



McNair News

Newsletter of the University of Nebraska–Lincoln McNair Scholars Program

Volume 11, Number 1, Fall/Winter 2016-17

Introducing the 2016 McNair Cohort



Cole Dempsey is a mechanical engineering major from Lincoln, Nebraska. He will be working with Dr. Carl Nelson from Mechanical & Materials Engineering.



Lizeth Fraire is a psychology major from Grand Island, Nebraska. She will be working with Dr. Richard Wiener from the Department of Psychology.



Daisy Guiza Beltran is a biochemistry and microbiology major from Lincoln, Nebraska. She is working with Dr. Limei Zhang from the Department of Biochemistry.



Colton Harper is a computer science and math major from Hutchinson, Kansas. He is conducting research with Dr. Massimiliano Pierobon from Computer Science & Engineering.

Grecia Macias is a biology and sociology major from Lincoln, Nebraska. She is conducting research with Dr. Bridget Goosby from the Department of Sociology.



Sonoor Majid is a biochemistry and microbiology major from Lincoln, Nebraska. She is conducting research with Dr. Concetta DiRusso from the Department of Biochemistry.



Amanda Miller is a chemistry major from Palos Park, Illinois. She is working with Dr. Liangcheng Du from the Department of Chemistry.



McNair Scholars

"True courage comes in enduring, persevering, and believing in oneself."

Ronald E. McNair, Ph.D.

Scholars Felt Challenged Yet Confident after MSRE

The McNair Summer Research Experience (MSRE) challenges many of our students beyond anything they've experienced in their undergraduate careers. During MSRE, Scholars have the opportunity to conduct research under the guidance of a faculty mentor and to develop skills critical for success in graduate school. After successfully completing their projects during the 2016 McNair Summer Research Experience, nine UNL Scholars presented their results at the annual California McNair Symposium. We've asked the Scholars to reflect on their summer research experience and have published their comments on the following pages.



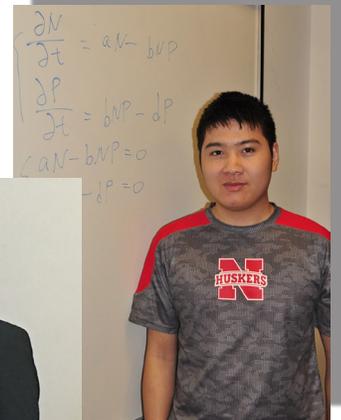
"Before summer research and Berkeley I was very nervous about going straight into a Ph.D. program. I wanted to get my master's first and then go from there. After this experience, I can honestly say that I feel more comfortable applying for Ph.D. programs. I feel confident that the work I'm doing matters and will one day create an impact, but more importantly, I feel more confident in myself and my ability to be a successful graduate student." – Myrianna Bakou



"Participating in the McNair Program, completing MSRE, and visiting Berkeley for the McNair Symposium have been the most meaningful experiences in college for me. They have been the only experiences that have truly increased my confidence and knowledge of what it means to be a scholar. Knowing what I have learned in the past year, I am excited to see what I can accomplish in the next two years!" – Kyly Baxter



"The McNair Summer Research Experience has been the most beneficial thing I've done in college. Even though I had some really tough moments during research, I learned how to learn from my mistakes and prevent them from happening again. I enjoy solving problems and look forward to continuing my research during UCARE, graduate school, and throughout my career." – Simon Deng



"I am forever grateful for the opportunities McNair has given me, and most importantly my mentor, John, who has been the biggest help throughout my college career and he will always be my academic father. He has pushed me and believed in me when I did not even think I could achieve these things." – Jazmin Castillo



Special Thanks to the faculty, postdoctoral, and graduate student mentors who contributed their time and expertise to work with McNair Scholars during the 2016 McNair Summer Research Experience and who continue to be involved in the Scholars' research and graduate application efforts. Your support is invaluable to the success of our students and our program!



"This summer was a snapshot of what my next 6 years will look like in graduate school, and what this summer showed me was that I can do it. This experience gave me a taste of what to expect and taught me so many things that I may have never even thought about. Yes, it was overwhelming but there's something about finishing strong with a paper, soon to be published, that I can call all mine, that is thoroughly satisfying." – Brianna McKay



"This summer was a challenging but rewarding experience. I enjoyed being able to focus on my research and graduate school. I learned how to be more confident in my abilities and improved my time management skills. Despite the challenges, this was truly a memorable summer that I hope others see as a reflection of my dedication to my future education and my desire to succeed at the graduate level. I am more ready than ever to receive my diploma and proudly walk out as a UNL McNair Scholar." – Sara Reyes



"This MSRE experience increased my passion for continuing research with low SES, minority families. It helped me grow personally by making me step outside of my comfort zone. From the beginning, I knew I could talk to my fellow McNair scholars about our similar interests, struggles, and success because we were all going through the same experience. Within the cohort, I've made friendships that could last a lifetime." – Kimberly Ruiz



"After my summer research experience and the Berkeley McNair Symposium, I can say that being a scholar has a much different meaning than it did one year ago. A year ago, I thought that any student was a scholar. Now, I know that being a scholar is much more. Being a scholar now means having confidence in your ability to face the unknown and interact with people that can help you accomplish your goals." – Elliot Sandfort



"I'd like to thank my mentor and the McNair Program for going above and beyond when it came to teaching me the significance

of research in my academic career, graciously being patient with my challenging life as a dedicated scholar and mother, and showing me the way to success as an undergraduate student pursuing higher education. The amount of work I put in throughout the semester and MSRE gave me the direct outcome of gaining so much knowledge and made me realize the love I have for my research and the people I can share it with." – MaLeaha Semerad



Postdoctoral and Graduate Student Mentors

The McNair Graduate Student and Postdoctoral Mentoring Program offers our UNL McNair Scholars a supportive community, as well as practical guidance, insight, and encouragement as they conduct research and prepare to enter graduate school.

We'd like to welcome the 2016-17 McNair postdoctoral and graduate student mentors! They include: Bray Adams, natural resource sciences; Pooja Ahuja, computer science; Chandra Bautista, psychology; Jess De Silva, mathematics; Molly Franz, psychology; Amelia Miramonti, nutrition and health sciences; Chrissy Richardson, counseling psychology; and Jess Tate, counseling psychology.

They join continuing graduate mentors: Jennie Catlett, biochemistry; Joao Carlos Gomes Neto, food science and technology; Surabhi Naik, Ph.D., biochemistry; Abbey Riemer, psychology; and Zachary Stewart, Ph.D., postdoc at Kansas State University.

Congratulations December 2016 McNair Graduates!

N



Megan Smith earned her bachelor's degree in biochemistry and microbiology in December 2016. Megan has applied to microbiology Ph.D. programs for admission in Fall 2017. In the interim, she'll be working as a research technician for Dr. Nicole Buan, UNL Department of Biochemistry. Megan is from Frisco, Texas.

Nebraska
Lincoln

N



Alicia Michelle Rogers earned her bachelor's degree in biological sciences in December 2016. She has been accepted to UNMC, where she'll pursue a second bachelor's degree in nursing before applying to graduate school. Michelle is from Boleus, Nebraska.

Nebraska
Lincoln

N



Mary Jacqueline Hernandez earned her bachelor's degree in biological systems engineering in December 2016. She plans to gain experience in the medical device industry before pursuing graduate education. Jackie is from Grand Island, Nebraska.

Nebraska
Lincoln

N



Jarold McWilliams earned his bachelor's degree in economics in December 2016. His post-baccalaureate plans are to open a startup company. Jarold is from Norfolk, Nebraska.

Nebraska
Lincoln

Perez Sierra Conducted Research at Michigan State

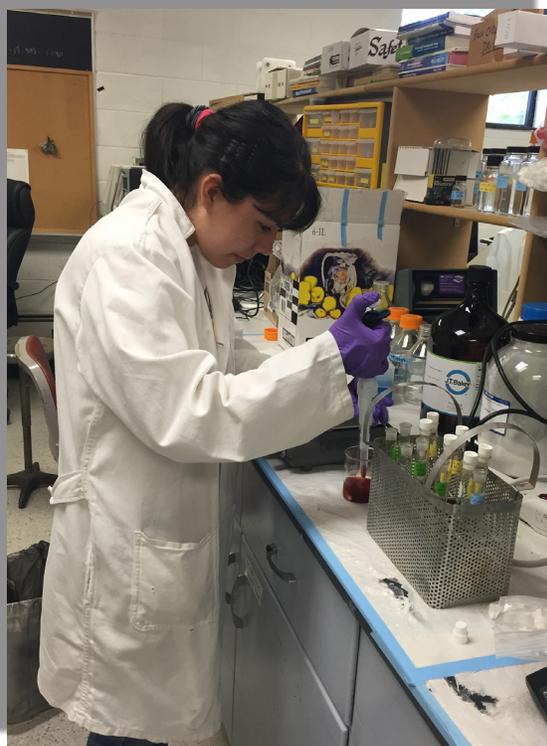
After researching the transport of foliarly applied nutrients to corn during the 2015 McNair Summer Research Experience (MSRE), Zully Perez Sierra knew she wanted to apply for a 2016 summer research program in the food technology or food engineering field. Zully said, “I researched the top schools for biosystems and agricultural engineering and narrowed my choices to the schools that had food engineering faculty.”

Because she applied to four universities through the Big Ten Academic Alliance Summer Research Opportunities Program (SROP) joint application, she was unable to request specific faculty to work with at those schools. After accepting the Michigan State SROP offer, she contacted Dr. Kirk Dolan, who was the faculty she was interested in working with there.

Before traveling to Michigan State, Zully reviewed literature recommended by the graduate student and lab technician from Dr. Dolan’s lab. Because of the 2015 MSRE, “she felt well-prepared for conducting a literature review, taking notes, documenting experimental procedures, communicating with her research mentor, and presenting her research using PowerPoint.”

During the first week in the rigorous 10-week program, she was exposed to quick learning and teamwork through a statistics camp. “The material taught by the instructors opened my view of analyzing results through different statistical tests such as the chi-square test and the one-way analysis of variance (ANOVA),” shared Zully.

Dr. Dolan’s lab focused on research composed of fifty percent experimental work and fifty percent data analysis. “The research approach in this lab has trained me for efficient research work for my graduate career,” Zully added. “It is rewarding to conduct weeklong experiments and have the ability to analyze the data to improve the next experiment design.”



Zully Perez Sierra conducted summer research with Dr. Kirk Dolan, who has joint appointments in the Department of Food Science & Human Nutrition and the Department of Biosystems & Agricultural Engineering at Michigan State University.

Each week of the program, participants presented their research progress to graduate students who provided constructive criticism to improve presentation methods and research knowledge. As Zully commented, “Not only did the constructive criticism aid my presentation skills, it also helped me grasp the importance of literature review and always questioning methods conducted in the lab and the significance of the results.”

In her role on the 2016 SROP project, Zully conducted experiments on the effect of pasteurizing temperature, concentration of vitamin C, and the addition of gallic acid on the anthocyanin content of tart cherry juice concentrate. Once the data was obtained, she organized it into a statistical software program and also coded a program in MATLAB for a multiple regression model of the data to show graphically the effect on anthocyanin content. To wrap up the summer, she submitted a paper and gave a final presentation entitled, “Modeling Vitamin C Induced Degradation of Anthocyanin in Tart Cherry Juice” at the Mid-Michigan Symposium for Undergraduate Research Experiences.

From participating in a summer research program at another university, she had hoped to clarify her research interests, strengthen her research skills, and identify programs that were a good fit for graduate school. Zully said, “The experience I had has been more than what I had envisioned the program to be.”

The Michigan State SROP helped Zully clarify her interest in engineering models for research in food technology or agriculture. “I was grateful for the opportunity to conduct research with a faculty member in a different department than my degree,” Zully reflected. Based on her research interests and plans after graduate school, she has spent the fall semester applying to chemical engineering graduate programs.

Her advice for current McNair scholars who are thinking about the summer research experience but may be hesitant, Zully assured, “I would highly recommend this program to future undergraduates interested in graduate school.”

As Zully concluded, “Know that the summer experience requires great commitment but it provides a lot of rewards.”

McNair by the Numbers

Since the UNL McNair Scholars Program began in 1995, we’ve served **276** students. Excluding the continuing Scholars, **244** of 251 – or **97.2 percent** – have earned bachelor’s degrees. **Thirty-two** UNL McNair Program alumni have achieved **Ph.D.s**, **19** have earned professional degrees, and **121** have earned master’s degrees. Currently, **28** UNL McNair alumni are enrolled in Ph.D. programs, **4** are pursuing master’s degrees, and **2** are pursuing professional degrees.

Passion for Public Policy Led Lemus to Carnegie Mellon

José Lemus was among 20 students selected to participate in the Carnegie Mellon University (CMU) 2016 Summer Institute in Public Policy and International Affairs (PIIA). Before applying to summer research programs, José had spent the previous summer researching the PPIA, their various campuses, and specializations before applying. “I chose Carnegie Mellon because of its emphasis on using data analytics to solve social issues,” José recalled.

The PPIA program provided a preview of graduate school in which the students experienced the demands, environment, and requirements of graduate school before applying to graduate school itself. The goal of the institute is to provide an opportunity to develop the skills needed for admission into the nation’s top policy programs. During the 8-week program, they received intensive training in a variety of topics including policy, leadership, communication, and quantitative skills.

At the Summer Institute, José took courses and interacted with faculty as an introduction to public policy graduate school. However, he added that “the CMU coordinators did a good job of balancing our academic requirements with networking and real world experiences.” During the site visits, the students were able to attend the national PPIA conference in Washington, D.C. where they toured the White House, the State Department, and the CMU Washington, D.C. campus.

José believes the McNair Summer Research Experience (MSRE) prepared him for the institute. “I am always walking the balance between qualitative and quantitative analyses, and both the MSRE and monthly sessions made my transition into the Summer Institute very smooth,” said José. He added he felt prepared for the academic rigor of the Summer Institute because many of the activities he had already done in McNair. For example, the students had been asked to create a graduate school matrix which José had created several months ago for McNair. The time management and goal setting techniques used by PPIA were also familiar because of McNair, which helped him a great deal.



José Lemus

The PPIA workshops gave José many opportunities to prepare for graduate study in public policy. “It allowed me to understand how far I have come in my education, what I still need to work on, and what type of graduate program interests me. Furthermore, having direct access to Carnegie Mellon admission staff, alumni, and potential employers gave me the ability to investigate graduate school,” José affirmed. The coursework and project requirements illustrated how students can transition from academia to applying those ideas to the real world.

Reflecting upon the experience, his plans for graduate school were greatly influenced by the Summer Institute. His interest in combining “big data” and public policy to address systematic issues within politics, education, and the economy, has led him to apply for a master’s degree in public policy. As José stated, “PIIA energized me and helped me center my career aspirations around a tangible path.”

Looking to the future, José believes his multiple networks and relationships formed throughout the Summer Institute will help him down the road.

Most notably, is his relationship with his cohort. Their shared interest in public policy built connections with one another upon which they can rely on each other for guidance or assistance in the future. His admission and advising team will also help him craft his application when applying to graduate school, so he has the best application possible. “Being able to be in D.C. allowed me to meet the people who hold my dream jobs in public policy. Having the opportunity to interact with them not only gave me more information about the positions, but demystified their roles and illustrated that I could also be in their position one day.”

His advice for current McNair Scholars who are thinking about doing a Summer Research Experience? José urged students to apply to programs even if they are unsure about the type of graduate program they would like to pursue. It was through his experience that he was able to dive into graduate school life and learn about his interests and career objectives. José emphasized, “It is a great way to get students’ feet wet and to get a first-hand perspective on what graduate school really looks like.”

Scholars Present Research at National Conferences

McNair Scholars disseminated their research findings at numerous local, regional, and national conferences:

Kyly Baxter – Baxter, K.L., Bautista, C.L., Hope, D.A. (2016, October). Are Technology-Assisted Therapies for Social Anxiety Acceptable for Rural Individuals? Poster presented at the 50th Annual Association for Behavioral and Cognitive Therapies (ABCT) Convention in New York City, NY. Kyly won the Best Poster Award for the Student Special Interest Group (Student SIG).

Jaquelin Garcia Castorena – Garcia Castorena, J., Naik, S., Schwabe, M., Wayne Riekhof, W. (2016, November). *Phosphatidylinositol-4-phosphate and Oxysterol Binding Proteins are Necessary in Lysophospholipid Uptake in Saccharomyces cerevisiae.* Poster presented at the Annual Biomedical Research Conference for Minority Students (ABRCMS) in Tampa, Florida.

Daniel Rico – Rico, D., Chacon, J.C., Corzo, G., Muñoz-Arriola, F. (2016, December). *Implementing Verification Procedures on a Calibrated vs non-Calibrated Streamflow for Agricultural Drought Forecasts.* Poster presented at the American Geophysical Union (AGU) national research conference in San Francisco, California.

Brandi Russell – Russell, B., Ortiz, A., Buan, N. (2016, November). *Enzyme X is an Archaeal Antioxidant.* Poster presented at the Annual Biomedical Research Conference for Minority Students (ABRCMS) in Tampa, Florida.

Megan Smith – Smith, M., Catlett, J., Buan, N. (2016, November). *Physiological purpose of chondroitin binding proteins in Methanobrevibacter smithii.* Oral presentation at the Annual Biomedical Research Conference for Minority Students (ABRCMS) in Tampa, Florida

Scholars Receive Undergraduate Research Funding

UNL McNair Scholars have been granted research funding from various programs, including: Undergraduate Creative Activities and Research Experiences (UCARE) Program, funded by the Pepsi Endowment and Program of Excellence funds; The American Society for Microbiology (ASM) Fellowship; and the INBRE award, an NIH-Funded grant administered through the School of Biological Sciences. Nineteen UNL McNair Scholars received awards for Academic Year 2016-17.

Scholar	Award, Project Title, and Faculty Research Advisor
Myrianna Bakou	UCARE Project: <i>Race, Objectification, and Sexual Assault on College Campuses</i> Faculty Advisor: Dr. Sarah Gervais, Department of Psychology
Kyly Baxter	UCARE Project: <i>Effects of Social Support on Peer-Mentor and Client Relationships for Internet-Based Cognitive Behavioral Therapy for Rural Adults with Social Anxiety</i> Faculty Advisor: Dr. Debra Hope, Department of Psychology
Jazmin Castillo	UCARE Project: <i>Estimation of Distribution and Abundance of the Spotted Hyena (<i>Crocuta crocuta</i>) in the Northern Tuli Game Reserve, Botswana</i> Faculty Advisor: Dr. John Carroll, School of Natural Resources
Amanda Dale	UCARE Project: <i>Race, Objectification, and Sexual Assault on College Campuses</i> Faculty Advisor: Dr. Sarah Gervais, Department of Psychology
Cole Dempsey	UCARE Project: <i>Leidenfrost Points in Pool Boiling and Droplet Film Evaporation</i> Faculty Advisor: Dr. George Gogos, Department of Mechanical and Materials Engineering
Shimin (Simon) Deng	UCARE Project: <i>The Dynamics of a Predator-Prey Model in a Lake Environment</i> Faculty Advisor: Dr. Yu Jin, Department of Mathematics
Catelyn Evans	UCARE Project: <i>Developing Cerebral Organoids to Model Human and Mice Brain Development</i> Faculty Advisor: Dr. Yuguo Lei, Department of Chemical & Biomolecular Engineering
Jaquelin Garcia-Castorena	INBRE Project: <i>Discovery of Yeast Genes Involved in Lyso-phospholipid Transport and Metabolism in Cells</i> Faculty Advisor: Dr. Wayne Riekhof, School of Biological Sciences
José Lemus	UCARE Project: <i>The Effect of Discrimination on the Physiological Well Being of Adolescents in Lincoln, Nebraska</i> Faculty Advisor: Dr. Bridget Goosby, Department of Sociology
Grecia Macias	UCARE Project: <i>Implementing Developed Measures for the Evaluation of Colorism in the Latino Population on Campus</i> Faculty Advisor: Dr. Bridget Goosby, Department of Sociology
Brianna McKay	UCARE Project: <i>Finding Normative Reference Values for High School Combine Test Results</i> Faculty Advisor: Dr. Joel Cramer, Department of Nutrition & Health Sciences
Andreas Miles-Novelo	UCARE Project: <i>Race, Objectification, and Sexual Assault on College Campuses</i> Faculty Advisor: Dr. Sarah Gervais, Department of Psychology
Zully Perez Sierra	UCARE Project: <i>Investigation and Model of a Nanoparticle Delivery System for Micronutrients to Plants</i> Faculty Advisor: Dr. Hendrik Viljoen, Department of Chemical & Biomolecular Engineering
Sara Reyes	UCARE Project: <i>The Importance of Adequate Partner Support during Pregnancy: Implications for Family Health</i> Faculty Advisor: Dr. Rebecca Brock, Department of Psychology
Kimberly Ruiz	UCARE Project: <i>Biases in Culpability Assignment for Minor Infractions</i> Faculty Advisor: Dr. Cynthia Willis-Esqueda, Department of Psychology
Brandi Russell	UCARE Project: <i>Coenzyme M is an Archaeal Antioxidant</i> Faculty Advisor: Dr. Nicole Buan, Department of Biochemistry
Elliot Sandfort	UCARE Project: <i>The Impact of Diversity on Open Ad-Hoc Team Formation Environments in Multiagent Systems</i> Faculty Advisor: Dr. Leen-Kiat, Department of Computer Science and Engineering
MaLeaha Semerad	UCARE Project: <i>Forgiveness of Families and Emotional Regulation</i> Faculty Advisor: Dr. Gilbert Parra, Department of Child, Youth, and Family Studies
Megan Smith	ASM Fellowship Project: <i>Physiological Purpose of Chondroitin Adhesion Proteins in the Human archaeon, <i>Methanobrevibacter smithii</i></i> Faculty Advisor: Dr. Nicole Buan, Department of Biochemistry

Kudos to UNL McNair Alumni

Rebecca Beals, Ph.D. (McNair Scholar 2007–09), a senior research scientist at the University of New Mexico Institute for Social Research, will be a co-evaluator for the program evaluation component for a \$1.25 million NSF study. The five member interdisciplinary research group comprises two teams that will be testing and documenting a relatively new model for understanding diversity, which could eventually be used nationwide.

Jeff Lopez (McNair Scholar 2009-2011) received the 2016 AIChE Excellence in Graduate Polymer Research Award and the 2016 Spring ACS Poly Division Graduate Student Travel Award. Jeff is pursuing a Ph.D. in chemical engineering at Stanford University.

Jenn (Milliman) Andersen (McNair Scholar 2013-15) has recently been selected to serve on the Minority Scholars Committee for the Midwest Sociological Society (regional association). Jenn is pursuing a Ph.D. in sociology at the University of Nebraska-Lincoln.

Erica Rogers (McNair Scholar 2004-06) recently received a teaching grant for an exploratory digital course. The CETL Online Course Development grant is from the University of Wisconsin Eau Claire, where she is currently a visiting assistant professor. Erica, a University of Nebraska-Lincoln English PhD candidate, defended her doctoral dissertation in December 2016 and will attend the doctoral hooding ceremony in May 2017.



Tyler D. Scherr, Ph.D. (right, McNair Scholar 2009-11) earned his doctoral degree in pathology and microbiology from the University of Nebraska Medical Center in December 2016. He also received the Graduate Student of Distinction Award from H. Dele Davies, M.D. (left), who is Vice Chancellor for Academic Affairs and Dean for Graduate Studies at UNMC. Dr. Scherr is currently working as a Licensing Intern at UNeMed, the technology transfer arm of UNMC and UNO.

Career Outcomes for UNL McNair Alumni with Ph.D.s



- Faculty Positions (16)
- Postdoctoral Researchers (8)
- Clinical Practice (3 Private Practice, 1 Sports Psychologist)
- Student /Community Services (2)
- Government (1)
- Industry (1)

McNair Alumni: Thanks to all the UNL McNair Alumni who have completed the annual McNair Survey!

You may update your information at anytime: <http://www.unl.edu/mcnair/scholarupdate.shtml>



McNair Scholars Program
University of Nebraska-Lincoln
Office of Graduate Studies
1100 Seaton Hall
P.O. Box 880604
Lincoln, NE 68588-0604

www.unl.edu/mcnair/
Blog: <http://unlmcnair.wordpress.com/>
Facebook: UNL McNair

Dr. Laurie Bellows, Program Director
lbellows1@unl.edu

Carol Boehler, Program Coordinator
cboehler2@unl.edu

Dr. Richard Lombardo, Academic Support Specialist,
rlombardo2@unl.edu

Dr. Lisa Rohde Academic Support Specialist,
lrohde2@unl.edu