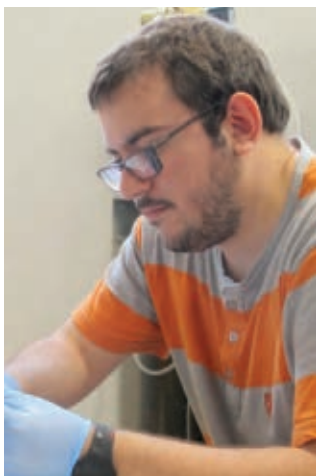


**UCF bridge student Keanna Jardine** prepares research samples. All photos courtesy of the UCF Physics Bridge Program, UCF College of Sciences.



**UCF bridge student Fernand Torres-Davila** works with 2D catalysts.



**UCF bridge student Christopher Sims** prepares to do spectroscopy.

**Q What is a bridge program?**

**A** Sometimes students finishing their undergraduate degrees find themselves in a situation where pursuing direct admission to a PhD program may not be the right choice. For some, personal or academic challenges, financial constraints, lack of access to information, or lack of research experience may be deterrents; in other cases, lack of mentoring may prevent students from putting together a competitive application.

Bridge programs provide a one- or two-year pathway that allows recently graduated physics students to strengthen their training in preparation for a PhD program. Bridge programs have developed academic, research, and more holistic mentoring communities to support the needs of students with high potential and help them develop the foundation for a successful career in STEM.

Some bridge programs are independent while others are centralized. The University of Central Florida's physics department is one of five bridge sites established through the APS Bridge Program.<sup>2</sup> Other programs, such as the Fisk-Vanderbilt Masters to PhD Bridge Program and those at Columbia University and the University of Chicago, predate the APS initiative and remain independent.

This Q&A was conducted with members of the bridge program team at UCF.<sup>1</sup> It was facilitated by **Laurene Tetard**, associate professor in the Nanoscience Technology Center and bridge program site leader in the physics department at UCF. Responses have been edited for length and clarity.

# Bridging Students from Physics Bachelor's to PhD

A Q&A with University of Central Florida (UCF) faculty and staff on bridge programs and the extra support they offer students

**Q Who should apply?**

**A** Students who would like to pursue a higher degree after earning their physics bachelor's and have a strong interest in research but find themselves unsure about their readiness for a PhD should consider applying. Most bridge programs give preference to students from underrepresented groups in physics, who are often disproportionately deterred from applying to physics graduate programs.

**Q If a student accepts an offer from a bridge program, are they committed to earning a PhD from that specific program?**

**A** The main goal of bridge program sites is to train students so that they eventually earn a PhD. We like to retain the students that we admit through the bridge program at UCF, but students are free to apply for admission to other physics PhD programs. Getting a PhD is a personal journey in addition to being an academic one. It is important for students to find an environment that they feel comfortable in and connected to and a research project that they are passionate about.

**Q In what ways is a bridge program experience different from the traditional first year or two of physics graduate school at UCF?**

**A** Bridge programs have now spread over many institutions, and they take a variety of approaches. At UCF, students who are admitted in the bridge program have flexibility in their choice of courses. For instance, students could choose to retake one or more undergraduate courses. However, students who are ready to take all graduate courses during their first year have an experience that is very similar to a traditional first year of graduate school.

Our bridge team offers mentoring, especially during the transition period. During the second semester we discuss choosing a research adviser in preparation for summer research. In addition, now that our program has been in place for several years, students who have been admitted to our PhD program after the bridge program remain active in the department and organize meetings and events for current bridge students.

Our bridge program is tightly integrated in the physics department. UCF is a metropolitan university and has a very diverse student population. Thanks to the program, our department now reflects to a greater extent the diversity in our university and in the Central Florida region. Students are engaged in a variety of research topics, from computational physics to experimental biophysics.

**Q** **What is the application process like?**

**A** The application process for APS Bridge Program sites is centralized and since 2020 has been regulated by the Inclusive Graduate Education Network (IGEN), so students upload their application to the IGEN platform. The application period traditionally runs from mid-December until March. Sometime in mid-April all IGEN-affiliated graduate programs can access the documents and organize interviews. In a way, this is a chance for students' applications to be seen by many departments with no application fee.

There are also independent bridge sites that have their own application systems. The application deadlines may be earlier or later.

**Q** **What advice would you give to students interested in applying?**

**A** If you're interested, apply! Students often forgo applying because they lack confidence, but admissions committees can see potential in an application even when the applicant doesn't see it yet. Letters of recommendation are important, especially from research mentors.

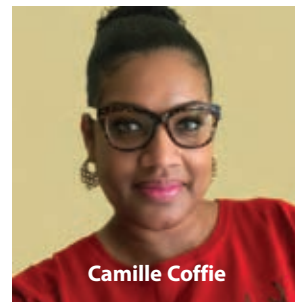
It may be helpful to talk to a mentor about what details to include in your personal statement. In general, personal statements and essay questions provide you the opportunity to describe the

## LEARN MORE AND APPLY

For details on the APS Bridge Program sites, and to apply, visit [www.aps.org/programs/minorities/bridge/students.cfm](http://www.aps.org/programs/minorities/bridge/students.cfm).

The University of Maryland GRAD-MAP team has compiled a list of physics and astronomy bridge programs, including independent programs, at [www.umdgradmap.org/bridge-programs](http://www.umdgradmap.org/bridge-programs).

## Camille Coffie on Taking the Bridge Program Route



I decided to return to grad school to study physics after working for many years in the aerospace industry and public education. My desired career required an advanced degree, so I sought out schools that did physics education research (PER). Many of these schools mentioned the APS Bridge Program on their website, so I became curious and looked it up. I liked the idea of being able to have my application viewed by several institutions at once, including some of my top choices. Also, as a nontraditional student, I appreciated the opportunity to take some advanced physics classes to refresh my memory and get research experience before starting a PhD program.

I was interviewed by a few bridge program schools and chose the University of Central Florida, the one that made me feel the most comfortable and was the most supportive of my goals. In addition, my prospective research adviser at UCF, Jackie Chini, was very welcoming and encouraging toward me, and that solidified my decision to attend.

My top two priorities when looking for a grad school were finding one with PER and being able to work with a good adviser and research group. The sunny weather in central Florida was an added bonus.

*Camille Coffie is a physics grad student at the University of Central Florida.*

context of any less-than-satisfactory academic performances or notable gaps in your training. Admissions committees that adopt a holistic approach to reviewing applications like to see details of the research you've done, challenges that arose, and the steps you took to overcome the challenges.

In addition to explaining your research, background, and any challenges you've encountered, use the personal statement to describe your research interests in detail and how open (or not) you are to various fields. You should also include any outreach, mentoring, and teaching experiences you've had. Members of the department don't want to know only if you can succeed in the program; they want to make sure they can provide a research environment in which you'll flourish.

## NOTES

- Contributors include the following UCF physics department faculty and staff: Eduardo Mucciolo, professor; Michael Chini, associate professor; Adrienne Dove, associate professor; Abdelkader Kara, graduate program director, graduate admission chair, and professor; Laurene Tetard, bridge program associate site leader and associate professor; Talat S. Rahman, UCF bridge program founder and site leader and professor; and Esperanza Soto, physics graduate admissions coordinator.
- The APS Bridge Program is now under the umbrella of the Inclusive Graduate Education Network (IGEN). IGEN aims to help Black, Latinx, and Indigenous applicants who are unable to gain admission to physical science PhD programs through the traditional process or unable to complete the traditional admissions process for any reason. For details and application information, visit <https://igenetwork.org>. **IGEN**