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Faculty Helped William Payne ('14) Achieve Goal to Pursue Biomedical Engineering

A unique combination of degrees allows Gardner-Webb University alum William Payne ('14) to work extensively in designing targeted therapy for cancer patients.

With support from the Gardner-Webb faculty, Payne, who is from Pendleton, Ind., completed majors in chemistry and computer science with minors in mathematics and biology. His doctoral research in biomedical engineering at Wake Forest University in Winston-Salem, N.C., gives doctors more tools to treat breast and pancreatic cancers.

"My work includes engineering for image-guided surgery, which is the use of special contrast agents and custom-designed optics to allow surgeons to optically image and detect tumor margins during surgery," Payne explained. "I also contribute to the design of drug delivery systems being developed in our lab for cancer therapy, improving the efficacy and decreasing the systemic toxicity of cancer chemotherapy."

Payne's ability to participate in the research is a testament to the professors at Gardner-Webb who helped him along every step of his academic journey. Faculty in the Department of Natural Sciences and the Department of Mathematical Sciences worked together to help Payne reach his goals.

"The reality is that you become familiar with all of the professors. Both departments significantly contributed to my studies and faculty in both departments provided guidance and encouragement throughout my undergraduate career and graduate school admissions process," Payne assessed. "They were willing to work with me to ensure that I got my classes completed. For example, one year I had to miss every Friday of a computer science class in order to take my chemistry seminar class."

His adviser, Associate Professor of Chemistry Dr. Venita Totten, worked out a plan to prepare him for graduate studies in biomedical engineering. His computer science adviser, Dr. Miroslaw Mystkowski, also offered support, even though Payne's goals were quite different than the usual software engineering career plans.

“The faculty also helped me to obtain a research internship during my undergraduate career,” Payne shared. “Even faculty who were not my primary advisers knew my career goals and objectives, and many of my upper level classes were tailored to my own as well as my classmates’ interests. For example, Professor of Mathematics Dr. Bob Bass included a section on chemical reactors during my differential equations class. The individual interaction I had with faculty and the professional development I participated in gave me unique preparation that has allowed me to excel both in the classroom and laboratory in graduate school.”

Despite his full undergraduate academic schedule, Payne found time to be involved in extracurricular activities. He was a member of the swim team for three years and was a member of Gamma Sigma Epsilon, Beta Beta Beta, and Sigma Zeta honor societies.

“My experience at Gardner-Webb helped me to grow as an individual through all the involvement opportunities available to students,” he observed. “I realized the value of volunteering, taking responsibility, and building a professional résumé. While these activities were great, the best thing Gardner-Webb offered me was the close-knit community. I felt like the faculty was personally invested in me, and the education I received prepared me for the next steps in my life.”