



2021 Virtual HBCU-UP/CREST PI-PD Meeting



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Where History Meets the Future

Creating Opportunities for Engagement with Students During the COVID-19 Pandemic

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Project Overview

The main goal of our HBCU-UP project is to utilize a multilayered approach to broaden opportunities for African-American students to succeed in STEM field. During the COVID-19 pandemic, the whole ecosystem for teaching, research, and mentoring students in higher education has been substantially changed. In this project, we will share how our students were able to demonstrate competent performance at different levels, including the pre-college, freshmen, and upper-level classes using holistic strategies to identify, inform, motivate, and support students for their success. Several approaches have been implemented: 1) 4-week virtual Summer Science and Engineering Program (SSEP) for incoming freshmen; 2) biweekly Natural Science Division journal club webinar; 3) monthly seminar series for professional development and career exposure and 4) livestreaming and virtual simulation to engage students in learning. As a result of those practices, 18 students successfully completed synchronous SSEP, ten students made presentations in journal club, and over 100 students attended webinars. The positive feedback that we received from students indicated that they could learn from many experts, their peers, and are broadly engaged via a remote/online experience during the COVID-19 pandemic.

Best Practices/Successes

- **Enhancing students' engagement and persistence in research through Journal club.**

Students were mentored by faculty to explore and present current researches topic.

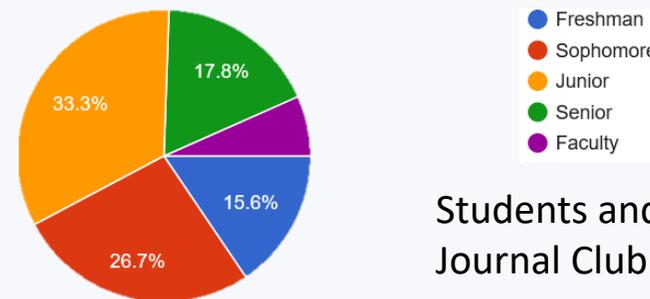
List of some Presentations:

- ✓ An Emerging Antiviral Drug Takes Aim At Covid-19
 - ✓ Susceptibility of Ferrets, Cats, Dogs and other Domesticated Animals to SARS–Coronavirus 2
- **Using virtual laboratories and simulations to engaging students in research and learning.**
 - Computational Math and its Application in Fluid Dynamics
 - Bridge Design Simulations
 - **Promoting students' professional development through virtual webinar.**

Students received training on writing personal statement and were made aware of opportunities, application process for some graduate schools.

A complete lists and descriptions of projects and activities can be viewed [here](#).

Implications



Students and faculty participation In Journal Club and virtual seminars

- **Broader student participation and Interests**

Some students' comments

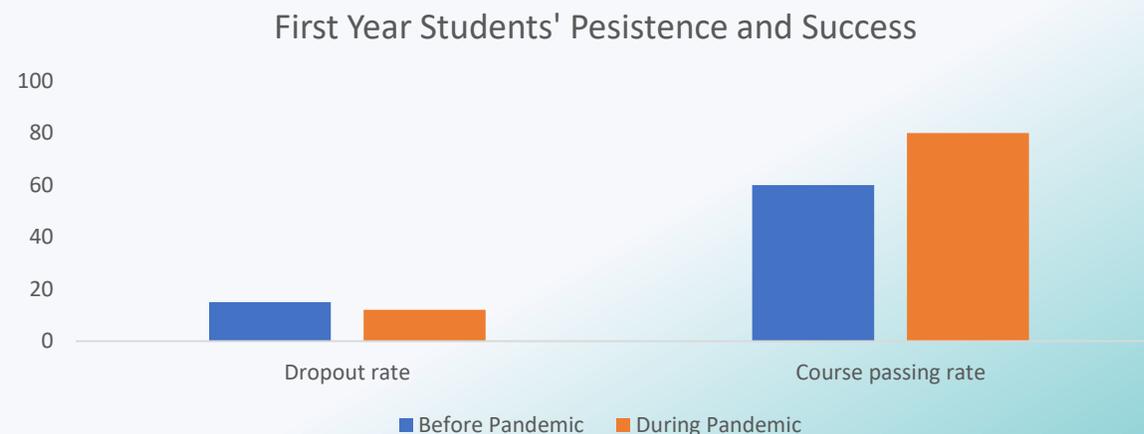
- I really enjoyed the seminar! Very insightful information! This presentation was very helpful to my needs as a student. I loved that it was also interactive. Thank you Dr. Mao!
- I have attended personal statement seminars in the past, but the details regarding how to write one have never been so thorough. Thank you for providing us with this opportunity.
- The coronavirus study was a close second as it peaked my interest as a problem faced by the global community and encouraging to know students are able to hop onto realistic research opportunities.

- Very thorough explanation of the graphs and results and even an insight as to why rates of PCA are higher than in east-Asian countries.

See more students' responses [Link1](#) [Link2](#)

- **Student Persistence and Success**

Through these project activities, the students' retention and success rate have be maintained/improved.



Identified Gap(s) for Future Collaboration or Enhancement

Students' adaption to the new norm

- **Tech equipment**

Students' learning are effective only if they have consistent access to the internet and computers.

- **Students' absenteeism and inattentiveness**

Support mechanism is needed for those who are underprepared and at risk of becoming disengaged and eventually dropping out.

- **Time managements**

Asynchronous instructional environment made harder for some students to stay in focus.

Faculty preparation

- Some faculty have not appropriately received targeted training and supports for online instruction
- No Contingency planning exacerbates the negative impacts of recessions, natural disasters, and pandemics on learning.
- Lack of individualized teaching and mentoring plans on a virtual environments.
- Virtual laboratories and simulations do not meet the full needs for authentic and exploration researches.
- Lack of proctoring tools for HBCU due to budget limitation