

Title:

Utilization of Unmanned Aircraft Systems (UAS/Drones) at Lincoln University

Applicant's Name

Tedra Booker

Applicant's Rank

Assistant Professor

Applicant's Department

Chemistry and Physics

Date of Submission

March 28, 2022

Amount of Funding Requested

\$7000.00

Concise Description of the Project:

With the rapid growth of Unmanned Aircraft System (UAS) or more commonly known as drones, industry, training the next generation of diverse qualified professionals is incumbent upon researchers and educators. Lincoln University has acquired three professional drones through a grant from the NASA Pennsylvania Space Grant Consortium. As a result of the grant there are 11 students, as well as myself, are FAA certified recreational UAS pilots. In order to best utilize these professional drones, further education is needed. Clemson University is offering an instructor led comprehensive applied drone technology online course. This course is five week program that includes preparation for the Part 107 remote pilot certification required by the FAA for all commercial drone operations and compliance tools. It also includes learning to fly with a simulator, creating 3D models, maps and photogrammetry. The course is being paid for through a NASA Pennsylvania Space Grant Consortium. I am requesting summer salary while taking the course and also fees associated with registration of the drones and the examination fee to take the Part 107 FAA commercial drone pilot exam.

Measurable goals and objectives of the project:

The first measurable goal and objective of this project is the successful completion of the Clemson University Comprehensive Drone Technology Course. The second objective is the successful completion of the Part 107 Commercial Drone Pilot Certification Exam. Third objective is to enrich the research opportunities and later enhance instruction capabilities for Lincoln University students and faculty.

Timeline:

May-June 2022 Comprehensive Online Instructor Led Drone Technology Course (5 weeks)

July-August 2022 Part 107 Commercial License Exam and registration of professional drones

Enhance teaching and research at Lincoln University

The project will enhance the teaching and research capabilities at Lincoln University. The use of drones can not only enhance S.T.E.M. but also arts. From the engineering point of view, there are multiple possibilities for faculty research in signal and image quality improvement and in robust controls. Physics and engineering students may also get opportunities for term projects aimed at the expansion of existing capabilities. Students are currently inquiring about the use of the drones for their capstone projects. These drones can also be used in other field beyond S.T.E.M. in that they have great resolution for simple imagery.

This project will further enhance the current Pennsylvania Space Grant Consortium agreement purpose to strengthen the Environmental Science program at Lincoln University as well as expand the program to other majors such as physics, engineering and arts. This project can also prepare students for aerospace careers such as engineering and other technical specialists

The long-term goal is to align with the Federal Aviation Administration (FAA) UAS-Collegiate Training Institute (UAS-CTI). This project will enhance Lincoln University's resourcefulness and competitive advantage in the Federal Department of Transportation/FAA HBCU-UAS Collaborative.

Measurement of the success of the project

This project will be deemed a success if the following goals are reached: the successful completion of the Clemson University Comprehensive Drone Technology Course, successful completion of the Part 107 Commercial Drone Pilot Certification Exam and finally enrich the research opportunities and later enhance instruction capabilities for Lincoln University students and faculty.

Long-term success is the addition of a course and the establishment of a drone club on campus.

How, when, where, and with whom the project's outcome will be shared

The outcomes of this project can be presented through Faculty Development Grant Committee and CETL presentation seminar series.

Budget

Travel and registration expenses for conferences, workshops, and specialized courses that exceed individual and departmental travel funds (maximum \$1,550)	
Salary supplements for projects requiring summer work (\$3500/month, maximum \$7,000)	\$3400.00 per month for two months \$6800
Cost of specialized supplies, research materials, and needed computer software (maximum \$1,500)	Part 107 Exam \$175 Registration of 5 drones @\$5.00 each \$25.00

Incentive award for the preparation of generative grant applications to outside funding agencies (maximum \$1,000)	
Total	\$7000

Please note that the course is being paid for by NASA Pennsylvania Space Grant Consortium \$3500

Faculty Development Committee (FDC) Proposal (To be used only by the Applicant)

Name of the Applicant: Tedra Booker

Rank of the Applicant: Assistant Professor

Proposal Submission Date: March 28, 2022

Expertise Area: Environmental Chemistry

Prior FD Proposal Outcomes: N/A

Proposal Submission Term: Please circle one of the following

1. Spring 2022
2. Summer 2022
3. Fall 2022