



Wofford College

STUDENT-FACULTY COLLABORATIVE SUMMER RESEARCH

Summer 2021





STUDENT-FACULTY COLLABORATIVE SUMMER RESEARCH STUDENT BIOGRAPHIES



Emily Arnold '23 is a Spanish major and computer science and English double minor from Cheraw, South Carolina. She plans to attend law school after graduating from Wofford. She worked as a part of a team from the Spanish and environmental studies departments on a large quantitative and qualitative project researching parks and green spaces in Spartanburg. As a part of the qualitative team, she analyzed data gathered through phenomenological observations and Socratic interviews to present the perceptions and experiences of Spartanburg residents. The dissemination will be widely accessible, including academic, multilingual and culturally diverse settings, with the overarching goal being to assist community members and leaders with identifying strengths and needs in Spartanburg parks and green spaces. Emily also is a member of the Pre-Law Society, Kappa Alpha Theta and the leadership team for RUF, and is a student editor for the Writing Center.

Faculty collaborator and mentor: Dr. Laura Barbas Rhoden, professor of Spanish.



Carman Autry '22 is an international affairs major with a minor in Arabic and religion from Youngsville, North Carolina. She studied the life of Omar ibn Said, an enslaved Black Muslim in the Carolinas. This project is a continuation of a project from the previous summer. During the 10-week research project, she reviewed several works that had been written about Said, including his autobiography, "Life." For her final product, she is working to create an exhibit in the Rosalind Sallenger Richardson Center for the Arts. The exhibit will provide an overview of Said's life and the legacy of his works. Her goal for the project is to share the history of Said with the Wofford community and Spartanburg.

Faculty collaborators and mentors: Dr. Philip Dorroll, associate professor of religion; Dr. Courtney Dorroll, associate professor of religion; Professor Colleen Ballance, professor and theatre chair.



Alfie-Louise Brownless '22, a mathematics and biology major from Spartanburg, South Carolina, performed an in-depth analysis on quantifying electoral fairness and the impact of different data approximation strategies on resulting fairness quantification. In doing so, she validated the use of a particular county-based approach and outlined the relevance of different approaches in mitigating the impacts of uncontested election results. She believes her findings are effective in demonstrating the impact of different interpretations of election data, and so should provide useful information regarding election analysis, potentially impacting progression toward future redistricting goals.

Faculty collaborator and mentor: Dr. Anne Catlla, associate professor of mathematics and associate provost for curriculum and co-curriculum.



Jaime Bustos '25, an incoming first-year student planning to major in physics and computer science with a minor in math, studied Bayesian false discovery control in large-scale spatial multiple testing. The team adjusted the methodology from existing research and applied it to syndromic surveillance to aid the discovery of potential disease outbreaks sooner than the traditional methods currently used. Bustos plans on joining the Organization of Latin American Students and other organizations at Wofford.

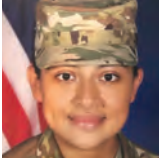
Faculty collaborator and mentor: Dr. Deidra A. Coleman, assistant professor of mathematics.



Kayla Chavez '24, a chemistry and Spanish major, conducted summer undergraduate collaborative research focusing on green space equity in Spartanburg. Through observation data and interviews, the team collected data in order to identify ways to improve the quality of green spaces. The goal was to identify commonalities and differences between the parks researched. Essential to the study, open dialogue was conducted. This allowed the team to determine the beliefs of people regarding green spaces, such as parks. The research highlighted key information in areas such as health, environment and peacemaking. The research would help community

leaders learn about potential changes needed to better the community.

Faculty collaborator and mentor: Dr. Laura Barbas Rhoden, professor of Spanish.



Yazmin Chavez Medina '24 spent part of the summer researching the Angolan Civil War and another part of the summer in military training. After graduating from Dorman High School in Roebuck, South Carolina, she enlisted in the Army and serves in the National Guard component as a motor operator.

Faculty collaborator and mentor: Dr. Ramón Galiñanes Jr., director of undergraduate research and post-graduate fellowships.



Stephen Chase Creamer '22 is a mathematics major from Duncan, South Carolina. He has been working as a part of a team of students to model the probability of humanity's survival following an apocalyptic event. This research project has made use of many mathematical concepts, including ordinary differential equations, linear algebra, stochastic matrix modeling and stochastic calculus.

Faculty collaborator and mentor: Dr. Rachel Grotheer, assistant professor of mathematics.



Paola Cruz '23, a double major in Spanish and sociology and anthropology, spent the summer working alongside peers and Dr. Laura Barbas-Rhoden on the "Park and Green Space Equity in Spartanburg" public research project. The purpose of this project is to listen to and amplify the voices of BIPOC residents living in the urban footprint of Spartanburg about their perceptions of, desires for and experiences of area parks and green spaces. Cruz took part in conducting Socratic interviews and phenomenological observations, as well as transcribing all of the data. She assisted in coding the data into a readily accessible and inclusive format. This methodically gathered and rigorously analyzed data will serve as a guide for community leaders as they make decisions regarding Spartanburg parks and green spaces. Cruz is a junior delegate of Campus Union, an active

member of OLAS, service chair of the Mu Beta Psi music fraternity and a music vocal performance minor.

Faculty collaborator and mentor: Dr. Laura Barbas Rhoden, professor of Spanish.



Grace Cutter '22 is a Chinese, French and mathematics major. She spent the summer conducting research in number theory under the guidance of Dr. Thomas Wright. This research largely concerned base 10 decimal expansion and prime number theory. Grace will go on to study in France and China during her last year of college.

Faculty collaborator and mentor: Dr. Thomas Wright, associate professor of mathematics.



Chandler Dickert '23, a biology major with a minor in environmental studies from Newberry, South Carolina, researched *Exaiptasia diaphana* anemones and their endosymbionts Symbiodiniaceae. *Aiptasia* anemones were used as model organisms for coral to better understand coral bleaching. Dickert hopes to establish a working protocol that can observe the mitotic index of Symbiodiniaceae. This protocol can then be used to look at the rate of division of these endosymbionts on their own and inside *Aiptasia* anemones. Dickert is a member of Sigma Nu fraternity, captain of the club soccer team and president of Terrier HOSA.

Faculty collaborator and mentor: Dr. Geoffrey Mitchell, assistant professor of biology.



Chardonnay Durrah '23, a government major and an international affairs minor from Spartanburg, South Carolina, worked with a team that focused on studying the life of Omar ibn Said, an African enslaved Muslim who was brought to the Carolinas in the early 19th century. Over the 10-week span, Durrah examined several works written about Said and visited the National African American Museum in Washington, D.C., to view the exhibit housing his work. For Durrah's final research project, she established a blog to showcase Christianity's footprint in the South during the late 18th and early 19th centuries. Durrah is the secretary of Wofford Women of Color, a

member of Wofford ROTC, Black Student Alliance, Math Academy and a peer tutor for math.

Faculty collaborators and mentors: Dr. Philip Dorroll, associate professor of religion; Dr. Courtney Dorroll, associate professor of religion; Professor Colleen Ballance, professor and chair of theatre.



Sam English '22 is an English major with a concentration in creative writing. This summer he worked with Dr. Natalie Grinnell on two separate projects involving fictional werewolf societal study. One of these pieces is focused on the importance of gender and fertility in werewolf literature since 2000. The other is a comparison between the power structure of the Italian Mafia and fictional werewolf packs in recent film and television series. He focused on film and digital media, while Dr. Grinnell has specialized in novels and other fiction.

Faculty collaborator and mentor: Dr. Natalie Grinnell, Reeves Family Professor in the Humanities.



Nathan Faulstich '23, a biology major hailing from Florida, examined the symbiotic relationship between *Exaiptasia diaphana* anemones and their Symbiodiniaceae endosymbionts. Changes in the planet's climate continue with greater magnitude than in times before, eliciting the potential for decrements in the rather fragile relationship between host anemones and their endosymbionts. As temperatures rise, the mitotic index — rate of cell division — within each organism exemplifies an imbalance. Due to the precocious nature of the symbiosis between the two, imbalanced indexes can lead to anemones expelling the very organisms that provide nearly 95% of their energy. The team continues to focus on establishing a protocol that accurately measures the mitotic index of each organism before examining the effects of temperature in future research. Faulstich is an iCAN mentor, volunteer at Halcyon Hospice, member of Wofford Orientation staff, president of Wofford Psychology Kingdom, treasurer of Alpha Epsilon Delta Pre-Healthcare Honor Society and a tutor and teaching assistant in the chemistry department.

Faculty collaborator and mentor: Dr. Geoffrey Mitchell, assistant professor of biology.



Juan Garcia '23 is a computer science major from Lyman, South Carolina. We focused on Bayesian false discovery control in large scale spatial multiple testing, which is a method used to reduce the levels of false positive in statistics. By adjusting established methodology from existing research, this can be applied to syndromic surveillance to aid the discovery of potential health outbreaks sooner than the traditional methods currently used. Garcia is a Bonner Scholar, Gateway Scholar and member of the Organization of Latin American Students and Wofford Men of Color.

Faculty collaborator and mentor: Dr. Deidra A. Coleman, assistant professor of mathematics.



Zifan (Ivan) Gu '21, a computer science major, worked with Dr. Caroline Martsberger to investigate the alternating cardiac functions within healthy college students. To do so, they first needed to clean the recorded EKG to identify the R peaks in the QRS complex. This was done using a signal processing toolbox that can read about 0.5 million data points at a time. They then applied mathematical models that are suitable for measuring arrhythmic behavior in the heart. To visualize the results, they utilized the powerful ggplot2 package in the programming language R to create facet graphs to better deliver their findings.

Faculty collaborator and mentor: Dr. Caroline Martsberger, assistant professor of physics.



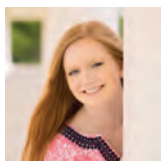
Carson Harrell '24 is a biology and environmental science major. His research consisted of finding the best way to isolate the protein enolase from animal tissues and study its structure. Enolase is a glycolytic enzyme responsible for producing energy in cells. Inhibiting the enzyme would cause cancer cells to no longer be able to proliferate efficiently enough, and this may reduce the level of damage to the body and possibly lead to cancer cell elimination from patients' bodies.

Faculty collaborator and mentor: Dr. Ramin Radfar, professor of chemistry and biochemistry.



Christopher Hatchell '22, a chemistry and biology major with a physics minor from Hanahan, South Carolina, investigated the importance of iron geochemistry in the water and sediment at Glendale Shoals. The Shoals were once home to an ironworks facility. The overall goal of the project was to gather data on the surrounding area and determine whether or not iron concentration plays a significant role in carbon degradation. After graduation, Hatchell plans to attend graduate school for chemistry and earn a Ph.D.

Faculty collaborator and mentor: Dr. Grace Schwartz, assistant professor of chemistry.



Emma Humphries '22, an art history major and a government and studio art minor from Gaffney, South Carolina, worked on developing a community outreach art program for clients of the Spartanburg Opportunity Center. The multiresource center in Spartanburg, South Carolina, serves clients who are experiencing homelessness or near homelessness by providing services and the referral of services to assist in recovery and transition. She researched current practices of art programs that are catered to assist the recovery process and encourage reaffiliation into the community. With the data collected, she was able to create and apply a sustainable art program for one-time participants and returning clients through weekly visits to the center to hold an art class. She gained firsthand experience by observing how clients engaged with the materials and how art can serve as a therapeutic and meditative outlet for one's emotions. They plan to use this programming and to train student volunteers to keep the art class running.

Faculty collaborator and mentor: Dr. Youmi Efurd, museum curator.



Scotdaija Jenkins, a psychology major from Greenville, South Carolina, was part of the Back of the College project. The Back of the College was a majority Black/African American neighborhood located behind Wofford. Jenkins transcribed and organized housing records collected in city directories. These housing records are held at the Spartanburg County Public Library. Jenkins and her

research group also had the opportunity to collaborate with the library and learn more about organizations and individuals associated with the Back of the College. Jenkins hopes the project will bring attention to topics such as gentrification and environmental racism.

Faculty collaborator and mentor: Dr. Jim Neighbors, professor of English.



Mia Kilpatrick '22 is an international affairs and Spanish major and economics minor from Hartsville, South Carolina. She spent the summer researching the Angolan Civil War from 1989 to 2002. More specifically, she and her fellow researchers looked at the representations of peace, ethnicity and third-party mediators in Angolan newspapers from the designated time period. Kilpatrick hopes this research will be useful in the future study of civil wars and expounded upon in future research projects.

Faculty collaborator and mentor: Dr. Ramón Galiñanes Jr., director of undergraduate research and post-graduate fellowships.



Yasmin Lee '23, a studio art major and digital media minor from Columbia, South Carolina, worked with professor Jessica Scott-Felder to design and assist her with an upcoming city monument project, the Southside Cultural and Heritage Monument. While learning the importance of monuments, Lee gained insight into the artistic process of collaborative research and making. In addition to designing, Lee had the opportunity to film and record Spartanburg community leaders discussing how their lives were affected by urban renewal. Her interviewees were able to communicate their personal views of what Black life looks like in Spartanburg and how their communities have come together to offer support and unity after the effects of urban renewal. Lee will continue to contribute to the Southside Cultural and Heritage Monument and looks forward to its development soon. Recently, she was awarded the 2021 Judy and Brant Bynum Fine Arts Scholarship and the Artists Guild's Best Emerging Artist Award from the Juneteenth 2021 Woven Exhibition. She also is editor-in-chief of her independent literary magazine, Through the Grapevine. When she's not occupied by visual arts or filmmaking, she is hosting

and deejaying her alternative radio-podcast show, Cactus Radio.

Faculty collaborator and mentor: Jessica Scott-Felder, assistant professor of studio art.



Ally McDonough '22, a religion major with a minor in international affairs and a concentration in the Middle East and North Africa from Charleston, South Carolina, spent the summer research session within the depths of the Hebrew Bible. McDonough studied the meaning and history behind the Hebrew word “nefesh”, which loosely translates to mean the soul. Her purpose in studying this particular word was to look at what happens when the soul becomes sick or bitter. She chose to pay particularly close attention to women’s bodies and how they are presented as bitter within the Old Testament. After Wofford, McDonough plans to go to graduate school with the intention of pursuing a degree in museum studies and public history.

Faculty collaborator and mentor: Dr. Ingrid Lilly, assistant professor of religion.



Kayla Means '23, a chemistry major from Spartanburg, South Carolina, researched the technique behind Bayesian false discovery control in large-scale spatial multiple testing. By adjusting established methodology from existing research, Means and her research cohort aimed to make it applicable to syndromic surveillance. Means is a member of Wofford Women of Color, Black Student Alliance and a resident assistant.

Faculty collaborator and mentor: Dr. Deidra A. Coleman, assistant professor of mathematics.



Alex Michael '22 is from Greensboro, North Carolina. He worked on a project to establish a phenology walk at Glendale Shoals. The specific purpose of the project was to identify and tag various tree species so that future researchers can observe the effects of climate change on their flowering times. It has been shown in many previous studies that climate change has had a significant effect on many observed species, but the team is hoping that its

work will lead to a better understanding of these effects on species in the area.

Faculty collaborator and mentor: Dr. Katharine Putney, assistant professor of biology.



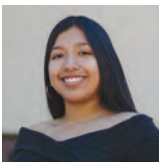
Claire Minter '22 is an international affairs major and English minor from Charlotte, North Carolina. She was a member of the Back of the College team working to research Spartanburg city records and compile lists of individuals who lived in the neighborhood later obtained by Wofford. She is the president of Kappa Alpha Theta and plans to pursue a career in international humanitarian aid.

Faculty collaborator and mentor: Dr. Jim Neighbors, professor of English.



Hector Ortiz '22, a triple major in biology, philosophy and Spanish with a concentration in medicine and the liberal arts and the current Presidential International Scholar, has been working alongside the philosophy department on qualitative research. Ortiz's study examines the Latinx culture in the Wofford community and how this relationship influences the Latinx student experience. A goal for this project includes gathering data from Latinx students on campus to aid the college's equity and inclusion initiatives.

Faculty collaborator and mentor: Dr. Christine Dinkins, Kenan Professor of Philosophy.



Marlen Ramirez-Alvarado '24 is a biology and Spanish major from Spartanburg, South Carolina. She has worked to provide information from the residents of Spartanburg about their park experiences and how the pandemic has altered those experiences. Using this information, the team hopes to draw attention to how a lack of access to green spaces in certain communities can impact their well-being. She hopes that her research can make an impact in and can help give back to the community that she calls home. She is a Bonner Scholar, Gateway Scholar and first-generation college student who is pursuing a career in medicine.

Faculty collaborator and mentor: Dr. Laura Barbas Rhoden, professor of Spanish.



Matilda Redfern '23, is a sociology and anthropology and philosophy double major with a minor in film and digital media from Atlanta, Georgia. She designed a website for the Back of the College neighborhood, one of Spartanburg's two most prominent Black neighborhoods, which was located where a portion of Wofford's campus is today. This website showcases interviews, histories and a database with an interactive map where residents can find their homes and businesses. She is a first-generation college student, a member of the Orientation staff leadership team, Delta Delta Delta sorority, Wofford Sports Marketing and Wofford Athletics and Recreation Committee.

Faculty collaborator and mentor: Dr. Jim Neighbors, professor of English.



Grace Sorrell '23 is a sociology and anthropology and humanities double major from Rougemont, North Carolina. She is a member of Delta Delta Delta sorority, Wofford Activities Council and a resident assistant. She was a member of the student research team focused on The Back of the College project. The Back of the College was an African American neighborhood located behind Wofford's campus. She worked with other students to transcribe data from Spartanburg County directories in to Excel sheets to be used as a public database for friends and family of the Back of the College to access on the website. She is incredibly grateful to have worked on such a meaningful project that is working to properly memorialize the Back of the College community.

Faculty collaborator and mentor: Dr. Jim Neighbors, professor of English.



Estefani Santiago Gatica '23, a computer science major with an intended concentration in data science from Kannapolis, North Carolina, spent the summer on a research problem focused on Bayesian false discovery control in large scale spatial multiple testing, which is a method used to reduce the levels of false positives in statistics. By adjusting established methodology from existing research, the research group could apply this to syndromic surveillance to aid the discovery of potential

health outbreaks sooner than the traditional methods currently used. Gatica is a member of the Orientation staff and secretary of the Organization of Latin American Students.

Faculty collaborator and mentor: Dr. Deidra A. Coleman, assistant professor of mathematics.



Megan Santos '23, a biology and studio art double major and chemistry minor, investigated the importance of iron and its effect on carbon degradation, specifically at two sites at Glendale Shoals, utilizing the Tea Bag Index. Further analysis will be done during Dr. Grace Schwartz's environmental chemistry course. This experience allowed her to learn a variety of lab analyses and techniques. She plans to attend dental school. On campus, she is a part of Campus Union, Wofford Asian and Pacific Islander Organization, Wofford Women of Color and Orientation staff.

Faculty collaborator and mentor: Dr. Grace Shwartz, assistant professor of chemistry.



Anye Stewart '23, a psychology major and an Arabic minor from Columbia, South Carolina, worked on a team that focused on delving into the history of Islam and Black history in America. The research followed the enslavement and spiritual journey of Muslim African slaves brought to America. The research focused specifically on enslaved persons Omar Ibn Said and Sancho. Stewart has a strong interest in the people, culture and history of the Middle East North Africa region. In her research, she linked the information she learned to the lack of representation present when teaching American history.

Faculty collaborators and mentors: Dr. Philip Dorroll, associate professor of religion; Dr. Courtney Dorroll, associate professor of religion; Professor Colleen Ballance, professor and theatre chair.



Lauren Strange '24, a French major with minors in international affairs and English from Greenville, South Carolina, spent the summer researching the Angolan Civil War from 1989 to 2002. She spent time with her fellow researchers looking at how representations of the peace process, ethnicity and third-party mediators differed

within Angolan newspapers from the designated time period. This research also consisted of interpreting and standardizing the levels of bias within the newspapers' representations of the chosen topics. She hopes this research will be useful in the future study of civil wars and how different biases within the media contribute to internal conflict as well as international conflicts.

Faculty collaborator and mentor: Dr. Ramón Galiñanes Jr., director of undergraduate research and post-graduate fellowships.



Taylor Thornton '22 worked with a team at Glendale Shoals. Glendale was turned over to Wofford about a decade ago and is full of walking trails and rocks to bask on near the dam. While Wofford has had the land for a while, there is not much knowledge surrounding the biological community at the preserve. The research team focused on changing that through learning and creating a phenology trail. A phenology trail is a designated pathway where citizen scientists and volunteers can observe and note phenophase changes of trees. They measured the soil pH and moisture and recorded tree species at four distinctly different locations based on set criteria. In addition, they measured biodiversity of trees in Glendale to get an idea of species richness, abundance, percentage cover and frequency. The end goal is to figure out the logistics of measuring changes in the trees over time and making this an easy adjustment for future students working on this project.

Faculty collaborator and mentor: Dr. Katharine Putney, assistant professor of biology.



Godwins Tuyishime '24, a biology major from Charleston, South Carolina, studied Bayesian false discovery control in large-scale spatial multiple testing and adjusted established methodology from existing research in hopes of applying this to syndromic surveillance to aid the discovery of potential disease outbreaks sooner than the traditional methods currently used. Tuyishime is a Sigma Nu, a resident assistant and a member of Wofford Men of Color.

Faculty collaborator and mentor: Dr. Deidra A. Coleman, assistant professor of mathematics.



Isabella Wells '23, a biology and religion double major from Simpsonville, South Carolina., was a part of a research team that focused on studying the “nefesh”, the Hebrew word for soul. Wells worked to analyze primary texts in the Bible, such as the Psalms and the Book of Job, in order to look at how a suffering nefesh is understood from a biomedical, Israelite and mental health standpoint. Wells is a member of Zeta Tau Alpha and Alpha Phi Omega.

Faculty collaborator and mentor: Dr. Ingrid Lilly, assistant professor of religion.



Drew Wilson '23, an environmental studies major with minors in data science and finance from Sandersville, Georgia, researched the disparities in green space distribution, access, quality and use in Spartanburg County. During his team’s research, he primarily focused on creating spatial and visual data in ArcGIS and other mapping programs to represent these disparities. He hopes that his work will display the findings in an easy-to-understand format that can be used by citizens and government entities alike to enact change throughout the county. Wilson is a resident assistant, Wofford Ambassador and member of the Sustainability Club.

Faculty collaborator and mentor: Dr. Jennifer Bradham, assistant professor of environmental studies.



Wade Wood '22, an environmental study major and business minor from Raleigh, North Carolina, researched park equity in Spartanburg County. Obtaining the data used for this research involved designing a quality rubric to assess parks, visiting all parks listed by the Spartanburg County Parks Department to collect data, pulling cellphone data from Placer.ai to account for park use, using mapping software such as Google Earth Pro and ArcGIS to record and collect spatial data, and pulling demographic and income data from the U.S. Census Bureau. This data was analyzed using RStudio and visualized in a series of graphs (created using RStudio) and maps (created using ArcGIS). Wade has been working on this project since December of 2020 and will continue the project through the coming school year. Some of

the goals of the project are to identify disparities in park distribution, quality and use and to make information regarding parks in Spartanburg County accessible to the public.

Faculty collaborator and mentor: Dr. Jennifer Bradham, assistant professor of environmental studies.

SELECT STUDENTS PARTICIPATING IN NATIONAL SCIENCE FOUNDATION RESEARCH AND OTHER NATIONAL RESEARCH EXPERIENCES FOR UNDERGRADUATES



Jones Alexander '22 is from Edisto Island, South Carolina. He is majoring in chemistry and minoring in business. He worked in an organometallic chemistry lab at Furman University in the REU program. The goal of his research was to develop an N-heterocyclic carbene (NHC) supported zinc complex capable of intermolecular hydroamination. However, the majority of his time was spent forming two separate NHC ligands that could be used to support a zinc complex.

Faculty collaborator and mentor: Dr. Robert Harris, visiting assistant professor in chemistry.



Ethan DiBlasio '22 is a chemistry major and computer science minor from Spartanburg, South Carolina. He worked under the mentorship of Dr. Robert Harris as a part of the Furman University chemistry REU program. The Harris lab conducts research in the field of organometallic chemistry. His project focuses on the development of new aminotroponimate (ATI) supported zinc complexes for hydroamination. He is president of Wofford's Alpha Phi Omega chapter, president of the fly-fishing club, a chemistry teaching assistant and a chemistry tutor.

Faculty collaborator and mentor: Dr. Robert Harris, visiting assistant professor in chemistry.



Robert Lamprecht '22, a computer science major with a concentration in neuroscience from Moncks Corner, South Carolina, was selected to participate in the Summer Neuroscience Internship Program (SNIP)

at the University of Florida. He joined the Dale Lab, which studies respiratory deficits following spinal cord injuries. Specifically, he researched the effects of epidural stimulation on the facilitation of diaphragm motor output following injury. He hopes that his work will one day lead to treatments providing a lasting, functional improvement for patients. Lamprecht plans to pursue a Ph.D. in neuroscience.

Faculty collaborator and mentor: Dr. Erica Dale, assistant professor in the Department of Physiology and Functional Genomics at the University of Florida.

GOVERNOR'S SCHOOL FOR SCIENCE AND MATHEMATICS STUDENTS



Sathvik Bodepudi, a high school senior from Greenville, South Carolina, investigated the correlation that increasing global seawater temperatures and microplastics have on the symbiotic relationship between Aiptasia and their endosymbionts. He spent the summer developing protocols, running an experiment, analyzing data and brainstorming new approaches to experimentation.

Faculty collaborator and mentor: Dr. Geoffrey Mitchell, assistant professor of biology.



Haya Kidwai, a rising high school senior from Duncan, South Carolina, conducted research on the effects microplastics have in coral bleaching. The purpose of her research was to discover what relationship microplastics have on accelerating or possibly even provoking the bleaching process. In her project, she worked on developing a bleaching protocol that could then be applied to sea anemones, *Aiptasia pallida*, which were used as her model organism. Additionally, her summer consisted of maintaining the anemone population, performing different experiments and analyzing data.

Faculty collaborator and mentor: Dr. Geoffrey Mitchell, assistant professor of biology.



Whitney Kitchen is a high school senior. She is interested in math and physics primarily, and hopes to major in physics and later pursue a master's degree and a doctorate. Over the summer, she worked with a team on a project to create a mathematical model of a post-apocalyptic bunker population.

Faculty collaborator and mentor: Dr. Rachel Grotheer, assistant professor of mathematics.

FACULTY BIOGRAPHIES



Colleen Megarity Ballance, a professor and chair of theater at Wofford College, has worked in professional theatre for 30 years, most notably at the Guthrie Theater in Minneapolis, Minnesota, and Spoleto Festival USA in Charleston, South Carolina. She has worked on several feature films and continues to work as a freelance set designer.



Dr. Laura Barbas Rhoden, a professor of Spanish at Wofford College, is the author of two books, "Writing Women in Central America" and "Ecological Imaginations in Latin American Fiction," and numerous articles on Latin American environmental humanities, as well as civic partnerships and global learning in higher education. She is co-president of the Association for the Study of Literature and the Environment, an international professional organization, and founder of Alianza Spartanburg, a social impact network dedicated to fostering the inclusion of Latinx residents in improving quality of life in Spartanburg. She currently serves as a non-trustee program committee member for the Mary Black Foundation; a member of the EMERGE Family Therapy and Teaching Clinic Board; the Behavioral Health Task Force; the Spartanburg Food System Coalition; and the Community Advisory Board for CONNECT. She has collaborated with Dr. Christine Dinkins, Wofford's Kenan Professor of Philosophy, community members and students to conduct several public research projects in the Spartanburg community. Students have presented these projects at national and international

conferences, and the project reports are available open access in the Wofford Digital Commons.



Dr. Jennifer Bradham, an assistant professor of environmental studies and co-coordinator of the data science program, earned a bachelor of science degree from the College of Charleston, a master of science degree from the University of California, Santa Barbara, and a Ph.D. from Vanderbilt University. She is a quantitative ecologist who evaluates how large mammals interact with their environment and how these interactions are altered in response to anthropogenic land use modification and climate change. While most of her research occurs in the Neotropics, she has also developed a local research program based in data science and focused on equity. This work includes a quantitative assessment of green space equity in Spartanburg County and quantifying systematic biases preventing equity in STEM fields.



Dr. Anne Catlla, an associate professor of mathematics and Wofford's associate provost of curriculum and co-curriculum, earned bachelor's and master's degrees in mathematics from the University of Kansas and a Ph.D. in engineering science and applied mathematics from Northwestern University. At Wofford, she teaches courses related to applied mathematics, linking mathematical ideas with questions in other disciplines. Her research focuses on the analysis of political district maps, which has led to her currently being a member of the League of Women Voter's Redistricting Advisory Committee. She was the recipient of the Roger Milliken Award for Excellence in the Teaching of Science in 2014 and is the 2021 Southern Conference Faculty Member of the Year.



Dr. Deidra A. Coleman, an assistant professor of mathematics and a native of Savannah, Georgia., earned her Ph.D. in statistics at North Carolina State University. She is beginning her fifth year as a member of the faculty at Wofford College. She has mentored students engaged in undergraduate research since 2015. Her research interests are in improving the methods for early outbreak detection, adding to the approaches for encouraging statistical literacy and studying the mathematical beauty associated with subtraction games. She loves introducing students to the potential of that type of exploration.



Dr. Christine Dinkins, Kenan Professor of Philosophy and recipient of Wofford's Covington Award for Excellence in the Teaching of the Humanities and Social Sciences, is co-author of two books, "Listening to the Whispers: Re-thinking Ethics in Healthcare" and "Our Dissertations, Ourselves: Shared Stories of Women's Dissertation Journeys." Dinkins also has published widely on the use of the Socratic method in teaching and qualitative research. She has collaborated with Dr. Laura Barbas Rhoden, professor of Spanish, community members and Wofford students with support from the undergraduate research program to conduct several public research projects in the Spartanburg community. Students have presented these projects at national and international conferences, and the project reports are available open access in the Wofford Digital Commons.



Dr. Courtney Dorroll, an associate professor of religion, is a co-coordinator for Wofford College's Middle East and North African Studies program. She edited the book "Teaching Islamic Studies in the Age of ISIS, Islamophobia, and the Internet," which has several chapters that offer teaching strategies and concrete examples of classroom assignments. The book was published by Indiana University Press. Her work focuses on the scholarship of teaching and learning Islam, area studies and self-care pedagogy.



Dr. Phil Dorroll, associate professor of religion at Wofford, holds a Ph.D. in religion from Emory University. His work focuses on Sunni Islamic theology in classical Arabic and modern Turkish, and the history of interactions between Eastern Christianity and Islam. He also is currently researching the earliest Arabic manuscripts produced by enslaved Muslims in the Carolinas.



Dr. Youmi Efurd, Wofford College's curator, organizes and maintains the college's fine arts collection and exhibitions. Originally from South Korea, she holds a bachelor's degree in art education from Korea University, a master's in art history from the University of Georgia and a Ph.D. in history of art from the University of Kansas. Efurd's specialty is in Chinese art, and she uncovers the living nature of religious art as it responds to changing political, religious and social circumstances in Chinese history.

Her training in Asian languages and societies aids her research and broadens her perspective of viewing and understanding culturally significant objects. In addition to curatorial duties, she teaches museum studies at Wofford. Previously, she taught classes at the University of Kansas, Furman University, USC Upstate and Limestone College. Her recent administrative duties focus on the development of educational programs for visitors to enrich their museum experiences, as well as conservation and preservation of the college's art collection.



Dr. Ramón Galiñanes Jr. is the director of undergraduate research and post-graduate fellowships at Wofford College. He holds a bachelor's degree in history from Montclair State University, a master's of philosophy in politics, democracy and education from the University of Cambridge (England), and a master's degree and Ph.D. in political science from the University of Florida. His research examines important questions about civil conflict, democratization, migration, civic engagement, ethnic politics and social movements. He has received grants and fellowships from the American Political Science Association, the National Security Education Program, the U.S. State Department of Education Foreign Language and Area Studies Program and the Gates Cambridge Trust. Galiñanes has taught social science and humanities courses and has organized and directed several study-away courses to Washington, D.C., and New York City. Galiñanes is a first-generation college student who is passionate about encouraging and empowering students to develop as scholars and civic leaders.



Dr. Natalie Grinnell, Reeves Family Professor in the Humanities, has taught in Wofford's English department since 1997 and supervised the peer tutoring program since 2011. Her area of specialization is medieval studies, specifically Old French and Middle English romance and the works of John Gower and Geoffrey Chaucer. Recent publications include "Digital Unstorytelling: An Exercise for Teaching 'The Cloud of Unknowing' to Undergraduates" and "An Eco-critical Analysis of Gower's 'De Lucis scrutine.'" She is currently working on a book on the natural world as portrayed in Gower's poetry.



Dr. Rachel Grotheer, an assistant professor in mathematics, earned her Ph.D. in mathematical sciences at Clemson University and bachelor's degrees in mathematics and French at Denison University. Her teaching and research areas lie mostly in applied mathematics, with calculus-, computational- and modeling-based classes her favorite to teach. Her research interests increasingly blur the line between mathematics and data science, and include medical image reconstruction, signal processing, machine learning and natural language processing. In addition to teaching mathematics, she is one of three faculty members heading up Wofford's data science program.



Dr. Robert Harris '09 majored in chemistry and mathematics at Wofford College. He completed his Ph.D. in organometallic chemistry at Duke University and a Howard Hughes Medical Institute funded postdoctoral fellowship at Emory University. Harris returned to Wofford in the fall of 2019 as a visiting assistant professor in chemistry. His research interests include both curriculum reform in undergraduate chemical education and the development of transition metal complexes to catalyze new reactions in organic chemistry.



Dr. Ingrid Lilly, assistant professor of religion at Wofford College, earned her Ph.D. in Hebrew Bible from Emory University. Her research focuses on medical cultures in the ancient Near East and how issues of health and illness inform biblical presentations of the self and embodied experience. She is working on her second book, "The Anatomy of the Self: The Hebrew Soul and the Western Body," which explores how ancient medical ideas paint a new picture of the pre-Christian soul. In the Wofford classroom, Lilly teaches courses on sacred texts, helping students understand not only their historical contexts but especially how ancient and modern cultures make and read religious literature. Her courses focus on themes of women and gender, migration and borderlands, suffering, sexuality and political theologies.



Dr. Carolyn Martsberger, an assistant professor of physics, earned a bachelor's degree from the College of the Holy Cross and then a master's and Ph.D. in physics from Duke University. While at Duke, she

completed a certificate in translational medicine from the University of North Carolina at Chapel Hill. Prior to joining Wofford, she was a postdoctoral fellow in clinical neuropsychocardiology at Duke University Medical Center and taught physics at the undergraduate level. She is excited about her many opportunities to explore her passion for the intersection of cardiology, medicine and physics in a variety of settings. Her research focuses on understanding the nonlinear phenomena that promote irregular rhythms in cardiac tissue. She also is interested in how nonlinear, physiological systems such as the brain and heart collaborate and interact.



Dr. Geoff Mitchell, assistant professor of biology, earned a bachelor of science degree from Furman University and a Ph.D. in cancer biology at the University of Arizona, where he studied mechanisms for protecting normal tissues during radiation therapy for head and neck cancers. He also worked as a postdoctoral researcher at the University of Arizona and studied cellular decision making. At the end of his postdoctoral appointment, Mitchell joined the faculty of Colby College as a visiting assistant professor of biology before coming to Wofford. At Wofford, his research program, driven by his love of the ocean and scuba diving, focuses on the pressing environmental problem of coral bleaching that is occurring at an alarming rate across the globe. He and his students have published this work in leading academic journals and presented at regional and international conferences.



Dr. Jim Neighbors, an English professor and one of the co-coordinators of the African/African American Studies Program at Wofford College, is a partner in the collaborative project to tell the history of the primarily Black neighborhood that existed behind Wofford, called Back of the College by its residents. Back of the College began in 1869 with the foundation of Silver Hill United Methodist Church and developed into one of the most prominent Black neighborhoods in Spartanburg. One of the two Black high schools during segregation, Cumming Street School, was built in the neighborhood in 1926 and served students until desegregation took hold in Spartanburg in 1969.



Dr. Katharine Putney, an assistant professor of biology, earned her bachelor's degree in biology at Earlham College and her Ph.D. in plant biology at the University of Georgia. She oversees the daily maintenance of Wofford's plant collection and the greenhouse facility in which it is housed. Her research interests include, broadly, the evolution and ecology of native plant populations, but more specifically, she is focused on plant-soil interactions and the effects of these interactions on patterns of local adaptation. However, this summer's research project, setting up a long-term research project tracking the phenology of local trees, has broadened her research scope to include the effects of climate change on the flowering time of trees.



Dr. Ramin Radfar, chemistry professor at Wofford College, earned his Ph.D. from the University of South Carolina and subsequently worked for a year in the crystallography laboratory at Schering-Plough Research Institute. In August 2001, he joined the faculty at Wofford College and since then he has supervised research projects of more than 40 students. Radfar has excellent experience with expression, purification, crystallization and structural studies of large proteins. He has solved crystal structure of several proteins, including 4-diphosphocytidyl-2-C-methyl-D-erythritol (CDP-ME) synthetase from staph aureus and RNA-dependent RNA polymerase of hepatitis C virus in complex with divalent cation.



Dr. Grace Schwartz earned bachelor's degrees in chemistry and philosophy from Virginia Commonwealth University, and a Ph.D. in environmental engineering from Duke University. She specializes in trace element biogeochemistry, contaminant remediation and environmental analytical chemistry. Her dissertation work explored the environmental impacts of coal combustion with a specific focus on the biogeochemical transformations and leaching potential of trace element contaminants from coal ash under different ash disposal and spill scenarios. After graduating from Duke, Schwartz worked as a postdoctoral fellow at the Smithsonian Environmental Research Center, where she developed in situ remediation technology for mercury-contaminated wetland sediments. She became a postdoctoral fellow

at Oak Ridge National Laboratory in 2017, where her research explored the ecosystem controls governing mercury methylation in sediments and periphyton biofilms. In fall 2020, Schwartz joined the faculty at Wofford and teaches courses in environmental and general chemistry. Outside of teaching and research, she enjoys marathon open water swimming and has competed in races ranging from 1 mile to 10 miles.



Jessica Scott-Felder is a visual and performance artist from Atlanta, Georgia. She is an assistant professor of studio art and teaches 2-D studio practices in the Department of Art and Art History at Wofford College. She completed her undergraduate studies in studio art at Spelman College, earned an MFA in drawing, painting and printmaking from Georgia State University and studied experimental printmaking at the Santa Reparata School of Art in Florence, Italy. Her work is featured in private and corporate collections in Spartanburg, Cambridge, the Four Seasons Hotel in Atlanta and New York. As the 2021 Martin Family Fellow, Scott-Felder will create work while on residency at AIR Serenbe, located in Chattahoochee Hills, Georgia. While on residency, she will be developing work for a solo exhibition and performance at Coastal Carolina University's Rebecca Randall Bryan Art Gallery in the fall 2021 term.



Dr. Thomas Wright, an associate professor in mathematics, earned a bachelor's degree from Bowdoin College and a master's degree and Ph.D. from Johns Hopkins University. He has been at Wofford since 2011, and his teaching style has been praised as "enthusiastic," "funny" and "really loud." He specializes in prime numbers, tests for prime numbers and false positives in tests for prime numbers. His papers have appeared in journals in the United States, Canada, the United Kingdom and Australia, and his book, "Trolling Euclid: An Irreverent Guide to Nine of Mathematics' Most Important Problems," was published in 2016. Outside of math, Wright is a professional saxophonist who has shared the stage with everyone from Regis Philbin to Miss America, and he has played his saxophone on all seven continents. His first album, "Notes from the Journey," was released in 2019.

Special thanks to:

Jess Bonds

John Blair

Lynne Casalino

Tammy Cooper

Sherri Gossett

Roberta Hurley

Kathy Kelley

Lisa Lefebvre

Brian Lemere

Rebecca Parrish

Dr. Tracy Revels

Micki Roddy

Michelle Smith

Dr. Phillip Stone

Dr. Tasha Smith-Tyus

Members of the community who have supported these research projects

Members of the Faculty Development Committee

The Office of Marketing and Communications

The Office of the Provost

The Office of the President

Interested in learning more about summer collaborative research
opportunities at Wofford College?

Please contact Dr. Ramón Galiñanes Jr.,
director of undergraduate research and post-graduate fellowships, at
galinanesr@wofford.edu.

