



LEADERS IN THE MAKING

RESEARCH-FOCUSED STUDENTS GAIN FIRST-HAND EXPERIENCE IN THEIR FUTURE CAREERS

At the University of North Carolina Asheville, students across more than 30 majors take their learning outside of the classroom and into the real world through undergraduate research projects, closely mentored by faculty who are experts in their fields. With about 3,300 students, UNC Asheville is known for its dynamic, leadership-focused, relationship-driven education. As the original home of the Council on Undergraduate Research (CUR), the site of the first National Conference on Undergraduate Research (NCUR), UNC Asheville continues to set a high bar with research projects that address pressing issues, merge technology and social commentary, and support the local economy.

CHEMISTRY STUDENTS DRIVE RESEARCH FOR DEVELOPING A CUTTING-EDGE ANTIBIOTIC

GlaxoSmithKline Distinguished Professor in Molecular and Chemical Biology Amanda Wolfe and Assistant Professor of Chemistry Ryan Steed are combining their research specialties of Medicinal Chemistry and Biomolecular Chemistry, respectively, to develop a new antibiotic that treats

Pseudomonas aeruginosa, a form of bacteria that is currently antibiotic treatment-resistant.

Their initial research, conducted entirely with UNC Asheville undergraduate research students, has been promising. “This new antibiotic would be able to eliminate drug-resistant strains of *Pseudomonas aeruginosa* because it works in a novel way,” explains Wolfe regarding the new antibiotic that her student-driven team is developing.

The project, which recently received a National Institutes of Health Academic Research Enhancement Award of over \$380,000 to support six students with stipends to continue developing their research over the next three summers (2022-2024), was piloted in an upper-level laboratory course with chemistry undergraduates collecting data over multiple semesters. “This aspect is pretty unique and demonstrates the applied and cutting-edge education-focused research that we provide our chemistry majors at UNC Asheville.” Adds Steed, “The student involvement and impact that our undergraduates experience aligns UNC Asheville in the prestigious company of other elite research-active undergraduate institutions.”



NEW MEDIA STUDENTS WITH “EPIC” OPPORTUNITIES

UNC Asheville Assistant Professor of New Media Victoria Bradbury integrates gaming skills and technology at the service of art and social commentary.

With the assistance of student research assistants, including a music technology major who designed the score, Bradbury recently created Blue Boar VR - a virtual reality game developed on the Unreal Engine featuring her 10th-great grandmother, who was tried and convicted in the Salem Witch Trials.

“I have taught physical computing in my advanced interactive class, and being able to interface that with Unreal [is] really exciting,” says Bradbury. She surmises her students will also enjoy “employment possibilities” stemming from learning “a variety of software applications in addition to VR.” She continues, “There is a lot of interest in Unreal because of the broad applications – not only as a game engine. Unreal is being used in industry, and Epic Games is headquartered right here in North Carolina – in Raleigh.”

After completing Blue Boar VR, Bradbury was awarded a \$44,000 Epic MegaGrant from Epic Games so she and her students could work on tying together Epic’s Unreal Engine – the software used in games like Fortnite – with physical computing using microcontrollers.

The award was applied to two 2021 grant-funded projects with three students hired on for roles including games programming and sharing the web and social media work. Bradbury hopes that disseminating this grant-funded work online and through conference presentations will bring attention to new possibilities in new media art and design, interactive design, and new media pedagogy.

MANAGEMENT STUDENTS IN REAL-WORLD BUSINESS

Students rarely get the opportunity to gain substantive experiences with real businesses outside of an internship, yet, Susan Clark, associate professor of management at UNC Asheville, provides students the chance to do just that. Each year, approximately 12 top management students are selected to be part of a consulting practicum that offers direct support to a local Western North Carolina business. In spring 2022, Clark and her students, through an ongoing relationship with the Asheville Area Chamber of Commerce, partnered with local business Darë Vegan Cheese.

In this student-led consulting practicum course, undergraduates apply theoretical knowledge to develop a strategic business plan and identify teams to contribute innovative deliverables to help a business scale up production, sales, and success.

While working with Darë Vegan Cheese, the students conducted extensive market research and determined an ideal target customer. They also identified strategic business partners and initiated national distribution pathways to sell more products. From their experience, students gained concrete expertise to add to their resumes and portfolios and received real-world job market preparation.

“We completed multiple projects, including legal analysis, certification feasibility studies, and real-time business development strategies [to develop] a living business plan that the CEO can use to maximize her potential for success,” said Darden Smith, a student in the business development team. She feels her most valuable takeaway from the project which will be “applicable to success after graduation” was “working with the teams to produce exceptional content with academic rigor and professional excellence, all within budget and on a precise timeline.”

At UNC Asheville, these are just a few examples of students engaging in undergraduate research projects at the frontiers of their fields. Through real-world research projects, students gain invaluable experience in collaborative project design, data analysis, and communication, and are applying in-demand skills at the forefront of their communities and workforce.



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