PHYSICS

What can I do with this major?
With strong problem solving skills and theoretical understanding, experience in designing and carrying out experiments and extensive application of computational modeling and computer programming, our graduates are prepared for a variety of careers and graduate programs that are as diverse as our students themselves.

Traditional areas: astrophysics, atmospheric science, biophysics, computer programming and technology, engineering, instrumentation and materials science, medical physics, microelectronics, nanotechnology, physics.

Non-traditional areas: data analytics, finance, law, medicine or teaching.

Opportunities for experiential learning
In their first or second year, physics majors take an introductory course in undergraduate research where they complete an independent research project with a faculty member. Additionally, in their first year, calculus-based physics courses, physics majors are taught the programming language Python for use in both computational modeling and numerical problem solving.

Every physics course includes at least two of the following experiential learning components in which students apply what they are learning, develop critical thinking skills and demonstrate problem solving:

- A culminating project that is theoretical, experimental or computational
- Computational modeling
- Experimental physics (laboratory)

Degrees offered
- Bachelor of Arts in Physics
- Bachelor of Science in Physics
- Minor in Physics

Society of Physics Students
High Point University’s chapter of the Society of Physics Students (SPS) is recognized nationally for its public outreach, undergraduate research, and campus involvement. HPU’s SPS chapter is one of only two chapters in NC to be recognized with an Outstanding Chapter award six years in a row (2015-2020). HPU’s SPS has also been twice awarded the Blake Lilly Prize for HPUniverse Day, an annual event that brings approximately 1,000 children and adults to campus to participate in astronomy and physics related activities. Through SPS, physics students have served the community, competed in a rocket engineering competition (IREC), used observatories in Chile for research, and traveled to national and international physics conferences. SPS brings students and faculty together to serve, give and discover.

Physics majors have the opportunity to be involved in experiential learning outside the classroom too, through HPU’s High-Power Rocketry Team, the interdisciplinary club HPUMinds, the physics club Society of Physics Students, or other exciting opportunities that may come along, such as the NASA Micro-G NeXT program, pictured above.

NASA challenged university teams across the country to design, construct and test a new type of device that astronauts could use to collect samples from the surface of an asteroid. A team of HPU students in the Department of Physics submitted a novel design called the Chip ‘n’ Ship, and, in response to their proposal, NASA officials invited the team to participate in the first ever Micro-G NeXT program and test their device at the Johnson Space Center in Houston. Over the summer, they worked tirelessly with HPU alumni, Eric Scarlett and Jeremy Allen, along with faculty Dr. Brad Barlow and Dr. Aaron Titus, to build a device that met all mission criteria. The Chip ‘n’ Ship was well-received during testing in Houston, and NASA divers were able to successfully chip off samples from an asteroid simulant surface during testing in the Neutral Buoyancy Lab.

www.highpoint.edu/physics
## Outcomes

Physics prepares graduates to directly begin their careers or attend graduate schools. Their career fields and graduate schools include the following:

- Analytics (Data, Operations, Technical)
- Computer programming
- Education
- Financial planning
- Medical physics
- Patent law
- Program management
- Research
- Rocket engineering

-Boston University
-Clemson University
-Dartmouth
-Duke University
-Johns Hopkins
-Pennsylvania State University
-University of North Carolina at Chapel Hill
-University of Virginia
-Virginia Tech

## Research opportunities

Physics faculty have active research programs in a diversity of areas including astronomy, biological physics and bioengineering, computational physics, condensed matter, and particles physics. Through research with faculty, students develop creativity, initiative, perseverance, and research skills.

Beginning in their first year, Physics majors learn the tools they need to be successful scientists, including how to design and carry out experimental research, write technically, and publicly present their research. As upperclassmen, students engage in research with a physics faculty member both during the academic year and as part of the summer research program (SuRPS).

**SuRPS:** The Summer Research Program in the Sciences (SuRPS) is a competitive program for research assistant positions with faculty in biology, chemistry, or physics. During June and July, students do research full-time with a faculty mentor. The program includes free campus housing, complementary meals and a summer stipend.

**Nanoscience and Nanoengineering:** Students have access to cutting edge instrumentation through HPU's Cell Culture Lab and the Materials and Microscopy Lab and can work with physics professors on research related to biophysics and nanoscience.

**Astrophysics:** Students have access to the SMARTS Consortium, a network of universities, including HPU, that operates four research-grade telescopes in the Chilean Andes. While three telescopes can be controlled remotely from HPU's campus, multiple HPU students have traveled with astrophysics professor Dr. Brad Barlow to Chile to collect data with the fourth SMARTS telescope, which can only be used on site. Students also have access to SKYNET, a network of smaller, robotic telescopes located around the world.

## What are grads doing with this major?

Percentages based on all alumni since 2012

<table>
<thead>
<tr>
<th>Category</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pursuing or completed graduate degrees after graduation</td>
<td>58%</td>
</tr>
<tr>
<td>Paid summer internships</td>
<td>55%</td>
</tr>
<tr>
<td>Employed/studying in a STEM field</td>
<td>77%</td>
</tr>
<tr>
<td>Presented at external conferences</td>
<td>74%</td>
</tr>
</tbody>
</table>

**Meet Linda**

**Hometown:** Sterling, VA  
**Major:** Physics  
**Current position:** Medical Physicist at West Virginia University Medicine  
**Graduate school and residency:** MS in Medical Physics from Duke University, Medical Physics Resident at the University of Iowa  
**Activities:** Phi Mu, Society of Physics Students, conducted research on fluid flow with biomimetic cilia arrays with Dr. Fiser  
**Internship:** University of Michigan Biophysics Summer Research Experience for Undergraduates; investigated DNA breaks due to neutron radiation and presented nationally and regionally at conferences.

For more information about HPU’s Physics Program, contact: Dr. Briana Fiser | 336.841.9412 | bfiser@highpoint.edu