives Diseases Institute). The project combines neuroanatomical and physiological approaches to characterize dopaminergic neurons that contribute to reward and decision processes.

**Application Form:**

**Name:** \_\_\_\_\_

**Permanent address:** \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Telephone:** home: \_\_\_\_\_ cell: \_\_\_\_\_

**Email:** \_\_\_\_\_

**Date of birth:** \_\_\_\_\_

**Student ID number:** \_\_\_\_\_

**US citizen:** yes: \_\_\_\_\_ no: \_\_\_\_\_ **Soc. Sec. No:** \_\_\_\_\_

**Name of parent, guardian, or spouse:** \_\_\_\_\_

**Address (if different from above):** \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Telephone:** \_\_\_\_\_ **Relationship:** \_\_\_\_\_

**Academic Information**

**College or University:** \_\_\_\_\_

**Status:** full-time: \_\_\_\_\_ part-time: \_\_\_\_\_ **No. of credits:** \_\_\_\_\_

**Current year studies:** \_\_\_\_\_

**Expected graduation date:** \_\_\_\_\_ **GPA:** \_\_\_\_\_

**Major field of study:** \_\_\_\_\_

**Research Experience (if any)**

**Mentor:** \_\_\_\_\_

**Location of lab:** \_\_\_\_\_

**Title of project:** \_\_\_\_\_

**Please attach the following documents:**

- 1. Official transcript.**
- 2. Two letters of recommendation.**
- 3. Personal Statement:**

**Please provide an essay (no more than 2 pages) describing:**

- 1. The reasons why you wish to participate in the NSF PIRE program. Indicate why you should be selected to participate in the PIRE program, what skills and talents you can bring to it, and what you expect to gain from it.**
- 2. Your research experience.**
- 3. Your future plans after completion of the B.S.**

Return completed application to:

**Bethzaida Birriel**  
**Grant Administrator**  
**NSF Partnerships in International Research & Education**  
**Institute of Neurobiology**  
**201 Blvd del Valle**  
**San Juan, Puerto Rico 00901**

[bethzaida.birriel@upr.edu](mailto:bethzaida.birriel@upr.edu)

copy: [mark.miller@upr.edu](mailto:mark.miller@upr.edu)

**Deadline: February 15, 2022**

**Be advised that no action can be taken on incomplete applications.**

I, \_\_\_\_\_ certify that all information provided  
here is correct.

Date: \_\_\_\_\_

