

Office of Research and Creative Activity

Internal Funding Newsletter

Academic Year 2020-2021



Dear Colleagues and Friends,

The University of Nebraska at Omaha is committed to fostering the academic and scholarly pursuits of faculty, staff, and students. While the 2020- 2021 Academic Year brought many changes and challenges, UNO has continued to invest in a multitude of funding programs to promote research and creative activity. This year's programs provided over \$530,000 for student and faculty projects that reflect the broad range of scholarly interests of the UNO community, including gender differences in remote meeting behaviors and networking, an inquiry into the scope of missing and murdered Indigenous women on the Pine Ridge Indian Reservation and its border towns, the enduring emotional and philosophical effects of the American civil war, and the importance of social Interactions in zoo-managed male African elephants.

In the 2020-2021 Academic Year, the Fund for Undergraduate Scholarly Experiences (FUSE) and Graduate Research and Creative Activity (GRACA) programs funded 114 students to complete faculty mentored research and creative activity projects. We look forward to seeing the results of these projects showcased at the next Student Research and Creative Activity Fair in March 2022.

Faculty internal funding opportunities through our office provide support to develop new collaborations with academic peers locally, nationally, and internationally. The products of faculty research and creative activity are used to address real-world issues and are presented in peer-reviewed journals and around the world at meetings, conferences, and performances.

We would like to congratulate the doctoral students awarded funding through our collaboration with Graduate Studies and departments across UNO through the Research Development Program. Finally, in response to a review of ORCA led by Drs. Neal Grandgenett and Jeanette Harder in 2020, we have added two new Assistant Vice Chancellors to our office. Dr. Kristin Girten was named the Assistant Vice Chancellor for Arts & Humanities and Dr. Emily Wright was named the Assistant Vice Chancellor for Social Sciences. These two positions will provide much greater support for the breadth of interests within the UNO community and will complement Dr. Sara Myers who has served as the Assistant Vice Chancellor for STEM for several years now.

We look forward to working with you over the next year as you explore your interests and contribute your talents to UNO.

Best regards,

A handwritten signature in black ink, appearing to read "K. Bayles".

Dr. Kenneth Bayles

Associate Vice Chancellor

UNIVERSITY OF
Nebraska
Omaha



The Office of Research and Creative Activity Welcomes Two New Assistant Vice Chancellors



Dr. Kristin Girten

Assistant Vice Chancellor for Arts and Humanities

Kristin Girten, Ph.D., joins ORCA as the new Assistant Vice Chancellor for Arts and Humanities. Her research focuses on the intersections between literature, philosophy, and science in the British Enlightenment and the twenty-first century, giving special emphasis to how women and other marginalized groups contribute to and feel the effects of such intersections. Girten, an associate professor of English since 2006, will be taking on the new role in addition to her responsibilities as a faculty member.

In joining ORCA, Girten will contribute her experience as a prolific scholar, publishing in a wide variety of journals, securing grant funding for projects across disciplines, community engagement efforts, and campus-wide service on multiple committees, review boards, faculty cohorts.



Dr. Emily Wright

Assistant Vice Chancellor for Social Sciences

Emily Wright, Ph.D., joins ORCA as the new Assistant Vice Chancellor for Social Sciences. Wright is a professor of Criminology and Criminal Justice and also serves as associate director of the Nebraska Center for Justice Research and affiliate faculty member for the Women's and Gender Studies program at UNO. Wright, who has been at UNO since 2012, will continue in her faculty role in addition to serving as assistant vice chancellor.

Wright brings to the position a national reputation through her published and funded research in criminal justice, child welfare, and partner violence. She also has a long history of service to the university, including sitting on and chairing many thesis and dissertation committees, being a member of multiple journal editorial boards, and being an executive member of many professional boards.



Girten and Wright will join **Dr. Sara Myers**, who has served as Assistant Vice

Chancellor for Research and Creative Activity since 2016. Myers is a professor of Biomechanics and her research focuses on improving walking performance and quality of life in older individuals and patients with peripheral artery disease. Her research has been funded by the National Institutes of Health, Department of Veterans' Affairs, and NASA.

In her role as Assistant Vice Chancellor, Myers will continue working with STEM faculty to elevate ongoing projects, provide resources for new ideas, and serve as a facilitator to new collaboration and funding opportunities across colleges and units. In addition, Myers will serve as Chief of Staff, which includes administering ORCA internal and NU-system-wide funding programs and serving on NU's Federal Relations team.

Student Essay

Amanda Hayworth 2019/2020 GRACA Awardee

Being awarded the GRACA grant was one of the most valuable and rewarding parts of my graduate school career. This grant allowed me to have the time and the funds to design and implement a study around my unique interest in composition and rhetoric that I would not have been able to accomplish without it. By completing this project, I was able to take the knowledge and skills what I was learning in my graduate courses and practice being a researcher and scholar in my field. Completing this project helped me become confident in my ability to design and conduct research as well as helped me become more involved within my graduate program.

I was first introduced to the GRACA grant by my instructor and faculty mentor, Dr. Maggie Christensen, when she encouraged me to apply for this opportunity to expand on research that I had done in her course. My GRACA project



began as a combination of several final essays and assignments I completed in my courses, so I was able to use research I had already done to ground my own scholarly interests. With the help of my mentor, I was able to design a study that evaluated the First Year Writing program at UNO, where I surveyed and interviewed UNO's composition instructors about their teaching methods and philosophies. I used new technologies, practiced coding and analyzing data, and eventually presented my findings at the Student Research and Creative Activity fair. Though it was initially overwhelming to be in charge of my own research study, I always felt supported by Dr. Christensen, my department, and the GRACA program.

After completing this project, I felt more prepared for my life beyond graduate school. It helped me begin my career as an academic, giving me content to use when applying to conferences and journals. I talked extensively about this grant when interviewing for teaching jobs, demonstrating my ability to create and manage my own project. Most importantly, though, this project helped me to build my own confidence in my ability to participate within academia.

I am truly thankful for this opportunity to conduct my own research, and I fully believe it made me a better teacher and scholar. I would highly recommend that any graduate student apply for this grant to explore their research interests and gain valuable academic experience.

UNIVERSITY COMMITTEE ON RESEARCH AND CREATIVE ACTIVITY (UCRCA) Faculty Awards

The purpose of UCRCA is to expand the capacity for research and creative activity at UNO. The UCRCA supports all areas, types, and disciplines of research and creative activity by pre- and post-tenured faculty at UNO. The committee places special emphasis on seed grant funding for projects potentially leading to external funding and on grants to new faculty to help them establish programs of research/creative activity.

PI Last	PI First	Co-PI Last	College	Dept.	Project Title	Award
Aliaga-Linares	Lisette	n/a	CAS	SOC/ ANTHRO	Disentangling the effects of Informal Employment and Cash Transfers on the Spread of COVID-19 across Peru during the 100-Day lockdown	\$5,000.
Blount	Ashley	Adams/ Bjornsen-Ramig	CEHHS	COUNSL	Health Disparities in Women During the Pregnancy Life Cycle	\$10,000
Dinkel	Danae	n/a	CEHHS	HK	Development of a Methodology to Accurately Assess Infant Physical	\$5,000
Kingston	David	n/a	CEHHS	BMCH	Alterations to plantar pressure, whole-body stability, and overall mobility from walking aid use in persons with type 2 diabetes mellitus	\$5,000
MacArthur	Kelly	n/a	CAS	SOC/ ANTHRO	Medical Culture Contagion & Containment: Capitalizing on the Power of Social Network Analysis to Enhance Medical Student Well-Being in the Coronavirus Era	\$5,000
Medeiros	Kelsey	n/a	CBA	MGMT	Equitable Remote Work: Gender Differences in Remote Meeting Behaviors, Networking, and Non-Promotable Tasks	\$1,000
Parakh	Abhishek	Subramaniam	IST	SI2	Towards Quantum Cryptography Intelligent Notebooks (Quantino)	\$10,000
Schlosser	Allison	n/a	CAS	SOC/ ANTHRO	Medication Treatment for Opioid Use Disorder in the Context of the COVID-19 Pandemic: A Qualitative Study	\$5,000
Suriano	Zac	n/a	CAS	GEOG/ GEOL	Nebraska Cloud Cover: Spatiotemporal Variations for Assessments of Solar Energy Viability	\$5,000
Zhao	Yanhui	Adidam/ Sindhav	CBA	MKTG	Adapting International Sales Strategies during the COVID-19 Crisis	\$4,600
Total Faculty UCRCA Awards:						\$56,600

WORK STUDY STUDENT RESEARCH PROGRAM AWARDS

The Office of Research and Creative Activity, by leveraging Federal Work Study funds has developed the UNO Work Study Student Research Program aimed to expand student research opportunities. The program funds work-study eligible students to work 10 hours per week on the faculty member's research and/or creative activities.

This program is intended to promote Diversity, Equity, and Inclusion in research activities, and individuals who are eligible for Federal Work-Study are included in the most recent definitions of underrepresented populations by many grant funding agencies. As such, creating research positions for work-study eligible students will provide underrepresented students with research experiences, mentorship from a research faculty, and access to professional development activities. Students in the program were expected to complete necessary training to participate in the research, including, but not limited to responsible conduct of research, IRB and/or IACUC training as appropriate.

All full-time faculty were eligible to apply and each application was reviewed for merit and mentoring experience. Positions were decided based on these criteria and funding availability. ORCA assisted faculty members in posting the student research positions and disseminating to students who qualified for Federal work study. Ultimate responsibility for screening, interviewing, and selecting students rested with each awarded faculty member. Projects that aligned with UNO Strategic Priorities, including UNO Big Ideas and NU-system collaborations were encouraged, but not required.

PI Last	PI First	College	Dept.	Project Title
Alexander	Laura	CAS	RELG	Religion and Human Rights
Beard	Christie	CFAM	MUS	Piccolo Repertoire & Composer Diversity Project
Bramlett	Frank	CAS	ENGL	Latinx/Hispanic Communities in Nebraska Perceptual Dialectology
Dinkel	Danae	CHHS	H&K	Physical Activity in Health Promotion Student Worker
Dona	Cristian	CAS	OLLAS	Voices of a Pandemic: Narratives of Latino Experiences during COVID-19
Du Laney	Claire	N/A	CRISS	Black Studies Department collection- Exhibition, Outreach, and Materials Discoverability
Harder	Jeanette	CPACS	SOWK	Outcome Evaluation Plans with Small Nonprofit Organizations (STEPS)
Heesch	Matthew	CHHS	H&K	Exercise Physiology Work Study Student Research Program
Schenkelberg	Michaela	CHHS	H&K	Student Worker for Physical Activity and Health Research
Suriano	Zac	CAS	GEOG/ GEOL	Classifying weather patterns over space and time
Wong	Ryan	CAS	BIOL	Evaluating cognitive capabilities of different animal personality types

Faculty Award Winner

Dr. Gina Ligon

Department of Management

2020 Award for Distinguished Research or Creative Activity

Organizational structure. Leadership. Terrorism.

In today's society, these three terms have much more in common than they used to, and for the past decade, UNO's Gina Ligon has been leading the charge when it comes to understanding those connections. Ligon, an associate professor of management in UNO's College of Business Administration, was recently named one of the Greater Omaha Young Professional's "Change Makers" for 2017.

For the past decade, Ligon has been researching how hate groups and terrorist organizations function and recruit members, which is about as far removed as one could get from what many of her classmates were studying while she was completing her doctorate at the University of Oklahoma.



"My degree is in industrial and organizational psychology, which is typically reserved for research of for-profit companies and their organizational wellbeing," Ligon says. "After taking an elective course in public administration, I felt that the best way to use the skills I had learned in my degree program was helping understand government."

It wasn't long before Ligon became passionate about how her knowledge of business operations could be used to understand more nefarious organizations that were targeting governments at the local, state and federal levels.

"I am from Oklahoma, so I was in high school when the Oklahoma City Bombing happened, and then I was in my first year of graduate school during 9/11," she says. "It's hard not to be affected by those events and want to understand the people behind them."

Initially, Ligon started her career at Villanova University, but following a visiting professorship at UNO, she says she fell in love with the city, the university and the potential for connections with organizations like United States Strategic Command.

A little more than a year into her time at UNO, Ligon helped engineer a unique program in partnership with USSTRATCOM and the National Strategic Research Institute that would allow its civilian employees to take management courses at UNO that could help them become leaders in their departments. Now in its fourth year, the USSTRATCOM Leadership Fellows program incorporates faculty from each of the University of

Ligon, cont.

Nebraska's four campuses and features partnerships with dozens of for-profit and non-profit organizations in Omaha.

Soon after, Ligon worked with College of Business Dean Louis C. Pol; colleagues from the Management Department and the College of Information Science and Technology's IT Innovation program; and the University of Nebraska Foundation to launch the Jack and Stephanie Koraleski Commerce and Applied Behavioral Research Lab, a state-of-the-art research facility that enables faculty and students to conduct behavioral research related to marketing and management techniques, including those used by terrorist groups like ISIS.

"So much of the communication that ISIS releases is done specifically to recruit people into their organization and become radicalized," Ligon says. "If we can better understand the brain's reactions to certain stimuli, we can better counter those messages ourselves."

Many of Ligon's students also get involved in this research, charting their own paths toward discovering and better understanding hate groups. Associate Professor of IT Innovation Doug Derrick, who was also recognized as AIM's 2013 Technology Innovator of Year in Omaha, and Ligon run a joint research lab with 27 students in the Center for Collaboration Science.

"The students all have different academic training—from criminology to computer science, but they share a common problem set: understanding leadership of terrorist organizations," Ligon says.

Last semester, University Honors Program students took a course from Ligon where the goal was to compete in a national campaign organized by Facebook to counter radicalization and hate online. The students chose to tackle the issue of misrepresentation of refugees, launching a multi-method social media campaign called "The Refugee Perspective" that landed them a trip to Washington D.C. to present their work in front of the State Department, Facebook and other business leaders.

"I was so proud of these students' work and, to be honest, I didn't expect to become so invested in this topic," Ligon says. "Now the students have formed their own student organization to continue their work and I am serving as their advisor. It really has become a passion project."

Most of all, Ligon says that her time at UNO has truly allowed her to work with the community and people that are working day to day in counterterrorism.

Since 2010, she has been part of the National Consortium for the Study of Terrorism and Responses to Terrorism (START). She has also received federal funding for her research from the Department of Defense, Homeland Security's Science and Technology Directorate, the National Counterterrorism Center and many others.

Yet, Ligon says that she has only been able to do what she's done because of the support she has had from the college and UNO administration.

"It is so important to have strong leaders that can provide guidance. At other universities, you'd likely get told things like 'no' or 'you can't do that' but to have the kind of supportive leadership we have here at UNO made me able to receive this recognition." *Article by Charley Steed, University Communications*

2020-2021 Internal Funding Awardees

Student Awards

FUND FOR UNDERGRADUATE SCHOLARLY EXPERIENCES (FUSE)

FUSE grants support faculty-mentored undergraduate student research and creative activity. Grants of up to \$2,500 per student were available to UNO undergraduate students.

Last	First	Faculty Mentor	College	Dept.	Project Title	Award
Alsuleiman	Sarah	Davis	CAS	BIOL	COMPARING MECHANISM OF ACTION OF ANALOGS SA91 AND SA102	\$2,500
Andersen	Katie	Knarr	CEHHS	BMCH	Test-Retest Reliability of a Neurocognitive Hop Test	\$2,500
Anderson	Cody	Myers	CEHHS	BMCH	Simulating the optimal activation timing and level of spring assistance for an unpowered ankle-foot exoskeleton	\$2,500
Andreasen	Sydney	Knarr	CEHHS	BMCH	Developing an Immersive Environment for Visual Scanning Assessment and Training of Unilateral Spatial Neglect After Stroke and Healthy Baseline Assessment	\$2,500
Basilio	Lizeth	Blankenship	CAS	BIOL	The Genetics of Filamentation and Pathogenesis in Divergent Clinical C. albicans Isolates	\$2,500
Bennett	Maia	Denton	CAS	BIOL	Impact of Helper-like Innate Lymphoid Cells in NK Cell-Mediated Cancer Cell Killing	\$2,500
Blackmon	Arriana	Denton	CAS	BIOL	Impact of Pembrolizumab on NK Cell-Mediated Killing	\$2,500
Brinkman	Daniel	Hall	IST	SI2	Analyzing the Dissemination of Violent Media and Rhetoric across Parler	\$2,500
Calpin	Danielle	Myers	CEHHS	BMCH	Gait after intervention trial in peripheral arterial disease: The minimal clinically important difference of revascularization.	\$2,000
Champion	Emily	Scherer	CAS	PSYCH	The Role of Physician Empathy, Patient Trust and Coping Resilience on Compliance to Treatment Regimen	\$2,291
Chapman	Ryan	Davis	CAS	BIOL	A Bioinformatics Analysis of Single-Cell Transcriptomic Data to Investigate the Mechanism of a Novel Antischistosomal Compound	\$2,500
Chataut	Akankshya	Blaskewicz Boron	CPACS	GERO	Reducing Social Isolation and Maintaining Quality of Life during the SARS-CoV-2 (COVID-19) Pandemic via Assistive and Interactive Technology	\$2,500

Student Essay

Jessica Glasshoff

2019/2020 FUSE Awardee



As a FUSE grant recipient, I have found this program to be very rewarding in multiple ways. First and foremost, I have the ability to be on the cutting edge side of research. Which, in itself, has benefitted me by challenging me and building my morale to recognize that I can accomplish things that are difficult, and things that will make a difference to others. I am more confident in my skills than ever, as do I believe this program will help me hone in my skills even further in the future as a seek to become a scientist.

Secondly, I am able to work with a variety of individuals at different levels of training and experience who continue to inspire and motivate me every day to do my best in research.

The most challenging part of this experience was, unfortunately, Coronavirus. This disease has impacted my work in many ways both positive and negative. Negatively, I work with a parasite and the pandemic has slowed some of the experiments we have proposed. However, this is the portion that challenged me to think outside of the box and create valuable experiments even though I had missed that optimal time point. It positively affected me to exercise the right side of brain for creativity rather than the left side that I typically use to create and follow protocols.

These programs allow for the grey of a black and white mind to be used. It allows for students to develop their own thought processes and create a very influential mindset that can be used to help others. What isn't helpful in science is when everyone thinks the same exact way. With the diversity of creativity comes progress.

I would love for everyone to know about this program. Not only are you able to work on some pretty amazing research, but the amount of skills you learn, and craft, is astounding. It is also a stepping stone for each person to develop their own positive mindset and outlook on research and is hopefully something they will see they want to pursue in the future.

FUND FOR UNDERGRADUATE SCHOLARLY EXPERIENCES (FUSE)

Last	First	Faculty Mentor	College	Dept.	Project Title	Award
Dhakal	Isha	Mukherjee	CEHHS	BMCH	Gaze Control During the Dynamic Visual Acuity Test	\$2,000
Dreher	Braydon	Davis	CAS	BIOL	Absolute Quantification of Toxoplasma gondii	\$2,500
Evans	Nate	Myers	CEHHS	BMCH	Improving Mobility in Peripheral Artery Disease Using an Ankle Foot Orthosis: Effect of physical activity on the metabolic cost in patients with peripheral artery disease while walking with and without an Ankle Foot Orthosis	\$2,500
Franzen	Josh	Denton	CAS	BIOL	Peptide Amphiphile Nanostructures with Peptide Targeting Regions as a more Efficient Chemotherapy Drug Delivery System	\$2,500
Jeppesen	Zach	Baguyos	CFAM	MUS	Rediscovering and Restoring the New England/American Three-string Double Bass Tradition	\$2,500
Karki	Dinesh	Blaskewicz Boron	CPACS	GERO	Experience of Essential Contacts of Institutionalized and Community-Dwelling Older Adults during the SARS-CoV-2 (COVID-19) Pandemic: Social Isolation and Assistive and Interactive Technology Use	\$2,500
Kempema	Eli	Lu	CFAM	ART	UNO Campus Quest	\$2,000
Kraft	Lillian	Haneline	CFAM	MUS	Collaborative Pianists and Vocalists at the Undergraduate Level	\$2,492
Limback	Sadie	Knarr	CEHHS	BMCH	The Effects of Various Volleyball Set Locations on Landing Biomechanics and Anterior Cruciate Ligament Injuries	\$2,500
Loya-Perez	Vanessa	Almeida	CAS	CHEM	The Use of Antimicrobial Cyclic Peptide Amphiphiles Against Bacterial Infections	\$2,500
Lui	LeeAnna	Davis	CAS	BIOL	Development of a combination drug therapy against the chronic stage of Toxoplasma gondii	\$2,500
Moore	Savana	Shafer	CFAM	MUS	Music for the Deaf	\$2,500
Morales	Rae	Scherer	CAS	PSYCH	The Effect of General Stress Level on Student Burnout and Student Engagement	\$2,050
Ojha	Pranav	Tapprich	CAS	BIOL	Structural Analysis of the 5 Untranslated Region of the Enterovirus D68 Genome	\$2,500
Oliver	Catherine	Cooper	IST	SI2	Understanding microbial diversity within the gut microbiome and implications for colorectal cancer screening	\$2,100

FUND FOR UNDERGRADUATE SCHOLARLY EXPERIENCES (FUSE)

Last	First	Faculty Mentor	College	Dept.	Project Title	Award
Partusch	Luke	Knarr	CEHHS	BMCH	The Effects of Swing Speed on the Variability of Ball Contact and Risk of Lower Back Injury in Golfers	\$2,500
Pecka	Caleb	Bastola	IST	SI2	An Algorithmic Approach for Creating Gene Regulation Models	\$2,000
Ponce-Merida	Karla	Romero	CAS	OLLAS	Frontline Workers' Perceptions of Organizational Justice and Its Impact on Personal Well-Being During the COVID-19 Pandemic	\$2,435
Prusia	Meghan	Marmelat	CEHHS	BMCH	Relationships between finger tapping and gait timing in musicians and non-musicians	\$2,500
Saavedra	Roberto	Zuniga	CEHHS	BMCH	Designing and Manufacturing Critical Medical Devices during a Pandemic	\$2,500
Sandall	Caleb	Davis	CAS	BIOL	Method of Action Study of AR102 Against Schistosoma	\$2,500
Sossa	Isidore	Youn	IST	CS	Clustering-based Walkability Assessment Using Wearable Sensors and Human Gait Analysis	\$2,000
Stogdill	Hannah	Mukherjee	CEHHS	BMCH	Inter-limb coordination is impacted by age	\$2,000
Strong	Madeline	Wright	CPACS	CJUS	An Inquiry into the Scope of MMIW on the Pine Ridge Indian Reservation and its Border Towns	\$2,500
Sutton	Matthew	Maher	CAS	GEOG/ GEOL	An examination of Tuttle lamellae (fluid inclusion planes) spacing relationships	\$2,500
Xu	Yimeng	Haneline	CFAM	MUS	Collaborative Vocalists and Pianists at the Undergraduate Level	\$2,187
Total FUSE Awards:						\$90,555
Total FUSE Mentor Awards:						\$15,500

Student Essay

Cody Anderson

2019/2020 FUSE Awardee

The FUSE program at UNO has played a fundamental role in my professional development and my career selection. As an incoming freshman, I eagerly joined the Exercise Science program because I was convinced that I wanted to practice physical therapy. However, it was not long before a new interest caught my attention. During the summer after my freshman year, my anatomy Teaching Assistant asked me if I would be interested in joining his research team at the Biomechanics Laboratory. I was a little nervous because I did not have any research experience or knowledge about how academic research worked, but I was thrilled to have been given the opportunity, so I accepted the offer.

That summer, I began working under my Teaching Assistant's mentor, Dr. Sara Myers. Right away, Dr. Myers began discussing projects that I could pursue, and she pushed me to write a FUSE proposal. Dr. Myers' team is focused on improving gait and movement function in patients with peripheral artery disease. For my first FUSE project, I worked on developing and testing a passive ankle exoskeleton with a graduate student on Dr. Myers' team. To be honest, a lot of things went wrong during my first FUSE project, and my results were null, however, I learned how to do something new: I learned how to think on my own, and I enjoyed it a lot. From that moment on, I was hooked on research, and I knew that research was what I wanted to do for the rest of my life.

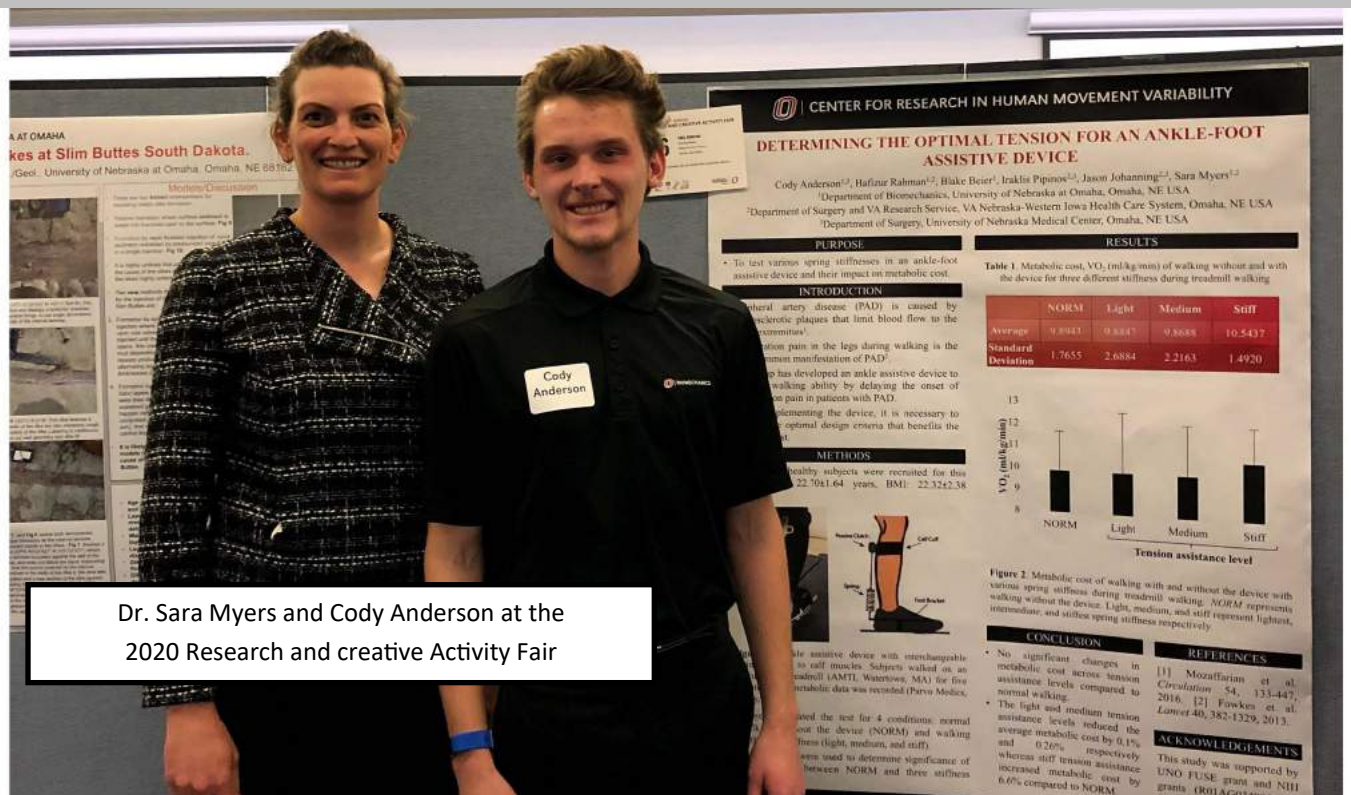
Even though I did not successfully reduce the metabolic cost of walking with a passive exoskeleton, I was determined to develop an exoskeleton that would work. During the summer after my sophomore year, I worked with several students on my team to create exoskeleton components that were designed to manipulate energy in clever ways. With the funding from my second FUSE project, I planned to test the efficacy of these components on a young population. Unfortunately, it was not long after my IRB was approved that the events of COVID-19 ensued, and my project was put on hold. However, right before the shut-down, I began collaborating with a post-doctoral fellow on a musculoskeletal modeling project using the OpenSim software. I quickly found interest in the theoretical modeling program, and I decided to change my FUSE project from a human-subjects study to a musculoskeletal modeling project.

My revised FUSE project was focused on determining how supervised exercise therapy changes muscle mechanics in individuals with peripheral artery disease. During the process of my second FUSE project, I became proficient at programming in Matlab and Python, and I gained a lot of knowledge about handling large amounts of data. The results of my second FUSE project produced a lot of interesting and meaningful outcomes, and with my results, I had the opportunity to present my work at numerous scientific conferences and I am working on submitting a manuscript.

Anderson, continued

For my third FUSE project, I wanted to blend my two interests; I decided to determine the optimal relationship between the level and timing of assistance for passive ankle exoskeletons with the OpenSim software. Using my new computer skills, I programmed a passive exoskeleton that mimicked my previous exoskeleton design onto an OpenSim model. With this model, I am currently in the process of completing 2500 simulations, which will give me high-resolution insight into important passive exoskeleton relationships. I am not done with this project yet, however, my preliminary results seem to validate currently understood behaviors of passive ankle exoskeletons, which strengthens the results of the simulations. Additionally, the preliminary results have already provided some novel insight into the optimal relationship between the level and timing of exoskeleton assistance, which have not been previously described in the exoskeleton literature.

The FUSE program at UNO has played a fundamental role in my success as a student, and it has been critical for my professional development. As a result of my participation in the FUSE program, I learned that I have a love of thinking, and I realized that in the future I will find more enjoyment from answering research questions than I will from practicing physical therapy. A very important lesson that I learned while performing research is that science is not a subject, it is a disciplined method of thinking and problem solving. It is not possible to become a scientist by only understanding what science has produced; rather, to become a scientist, you must practice the disciplined method of thinking that is called science! The FUSE program has allowed me to practice the discipline of science, and because of my experience with FUSE, I feel prepared to begin my graduate studies under Dr. Song-Young Park in the UNO Vascular Physiology Laboratory.



GRADUATE RESEARCH AND CREATIVE ACTIVITY (GRACA)

GRACA grants support faculty-mentored graduate student research and creative activity. Grants of up to \$5,000 per student were available to UNO graduate students.

Last	First	Faculty Mentor	College	Dept.	Project Title	Award
Afzali	Farhad Mohammad	Morrison	IST	CS	Quantifying the Impact of Smartphone Presence and Notifications on Task Performance	\$5,000
Ahuja	Vinod	Germonprez	IST	ISQA	Where companies draw the line: Understanding the corporate boundaries in the collaborative creation of a digital artifact	\$5,000
Al Azad	Md Washik	Mastorakis	IST	CS	Performance Improvement of Hidden Services over TOR	\$5,000
Allen	Michael	Park	CEHHS	HK	Cardiovascular and Autonomic Responses to Acute Exposure to Mild Hypercapnic Conditions	\$5,000
Almaghrebi	Ahmad	Cheng	CAS	MATH	The Impact of Plug-In Electric Vehicles Users Charging Behavior on Electric Grid	\$5,000
Alyetama	Mohammad	Chase	CAS	BIOL	A Non-invasive Approach Toward Efficient Evaluation of Toxoplasma gondii Oocyst Re-shedding in Domestic Cats	\$5,000
Andersen	Blake	Sollars	CAS	PSYCH	Multimodal microglia activation in the NTS following lingual nerve transection in Sprague-Dawley rats (Specificity of Microglia Responses in NTS Subnuclei)	\$5,000
Bixler	Kellie	Rosen	CEHHS	HK	The Relationship between hop testing and kinesiophobia in individuals with unilateral ACL reconstruction	\$5,000
Bommanapally	Vidya	Subramaniam	IST	CS	An interactive workbench for automatic image annotation for image segmentation tasks	\$5,000
Branscum	Caralin	Richards	CPACS	CJUS	Investigating Racial Disparities Among Missing/Runaway Youth on a National Scale	\$5,000
Brink	Kolby	Likens	CEHHS	BMCH	Fractal Entrained Bimanual Movement Using the Haken-Kelso-Bunz Model	\$5,000

GRADUATE RESEARCH AND CREATIVE ACTIVITY (GRACA)

Last	First	Faculty Mentor	College	Dept.	Project Title	Award
Buhrman	Daniel	Christensen	CAS	ENGL	Revising Talk: Promoting Dialogic Exchange in First-Year Writing Peer Review	\$5,000
Chao	Weng Fong	Anderson	CPACS	CJUS	Assessing the Racial Difference and Polarization in Supporting the Death Penalty and the Police Use of Deadly Force	\$5,000
Chaudhary	Priyanka	Dinkel	CEHHS	HK	Perceived Barriers and Facilitators of Childcare Providers to Implement Physical Activity in the Childcare Setting	\$4,998
Chetti	Prasad	Ali	IST	CS	Building a new Decision Support System using Population Analysis to analyze safety and performance of Civil Infrastructures	\$5,000
Choi	Jungyeon	Youn	IST	CS	Wearable sensor-based mobility analysis in unstable dynamic environments using the computer-assisted rehabilitation environment (CAREN) system	\$5,000
Crawford	Amanda	Strasser	CAS	PSYCH	Does the Presence of a Dog in the Home Buffer the Effects of Stress in Older Patients with a Chronic Illness and Their Caregivers?	\$5,000
Crawford	Danielle	Ryan	CAS	PSYCH	Ethnic Minority Allyship and Perceptions of Discrimination Against Blacks: The Role of Majority Group Friendships	\$5,000
Dai	Jiayu	Bastola	IST	SI2	Investigating the genetic characteristics of probiotics to build a participatory-research foundation	\$5,000
Dalbir	Nicky	Wright	CPACS	CJUS	Mental Health Problems Among Jail Inmates: Prevalence, Impact on Recidivism, and Gender Differences	\$5,000
Dare	Pamela	Strasser	CAS	PSYCH	The Effect of Different Types of Enrichment During Morning Cleaning in Kenneled Shelter Dogs	\$5,000
Dasgupta	Agnibh	Zhong	IST	CS	Learning an Invariant Domain for Image Watermarking	\$5,000
Eggleston	Garrett	Knarr	CEHHS	BMCH	The Effect of External Focus Cues on Lower Back Pain During the Golf Swing	\$5,000
Feldmann	Ann	Williams	CEHHS	EDL	A Multiple Case Study of the Trends Emerging from a Forced Shift to an Online Interface on University Faculty's Instructional Design	\$5,000
Flores	Ricky	Cooper	IST	SI2	Machine learning for the semantic analysis of ingredient list	\$5,000

GRADUATE RESEARCH AND CREATIVE ACTIVITY (GRACA)

Last	First	Faculty Mentor	College	Dept.	Project Title	Award
Gilbert	Sheena	Wright	CPACS	CJUS	Victimization on Tribal Lands: An Application of Social Disorganization Theory	\$3,000
Gonabadi	Arash Mohammadzadeh	Malcolm	CEHHS	BMCH	Optimization of the musculoskeletal simulation in estimation of metabolic cost	\$5,000
Hamer	Tyler	Knarr	CEHHS	BMCH	Investigation of Sports Specialization History and Workload Management on Pitching Biomechanics in Collegiate Baseball Pitchers	\$5,000
Hatami	Zahra	Ali	IST	CS	Big Data Analytics Approaches for Analyzing US Stocks under major events - A focus on the 2008 Crash and the Impact of Covid-19	\$5,000
Hazelton	Josephine	Eikenberry	CPACS	PA	Getting on Board: The Pursuit of Gender Equity in Public Transit Service Provision	\$5,000
Hubner	Sarah	Boron	CPACS	GERO	Assistive and Interactive Technology to Enhance Quality of Life and Independence for Persons with Dementia and Their Caregivers	\$5,000
Ide	Tomohiro	Rosen	CEHHS	HK	The relationship between elbow valgus stress and ulnar collateral ligament morphological characteristics in baseball pitchers	\$5,000
Jackson	Justin	Heesch	CEHHS	HK	The Response of miRNA-26b, miRNA-30b, and miRNA-30c to an Acute Bout of Exercise	\$5,000
Japp	Payge	Reiter-Palmon	CAS	PSYCH	Why do we Select the Ideas that we Select?	\$5,000
Jones	Patti	Clouther	CFAM	WRICTR	The South Will Rise Again: The Enduring Emotional and Philosophical Effects of the American Civil War	\$5,000
Jung	Grace	Eikenberry	CPACS	PA	A Study on Nonprofit Organizations' Support for (Anti-)Racism - A Critical Race Theory (CRT) Perspective on the Nonprofit Sector and Racial Equity	\$5,000
Khatri	Nishan	Zhong	IST	CS	Deep Learning-based Image Geometry for Watermarking	\$5,000

GRADUATE RESEARCH AND CREATIVE ACTIVITY (GRACA)

Last	First	Faculty Mentor	College	Dept.	Project Title	Award
Kim	Yeonkyung	Lee	CPACS	PA	Crowdsourcing in the governments: Lessons from Challenge.gov and Challenge Korea	\$5,000
Kim	Suyeon	Ali	IST	CS	A Graph Database System for Microbiome Data Integration in Early Childhood Development	\$5,000
Kim	Judith	Boron	CPACS	GERO	Cognitive Complexity under Dual-Task Conditions in Older Adults	\$5,000
Kinney	Taylor	Knarr	CEHHS	BMCH	Utilization of an individualized linear model to assess scapular kinematics differences of baseball pitchers with and without a history of shoulder injury	\$5,000
Kowalczyk	Kayla	Malcolm	CEHHS	BMCH	Low-cost Asymmetric Hip Brace for Error Augmentation Training	\$5,000
Krejcarek	Amy	Boron	CPACS	GERO	Mindful Breathing and Distress Reduction in Long-Term Care Residents	\$5,000
Krushas	Amber	Kulig	CPACS	CJUS	Examining Student-Teacher Relationships in the United States: A Content Analysis Approach	\$5,000
Kwon	Monica	Slivka	CEHHS	HK	Impact of Muscle Temperature on Muscle Growth and Breakdown at Rest: Effect of Local Heat Application on Mitochondrial Related Gene Expression	\$5,000
Larrey	Matt	Manning	CAS	BIOL	Developing a site-specific model to inform fish consumption guidelines in light of mercury contamination	\$5,000
Liao	Wei Jie	Ebdon	CPACS	PA	Examining the Causal Relationship between the Use of Budget Simulations and Governments Fiscal Condition	\$5,000
Lindquist	Isaac	Kramer	CAS	PSYCH	Examining Role Claritys Effects in Collegiate Baseball Player Motivation	\$5,000
Lumbard	Kevin	Germonprez	IST	ISQA	Open Agriculture Digital Infrastructure	\$5,000
Malisetty	Saiteja	Ali	IST	DEAN	New Assessment Approaches Using Population Analysis for Simulation-Based Medical Training: A Pilot Study with a Focus on Complex Surgical Skills	\$5,000
Meuret	Maddyson	Richards	CPACS	CJUS	Supporting WCA BIP Curriculum and Intake Revisions	\$5,000

GRADUATE RESEARCH AND CREATIVE ACTIVITY (GRACA)

Last	First	Faculty Mentor	College	Dept.	Project Title	Award
Mishra	Anoop	Khazanchi	IST	DEAN	Perceived Fairness From Developers Perspective in Artificial Intelligent Systems	\$5,000
Montgomery	Allison	Kellar	CAS	BIOL	Research proposal	\$5,000
Mudiyanselage	Dilanga Lakshitha Galapita	Subramaniam	IST	CS	Model Debugging Based Novel Approach for Automated Training Data Augmentation for Deep Convolutional Neural Networks	\$5,000
Murugavel	Vignesh	Reiter-Palmon	CAS	PSYCH	Understanding Diversity Impression Management in Department of Homeland Security Recruiting	\$4,800
Nystrom	Alyssa	Richards	CPACS	CJUS	Supporting Seattle's Domestic Violence Intervention Project (DVIP)	\$5,000
Papachatzis	Nikolaos	Takahashi	CEHHS	BMCH	The Effects of Foot Anthropometry on Plantar Flexor Muscle Fascicle Mechanics and Metabolic Cost of Walking	\$5,000
Parker	Sheridan	Knarr	CEHHS	BMCH	Use of Virtual Reality for Assessing Gross Hand Dexterity	\$5,000
Rech	John	Dinkel	CEHHS	HK	The association between preschool teachers' and preschool children's physical activity	\$4,913
Rief	Rachael	Clinkinbeard	CPACS	CJUS	Women in Law Enforcement in Nebraska: Pathways to the Field and Experiences in It	\$5,000
Robins	Larry	Slivka	CEHHS	HK	Impact of Muscle Temperature on Muscle Growth and Breakdown at Rest: Influence of Local Muscle Cooling on Mitochondrial Related Gene Expression	\$5,000
Rouse	Ryan	Heckler	CPACS	PA	An Exploration of the Values and Principles of Nonprofit Workers	\$5,000
Scott	Angeleau	Knarr	CEHHS	BMCH	Investigation of Identifying Risk Factors of Injuries in The Lead Leg of Baseball Pitchers in a Simulated Game	\$5,000
Senatore	Siena	Malcolm	CEHHS	BMCH	Algorithm-guided prosthesis fitting for reducing intact knee loading and minimizing fitting time	\$4,043

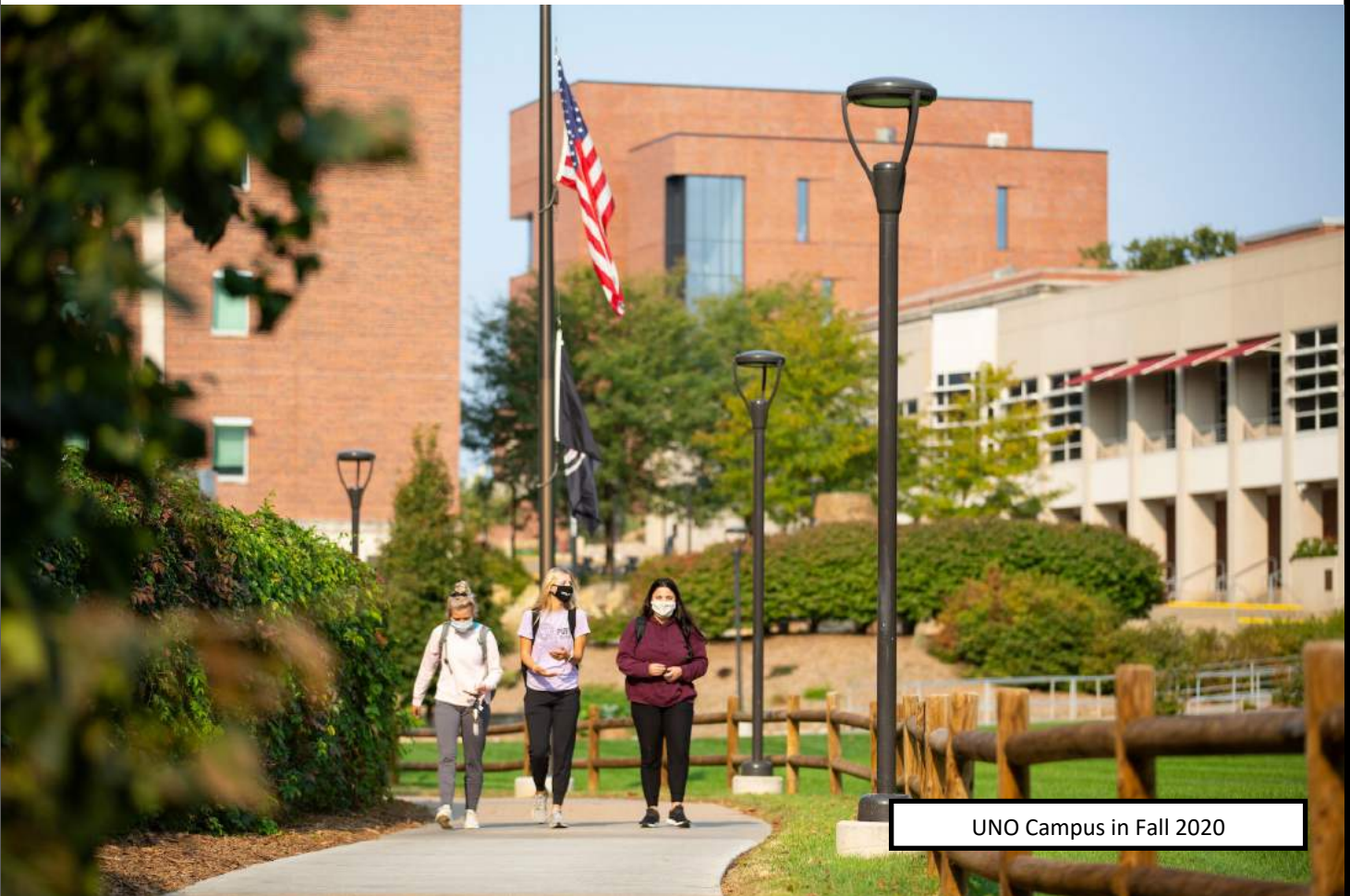
GRADUATE RESEARCH AND CREATIVE ACTIVITY (GRACA)

Last	First	Faculty Mentor	College	Dept.	Project Title	Award
Servais	Michael	Knarr	CEHHS	BMCH	Analyzing Thoracic Spine and Hip Mobility and the Effects on Kinematics in the Golf Swing and its Relation to Injury and Performance	\$5,000
Shapouri	Fatemeh	Najjar	IST	ISQA	Evaluation of critical success factors influencing business intelligence implementation success	\$5,000
Siddiquir Rahman	Abu Bakar	Mastorakis	IST	CS	Computational reuse in networking with stream processing by using apache flink snapshot	\$5,000
Smith	Brooklyn	Wilson	CAS	BIOL	The Importance of Social Interactions in Zoo-managed Male African Elephants (Loxodonta Africana)	\$4,000
Song	Xiaowei	Ebdon	CPACS	PA	Special District versus General Purpose Government: Does Ownership Form Matter to Airport Efficiency?	\$5,000
Song	Mingming	Bastola	IST	SI2	Education Process and Technology Application for Patient Empowerment in Cancer Treatment	\$5,000
Stepanek	Sarah	Ryan	CAS	PSYCH	Perceptions of Meaningful Work: Does Organizational Mission Matter?	\$5,000
Swanson	Matt	Ryan	CAS	PSYCH	Self-Expression at Work	\$5,000
Tadur	Navya Sree	Farhat	IST	CS	Use of Implicit Functions in Convergence and Collision Avoidance in Multi-Robot Systems	\$5,000
Vietto	Nick	Armstrong	CPACS	CJUS	Autonomic Nervous System Reactivity and Traits Associated with Antisocial Behavior	\$5,000
Williams	Kay	Holley	CPACS	GERO	Facebook Indians: Social Isolation and Social Media Among Native Elders in the Age of COVID-19	\$5,000
Wilson	Taylor	Likens	CEHHS	BMCH	The effect of surface and speed on fractal scaling in gait	\$5,000
Total GRACA Awards:						\$375,754

UNIVERSITY COMMITTEE ON RESEARCH AND CREATIVE ACTIVITY (UCRCA) Student Awards

The purpose of the UCRCA is to expand the capacity for research and creative activity at UNO. UCRCA supports all areas, types, and disciplines of research and creative activity by pre- and post- tenured faculty and graduate and undergraduate students.

Last	First	Faculty Mentor	College	Dept.	Project Title	Award
Chaudhary	Priyanka	Dinkel	CEHHS	HK	A qualitative comparison of childcare providers on the use of family engagement principles	\$205
Rech	John	Dinkel	CEHHS	HK	Physical Activity of Children with Autism Spectrum Disorder Compared to Their Typically Developing Peers: A Meta-analysis	\$205
Sado	Takashi	Mukherjee	CEHHS	BMCH	SfN Global Connectome: Virtual Event	\$100
Total UCRCA Student Awards:						\$510



UNO Campus in Fall 2020

2020-2021 FACULTY MENTORS

FUSE grants support faculty-mentored undergraduate student research and creative activity.

GRACA grants support faculty-mentored graduate student research and creative activity.

The purpose of the UCRCA is to expand the capacity for research and creative activity at UNO. UCRCA supports all areas, types, and disciplines of research and creative activity by pre- and post- tenured faculty and graduate and undergraduate students.

A special thank you to the following faculty mentors.

Hesham Ali	Matthew Heesch	Troy Romero
Nathalia Almeida	Lyn Holley	Adam Rosen
Todd Armstrong	Roxi Kellar	Carey Ryan
Jeremy Baguyos	Deepak Khazanchi	Lisa Scherer
Dhundy Bastola	Brian Knarr	Seth Shafer
Jill Blankenship	William Kramer	Dustin Slivka
Julie Blaskewicz Boron	Teresa Kulig	Suzanne Sollars
Bruce Chase	Joocho Lee	Rose Strasser
Xiaoyue Zoe Cheng	Aaron Likens	Mahadevan Subramaniam
Margarette Christensen	Lilly Lu	Kota Takahashi
Samantha Clinkinbeard	Harmon Maher	William Tapprich
Kevin Clouther	Philippe Malcolm	Tamara Williams
Kate Cooper	David Manning	James Wilson
Paul H. Davis	Vivien Marmelat	Emily Wright
Paul W. Denton	Spyridon Mastorakis	Jong-Hoon Youn
Danae Dinkel	Briana Morrison	Xin Zhong
Carol Ebdon	Mukul Mukherjee	Jorge Zuniga
Angela Eikenberry	Sara Myers	
Matt Germonprez	Lotfollah Najjar	
Magie Hall	Song-Young Park	
Stacie Haneline	Roni Reiter-Palmon	
Nuriel Heckler	Tara Richards	

Faculty Mentor Reflection

Dr. Laura Alexander
Religious Studies
2019/2020 FUSE Mentor

What do residents of the United States think of when they think of “America”? Who is considered to “belong” in the United States, and how have leaders and communities drawn and challenged boundary lines around who is recognized as American? Many in this country are grappling with these questions, both in media and in our daily lives and conversations. A scholarly project provides the benefit of time and space to investigate these questions carefully – to dig deeper than the day’s headlines and systematically examine historical and contemporary movements around the idea of “America” as a community.

Through a FUSE grant offered in the academic year 2020-21, I had the chance to mentor a student who took that step back and, in a rigorous, scholarly manner, considered questions about American ideologies of belonging. The student challenged his own assumptions and drew connections between historic and contemporary events, while enhancing his ability to develop an argument and offer evidence for a claim. I was grateful to help shape the project and to see the final result presented in a clear and compelling manner at the Student Research and Creative Activity fair.

FUSE grants, like the one my student received, allow both students and faculty to deepen their knowledge, contribute to the production and dissemination of scholarly research, and develop best practices of collaboration and mentorship. As a professor of Religious Studies whose work falls in the category of the humanities, I sometimes observe that students who are interested in humanistic topics have difficulty finding ways to engage in research or to collaborate with faculty. FUSE grants provide UNO students with the flexibility and encouragement they need to pursue scholarly opportunities in any discipline and to seek out mentorship.

Serving as mentor on a FUSE grant was extremely rewarding. It’s a gift to be able to work with a student who is deeply interested in important material, to help shape a research question, to guide the use of sources, and to provide advice and feedback on crafting a paper that makes a meaningful contribution to knowledge. The reward I did not fully expect, however, was how helpful the project would be to my own scholarly work. I am currently developing an article whose theme has resonances with the student’s FUSE-funded project, and I have found that my research is more targeted and meaningful because of my experience mentoring in this area. Mentoring a student project also reminds me of best practices for research and writing. Advising a student on constructing a clear argument and guiding a reader through it makes me a better academic writer. And working with students who are just as fascinated with this scholarly work as I am, and who take their skills and knowledge out into the world in multiple ways, helps me remember the deep importance of the work that we do as faculty. The research experiences supported by FUSE serve as a springboard for both students and faculty to do so much more.



RESEARCH DEVELOPMENT PROGRAM Awards

The Research Development Program provides support for a 12-month, doctoral level GRA. This funding is provided by the University of Nebraska Central Administration, the Office of Research and Creative Activity, and Graduate Studies.

Last	First	Principal Investigator	College	Dept.	Project Title
Choi	Ji Yeon	Rosen	CEHHS	HK	Comprehensively Understanding Chronic Ankle Instability Development after First-Time Ankle Injury.
Hansen	Zach	Lierler	IST	CS	On the way to correctness in constraint answer set programming
Islam	Md Sirajul	Oh	IST	CS	Heracles: Scalable Heterogeneity-aware Geo-distributed Data Analytics System
Pekas	Liz	Park	CEHHS	HK	Impacts of mitoquinol mesylate on mitochondrial function in peripheral artery disease
Poomulna	Jutharat	Kingston	CEHHS	BMCH	Gait mechanics of treadmill and overground walking in children with CP following fixed knee flexion deformity surgery
Wang	Yi-Fan	Chen	CPACS	PA	Transparency and Fairness of Artificial Intelligence in Government Decision-making: Regulation of Unmanned Aircraft Systems (UAS)
n/a	n/a	Mastorakis	IST	CS	Pervasive AR: Advancing the Deployment and Impact of Augmented Reality Technologies
n/a	n/a	Dona	CAS	SOC/ ANTH	LatinXTech: Understanding interest of LatinX students in socio-culturally grounded computer degrees



UNO computer science students in the classroom, Fall 2020

OFFICE OF RESEARCH & CREATIVE ACTIVITY

INTERNAL FUNDING OPPORTUNITIES AND SUMMARY

The University of Nebraska at Omaha shall not discriminate based upon age, race, ethnicity, color, national origin, gender-identity, sex, pregnancy, disability, sexual orientation, genetic information, veteran's status,

Contact Us:
Phone: 402.554.2286
Email: unoorca@unomaha.edu

University Committee on Research and Creative Activity (UCRCA)

The purpose of the UCRCA is to expand the capacity for research and creative activity at UNO. UCRCA supports all areas, types and disciplines of research and creative activity by pre- and post- tenured faculty and graduate and undergraduate students.

The award strives to recognize and honor preeminent achievement in research or creative activity by faculty members of UNO.

Additional information and guidelines at unomaha.edu/ORCA

Fund for Undergraduate Scholarly Experiences (FUSE)

FUSE grants support faculty-mentored, undergraduate student research and creative activity. Grants of up to \$2,500 per student are available to currently enrolled UNO undergraduate students. Additional information and guidelines at unomaha.edu/ORCA

Graduate Research and Creative Activity (GRACA)

GRACA grants support faculty-mentored, graduate student research and creative activity. Grants of up to \$5,000 per student are available to currently enrolled UNO graduate students. Additional information and guidelines at unomaha.edu/ORCA

Research Development Program

The Research Development Program provides support for a 12-month, doctoral level GRA, including 75% of the stipend, fringe benefits, health insurance, and tuition for two years to successful applicants. This funding is provided by the University of Nebraska Central Administration, the Office of Research and Creative Activity, and Graduate Studies. The remaining 25% must be provided by the College and/or Department as a cost-share. Any student who will be accepted and enrolled in a UNO doctoral program is eligible to be supported by the program, including international students. If students do not receive a fellowship to replace this GRA within the two years of support, the faculty can reapply for two more years, the department can fund the student, or the student can fill a teaching assistantship. Assistantships may begin as early July 1, 2022.

UNO Work Study Student Research Program

This program is intended to promote Diversity, Equity, and Inclusion in research activities, and individuals who are eligible for Federal Work-Study are included in the most recent definitions of underrepresented populations by grant funding agencies. As such, creating research positions for work-study eligible students will provide and underrepresent students with research experiences, mentorship from a research faculty, and access to professional development activities. Students in the program are expected to complete necessary training to participate in the research, including, but not limited to responsible conduct of research, IRB and/or IACUC training as appropriate. Funding will support a total of 10 students at \$10/hour for 150 hours each during the Spring and Summer terms. Any student must be a UNO student eligible for Federal Work Study. Funding may begin as early as January 2022 and can be used until June 30, 2022.

2020- 2021 Internal Funding Program Totals

PROGRAM	TOTAL	Number of Awards
UCRCA Faculty	\$56,600	11
UCRCA Student	\$510	3
FUSE Student	\$90,555	38
FUSE Faculty Mentor	\$15,500	24
GRACA Student	\$375,754	76
Grand Total	\$538,919	152