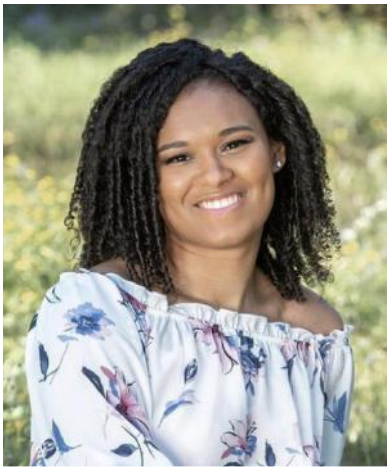
WFIRM

Wake Forest Institute for Regenerative Medicine

The WFIRM Annual Undergraduate Summer Scholars Program
Introducing the 2024 Summer Scholars

Offering undergraduate students opportunities to engage in impactful, multidisciplinary regenerative medicine research at the Wake Forest Institute for Regenerative Medicine, at the interface of engineering and biology.

2024 – Scholar's Profiles



Alana Anderson

University of Texas at Austin

Hi! My name is Alana Anderson, and I am a rising junior at the University of Texas at Austin. I am biology major on the pre-med track with a minor in analytics of sport and business. I am from Houston, Texas but I lived in Thailand for seven years where I was exposed to a multitude of cultures. My career goal is to attend medical school and become a sports medicine for profession sports team.

My exposure to research began in Freshmen Research Initiative, which is a program at UT that allows freshmen to explore the field of research while obtaining course credit, specifically the biomanufacturing stream. In FRI, I worked to optimize the production of biomolecules through a secretion system, specifically proteins. I am now a mentor in this lab and use my experiences and knowledge to guide the new participants as they begin their own research journey. I also conducted research at NASA Marshall Space Flight Center last summer, where I helped one of the teams in the Environmental Control and Life Support Systems with research pertaining to the International Space Station. I am super excited for the opportunity to explore research through a medical lens and learn new lab techniques.

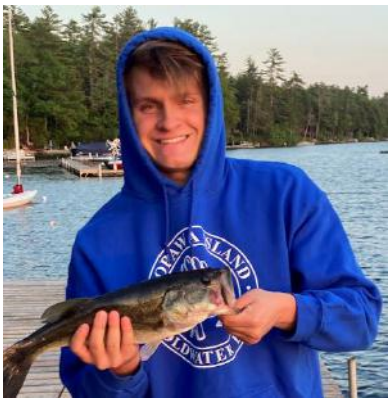
A fun fact about me is that I love sports, specifically football, and I swam competitively for eleven years. During the summers, I was an assistant coach for a swimming summer league,

and I helped kids from ages 5 – 14 improve their swimming technique. This was a great experience because as the kids were learning from me, I also learned valuable lessons from them as well. I am member of the volunteer committee for the Black Health Professions Organization, and I also volunteer at Trotter House, a local community outreach center for mothers and families in need of support to improve their lives.

Overall, I am truly grateful for this opportunity and eager to meet new people through this program!

Cooper Bay

Boston College



Hi everyone!! My name is Cooper Bay and I'm from Portland, Maine. I currently attend Boson College where I'm studying biochemistry on the Pre-Med track. Despite my future goal of becoming a doctor, I have always had a strong interest in biomedical research and biomedical engineering. In the past, I worked in a COVID-19 biorepository lab that analyzed the blood of patients with various vaccination statuses, long COVID, and MIS-C. Aside from my research interests, I have worked as an EMT for 2 years as a volunteer in college and in my hometown. I'm very excited and grateful for the opportunity to be a part of the WFIRM summer scholars' program at the forefront of regenerative medicine. These regenerative efforts are so vital to providing more sustainable cures to patient's conditions, rather than merely treating their symptoms. I can't wait to meet all of you!!!

Jadyn Bothe

Illinois Wesleyan University

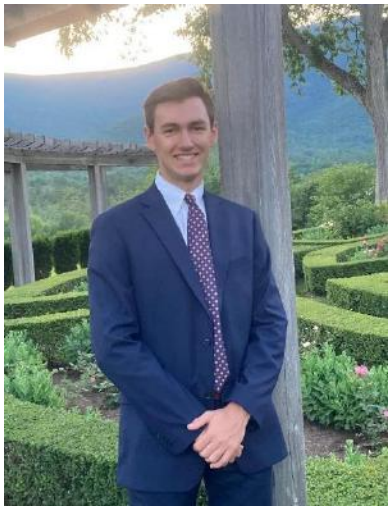
My name is Jadyn Bothe, and I am a rising senior studying Neuroscience at Illinois Wesleyan University in Bloomington, IL. At school, I work under Dr. Tyler Schwend, studying corneal nerve development and regeneration, which has led me to become interested in regenerative medicine and seek out this opportunity. Coming from a rural area and a small university, I am thrilled to be a WFIRM scholar and expand my knowledge and experience in this multidisciplinary field.

Outside of academics, I am a Track and Field team member at IWU, and I am involved in multiple campus organizations and

volunteer projects. I enjoy reading, hiking, and traveling. I am so grateful for this opportunity and excited for the experience this summer will bring!

Andrew Carey

University of Virginia



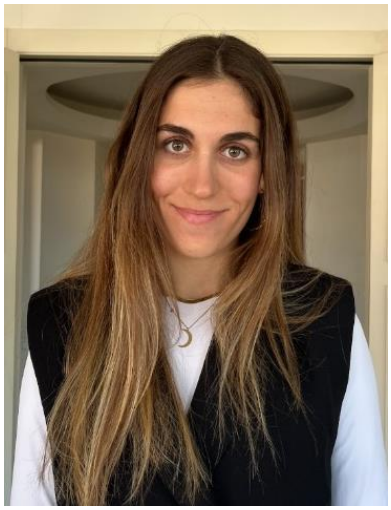
My name is Andrew Carey and I am from Wallingford, Connecticut. I am a rising 4th year at the University of Virginia where I am studying biomedical engineering on a pre-medical track. I have always been a problem-solver and admire approaching challenges in a variety of different perspectives – a combination of which supports both the innovation of engineering, and especially that of medicine.

Throughout my undergraduate studies, I have been fortunate to gain experience in abiomedical engineering lab – learning and practicing technical skills in multilaminar & larger unilaminar liposomal drug delivery, medical imaging systems, biomechanics of soft-tissue and much more. In addition, I have work experience as a clinical research assistant at UVA Health's Kinesiology department where I work with heart failure patients with reduced ejection fraction (HFrEF); working toward a goal to improve therapy strategies that prolong the health and lifespan of patients. Lastly, over the past year I have worked on an FDA Q-submission for a future premarket submission of an hyaluronic acid hydrogel. The purpose of the hydrogel is to augment the uterosacral ligament suspension (USLS) procedure in order to improve surgical outcomes for women experiencing pelvic organ prolapse.

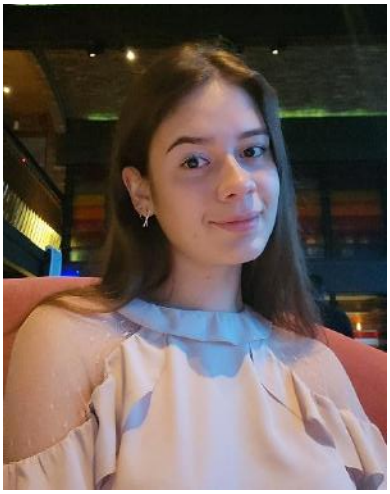
On a personal note, I absolutely love music (I collect vinyl records of every genre), greatly enjoy the outdoors and being active, going to the gym, traveling and trying new experiences, and overall, I am a social extrovert. Outside of academics, I work with elementary-school children in a program called College Mentors for Kids – this is an absolute passion of mine, and I love the opportunity to have an impact on these little kids' lives. I am also a residential advisor for first year students, a fellow for the Meriwether Lewis Institute for Citizen
Leadership, and regularly try to be very active in my university and the greater Charlottesville communities. Overall, I am very grateful for this opportunity to participate in regenerative medicine research at WFIRM, and am excited to meet everyone!

Victoria Cubina-Lopez

Dartmouth College



My name is Victoria Cubina and I am a junior studying Biomedical engineering at Dartmouth college completing a dual degree program with St. Lawrence University. I am super excited to engage with regenerative medicine this summer and learn valuable skills to contribute to advances in the field. From classes taken during my undergraduate degree, reading and researching in my free time, and internship experiences, my desire to contribute to this dynamic field has only grown stronger. Observing and gaining insight into the remarkable progress within the fields of tissue engineering, cancer, stem cell therapy, and organ regeneration has prompted me to contemplate the potential boundaries of advancements in medicine and healthcare. I hope that one day I am able to use my versatile and collaborative mindset together with my passion for the world of athletics, to integrate scientific disciplines in pursuit of groundbreaking discoveries within the interdisciplinary nature of biomedical engineering. I can't wait to be at WFIRM to collaborate and learn with leading experts and immerse myself in cutting-edge projects.



Daniela Danilova

University of North Carolina at Chapel Hill

Hello everyone! My name is Daniela Danilova and I am a sophomore at UNC-Chapel Hill. I study quantitative biology and statistics, with plans of either pursuing medical school or a career in biotech. I am relatively new to regenerative medicine, but I am very excited to branch out in my research journey to pursue this growing field and gain a new perspective on how far treatment of structural pathologies can really go.

I've been close to the medical field my entire life. Growing up with an oncologist mother, I remember sitting in her office after school, waiting for her to finish the day. What started with anatomy picture books gradually morphed into an obsession with medical mystery shows like Monsters Inside Me and reading up on obscure disorders. For most of my life, going into medicine didn't feel like a decision I had to make, but rather as the logical destination.

As I matured, however, so did my interests. And I became drawn to areas that never so much as piqued my curiosity. One of these was programming. I always considered this field to be tedious and thought I lacked intuition in this space. Nevertheless, I enrolled in an introductory course and was instantly hooked. Having taken a parallel interest in mathematics from a young age, I

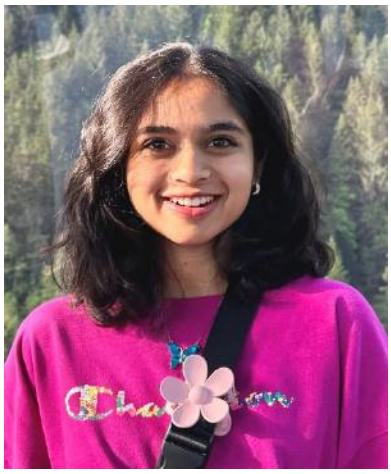
quickly realized the links between the structure behind numeric formulas and the algorithmic nature of computer code. Having an affinity for patterns, I became curious about what aspects of the natural world could be transformed into data points, leading me to genetics. This seemingly simple construction is the blueprint for every physical component of our bodies. The genetic code and associated molecules are a dynamic entity, constantly responding to variables in the environment, and I am interested in seeing whether there is a way to predictably alter gene expression based on a gene's surroundings. There is still much to be figured out about the code to life, but it's exciting to think what clinical implications could possibly arise from a deep study of the genome.

I currently work with the Chen Lab at UNC School of Medicine's Marsico Lung Institute studying muco-obstructive pulmonary diseases, such as cystic fibrosis and idiopathic pulmonary fibrosis, in both animal models and primary human tissue. Since I've joined the lab, I've gained a deep appreciation for the work we engage in, particularly in the context of potentially applying our findings to therapeutics for people affected with these disorders. This experience is why I've decided to pursue research at the WFIRM this summer: I want to build my understanding of what it takes to bring discoveries from the bench and into the clinical setting.

Outside of the lab, I volunteer for UNC Hospitals and write for both the Carolina Scientific magazine and DNA Day, a blog aimed at exposing high schoolers to interesting scientific questions. I am also an avid Brazilian jiu-jitsu blue belt and math tutor. I can't wait to spend the next summer at Wake Forest!

Roma Desai

Johns Hopkins University



My name is Roma Desai, and I am a freshman at Johns Hopkins University, studying Biomedical Engineering. I began conducting research in high school through the Draelos Summer Scholars Program and have worked in the fields of medical device design and biomaterials characterization. Through my research in a nanoengineering and chemistry lab at North Carolina A&T State University, I've developed zinc ferrite nanoparticles for biosensors. In this research, I synthesized zinc ferrite nanoparticles and characterized bioconjugates using UV-Vis absorption. These bioconjugates can be implemented to fabricate electrochemical sensors and biomedical diagnostic tools.

In the future, I am interested in working on the forefront of clinical health and patient-based diagnostics and therapies. My interest in a research-oriented career will require interdisciplinary teamwork. The WFIRM program will provide me with the right skills to do so, collaborating with graduate students, mentors/PI's, and fellow scholars. I look forward to having the opportunity to develop my networking and presentation skills through the

symposium, in addition to fostering skills that will equip me to pursue translational stem-cell based research. I am grateful for this research opportunity at Wake Forest and look forward to working with everyone!

Molly Dreher

Saint Mary's College of California

I'm Molly Dreher, a graduating senior at Saint Mary's College of California. I'm a Psychology major with a concentration in Neuroscience, and I have minors in Chemistry and Gender Studies. I have conducted psychological research on the mental health effects of COVID-19, and biochemistry research exploring the methylation of histones in algae. My long term goal is to attend medical school and become a psychiatrist, but my experiences in research throughout undergrad have inspired me to pursue research opportunities in regenerative medicine at WFIRM and see if an MD/PhD program is in my future.

In my free time I compete at the division 1 level in cross country and track, and I'm the captain of my team. I also lead an on-campus community for women in the athletic department, where athletes and admin can build community around our experiences and figure out actionable plans for change. When I'm not racing on the grass or the track, I work with a company called Voice in Sport and advocate for women in sport everywhere. This past year we reintroduced our bill reinforcing Title IX, and I was honored at the ESPYS for my work on Capitol Hill. I'm not sure where my passions will take me, but I'm excited to see how I can combine my drive for social activism, love of athletics, and desire to pursue research and medicine, in my lifelong endeavors.

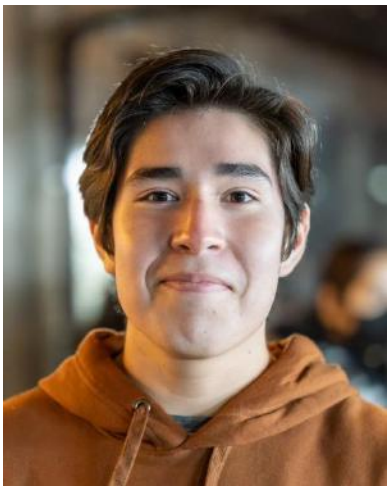
Shamaya Ellis

North Carolina A&T University

My name is Shamaya Ellis. I am a sophomore student from North Carolina A&T State University. At North Carolina A&T I am studying bioengineering. I have a keen interest in regenerative medicine and I am eager to immerse myself in the research conducted at the Wake Forest Institute for Regenerative Medicine this summer!

My interest with regenerative medicine begun after being part of a cell culture lab. During this lab I learned how DMEM affected the growth of the ear cell each day, and looking at these changes under the microscope. This has honed my skills in maintaining aseptic environments, monitoring cell cultures, and analyzing data. These experiences have instilled in me a passion for scientific inquiry and a desire to contribute to advancements in healthcare.

At WFIRM, I am eager to collaborate with renowned scientists and fellow scholars to explore innovative approaches to tissue engineering and organ regeneration. I am thrilled at the opportunity to join the WFIRM Summer Scholars Program and contribute to the research being conducted in regenerative medicine.



Oscar Gonzalez

Seattle University

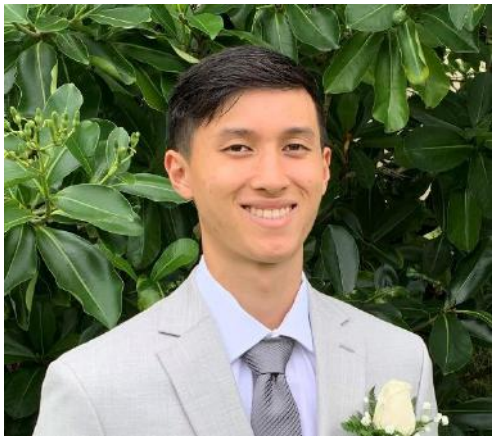
My name is Oscar Gonzalez and I'm a rising sophomore studying biology at Seattle University. Having played soccer all my life, I always loved learning about human anatomy to improve my performance on the field, and that later evolved into an overall fascination with the body's many parts, mechanisms, and responses. I'm obsessed with physiology and constantly asking "why", trying to figure out what drives processes to occur, why reactions take place and much more.

WFIRM and Regenerative Medicine came into play after my anatomy and physiology class in high school piqued my interest in the cardiovascular and nervous systems. From there I started researching as much as I could about the two, and they were further put at the forefront of my research interests after a long saga I had with pericarditis and experiences with those close to me. The pericarditis was inconsequential in the end, but after many blood samples were drawn, I discovered my elevated levels of HDL, High-density Lipo-proteins, a purely genetic form of

cholesterol. Given there's currently no medication or lifestyle changes as fixes, I started looking into Regenerative Medicine as a way to focus my interests and experiences to improve my or others' condition. For my interest in the nervous system and neurobiology in particular, I'm driven to research chronic mental illnesses after loved ones have been impacted heavily by them. Both of these experiences and influences have made me determined to work in Regenerative Medicine, and I'm very thankful to WFIRM for allowing me the chance to do so.

I've done research with two professors during my time at SU, with the first studying protein interactions in E. Coli's BrxC immune defense systems, such as the PGLX and PGLZ proteins. The big discovery after my time researching them was that those two proteins do form a complex dimer after running them through a size exclusion column and later discovering the 3D shape through Cryo-EM technology at the Fred Hutchinson Cancer Center. Now, working on my first full project, I'm studying what fitness advantages, if any, inteins have on the cell. I'm focusing on the VMA1 intein in the VDA protein in yeast by inserting the plasmid in one of two positions of the yeast genome, and studying what impact the location of the intein has on the cell and its survival once the intein excises itself out.

For professional goals, I aim to go to medical school and eventually become a pediatrician or cardiologist. For personal hobbies, I love playing and watching soccer, F1, hiking, running, listening to music, and exploring new places! As my first summer research program, I'm incredibly excited to gain amazing lab experience and to meet you all. I'm looking forward to having lots of fun together this summer!



Chancen Law

Harvard University

Hi everyone! My name is Chancen, I'm a rising sophomore at Harvard University, where I intend to pursue a double major in biomedical engineering and computer science. Born and raised on the island of O'ahu, Hawai'i, my academic interests primarily lie in exploring the intricate intersections between medicine and longevity. I'm, thus, driven to integrate cutting-edge computational methodologies with biomedical engineering applications to promote transformative technologies and solutions aimed to address degenerative diseases, both physical and neurological. I also hope to be a catalyst to optimize healthcare accessibility and efficiency.

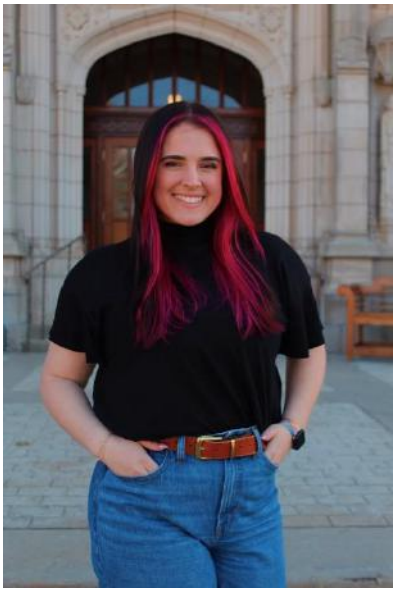
My commitment to continuous learning and collaboration serves as the guiding principle behind my academic endeavors. During my time at Harvard, I've been able to participate in

stem cell research at the Zhang Lab with the Harvard Stem Cell Institute, where I conducted joint-lineage, transcriptomic, and epigenetic profiling in hematopoietic stem cells, contributing to the body of knowledge surrounding their therapeutic potential in regenerative medicine. Additionally, I am the technology chair within the recently established Aging Initiative at Harvard College, where I manage the organization's digital platforms and help coordinate events and projects that intersect biotechnology and policy. Through my active involvement, I seek to foster interdisciplinary dialogue and drive collaborative efforts towards effecting meaningful change within the healthcare landscape.

Beyond academia, my interests span fitness, sports, nature/outdoor activities, and watching movies/listening to podcasts. These pursuits not only serve as outlets for personal rejuvenation and growth but also reinforce my commitment to holistic well-being and enrichment.
I am very enthusiastic about the opportunity to participate in the WFIRM program, recognizing it as a pivotal juncture in my academic journey to deepen my understanding of regenerative medicine.

Logan Longacre

University of Oklahoma



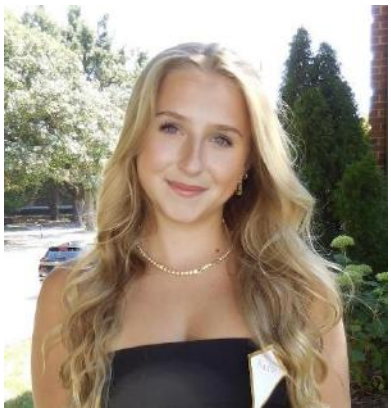
Hello everyone! My name is Logan Longacre, and I am a rising senior studying Biomedical Engineering at the University of Oklahoma. After completing my undergraduate degree, I would like to pursue a PhD in Biomedical Engineering and eventually work in the regenerative medicine research field. I am eager to attend the WFIRM Summer Scholars Program and learn more about the specific subfields within regenerative medicine!

My research experience has included working at the Wilhelm Lab at the University of Oklahoma, where I study the creation of diagnostic testing with gold nanoparticles. I also have contributed to projects including the development of biocompatible monodisperse gold nanoparticles that could further the use of nanoparticles in our diagnostic test. I have thoroughly enjoyed my research experience thus far, and it has inspired me to pursue a career in biomedical research. I look forward to the opportunity to explore more research interests in the WFIRM program.

Outside of academics and research, I am involved in The University of Oklahoma Campus Activities Council as the Executive Vice Chair, in which we plan fun events for students on campus, like free movie nights and trivia tournaments. I also am a part of our local Out in STEM chapter, and Alpha Gamma Delta. In my free time, I enjoy exploring Norman’s local restaurants and coffee shops with my friends. I am incredibly honored and excited to join this year’s WFIRM cohort, and I cannot wait to get started!

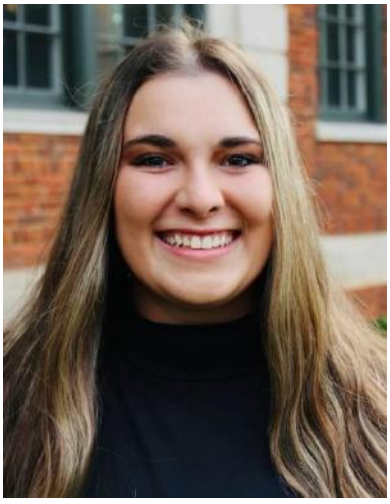
Kathleen McGovern

University of Illinois



Hello Everyone! My name is Kathleen McGovern and I'm a rising junior studying Integrative Biology at the University of Illinois Urbana-Champaign. I've been drawn to science all my life because of my passion for the medical field and desire to make a positive impact on the health and wellbeing of others. My interest in the medical field started at an early age and impacted the classes I have taken and the extracurricular activities I joined. As a leader in Young Life Capernaum, I worked with teens and young adults with disabilities, which reinforced my dedication to making a positive impact on patient care. I spent my time last summer being a research assistant at the University of Chicago, where I contributed to studies on tranexamic acid and traumatic brain injuries, allowing me to witness the direct application of research in a hospital setting. This position intensified my desire to explore research, motivating me to pursue this internship in the innovative area of regenerative medicine. This summer, I am eager to engage in regenerative medicine research at WFIRM. The idea of working on the creation of functional tissue and organs is very exciting and aligns with my career aspirations.

Outside of research, I love playing soccer, painting/drawing, snowboarding, going on walks, trying new foods, and spending quality time with friends. I am excited about the prospect of meeting and forming connections with fellow scholars, mentors, and researchers who share my passion for advancing regenerative medicine. Engaging with diverse perspectives, people and experiences will undoubtedly enrich my understanding and drive to contribute meaningfully to this innovation impacting the medical field.



Samantha McNabb

Clemson University

Hello! My name is Samantha McNabb, and I am a rising senior bioengineering student specializing in biomaterials at Clemson University with a minor in microbiology and material science engineering. I am from Cleveland, Ohio and enjoy playing basketball, hiking, and spending time with friends at our local coffee shops in my free time. I have been interested in regenerative medicine ever since learning about some of the broad capabilities of stem cells back in high school. I wanted to pursue a degree that would allow me to get some hands-on

experience in researching unique therapies and biotechnologies. Thankfully, Clemson's Bioengineering Department has provided me with that opportunity.

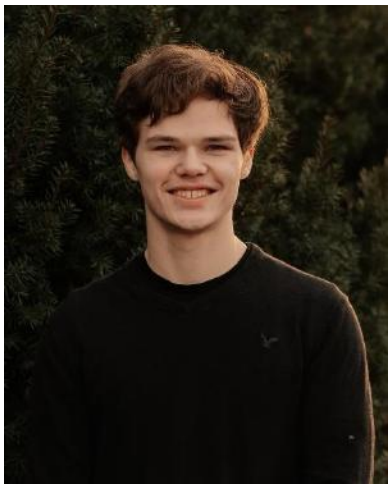
This past year, I joined the Biocompatibility and Tissue Regeneration Laboratory (BTRL) under Dr. Dan Simionescu as an undergraduate researcher. My current project involves assisting my PhD mentor with his predoctoral project, centered around developing a novel, tissue-engineered model for studying the mechanisms of diabetic cardiomyopathy. I am currently running pilot studies on printing preformulated bioinks from CellInk. During this semester (Spring 2024), I am also studying the bioprinting capability of the novel cardiac ECM hydrogel from my mentor's project, with the eventual goal of printing a cell-seeded cardiac patch. My mentorship thus far has included training in dissections of porcine hearts, cell culture, decellularization, histological staining, and imaging techniques. The BTRL has not only provided me with the opportunity to learn new methods for conducting research but has also fueled my passion to learn more about regenerative medicine.

I am truly honored to have been selected to be a WFIRM Summer Scholar for 2024. During my time with WFIRM, I will be able to delve deeper into a project that integrates my love for engineering and biology. This program offers a chance to enhance my knowledge and research skills under the guidance of experts in regenerative medicine.

I look forward to meeting my fellow summer scholars and outstanding faculty members at WFIRM. I hope my excitement and passion for research allow me to make long-lasting connections throughout the summer with people who all share the goal of advancing health care for a better tomorrow.

Daniel Ormsbee

Cedarville University

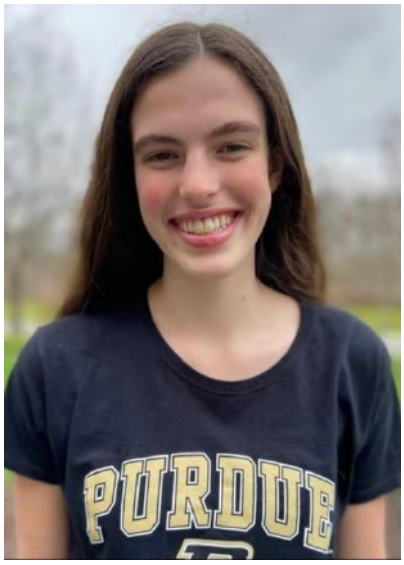


My name is Daniel Ormsbee. I am a current Junior Molecular Biology and Mechanical Engineering student at Cedarville University, a private nonprofit university of 5,000 undergraduate students located near Dayton, Ohio. My current plan post-bachelors degree is to pursue an MD/PhD in either regenerative medicine or bioengineering.

My passion for research began at an early age, often tinkering and researching new topics and ideas. This led me to several topics, related to my majors, wherein my interest in biological systems and engineering design overlapped, chiefly the field of Regenerative Medicine and Tissue Engineering. After completing my first undergraduate research paper on domestication syndrome in mammals, I stumbled upon the work of Michael Levin on “bioelectricity.” This stoked my interest in regenerative

medicine and specifically the role of gene therapy and base level physics in engineering mammalian tissues.

I hope to learn more about regenerative medicine during my time at WFIRM, and gain hands-on experience with research in this field. I love to learn, and I want to glean as much as I can from this experience, seeking to leverage it towards my future goal of becoming a physician-scientist. As a final side-note: I love people, and getting to know new and interesting people is a favorite hobby of mine. Please don't hesitate to say hello and start a conversation. I love to read, write poems, and play piano in my spare time, going on long road trips and dreaming of travel when I get the chance.



Megan Parsons

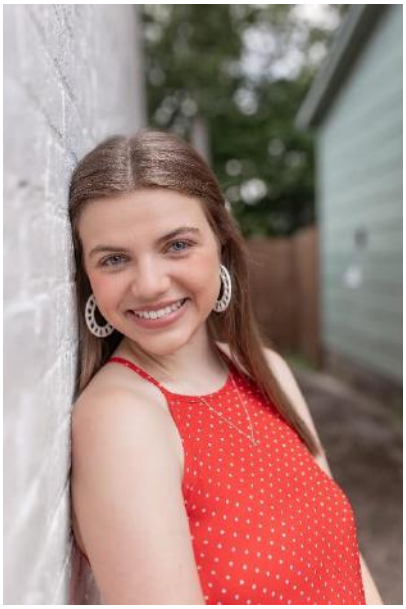
Purdue University

Hi! My name is Megan Parsons, and I'm a rising junior at Purdue University majoring in biomedical engineering with a minor in Spanish for the professions. At Purdue, I have had research experience through my participation in the Vertically Integrated Projects Program during my freshman year. I also had a great experience during my internship at AbbVie last summer where I worked in a cancer research lab. I have always had a strong interest in medicine, but that internship made me realize that I have a passion for medical research and that I want to pursue either a PhD or an MD/PhD. Outside of academics and research, I love to play tennis, read, do puzzles, and travel. I had an amazing opportunity to both travel and learn when I participated in a Maymester study abroad program in the Netherlands exploring healthcare innovations. I am also a big fan of Purdue football and basketball and love going to games.

I am thrilled and grateful to be participating in the WFIRM Summer Scholars Program. I am looking forward to learning about regenerative medicine and tissue engineering, and I am excited about the opportunity to contribute to cutting-edge research with the potential to help many patients. I plan to use this program to expand my research skill set and to help me decide my future career path. I am very excited to meet everyone and for a great summer!

McKenzie Paul

Miami University

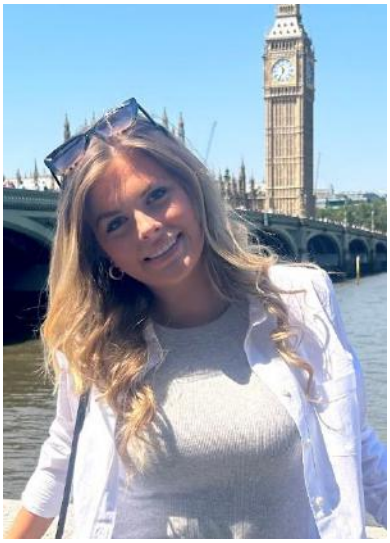


Hello everyone! My name is McKenzie Paul, and I am from Springboro, Ohio. I am a rising junior at Miami University, in Oxford, Ohio, where I am a biochemistry major with a pre-health co-major and a molecular biology minor. I am currently undecided on my future career path, but some of my potential interests include medical school, pharmacology school, or research in biochemistry, biomedical topics, or genetics.

Currently, I do research in Dr. Michael Kennedy's NOD Mouse Model of Type 1 Diabetes Lab in the chemistry department at Miami. The focus of the project is to investigate the role that a certain gut microbial population has on the development of Type 1 Diabetes in individuals who are genetically predisposed to have a high population of those specific microbes. I have really enjoyed all of the techniques I have learned over the last semester, including a few different types of staining and training for microscopes, and look forward to continuing work in the lab as we make progress with our live mice.

I first developed interest in the WFIRM program when I noticed how closely it overlapped medicine with research. Since I am undecided about my career path and am interested in so many aspects of science and healthcare, I look for projects and experiences that incorporate a variety of my interests. I have loved genetics and molecular biology since high school, and since I have an interest in attending pharmacology school after I earn my undergraduate degree, which is largely focused on chemistry, I was incredibly excited to see that the WFIRM program involves all four of these subjects. I am also thrilled to be able to research topics that will influence such an important and promising area of science and medicine, and truly make a difference in the lives of so many in the future. I tore my ACL two years ago, and know personally that it is the type of injury and surgery that will benefit greatly from advancements in regenerative medicine. I am looking forward to contributing to those advancements and to having the chance to solidify my plans for my career.

Outside of academics, I am involved in my university's Model United Nations Team, and I am the Director of Academics for my sorority, Alpha Omicron Pi. I enjoy reading, writing, soccer, and traveling, as well as a variety of board games and card games. I am incredibly grateful for the opportunity to research at Wake Forest University, and very excited to get started!



Mallory Pitts

Wake Forest University

My name is Mallory Pitts, and I am a rising junior studying Computer Science at Wake Forest University. I am from Winston-Salem, North Carolina, and I have grown up a Demon Deacon fan! In my free time, I enjoy traveling, watching sports, and hanging out with friends. Growing up, I loved math and science. This further moved into an interest in medicine: a way for my love of caring for others to fit in perfectly with my passion for STEM. During the first semester of my freshmen year, I took a computer science class, and I knew it was what I wanted to pursue as a major.

In high school, I completed research at a fertility institute examining the effects of Progenesis testing on embryos. This gave me hands-on experience with medical records systems and sparked my interest in the intersection of computer science and medicine. I also spent time volunteering at Wake Forest Baptist Hospital gaining more hands-on experience with patient interaction and healthcare.

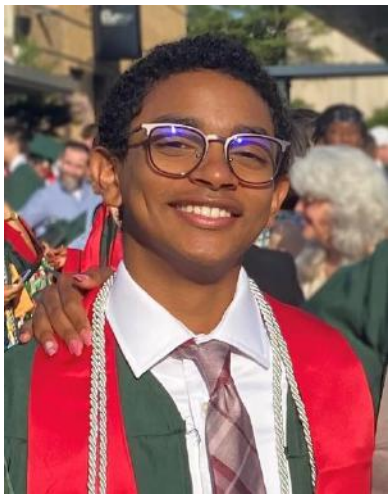
In one of my courses at Wake titled "Ethics in Emerging Technologies," I completed a research project exploring the ethics of electronic skin. The concept of biomaterials and creating something "alive" fascinates me.

Beyond academics, I thrive on social impact. I am involved in fundraising for the Brian Piccolo Cancer Research Fund at Wake Forest's Hit the Bricks. This is a cause near and dear to my heart and motivates my interest and passion for medicine.

In the future, I plan on attending medical school, or graduate school in computer science or another STEM field. I am extremely excited for this upcoming summer. The opportunity to delve into a relatively new field and explore its possibilities aligns perfectly with my passion for making meaningful contributions. I cannot wait to meet my mentor and the rest of the summer scholars!

Vijay Radhakrishnan

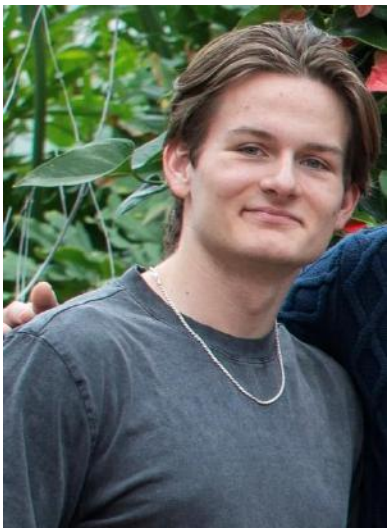
University of Texas Rio Grande Valley



Hi! My name is Vijay Radhakrishnan, and I am a rising junior at the University of Texas Rio Grande Valley, and I'm a Biomedical Sciences major. I've spent most of my life in Houston but have lived in Georgia and Iowa before as well. I've always been interested in medicine as a career path and knew that going into undergrad, medicine was the field I wanted to pursue.

My interest in research was not something that I anticipated as a freshman. Currently, I participate in a neuroscience-based research lab regarding the effects of myelin on mice neuropathies, most notably Neurofibromatosis. During our lab, we perform genotyping, mice handling, and cell imaging, among other things. My passion for research has been something I developed over time, rather than an interest that came to me naturally, and I believe the WFIRM program is the perfect next step in my journey.

Outside of research, I love to read and go to the gym, and I've always been a huge fan of collecting vinyl albums. I'm also a part of a few pre-med clubs at UTRGV, including the Pre-Medical Society and Caring for the Valley. For both of these clubs, we offer volunteering and career path advice for undergraduate students, both of which have been extremely fulfilling during my time in undergrad. I'm looking forward to the WFIRM program and getting to know everyone!



Matthew Spong

North Carolina State University

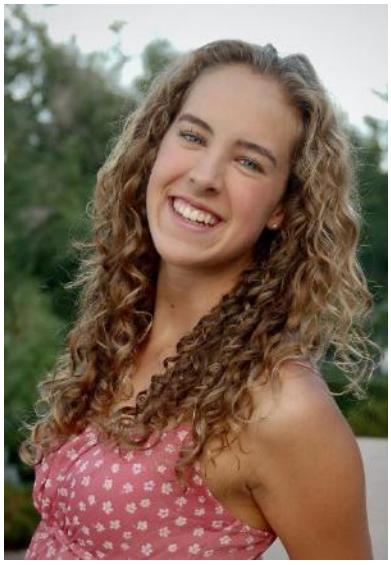
My name is Matthew Spong (he/him), and I cannot wait to begin working on a project in regenerative medicine. As a rising senior majoring in Mechanical Engineering, I have always been captivated by the intricate workings of the human body and the potential for scientific innovation to transform lives. I noticed a gravitation towards medical applications of engineering during high school when I completed a project that focused on trying to help paraplegics ride a bike again. While I will be the first to admit it was a very basic project (it was high school so cut me some slack), it sparked in me a desire to help others through engineering. I initially wanted to pursue a B.S. in Biomedical Engineering, but a career in racing bikes led me to a smaller

university that only had mechanical and electrical engineering. After spending two years racing collegiately and simultaneously studying mechanical engineering, I decided I wanted to put my racing career on the backburner and focus on learning as much as I could about the world of engineering. With that, I made the decision to transfer to North Carolina State University last fall (2023) to continue my pursuit of a mechanical engineering degree with a greater focus on my education. While I continue to train and practice in hopes of returning to professional racing, and maybe one day competing internationally, my goals in the short term have shifted focus to academics. That said, I plan to pursue a PhD in Biomedical Engineering immediately following my completion of undergrad. Outside of racing, work, and school, I also enjoy working out, listening to music, and doing pretty much anything outside.

What excites me most about this internship is the opportunity to contribute to groundbreaking research that has the potential to revolutionize healthcare. I'm drawn to the collaborative nature of regenerative medicine, and this internship specifically as it brings students from every major to contribute to the field of regenerative medicine. I look forward to learning from seasoned researchers and exchanging ideas with my peers to find out just what is possible in the field of regenerative medicine.

Claire Sznewajs

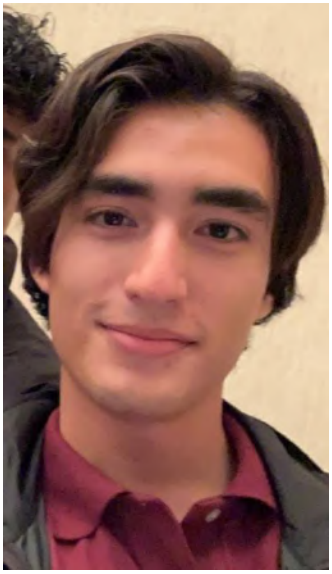
University of San Diego



My name is Claire Sznewajs and I am a rising junior at the University of San Diego. I'm a Biology major with a Chemistry minor on the premed track. I am originally from Boulder, Colorado and I will really miss my dog this summer, I look forward to experiencing a new part of the country through WFIRM Summer Scholars! I always thought I wanted to study marine ecology until I took an anatomy class my senior year of high school, which started my interest in medicine. My ultimate goal is to work as a surgeon and incorporate research into my career as a practicing physician.

During my shadowing experience in the ER last summer, it was disheartening to see so many patients suffering from chronic pain or diseases being sent home with their symptoms treated, but the underlying conditions remaining. This experience made me want to investigate, understand and treat the root causes of these conditions, ranging from arthritis to cancer. I am so excited for the opportunity to learn more about regenerative medicine this summer at WFIRM and its many applications. This semester, I started research in the lab of Dr. Anthony Bell investigating the use of DNA/PNA four-way junctions for protein binding and novel antibiotics. Although my research is just beginning, I am excited to apply my knowledge from my lab work to the work I will do this summer.

Outside of research and school, I love to swim, bake, read, hike and learn to surf! I love the outdoors, especially the mountains. At USD, I am captain of the club swim team and I enjoy tutoring at the university Writing Center. I also am a part of the USD chapter of Medical Brigades, a sorority, and the Honors Program. I look forward to meeting everyone!



Carlos Alberto Villalobos Galindo

Loyola University

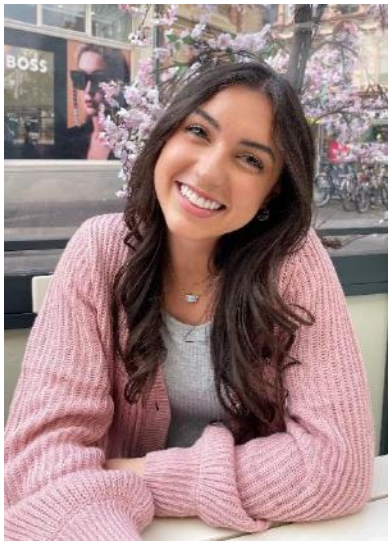
Hi! My name is Carlos Villalobos. I am a Junior international student from Mexico studying biochemistry at Loyola University New Orleans. Even though I enjoy the swamps of Louisiana, I enjoy the dry weather more in the northern part of my home country where I was born! Since I was little, I have had a great interest in chemistry, so I decided to study biochemistry in the United States, where I could significantly improve my knowledge and skills. My motivation for becoming a great scientist who can achieve discoveries in research is never-ending and always increasing!

Since the start of the second semester of my first year at Loyola University New Orleans, I have been researching the tunability of asymmetric rhodamine derivatives. These derivatives can switch from a closed to an open form in the presence of a stimulus, such as a chiral analyte. Upon opening, they change color rapidly and begin to fluoresce. These switch characteristics indicate that they can be used as sensors for intra-cellular monitoring, which could potentially help in advancing global health. Our project aims to study the tunability of the asymmetric rhodamine derivates for the open/close mechanism and the rotation of the rotamer of the atropoisomeric form. Under the supervision of Dr. Clifton Stephenson, I synthesize these asymmetric derivatives and observe how structural changes can tune the ring opening mechanism under acidic conditions.

Being a part of WFIRM this summer is a fantastic opportunity for me to dive into outstanding regenerative medicine research. I have never been involved in regenerative medicine, but it has always been a research area I wanted to participate in. More specifically, involvement in the pharmaceutical science and drug delivery system research that is taking place at the institution would prepare me to become a more experienced biochemist. I am excited to begin researching the cross-section between chemistry and regenerative medicine.
Outside the laboratory, I enjoy watching movies/series, playing soccer, listening to music (I love Post Malone), and spending time with friends and family! I am excited to create new friendships at WFIRM during the summer, so please don't hesitate to reach out!

Shaelyn Walker

Duquesne University



Hi! My name is Shaelyn Walker, and I am originally from Somerset, PA. Currently, I am a rising senior biology/pre-medicine student at Duquesne University in Pittsburgh, PA. After finishing my undergraduate degree, I plan to attend medical school and pursue a career as a physician. I enjoy being very involved on my campus by engaging in and holding various leadership positions in several clubs: Friends of Doctors Without Borders, Duquesne Dance Marathon, Student Health Advisory Council, Tri Beta Biological Honor Society, Delight Ministries, and the Duquesne Health Professions Society. I am also a part of the Beta Delta chapter of the Alpha Sigma Tau sorority, as well as a general chemistry tutor and a peer mentor to freshman students. Outside of school, I work as a hospitality associate on the Trauma Burn Unit at UPMC Mercy Hospital and seasonally at Hidden Valley Ski Resort. When I am not busy with any of these several things, I love to travel (especially internationally!), lift at the gym, hike, attend church and Christian conferences, camp (more like glamp), try out new restaurants/cafes, enjoy a lake day, volunteer, and spend time with my friends and family.

I started my career in research my sophomore year in Dr. Matthew Kostek's lab in the Duquesne University Rangos School of Health Sciences. The primary focus of our work in this lab is to further the physiological and molecular research behind the effects and treatment of myositis and muscular dystrophy in mice, to be translated to research on affected humans. Last spring, I was able to present at my university's undergraduate research and scholarship program on the myositis mouse model our lab Induced through histidyl-tRNA protein, which I received an honorable mention for. Additionally, last summer, I was blessed with a summer internship at the Vanderbilt University Medical Center. During this internship, I worked as part of Dr. Polosukhin's lab, under the mentorship of Dr. Sergey Gutor, within the Department of Medicine in the Division of Allergy, Pulmonary, and Critical Care Medicine. I studied the ways in which cigarette smoke induces pulmonary vascular remodeling through formation of isolevuglandins and sirtuin-3 inactivation. Overall, my experience at Vanderbilt taught me an exorbitant amount of information regarding the realities of biomedical research and laboratory techniques and protocols, as well as immensely grew my knowledge of cardiovascular medical research and improved my functional capabilities and critical thinking skills as a scientist.

Through WFIRM, I am excited to gain knowledge of regenerative medicine and experience in the research that drives it, as this field is very new to me. The collaboration between multiple fields of science and engineering that are required in regenerative medicine research is something that I look forward to engaging in and learning more from. I am prepared to be challenged through WFIRM this summer, and I welcome that challenge with a desire to grow as a scientist. I am eager to enhance my research skills, build valuable connections, and gain helpful advising for future research projects and medical school.

Coco Zhang

University of Virginia

Hi everyone! My name is Coco Zhang, and I am a rising 4th-year student at University of Virginia (UVA) studying Biomedical Engineering (BME) and minoring in Computer Science (CS), and I am from Shanghai, China.

Thus far at college, I have been very grateful to have the opportunities to expose myself to a variety of BME-related courses and applications, including being in a tissue engineering lab focusing on biomaterials, having some experiences with 3D designing for medical devices in class, and accompanying BME analysis with computational models. Amongst all these topics, regenerative medicine is definitely one of the topics that has me most intrigued and eager to learn more through hands-on experiences through the WFIRM program with all the other scholars! Through WFIRM, I endeavor to broaden my horizon in regenerative medicine and channel my innovative approach and curious initiatives so that I can better apply myself in future BME careers.

Outside of school, I enjoy rock climbing, reading, singing, and playing board games with my friends. I also love embracing nature through hiking as well as other outdoor activities. As I have never been to North Carolina, I am very excited to explore the Wake Forest campus and Winston-Salem around it!