WANEK SCHOOL OF
NATURAL SCIENCES
More than 190 High Point University students from nearly 30 different academic pathways took part in the seventh annual HPU Research and Creativity Symposium (High-PURCS). The event is hosted by HPU’s Office of Undergraduate Research and Creative Works.
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HPU students, Thomas Boudreaux and Kyle Corcoran, joined Dr. Brad Barlow, (pictured in center above), assistant professor of astrophysics, on his fourth trip with HPU students to the Andes Mountains. There, they observed stars with the CTIO/SMARTS 0.9-meter telescope at the Cerro Tololo Inter-American Observatory, one of the most well-known observing sites for professional astronomers in the world. While at the observatory, they worked with researchers at the University of North Carolina at Chapel Hill to observe pulsating white dwarfs, which are dead, remnant stars that show variable brightness due to vibrations. The pulsations are useful in helping determine important properties of the star, such as mass, radius, temperature and density.

Faculty often invite students to work with them on their own research projects in areas including:
• Cancer biology
• Entomology
• Molecular mechanisms of embryonic development in zebrafish
• Molecular microbiology of infectious diseases
• Physiological adaptations of plants to environmental stress
• Physiology of hibernation in marmots
• Plant genetics and breeding

WHY SHOULD I MAJOR IN BIOLOGY AT HPU?
• Jobs in health care consistently rank among the highest in-demand jobs in the U.S. Our health science track can prepare you with the coursework needed for these professional programs.
• Coronavirus/Covid-19. Cancer. Climate Change. Through biology, you can be part of the solution to some of the world’s greatest challenges.
• In the midst of our planet’s sixth major mass extinction, the demand for citizens equipped with the knowledge and skills to solve current and future ecological and environmental challenges is greater than ever.
• Biology sharpens critical thinking and analytical skills, which are applicable to a variety of professional positions, even outside of the sciences.
• We are standing at the precipice of a DNA revolution—our cellular and molecular biology track will prepare you for a future in these cutting-edge fields.

Biology

EXPLORE AND ENGAGE
From field research on cancer biology to studying the physical adaptations of plants and the molecular microbiology of infectious diseases, HPU biology majors explore a dynamic array of courses and experiences. One-on-one interactions with outstanding faculty, summer research experiences and internships are only a few of the opportunities available to students pursuing a degree in biology at HPU. Other opportunities include:

• Collaborating with faculty on research projects in the sciences
• Presenting research findings at HPU’s annual Undergraduate Research and Creative Works Symposium and at professional organizations, such as the Association of Southeastern Biologists
• Participating in one of HPU’s many study abroad programs

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Summer Research Program in the Sciences (SuRPS) at High Point University (HPU)

Students pursuing an undergraduate degree in biology have the opportunity to collaborate with faculty in the Department of Biology on an eight week summer research project. Students live on the HPU campus, interact with other students (biology, chemistry, biochemistry and physics majors) in the program and have the opportunity to present the results of their work at the end of the program during a summer symposium. The Summer Undergraduate Research Program in the Sciences (SuRPs) is organized by the Wanek School of Natural Sciences in collaboration with the Office of Undergraduate Research and Creative Works.

Chemistry

EXPLORE AND CREATE KNOWLEDGE
HPU’s chemistry and biochemistry programs are anchored in a commitment to help students explore and create new knowledge of molecular-scale phenomena through rigorous laboratory research. As early as freshman year, students have the opportunity to work with outstanding faculty on original research projects. Recent majors have presented their findings at professional meetings at the regional and national levels. They’ve also completed internships at institutions such as California Institute of Technology's Jet Propulsion Lab, Cornell University, NASA's Ames Research Center, Johns Hopkins University and many others.

Grounded in the liberal arts, HPU’s chemistry and biochemistry programs encourage a spirit of exploration and engagement within and beyond the sciences, helping students develop critical thinking and research skills, as well as the ability to access and analyze information and ideas across disciplines in ways that will impact their life long after graduation.

DEGREES OFFERED
High Point University offers both the Bachelor of Science (B.S.) and the Bachelor of Arts (B.A.) degree in chemistry. While the B.A. degree provides more flexibility to customize the major, the more rigorous requirements of the B.S. degree typically make it the choice of students who wish to pursue graduate study in chemistry. The B.S. degree in biochemistry incorporates math, physics, biology and chemistry, offering breadth as well as depth in preparation for advanced study in medicine, the health sciences and biomolecular processes.

Neuroscience

High Point University’s neuroscience program provides students with interdisciplinary curricular options that range from the generalized to the specialized and that prepare them for a wide variety of post-baccalaureate goals within their field (e.g., careers in biomedical research or professional programs in the health sciences, such as medical school). Within our curricula, special emphasis is placed on science as a process, supported by a conceptual understanding of basic principles in neuroscience. To this end, hands-on, experiential learning opportunities are abundant, both within classrooms and teaching laboratories and through original research. As a result, our curricula foster within students not only the knowledge base but also the critical thinking, communication and collaboration skills that prepare them for success in their future careers and for leadership roles within society.

MINOR: ENVIRONMENTAL STUDIES
The environmental studies program introduces the student to an interdisciplinary experience focusing on local, regional and global environmental challenges. The student will develop an understanding of the relationships between humans and the natural world from the scientific and humanities perspectives.

The program strives to give students the opportunity to enhance the development of multiple ways of thinking, problem-solving and effective communication skills. Students will be familiar with the scientific basis of major environmental issues and their possible solutions. These environmental problems will be placed in a historical perspective relating them to various traditions of philosophical, ethical and religious inquiry. Students pursuing this minor will also develop an appreciation for the role of cultural traditions in shaping people’s understanding of humanity’s relation to the natural world.

NAME: Rebecca Ulrich ’18

MAJOR: B.S. in biochemistry and a minor in physics

WHAT I LOVE ABOUT HPU: “The faculty at HPU have advocated for me and pushed me to challenge myself and step outside my comfort zone. Within a few weeks of being on campus during my freshman year, faculty helped me find a research lab to join and encouraged me to get involved in the biochemistry department. I was encouraged to get involved in research early and was accepted in the Summer Research Program in the Sciences (SuRPS) program my freshman year.”
Physics

WHY MAJOR IN PHYSICS AT HPU?
If you are looking to enter the workforce right after graduation, your degree will open up a range of possibilities. Physics graduates work in such diverse fields as engineering, computer or information systems, medical technology, technical writing, finance and education. If you choose graduate school, an undergraduate degree in physics is excellent preparation for graduate studies in a number of fields including astronomy, earth and atmospheric science, biophysics, mathematics, mechanical engineering, electrical engineering and nuclear engineering, to name just a few.

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 in science that is as diverse as our students themselves.

TRADITIONAL AREAS:
- Physics
- Engineering
- Atmospheric science
- Nanotechnology
- Microelectronics
- Computer programming and technology

NON-TRADITIONAL AREAS:
- Teaching
- Medicine
- Finance
- Law

EXPERIENTIAL LEARNING OPPORTUNITIES
In their first or second year, majors take a year-long, one credit course in undergraduate research where they complete an independent research project with a faculty member.

Every physics course includes at least two of the following experiential learning components in order for students to apply what they are learning, develop critical thinking skills and demonstrate problem solving:
- Experimental physics (laboratory)
- Computational modeling
- A culminating project that is theoretical, experimental or computational

Pre-Professional Advising
For students interested in pursuing graduate and professional study, HPU offers additional specialized academic advising and career preparation for the following fields:
- Athletic Training
- Dentistry
- Engineering
- Law
- Medicine
- Ministry
- Nursing
- Occupational Therapy
- Pharmacy
- Physical Therapy
- Physician Assistant
- Veterinary
- Pre-accelerate Bachelor of Science in Nursing

Facilities

The Wanek School of Natural Sciences is a $65 million, 128,000-square-foot facility that features four stories of innovative lab and classroom space, as well as the Culp Planetarium. The 6,000-square-foot planetarium and lecture space includes 125 seats and a 50-foot dome with a 4K projection screen and a state-of-the-art surround sound system. The facility is equipped with programming to teach astronomy, earth science, anatomy and a variety of STEM (science, technology, engineering and mathematics) lessons for university students, as well as elementary, middle and high school-age groups in the community.

The Caine Conservatory provides 15,000 square feet of space for students and faculty to conduct botanical research and propagate plants for the Mariana H. Qubein Arboretum and Gardens. A classroom, working greenhouse, the Butterfly Cafe and planting display space are housed in the facility.

The Wanek School of Natural Sciences, Culp Planetarium and Caine Conservatory are part of High Point University’s $250 million Innovation Corridor. Since 2005, HPU has invested $250 million in STEM programs, faculty and facilities. The result is a half-mile stretch of campus that HPU’s scientists call home. The Innovation Corridor is one of the university’s single largest investments and reflects HPU’s commitment to preparing students for the world as it’s going to be.
The Natural Sciences Fellows Program will enrich the academic experiences of students who show exceptional promise by providing them with unique, personalized, professional development training that prepares them to be leaders in their field. Key elements of the program include one-on-one coaching on professionalism with award-winning faculty mentors; backstage access to networking opportunities with world-renowned scientific researchers, inventors and physicians; priority access to research opportunities within the natural sciences and leadership roles as peer mentors within their undergraduate programs and as innovators within the broader scientific community.

As a result of participation in this unique program, Natural Sciences Fellows will distinguish themselves from their peers as they enter the workforce or graduate/professional programs as poised, confident leaders who have mastered both the hard and soft skills that ensure success in their profession.

Students in the Natural Sciences Fellows Program have unique opportunities to:
- Have backstage access to discussions with world-renowned scientists
- Receive personalized coaching from faculty in their discipline
- Socialize with science students outside your major at sponsored events
- Travel together on a networking and professional development trip
- Plan and execute a STEM-related service-learning project
- Travel together for a health-related service trip
- Participate in a year-long “Scientific Creativity and Innovation Project”
- Enter national collegiate inventors’ competition
- Personalized coaching for graduate school and professional interviews
- Receive funding for travel to scientific meetings and/or national competitions

WHO SHOULD APPLY?
Successful applicants to the Natural Sciences Fellows program will have a declared major in biology, biochemistry, chemistry, neuroscience or physics and have a track record of success in their studies of the natural sciences. Previous science-related experience will be an advantage for applicants. The program is highly selective and is limited to the top 50 incoming natural sciences students in each entering class.

HOW TO APPLY
To be considered for membership into the Natural Sciences Fellows Program, you must first submit your High Point University undergraduate admissions application at www.highpoint.edu/apply.

Next, complete your Natural Sciences Fellows application through Slideroom at https://highpoint.slideroom.com/#/Login by February 1 for priority applicants and by March 1 for all others.

SCHOLARSHIP INFORMATION
Natural Sciences Fellows will receive a $3,000 scholarship renewable annually based on academic performance and continued participation in the program. This is in addition to any Presidential or High Point Scholarship. Fellows must meet GPA and professionalism requirements to be awarded continuation of their fellowship into the next academic year.

Contact Dr. Meghan Blackledge
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