

PUBLICLY RELEASABLE

**Supporting Undergraduate Research in Applied Mathematics at
CUNY Brooklyn College**

**FOA-AFRL-AFOSR-2023-0003
Fiscal Year 2023 STEM Program
Air Force Office of Scientific Research
Program Manager: Dr. Kimberly Jacoby Morris**

Abstract

Mathematics is a critical field in our increasingly complex and data-driven world, and there is a growing need for professionals that are able to combine logical reasoning and creative problem-solving. However, there is a shortage of students pursuing careers in mathematics and related fields. To address this issue, we seek support for undergraduate research activities in applied mathematics, with the goal of preparing future leaders in both mathematics and STEM related fields.

The City University of New York (CUNY) is the nation's largest urban public university and a transformative engine of social mobility. CUNY has 25 colleges spread across New York City's five boroughs, serving 243,000 degree-seeking students of all ages and awarding 55,000 degrees each year. Brooklyn College is one of the senior colleges of the system, enrolling primarily undergraduate students. As of Fall 2021, out of the 15,938 students enrolled at Brooklyn College, 13,405 were undergraduate and 2,533 were graduate students. Brooklyn College is a Minority-Serving Institution, being classified as a Asian American and Native American/Pacific Islander-Serving Institution (AANAPISI). Overall, its student body comprises individuals originating from 136 countries, and speaking 91 different languages.

Supporting undergraduate research in mathematics and its applications is crucial for developing the next generation of leaders in STEM related fields and strengthening our nation's workforce in these critical fields. This grant proposal aims to support the research activities of undergraduate students in applied mathematics at CUNY Brooklyn College over the course of one academic year. By establishing such program, we aim to provide these undergraduate students with an opportunity to deepen their understanding of mathematics and its applications, develop research skills, enhance communication skills, strengthen teamwork and collaboration, and prepare for graduate school or potential careers in STEM related fields. We anticipate that the program will support two undergraduate students during its first academic year, with the potential to expand in future years.

The undergraduate research projects will focus on topics germane to the PI's research interests on dynamical systems and optimal control. The research will be disseminated through presentations at local and online conferences, as well as publications in scholarly journals, providing the undergraduate students with opportunities to share their findings and develop their professional skills.

Overall, this proposal will make a significant impact on undergraduate research in applied mathematics at CUNY Brooklyn College. In addition, it will contribute to increasing diversity and inclusion in STEM by targeting underrepresented students and providing them with the resources and support needed to succeed in their research endeavors, thus fostering a culture of research and scholarship in applied mathematics among CUNY Brooklyn College undergraduate students.