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.

“True courage comes in enduring, persevering, and believing in oneself.”
Ronald E. McNair, Ph.D.
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!
“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

“This summer was a challenge 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

“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!

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.

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.

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.

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.
A
fter 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 of 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.”

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.
José Lemus was among 20 students selected to participate in the Carnegie Mellon University (CMU) 2016 Summer Institute in Public Policy and International Affairs (PPIA). 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.

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, “PPIA 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.”

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


### 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 through Academic Year 2016-17.

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

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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