AWARDS RECEPTION

SPRING 2023

Friday, May 12, 2023 | 10:00 AM

Stotler Lounge, Memorial Union

Division of Biological Sciences
University of Missouri

Departmental Honors

Graduates earning Departmental Honors have completed a research project carried out over a period of at least two semesters under the supervision of a life sciences faculty member at MU and have presented their research results at a public forum or in the form of a scientific research paper, while also maintaining a cumulative GPA of at least 3.3.

Students who have earned Departmental Honors in Biological Sciences have contributed to scientific understanding and obtained a much deeper understanding of a particular area of biology and its scientific study than is possible through conventional course work.

Achievement of this accomplishment is recognized in the following ways:

- Completion of Departmental Honors will be noted on a student's transcript and diploma.
- Students will receive a special gold honors cord to wear during commencement
- Students will receive an Honors Certificate from the Division of Biological Sciences.

ADAM ALBRIGHT

Honors Project: Selection for Higher Flight Performance in Drosophila melanogaster

"Adam's project is designed to understand how fruit flies fly. Fruit fly flight is complex and multifaceted with aspects like flight muscle characteristics, motivation to fly, endurance, etc. all playing a role. Adam has been a founding member of the flying flies team in the lab and has been part of the project from the very early planning stages. He helped design and optimize the wind tunnel we use to measure flight performance, applied a method to "clear" flies so we can image their muscles without dissecting them, and has recently been creating a high flight performance population by selecting the best fliers every generation. Before heading to dental school, he'll be continuing to work in the lab this summer where we are excited to observe how fly muscles change in this high flight performance line and what changes co-occur in the genome. Congratulations on all you have accomplished during your time at Mizzou and in the King lab. Outstanding truly is an apt description! I could not be more proud of you. Keep flying high!!"

Dr. Elizabeth King, Associate Professor of Biological Sciences

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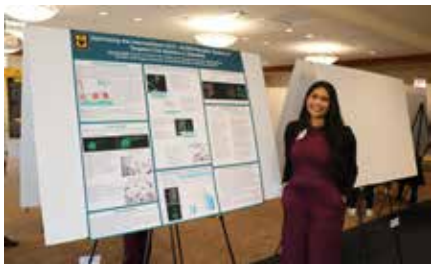
GANASRI ALETI

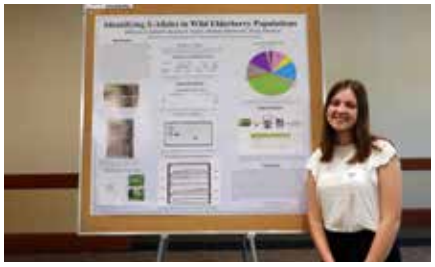


Honors Project: Optimizing the Intermediysin (ILY)-hcD59 Receptor System for Cell Ablation in Zebrafish

"Ganasri, an IMSD intern and peer mentor, joined my lab in her freshman year after a chance meeting at a medical school outreach event. She has contributed to the development of a technique for ablating cells rapidly in zebrafish. While the pandemic caused the project to move in fits and starts, Gana always found ways to be productive by standardizing protocols, optimizing conditions and training students for the cell ablation studies. Gana will start medical school at Mizzou as a PAWS scholar. Dear Gana, congrats on your wonderful accomplishments, and best wishes for many more!"

Dr. Anand Chandrasekhar, Professor of Biological Sciences

BETHANY BALLARD



Honors Project: Identifying S-Alleles in Wild Elderberry Populations

"Bethany worked on our elderberry self-incompatibility project for nearly two years. Starting from scratch, she quickly gained needed skills and soon generated novel data suggesting that the elderberry S-gene also functioned in other species. Her honors research focused on determining the distribution and abundance of S-alleles in wild elderberry from Boone County. She found that allelic diversity is far higher than expected and that the abundance of individual alleles is also unexpected. Always businesslike and professional, she calmly, confidently and capably solved problems when needed. It was a great pleasure to work with such a fine student."

Dr. Bruce McClure, Professor Emeritus of Biochemistry

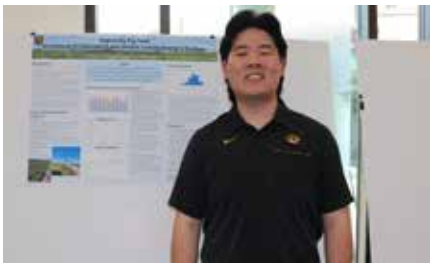
OLIVER BOPP

Honors Project: Changes in BOLFD fMRI Response in Individuals Consuming a High-Fiber Diet

"Oliver worked in the Anguah Lab within the department of Nutrition and Exercise Physiology doing his capstone project titled "Changes in BOLD fMRI response in individuals consuming a high-fiber diet'. The aim of the project was to investigate whether dietary fiber feeding for 4 weeks in individuals with overweight/obesity would alter activations in brain regions involved in food intake motivation and reward during food and non-food picture viewing task while being scanned. Preliminary findings indicated a trend of decreased brain activation in regions of the brain associated with food reward with both low- and high- fiber feeding. Oliver, it has been a delight and pleasure to have supervised your capstone project. You are very intelligent, hardworking, and really learned so much in just a year. Congratulations to you on this milestone of your graduation. I wish you all the best as you move into the world to do greater things and apply the knowledge you have gained from all your experiences here at Mizzou!"

Dr. Katherene OB Anguah, Assistant Professor of Nutrition and Exercise Physiology

ALARIC CHEN

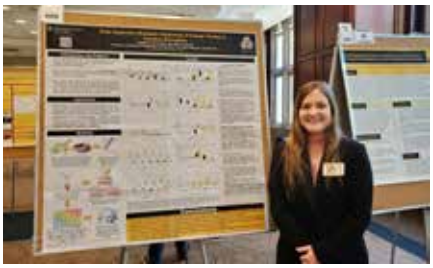


Honors Project: Improving Pig Feed: An Analysis of Chlorophyll and Soluble Carbohydrates in Soybean

"During the pandemic, my first challenge was to find a student assistant. I had literally over 2,000 soybeans for my research, and it was impossible for me to handle it without help. Then, you knocked on my door and asked if you could work in the lab. You were like a shinning star in my dark night! Alaric, you were a great student: easy to work with, passionate about learning new things, and a hard worker. I will never forget the nights we spent at Gumby's Pizza. Congratulations, I wish you all the best for your bright future!"

Dongho Lee, Graduate Student, Division of Plant, Insect, and Microbial Sciences

HAILEE COLEMAN

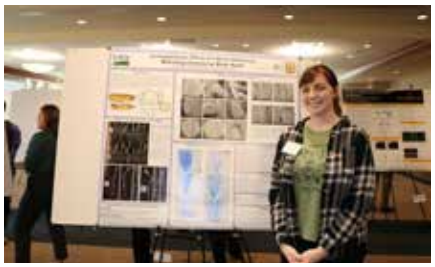


Honors Project: Dose-Dependent Metabolic Responses of Patellar Tendon to Cytokinine Stimulation

"Hailee, thank you for being such a strong leader in our student ACL research group at the TLRO! Your work has expanded our understanding for the role of activity level and inflammation on the ACL injury and patient outcomes after ACL reconstruction surgery. I am proud of all you have accomplished during your time in the TRLO, and I look forward to seeing all the great things you will accomplish in your life!"

Dr. Aaron Stoker, Associate Director, Thompson Laboratory for Regenerative Orthopaedics

ZOE DARNELL

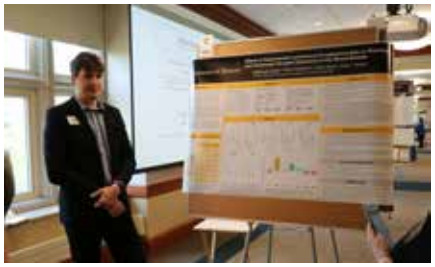


Honors Project: Investigating the Effects of a Boron-Deficiency Mimicking Chemical on Maize Roots

"Zoe has been an essential team member of the McSteen lab for her entire undergraduate career, starting as a FRIPS student in the Fall of 2018. She is a co-author on two publications on the role of the essential nutrient, boron, in maize. More, recently she has been developing protocols for imaging maize roots grown under iron deficiency. Zoe, we will miss you very much but are glad that we will still see you on campus as you begin your training in Clinical Laboratory Science this summer. Congratulations!"

Dr. Paula McSteen, Professor of Biological Sciences

CAMERON DUELLO

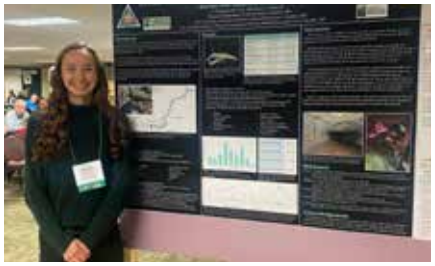


Honors Project: Effects of Experimental Autoimmune Encephalomyelitis on Purinergic and Cholinergic Receptor Expression in the Mouse Bladder

"Cameron tackled a challenging project in the Schulz lab, being one of the first people to look at how a mouse model of Multiple Sclerosis affects bladder function. This is a critical problem for folks with this disease, but poorly studied. Cameron was able to work up the first experiments to test how the receptors on the bladder that receive input from the nervous system to trigger storage and voiding of urine are altered as a result of this disease. This important insight may some day have implications for treating this debilitating aspect of MS. Cameron, you are a 'complete package' of academic excellence, resilience, research acumen, mentorship to fellow students, and service to community here and back home. On top of it all, you are a constant source of joy, support, and much needed kindness to those around you."

Dr. David Schulz, Professor of Biological Sciences

EMILE ELLINGSWORTH

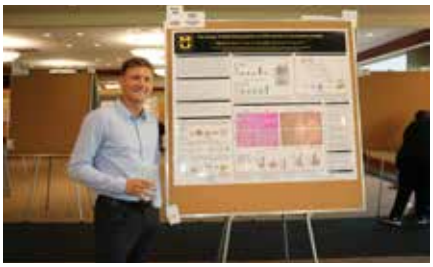


Honors Project: The Caney Mountain Cave Crayfish: Establishing a Habitat Parameter Baseline With Additional Biological Notes

"I've had the privilege of working with Emile for over a year on a unique and scientifically valuable research project. She is studying one of the world's rarest crayfish, the Caney Mountain Cave Crayfish, a species known to exist in only one small cave in the Missouri Ozarks. Due to its extreme rarity, it is important for managers to understand its habitat and be prepared to act should that habitat be threatened. Emile has collected physiochemical data from its habitat to establish baseline values for future monitoring efforts. She has also made numerous observations of life history events related to molting, reproduction, and total length. Throughout the study, Emile has asked insightful questions, collected high quality data, and made a significant overall contribution to the conservation of this crayfish. Emile, I anticipate great things from you in the coming years as you realize your full potential and make your mark on the field of conservation and ecology."

Dr. Jacob Westhoff, US Geological Survey-Missouri Cooperative Fish and Wildlife Research Unit

JACK FLINK



Honors Project: The Impact of RECK Manipulation on EGFR Activity in the Context of NASH

Jack did a fantastic job on his research project identifying potential therapeutic targets in nonalcoholic fatty liver disease. He worked diligently and showed a keen insight throughout the project, but it was his ability to clearly relate his findings during the poster session at Show Me Research Week that was particularly impressive. It has been a pleasure having Jack in the lab and there is no doubt he will be successful wherever life takes him! Congratulations Jack!

Dr. R. Scott Rector, Professor of Nutrition & Exercise Physiology and Medicine

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DANIELLE GAFFORD

Honors Project: Natural Variation of Lignin Metabolism in Poplar

"I would like to extend my heartfelt congratulations on your achievement of earning Departmental Honors in Biological Sciences from MU. This is a remarkable accomplishment that is a testament to your hard work, dedication, and passion for science. The results of your research in our lab would have important implications for the field of tree biology and could ultimately help us develop more sustainable and environmentally friendly methods for producing materials. You have shown a great ability to think critically, analyze data, and draw conclusions, skills that are essential for success in any scientific field. Your dedication to your studies and your passion for biological sciences will undoubtedly take you far in your career. Your achievements are a reflection of your outstanding character, and I am confident that you will continue to make important contributions to the field of biology. I wish you all the best in your future endeavors."

Dr. Jaime Barros-Rios, Assistant Professor of Plant Science and Technology

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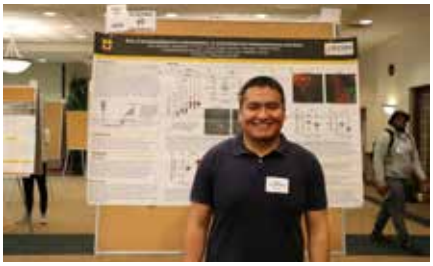
JUAN GONZALEZ-VALLEJO



Honors Project: Role of Phosphatidyserine Externalization on Endothelial Cell Metalloproteainase Activation

"As a research laboratory our goal for undergraduate students is twofold: first we strive for the student to learn about our field of study and secondly, we like for them to generate data that advances our knowledge in the field. Juan surpassed expectations in meeting both goals. He presented results generated in the laboratory at a number of research forums, including the Annual Biomedical Research Conference for Minority Scientists. Plus, using cell culture and confocal imaging techniques, Juan demonstrated that a subunit of the insulin receptor (IRalpha) is shed from human endothelial cells under conditions in which the ADAM17 sheddase is activated. These data helped confirm our hypothesis, that in type 2 diabetes, proteolytic enzymes are activated leading to down-regulation of insulin signaling. On a personal level, Juan has a great attitude, was always helpful with other people, and was a pleasure to have in the lab. Congratulations!

Drs. C. A. Foote, J. Padilla, and L. A. Martinez-Lemus, Medical Pharmacology & Physiology

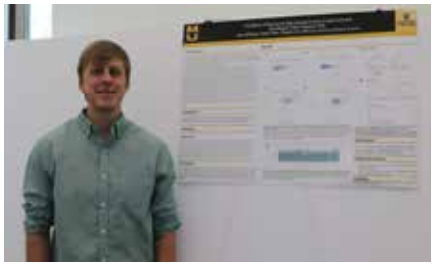
JAIME HAMMOND

Honors Project: Characterization of Serine Hydroxymethyltransferase Mutants N368T and I37F in Soybean

"Jamie has been an outstanding student researcher and it has been a pleasure working with her over the past several years. Her research project was both challenging and rewarding. She helped optimize assays to characterize an enzyme from soybean, learned how to purify recombinant proteins, and grow protein crystals. She was always helpful, polite, and reliable in her work. I especially appreciated her determination to figure things out, and her considerable intellectual curiosity. I wish Jamie the best upon graduation from Mizzou and look forward to hearing about her next steps in the future!"

Dr. Lesa Beamer, Professor of Biochemistry

CLAY HOFFMANN



Honors Project: The Effects of Breeding for High Sucrose Content on Agronomic and Physiological Traits Related to Yield

"First of all, I am sorry I kept forgetting to fix you up with someone. Whenever I thought of it, you were always dating someone else! In all seriousness, I really enjoyed working with you. You were a wonderful student: punctual, warm-hearted, hard-working, and reliable. I really appreciate your friendship too. We had good times at Gumby's Pizza and the dodgeball tournament (which I never played before, but you still let me in). You're the man! I wish you all the best for a bright future. You deserve it!"

Dongho Lee, Graduate Student, Division of Plant, Insect, and Microbial Sciences

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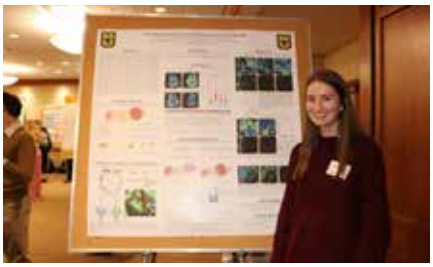
JACK HOUSTON

Honors Project: Examining Baseline Pupillary Light Reflex as a Treatment Response Biomarker For Anxiety Outcomes in Response to Propranolol in Autism

"I worked with Jack on a project involving pupillary light reflex data that was collected during a clinical trial in autism. Jack was interested in knowing if we could use this pupil reflex data as a biomarker to tell us who will or will not respond to the drug propranolol. This was quite an undertaking as we worked remotely with terabytes of pupil image data. Despite this challenge, Jack was able to create a data analysis pipeline for the pupil data which we are currently using. Without Jack's data analysis pipeline, we would not be able to move forward with the project. Jack will be an author on the forthcoming manuscript to be submitted to a journal for publication. I sincerely enjoyed working with Jack and wish him all the best in his future endeavors. I know he will do wonderful things!"

Dr. Brad J. Ferguson, Research Assistant Professor of Health Psychology

ASHTYN HOWARD



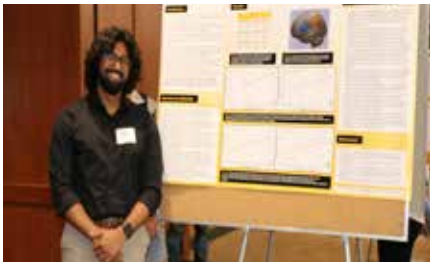
Honors Project: The Role of Cytonemes in Ras-Mediated Tumor Overgrowth

Ashtyn, you were an amazing mentee. We faced technical challenges countless of times. As difficult as it was, you never gave up! You persevered, and we overcame some these challenges together. These shared experiences not only made us grow closer together, but they also made us grow as scientists. So now, I have an amazing friend, whom I am honored to celebrate today. Congratulations! ***Mar Quereda Pastor***

Ashtyn, it has been a real privilege to be part of your academic and research training journey. Your dedication and love for biomedical research and patient care have been inspirational. It is people like you, that make us (members of the Chabu lab) better scientists, mentors, and human beings. Congratulations on your fine achievement! It is bittersweet to see you go. I wish you a very successful career ahead…remember that you have a second home in Tucker Hall. Congratulations!

Dr. Yves Chabu, Assistant Professor of Biological Sciences

ARAVIND KALATHIL



Honors Project: Predictive Effects of Resting State Functional Connectivity on Semantic Fluency Performance in ASD

"Aravind is an extremely bright and engaging student. He became the leader of our imaging project examining whether brain connectivity or heart rate variability (a marker of arousal) predict cognitive response to the drug propranolol in our recently completed clinical trial. There are many aspects to this work and he stepped in right at the beginning, leading the effort, and resulting in multiple international presentations, and papers forthcoming. The imaging analysis is very challenging, but he was brilliant in his capacity to tackle this. All through this, he was a pleasure to work with! He is now going on to graduate school to continue his work. He also presented his work at the state capitol, so our leaders understand the good work being done here."

Dr. David Beversdorf, Professor of Psychological Sciences/Radiology/Neurology

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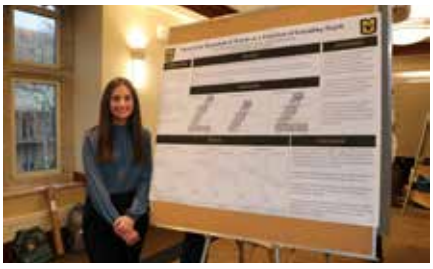
CAYDEN LAWRENCE

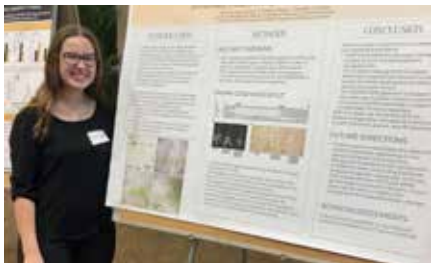


Honors Project: Short-term Retention of Words as a Function of Encoding Depth

"Dear Cayden, It has been such a pleasure working with you! We have accomplished a lot in a short time, trying to understand what memories persist and what memories slip away and are lost within a few seconds. The work inspired by what you have done is continuing, and I am very optimistic about it and about your future contributions to medicine and society. I know you will be successful, and I wish you much happiness."

Dr. Nelson Cowan, Professor of Psychologial Sciences
(on behalf of myself and Dominic Guitard, our collaborator from Cardiff, UK)

EMMA LEARY

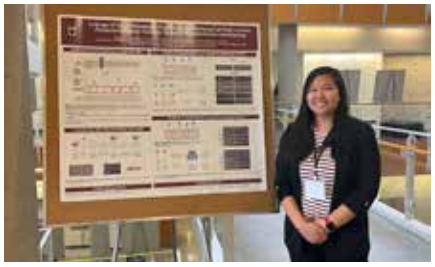


Honors Project: Shared Protein Kinase Functions in Activating Plant Immunity, Growth, and Development

"Emma started as a FRIPS student in my lab. She learned how to collect leaf samples for genomic DNA purification, set up PCR reactions, and run DNA gel electrophoresis to determine the genotypes of the plants. She contributed greatly to a publication in the *Journal of Integrative Plant Biology* by genotyping thousands of plants from segregating populations and crosses/backcrosses, as well as the phenotypic characterization of the mutants. In addition, she learned the science behind these experiments by reading relevant papers and assisted in the drafting and publishing steps of the publication. This earned her a second authorship on the publication. Her efforts helped us to get our paper out a few days before another paper with an almost identical title. I would like to congratulate her on her achievements, both in her academic/curricular studies and in her scientific research. I know you will continue to fly high during your graduate studies, Emma. Congrats!"

Dr. Shuqun Zhang, Professor of Biochemistry

YONA LIU



Honors Project: Linkage of Outer Membrane Proteins to the Bacterial Cell Wall Confers Protection Against Osmotic Stress in A. tumefaciens

"From the classroom to the lab, it has been an honor to be a part of your journey at MU! You have grown tremendously as a scientist as you explored the role of LD-transpeptidases in growth and stress responses of *A. tumefaciens*. I'm excited to see what your future holds as a graduate student at IU. Keep chasing your dreams – you've got what it takes to succeed!"

Dr. Pamela Brown, Associate Professor of Biological Sciences

UMER MALLICK

Honors Project: Regional Differences in Cartilage Biomarker Content Related to Histological Assessment of Tissue Degradation

"Umer you have grown so much during your time at the TLRO. Your work has evolved our understanding of the metabolic response of cartilage to tissue degradation during OA. Thank you for your leadership in maintaining the supportive and caring culture among your fellow students at the TLRO. It is your caring and compassionate nature that will allow you to achieve all that you want to in life."

Dr. Aaron Stoker, Associate Director, Thompson Laboratory for Regenerative Orthopaedics

CARLI MCCURRY

Honors Project: Activation of the ChvGI Two-Component System During Cell Wall Stress in A. tumefaciens

"Your work ethic, determination, and perseverance will take you far as you move forward toward a career in medicine. Your efforts in the lab have provided key insights about the conditions that activate the ChvGI two-component system in *A. tumefaciens*. We will always think of your as our β-gal! Congratulations on your graduation!"

Dr. Pamela Brown, Associate Professor of Biological Sciences

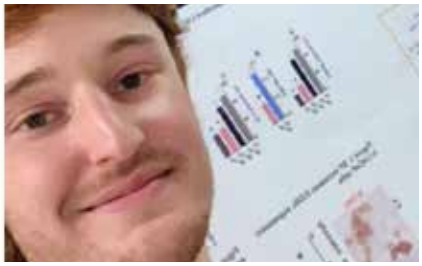
GRACE PEA

Honors Project: Discerning the Role of RyR2 in the Inhibition of Lymphatic Function By Doxorubicin in Murine Inguinal Axillary Collecting Vessels

"Grace has been an exceptional undergraduate researcher and has been integral to my labs success over the last three years. She mastered the ability to isolate lymphatic collecting vessels from mice, confocal imaging, and regularly performed real time calcium imaging in lymphatic muscle cells. Her technical achievements were equaled in her dedication to learning the physiological principles underlying the excitation contraction coupling in lymphatic muscle and the role sarcoendoplasmic reticulum calcium release channels play in regulating lymphatic pacemaking and contractile function. Grace has been a part of our discovery of the critical role of IP3-receptors in modulating lymphatic muscle excitability and has authorship on a forthcoming paper. In her senior year, Grace developed her own research project to assess the role of ryanodine channels in lymphatic muscle cells in the pathogenesis of doxorubicin mediated lymphatic contractile dysfunction. Grace will have authorship on at least two more papers detailing her findings from her project. Grace, your dedication to excellence and your impeccable character will continue to drive your success! Your graduation with departmental honors is well deserved. Congratulations"

Dr. Scott Zawieja, Assistant Professor of Medical Pharmacology & Physiology

COBY POWERS



Honors Project: Role of Cherry Extract as a Potential Natural Radiosenstizer for Melanoma

"Coby has been a critical member in Fang lab for three years. He is loved by lab members. He works very hard. He is an important coauthor in two manuscripts published in 2022 about COVID19 and prostate cancer. He also coauthored a couple of posters. I am very grateful to have had such a brilliant young man as part of my lab. I am very confident that he will be a great physician scientist in the future. I wish him the best of luck as he sails in the journey of medicine!"

Dr. Yujiang Fang, Adjunct Assistant Professor of Surgery-Surgical Oncology

VERONICA POZDAL

Honors Project: Assessing Subjective Cognitive Decline (SCD) in preclinical Alzheimer's Disease

"I am thrilled to see Veronica graduate. She is intelligent, driven, and detail-oriented. For her thesis, Veronica completed a complex project to evaluate subjective cognitive concerns in individuals with preclinical Alzheimer's disease and presented her research during our Spring student scholars event. She also cares deeply about people in the real-world and was kind enough to participate with us in the walk to End Alzheimer's last year. She's going to make an excellent doctor, and I wish her all the best in her path to med school."

Dr. Andrew Kiselica, Assistant Professor of Health Psychology

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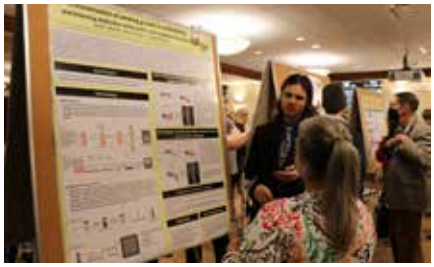
JASON ROBERTS

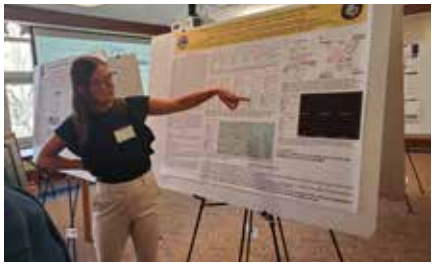


Honors Project: Characterization of Seedling Growth in CARBOHYDRATE PARTITIONING DEFECTIVE Embryonic Root Systems in Maize

"Jason conducted research to develop a novel plate assay to sterilely grow maize seedlings on defined media. His research allowed us to investigate differences in root and shoot growth between different genotypes and enabled us to develop a new protocol that we are submitting for publication, with Jason as the first author. It has been a pleasure having Jason working in the lab and he has made many significant contributions! I extend my personal congratulations to Jason on achieving this academic milestone and wish him the very best."

Dr. David Braun, Professor of Plant Sciences & Technology

MARGOT RUFF



Honors Project: Mutation in the 5'SL Region of Collagen I mRNA Attenuates Diastolic Dysfunction in Male, but not Female, Mice Following 28 Weeks of a High Fat/High Sucrose Diet

Margot joined my lab just prior to the COVID shutdowns in 2020 and spent most of the rest of that year doing image analysis remotely for ongoing projects. This is often thankless, but very important, work. Margot quickly became proficient with this and subsequently learned other imaging analysis for her project examining mechanisms of cardiac dysfunction in obese mice, specifically related to capillary density and fibrosis. We are so grateful for all of her contributions – some of which are part of a manuscript that will be submitted for publication in the near future. Congratulations, Margot, from me and everyone in the lab! We are proud of everything you have accomplished and look forward to following your successes in the future.

Dr. Shawn Bender, Associate Professor of Biomedical Sciences

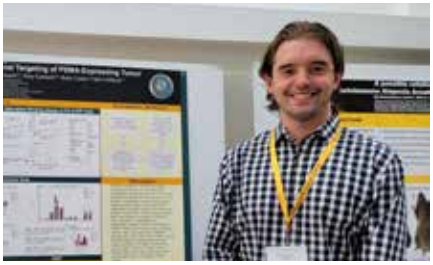
ARRIONNA SACKETT

Honors Project: Understanding the Effects of Interventions for Parent/Caregiver Alcohol Use on Children

"Arrionna joined the Hawley lab two years ago and quickly became a highly valued member of the team. For her honors project, she conducted a systematic review of published randomized controlled trials examining how children are affected when their parents receive interventions to treat or prevent problematic alcohol and/or drug use. This was an ambitious undertaking for an undergraduate project. Arrionna, we are incredibly proud of you and all that you have accomplished at MU. We wish you all the best as you move on to the next stage of your training at the Stritch School of Medicine-Loyola University Chicago. You will be an excellent physician!"

Jack Andrews, MD-PhD Candidate
(on behalf of Dr. Kristin Hawley, Associate Professor of Psychological Sciences)

ALEX SCHAEDLER



Honors Project: Image-Guided Surgery, PET Staging, and Targeted Radiotherapy of PSMA-Expressing and PSMA/GRPR-ExpressingCcancer

Alex was an integral part of collaborative research conducted at the MU Molecular Imaging and Theranostics Center (MITC). He worked with professors Michael Lewis, Carolyn Anderson, and Jeff Smith on projects to develop new radiopharmaceuticals for imaging and treating cancers such as prostate cancer and melanoma. Alex proved to be not only a quick study, but also a skilled and versatile researcher. His research involved such diverse areas as preparation of imaging agents for positron emission tomography (PET) to organic synthesis to attachment of radioactive metals to tumor-targeting peptides for molecular imaging and targeted radiopharmaceutical therapy of malignancies. His work will make important contributions to the scholarly literature in the form of articles in high-impact scientific journals. All of us at MITC congratulate Alex on his outstanding research contributions, and we wish him the best in his studies and career in medicine!

Dr. Michael Lewis, Professor of Veterinary Medicine

ALYSSA SCHMITZ

Honors Project: Retrospective Revaluation Effects on Natural Disaster Causal Attributions

"The area of Social Psychology includes research on the judgments of cause and effect. For example, if we see a person trip, was it due to clumsiness (the person) or something about the sidewalk? Alyssa extended this work in showing that people can change their judgments if they receive new, relevant information. That is, they can update their judgment when they need to. She worked very hard putting the questionnaire on-line and helping to sort out the data we obtained. The program that accepted her is very lucky to have Alyssa (her intelligence, work ethic, and wonderful personality) at their institution! Good luck, Alyssa!"

Dr. Todd Schachtman, Professor of Psychological Sciences

MADDY SCHNURR

Honors Project: Function of Cyclophilin-D in the Pro-Cancer Effects of p53 Mutations

"Maddy's honors research has been focused on the role of mitochondrial metabolism in the pro-cancer effects of mutants of the tumor suppressor protein p53, specifically on the involvement of a mitochondrial protein called cyclophilin-D. She found that these p53 mutants induced proliferation and enhanced ATP production in prostate cancer cells and that genetic inhibition of cyclophilin-D could reduce these effects. These are exciting data as they suggest that cyclophilin-D inhibition could be a new therapeutic avenue for cancer. Maddy's studies also formed the basis of a NIH grant application and will be part of a paper as well. It was an absolute blast having Maddy in the lab! Her energy, enthusiasm, curiosity, and hard work were truly inspiring. I wish her all the best for her future medical career and she's going to be a kickass physician!"

Dr. Christopher Baines, Associate Professor of Biomedical Sciences

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ABBIE SPANGENBERG

Honors Project: The Role of Extracellular Vesicles in Lung Cancer Immune Escape

Abbie, we met in Dr. Chabu's Cell Biology class. At first, I thought you were very shy. However, since we have been working together, I have been fortunate to discover your true self: a funny, sweet, and smart scientist. I am very happy to celebrate your hard work today and look forward to continuing working with you next year. ***Mar Quereda Pastor***

Abbie, it has been a real privilege to be part of your academic and research training journey. Your dedication and love for biomedical research and patient care have been inspirational. It is people like you, that make us (members of the Chabu lab) better scientists, mentors, and human beings. Congratulations on your fine achievement! I wish you a very successful career ahead, and remember that you have a second home in Tucker Hall Congratulations!

Dr. Yves Chabu, Assistant Professor of Biological Sciences

PAIGE SPENCER

Honors Project: Tick-borne Pathogen Detection in Central Missouri

Paige performed research on flea and tick borne diseases in the Anderson lab. She created a user-friendly, updated key for speciation of Ixodes ticks, and worked on developing a PCR diagnostic for Francisella. In addition, Paige took part in a field team to study plague ecology in Northeast New Mexico. Her contributions will be remembered!"

Dr. Deborah Anderson, Professor of Veterinary Pathobiology

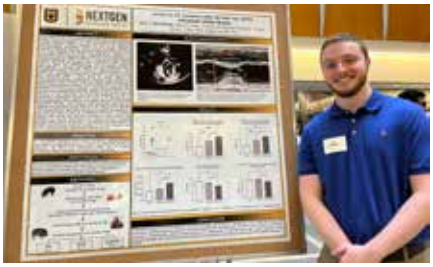
GRACE STOTLER

Honors Project: Amygdala Connectivity as a Predictor of Anxiety Response to Propranolol in ASD

"Grace is an outstanding student in the lab. She became the leader on our study examining whether brain connectivity predicts anxiety response to the drug propranolol in our recently completed clinical trial. She took the lead on this aspect of work, which is extremely challenging, and is resulting in multiple international presentations, with papers forthcoming. She was excellent to work with and is now moving forward with plans to go on to prepare for a career in the healthcare profession."

Dr. David Beversdorf, Professor of Pscyhological Sciences/Radiology/Neurology

ERIC VAN DELDEN

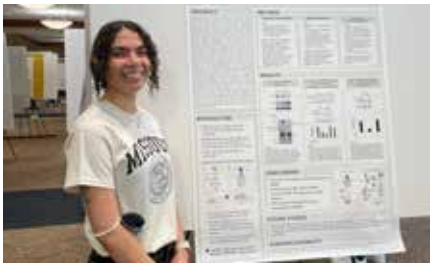


Honors Project: Effects of Ovariectomy Within the HFpEF Ossabaw Swine Model

"Eric was an outstanding addition to the Emter Lab's efforts to understand heart failure. His project was focused on structural remodeling of the heart in a swine model of menopause, where he examined the impact of losing female sex hormones (as with aging) on the development of heart failure. Thank you for your time and efforts to aid our research program. Congratulations on your graduation, and all the best in your future endeavors!"

Dr. Craig A. Emter, Professor of Biomedical Sciences

PAIGE WILLIAMS

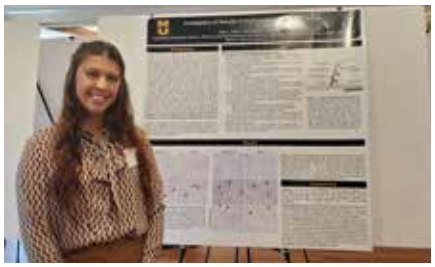


Honors Project: Mechanisms for Type I Interference Receptor Degradation During Influenza Virus Infection

"Paige has been directly involved in projects, including the investigation onto the role of IRE1-mediated ER stress responses during influenza virus-induced interferon receptor degradation. Paige found that the inhibition of IRE1 activity impairs influenza virus replication and virus-induced downregulation of interferon receptors. She successfully presented the interesting results with her poster at the MU Undergraduate Research & Creative Achievements Forum in 2022. Paige has performed all the duties and experiments with great enthusiasm. The work includes biochemical analysis and tissue culture-based virological studies for growing eukaryotic cells, transfection of cells with plasmid DNAs, influenza virus infection, treatment of cells with inhibitors, DNA/protein gel electrophoresis, and western blotting. In sum, she has significantly contributed to advancing the research on virus-host defense interaction in the lab. Paige, I am very proud of you as I have observed your excellence in research and scientific growth. Congratulations on all your achievements and graduation with the honor. Hope you enjoy developing your exciting career in clinical medicine and possibly medical research as well. You will be missed."

Dr. Bumsuk Hahm, Professor of Surgery and Molecular Microbiology and Immunology

FAITH WILSON



Honors Project: Investigation of Periostin in the Formation of Uterine Fibroids

"Faith has been an integral part of the lab since she joined two years ago. She has advanced her own independent research project in women's health by investigating the role of periostin in uterine fibroids. As she progressed to a senior, she took on the responsibility of training junior students and is well respected by all in the lab. She will be missed, and we wish her the best of luck in graduate school."

Dr. Amanda L. Patterson, Assistant Professor of Reproductive Biology

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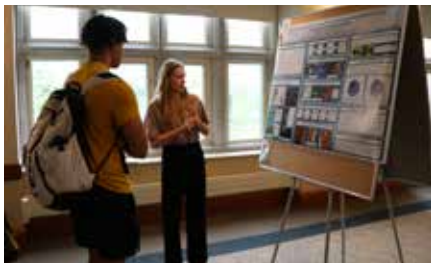
MOLLY WINER

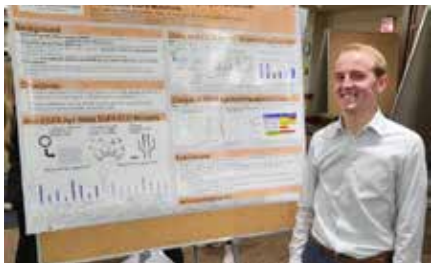


Honors Project: Identification of Neuronal Projections from the Visual System to the Motor Neurons Regulating Food Intake in Zebrafish

"Molly, a member of the MU women's swim team, joined my lab as a rising senior with a goal of studying neuroscience in graduate school. She initiated a challenging new project in the lab to characterize neuronal inputs to the branchiomotor neurons that control jaw movement in zebrafish. Molly helped standardize neuroanatomical protocols necessary for the project to progress. Molly will join the Neuroscience PhD program at the University of Cincinnati Medical School. Dear Molly, congrats on your amazing accomplishments. I know you will do swimmingly well in grad school!"

Dr. Anand Chandrasekhar, Professor of Biological Sciences

CALVIN WINKLER

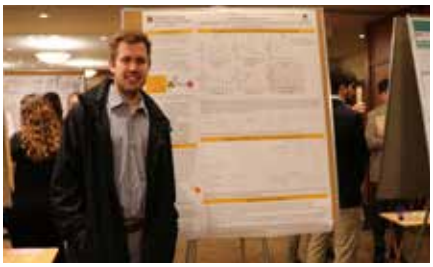


Honors Project: Applications of Aptamers in the Targeting of Cancers with Extracellular EGFR Mutations

"Calvin joined my lab as a freshman. Over the years, he developed into a leader and shown tremendous dedication to his studies, to his science, and to making sure those around him succeed. For the last two years (when he was not studying abroad in Chile or working in a clinic in Mexico), Calvin carried out his research on developing cancer therapeutics and diagnostics using aptamer technology, under the supervision of MD-PhD student Brian Thomas. Calvin's work helped move us closer to being able to hit cancer cells where they are hiding without hitting the healthy cells around them. His work earned him co-authorship of a manuscript recently submitted to the journal *Molecular Therapy Nucleic Acids*. Calvin has been accepted into multiple well regarded medical schools, one of which will be where he will begin the next chapter of his training. Calvin, Brian and I would like to personally congratulate you on achieving these milestones and graduating with honors. We wish you all the best in your journey to becoming an astute physician."

Dr. Donald Burke-Aguero, Professor of Molecular Microbiology and Immunology

AIDEN WIRRICK



Honors Project: A Click Chemistry based Approach to the Modular Synthesis of Radiopharmaceuticals

"It's been an honor and pleasure to be Aidan's mentor the past couple years. Aidan is someone who sees the big picture in the research we do. When I discussed an idea with him, he talked to the appropriate senior people in the lab and figured out how to accomplish the project, operating as a seasoned graduate student. Aidan already shows impressive leadership qualities, and I expect him to be one of the next generation scientific stars."

Dr. Carolyn Anderson, Professor of Chemistry

TriBeta Honor Society

Beta Beta Beta (TriBeta) is an honor society for students, particularly undergraduates, dedicated to improving the understanding and appreciation of biological study and extending boundaries of human knowledge through scientific research.

2023 INDUCTEES

Adam Albright

Bethany Ballard

Alexis Borgstadt

Diya Divyakumar

Makayla Garza

Julia Hardiek

Emily Hawkins

Ashtyn Howard

Heejoo Kim

Emma Leary

Blake Meyer

Ellen O'Neill

Allison Renaud

Allison Rifkin

Jason Roberts

Alex Schaedler

Maddy Schnurr

Peer Advising Program

Peer advisors are an integral part of the Division of Biological Sciences. As mentors to incoming first-year students, they provide a variety of strategies for academic success and direct students to campus resources. In so doing, they provide a valuable student-perspective on the Mizzou experience and help smooth the transition for incoming students.

We congratulate the following peer advisors, who are graduating this year.

CALEB CASANOVA

Peer advisor: 2021-2023

Caleb, it's been a pleasure to get to know you during your time at Mizzou. You're a high achiever with a strong work ethic. Even more, you are a person who genuinely cares about those around you. Ask any of your coworkers – you are always the first to greet people when they walk in the office. It's a rare day when you aren't asking someone a question they've never gotten before. You make us think and laugh, and we've all been lucky to work with you! Congratulations!

ALLY RENAUD

Peer advisor: 2021-2023

Ally, you lead with her heart. It's evident in your work with students, in your academics, and in your passion for healthcare. Your compassion ensures new students feel comfortable, and your thoughtfulness makes you a great example for newer peer advisors. Everyone in the office has benefitted from your enthusiasm and optimism. You've kept yourself extremely busy through college and will be rolling into your next academic stage right after graduation. We have full confidence you'll continue to impress everyone along your path.

With gratitude,
Elise Buchert, Laura Carroz, Jordan Parshall, Christian Vachaudez

Departmental Awards

Grateful alumni as well as the families and friends of our former students and faculty have established a number of awards to recognize outstanding achievement by our students. The Division views all the awards as equivalent in prestige and honor. Recipients typically excel in the classroom, in research, and with campus extracurricular activities.

Professor Stanley Zimmering Prize in Biology

honors the memory of Professor Zimmering, an emeritus professor of biology and medicine at Brown University, who earned his doctorate in genetics from MU.

Laura Nahm Outstanding Scholar Award

is made available by an endowment established by W. H. Crouch in memory of his brother Clarence Crouch who studied zoology at MU.

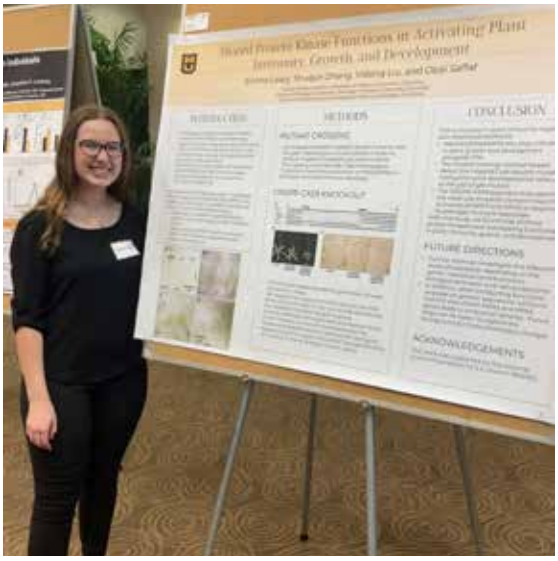
Mary Margaret McCarty Scholar Award

is made available by an endowment in support of students in the Division of Biological Sciences.

John I. Hardy Outstanding Scholar Award

is made available by an endowment established by Thora Hardy in memory of John I. Hardy.

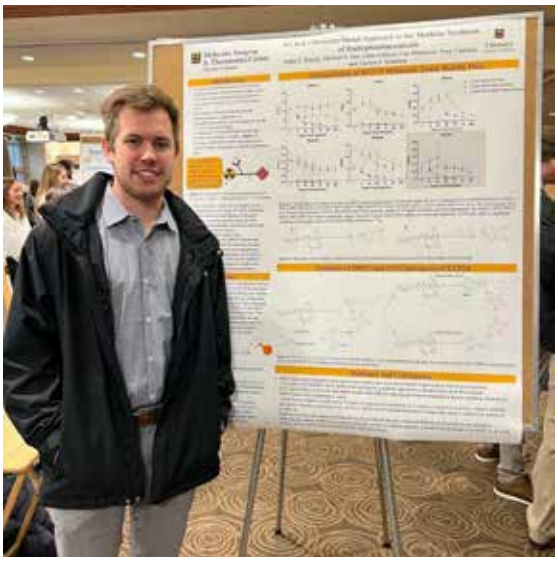
OUTSTANDING SENIOR RESEARCHER IN BIOLOGICAL SCIENCES AWARD



EMMA LEARY

Mary Margaret McCarty Outstanding Scholar Award

Emma describes herself as "a late bloomer" in finding her future career as she arrived at MU without a declared major. However, an opportunity through the Freshman Research in Interest in Plant Sciences (FRIPS) program found Emma working in the lab of Dr. Shuqun Zhang, an experience that led her to double major in Biological Sciences and Plant Biology with an emphasis in Breeding, Biology, and Biotechnology. Over the last four years, Emma has continued her research Dr. Zhang's lab, where she characterized the role of MAPK signaling in plant development. In recognition of these efforts, Emma received the Missouri Seedmans' "Focus on the Future'' Scholarship for identifying solutions to agronomic productivity problems in Missouri. In the summer of 2021, Emma interned at Elemental Enzymes, where she investigated the advantages of drone methodologies for agricultural and biotechnology studies. In summer 2022, she completed an NSF-funded REU Summer Internship at Donald Danforth Plant Science Center to identify the roles of specific seed on North American prairie grasses. Together, these research experiences have led Emma to further pursue a career in plant science. Emma will begin the doctoral program in Plant, Insect, and Microbial Sciences at MU this fall.



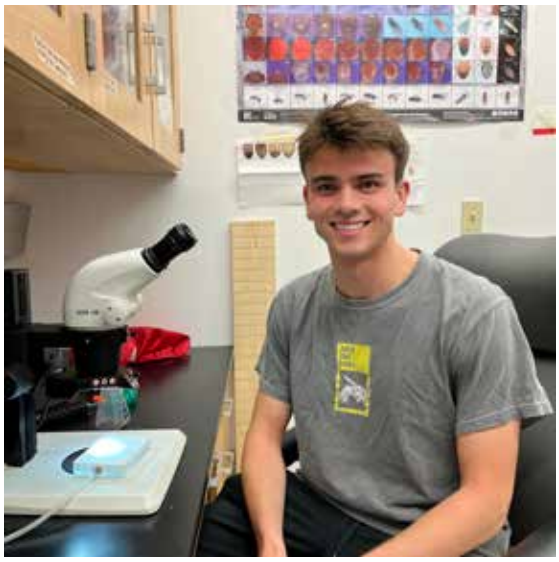
AIDEN WIRRICK

Professor Stanley Zimmering Prize in Biology

Aiden is an excellent example of a true liberal arts scholar. He is not only a triple major in three rigorous areas, Biological Sciences, Chemistry, and Psychology, he has also completed certificates in writing, neuroscience, and multicultural studies, all while maintaining an near perfect GPA. Like many biological sciences major, Aiden came to MU as a premed student; however, a summer research experience at the Cleveland Clinic in 2021 would change those plans. Aiden says the "deep dive into incredibly time-relevant research pulled me away from patient care and towards a career in research." Aiden continued his research journey here at MU in the lab of Dr. Carolyn Anderson at the Molecular Imaging and Theranostics Center where his research focuses on the creation of radiopharmaceutical drugs to image and treat cancers. To further his scientific training, Aiden spent the summer of 2022 at the Memorial Sloan Kettering Cancer Center where he researched the pharmacokinetic effects of adjuvants on vaccines. This fall Aiden will take the next step toward a career in biomedical research as he begins a doctoral program in pharmacology at Cornell's Weill Medical College.

OUTSTANDING SENIOR SCHOLAR IN BIOLOGICAL SCIENCES AWARD

ADAM ALBRIGHT



John I. Hardy Outstanding Scholar Award

Adam is a student who upon starting college fell in love with not only learning, but also sharing that love of learning with others. As a Biological Sciences major with a near perfect GPA, Adam honed his research skills working in Dr. Libby King's lab since 2021. However, Adam's passion for teaching and supporting others are most evident in his work as a Residential Advisor, a role he served in for the majority of his time at MU. He also shared his passion for learning and science with his peers through leadership roles in the Tri-Beta Biological Honor's Society, where he helped establish the Tri-Beta Admirable Teachers and Professors (ATP) awards to acknowledge the mentors who impact students' lives. Adam notes that one of his most meaningful experiences during his time at MU was his role as Peer Learning Assistant for the BIOME Freshman Interest Group. In this role, Adam was responsible for mentoring and supporting 13 freshman Biology students in their transition to college. This fall, Adam will be taking his excitement and passion for learning with him as he starts dental school at University of Missouri-Kansas City Dental School.

CAYDEN LAWRENCE

Laura Nahm Outstanding Scholar Award

Cayden is a student who has sought out opportunities and experiences that allowed her to hone her understanding of compassionate care. Cayden is graduating with a near perfect GPA with a double major in Biology and Psychology while completing neuroscience and multicultural certificates, and is a valued member of the Cowan Memory Lab, where she has completed several studies to better understand why some memories persist and others fade away. Beyond academics, Cayden's life experiences have led to her remarkable efforts to promote inclusion at MU and the broader Columbia community. As the Vice-president of Community Relations for the Mizzou Disability Coalition, Cayden shares her knowledge about disability language and etiquette with campus organizations. She helped plan the Best Buddies Friendship walk and volunteers at Love Coffee and the Truman VA hospital. Cayden recognizes the value of holistic, wellness-based medical care and she plans to promote accessible medical care for all people and empower patients as she continues her journey to become a medical doctor.

Thank you to all our faculty mentors

Dr. Carolyn Anderson, Department of Chemistry

Dr. Deborah Anderson, Department of Veterinary Pathobiology

Dr. Katherene OB Anguah, Department of Nutrition and Exercise Physiology

Dr. Christopher Baines, Department of Biomedical Sciences

Dr. Lesa Beamer, Department of Biochemistry

Dr. Jaime Barros-Rios, Department of Plant Science and Technology

Dr. Shawn B. Bender, Department of Biomedical Sciences

Dr. David Beversdorf, Departments of Psychological Sciences / Radiology / Neurology

Dr. David Braun, Departments of Plant Science and Technology / Biological Sciences

Dr. Pamela Brown, Division of Biological Sciences

Dr. Donald Burke-Aguero, Departments of Molecular Microbiology and Immunology / Biochemistry

Dr. Yves Chabu, Division of Biological Sciences

Dr. Anand Chandrasekhar, Division of Biological Sciences

Dr. Nelson Cowan, Department of Psychological Sciences

Dr. Craig A. Emter, Department of Biomedical Sciences

Dr. Yuijang Fang, Department of Surgery

Dr. Bradley Ferguson, Departments of Health Psychology and the Thompson Center for Autism & Neurodevelopment

Dr. Bumsuk Hahm, Departments of Surgery / Molecular Microbiology and Immunology

Dr. Kristin Hawley, Department of Psychological Sciences

Dr. Elizabeth King, Division of Biological Sciences

Dr. Andrew M. Kiselica, Department of Health Psychology

Dr. Michael Lewis, Departments Veterinary Medicine / Surgery

Dr. Luis A. Martinez-Lemus, Center for Precision Medicine

Dr. Bruce McClure, Department of Biochemistry

Dr. Paula McSteen, Division of Biological Sciences

Dr. Amanda Patterson, Division of Animal Sciences

Dr. R. Scott Rector, Department of Nutrition and Exercise Physiology

Dr. Todd R. Schachtman, Department of Psychological Sciences

Dr. David Schulz, Division of Biological Sciences

Dr. Aaron Stoker, Department of Orthopaedic Surgery / Thompson Laboratory for Regenerative Orthopaedics

Dr. Jacob Westhoff, US Geological Survey, Missouri Coop. Fish and Wildlife Research Unit

Dr. Heng Ye, Department of Plant Science & Technology

Dr. Scott D. Zawieja, Department of Medical Pharmacology and Physiology

Dr. Shuqun Zhang, Department of Biochemistry

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