McNair News

Newsletter of the University of Nebraska–Lincoln McNair Scholars Program

Volume 8, Number 1, Fall 2013

Welcome to the 2013 McNair Cohort

Kaylor Caldwell, a psychology major from Omaha, Nebraska, will conduct research with Dr. Eve Brank, Psychology.

Kassie Guenther, a psychology major from Tecumseh,Nebraska, is working with Dr. Timothy Nelson, Psychology.

Marco Gullickson, a psychology major from Omaha, Nebraska, is working with Dr. Sarah Gervais, Psychology.

Bryan Hermosillo, a geology major from Cozad, Nebraska, is working with Dr. David K. Watkins, Earth & Atmospheric Sciences.

Bill Lambert, a chemistry major from Lincoln, Nebraska, will be working with Dr. Pat Dussault, Chemistry.

Mason Mabin, a biochemistry major from Lincoln, Nebraska, is working with Dr. Joseph Barycki, Biochemistry.

Jarold McWilliams, a mechanical engineering major from Norfolk, Nebraska, will be working with Dr. Xia Hong, Physics & Astronomy.

Jennifer Milliman, a psychology major from Ashland, Nebraska, is working with Dr. Eve Brank, Psychology.

Adrienne Ricker, a biological sciences and geology major from Minot, North Dakota, is working with Dr. Jason Head, Earth & Atmospheric Sciences.

Daniel Rico, a biological systems engineering major from Omaha, Nebraska, is working with Dr. Francisco Muñoz-Arriola, Biological Systems Engineering.

Funded by the U.S. Department of Education and housed in the University of Nebraska–Lincoln Office of Graduate Studies, the UNL McNair Program prepares undergraduate students for doctoral studies through involvement in research and other scholarly activities. The McNair Program provides much more than advice on how to prepare for entrance to a graduate program. Participating Scholars become an integral part of a learning community, receiving support from each other, McNair Program staff, UNL faculty, and other resources as they develop the research skills they need to prepare for the next stage in their educational careers.

Scholars Gain Skills to Succeed at the Graduate Level

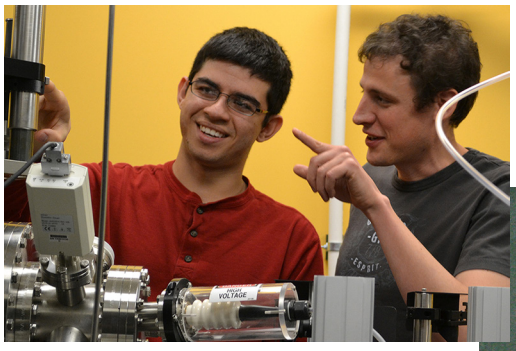
One of the main components of the McNair Scholars Program is to provide opportunities to engage in research and develop skills critical for academic success. The McNair Summer Research Experience (MSRE) is often a transformative period for Scholars, but the impact of MSRE may be best described in their own words:

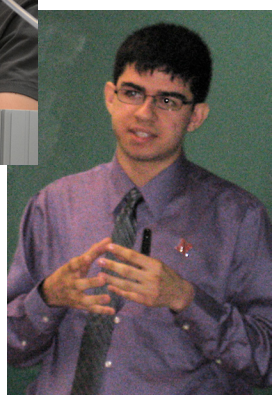
"Without the McNair Summer Research Experience and the California McNair conference I would not understand the full research process, from constructing a proposal to presenting my research. This experience is an amazing opportunity and one that I will treasure and take with me to graduate school and beyond."
– **Janeigh Castillo-Barraza**

"The McNair Summer Research Experience has definitely helped me narrow my career goals and has provided me with valuable tools to succeed." – **Jackie Hernandez**

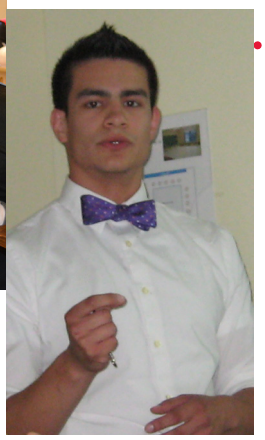
"Previously, I thought the researchers who wrote papers and presented were way above my level and something I wouldn't do for a very long time. I was nervous but excited that I would be part of this elite group of researchers. Once I actually started doing research, I found that breaking the project down into smaller steps was much easier than trying to tackle the entire project as a whole." – **Erandi Herndon**

"I've realized that being a McNair Scholar is one of the best decisions I've ever made. Even now I can't believe how many doors have been opened for me now that I've joined the program. I feel excited to take on new challenges and I await the day that I will apply to graduate school. I learned I have all the tools and resources I will need for graduate admissions." – **Dina Morales**

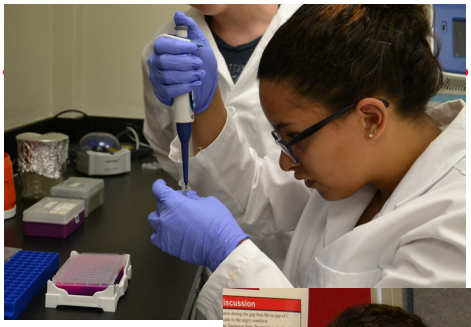




"My perspective on being a scholar changed: I now see myself as part of a larger group of people trying to understand the world, and not just part of a small group working on solving one particular problem."
– **Ivan Moreno**

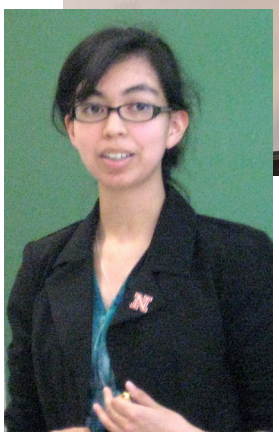


"When I started McNair, I honestly was lost. I had no idea what I was really interested in or what I could possibly take on as a research project. Fortunately, I was able to find a faculty mentor who provided the resources I needed to create a great research project; a mentor who allowed me to think through problems and seek my own answers to the questions." – **David Pacheco**



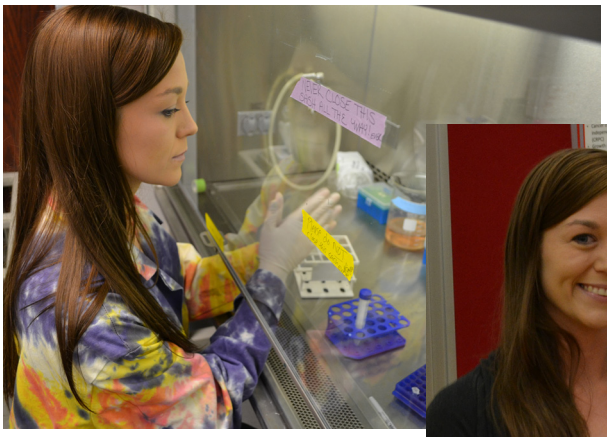
"I learned a lot about myself during the MSRE. I developed valuable skills such as being patient when working with my data and accepting constructive feedback on my paper. I learned that I am much more capable than I thought of getting things done on schedule and presenting my research."
– **Olivia Reinert-Gehman**

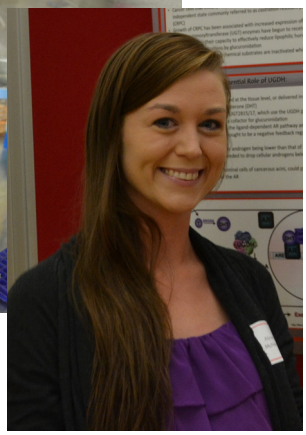
"My confidence has grown with this experience, and I now feel comfortable calling myself a scholar. I have a strong foundation built for graduate school and I feel prepared to move forward through academia." – **Eric Reiss**



"During the McNair Summer Research Experience, I received a generous amount of exposure to the research world as well as becoming better prepared for graduate school." – **Elia Soto**

"One year ago Dr. Lombardo shared with us a metaphor that our journey through life, specifically our careers and graduate school, is like crossing a fog covered bridge where we create what is on the other end. In my experience the fog is being lifted and though I know I will eventually create what's on the other side, some of it is still uncertain. I feel that when graduate school comes I will not be as stressed during my first few semesters because I have an idea of what I'll need to be doing." – **Jason Thomas**





"There were definitely times when I didn't think I had the ability to handle my research project, but with persistence and help from my mentor everything finally came to fruition for me."
– **Alyssa Yeates**

McNair Scholars Share Research

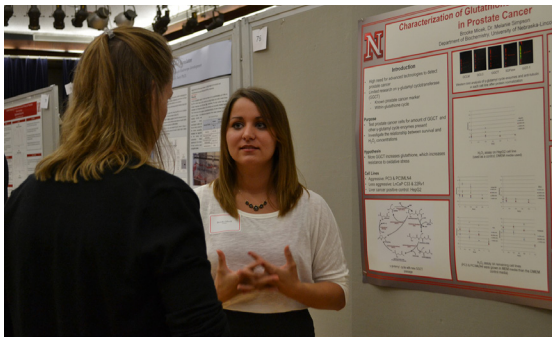
McNair Scholars gained valuable skills during the McNair Summer Research Experience (MSRE). Not only did they learn research skills in their labs from faculty, postdoctoral, and graduate student mentors, but they were instructed in the different methods of disseminating their research, from designing research posters to developing effective oral presentations. Effectively presenting research is a professional skill that will guide McNair Scholars through graduate school and into their careers.

Those Scholars who successfully completed their research and submitted poster and oral presentations had the opportunity to present the results at local, regional, and national conferences.

To practice their presentation skills, McNair Scholars presented before their peers and McNair staff. They received constructive feedback to prepare them for future presentations. McNair Staff emphasized the importance of clarifying scientific concepts for everyone to understand—from faculty to interested members of the community.

Scholars put their newly developed skills to the test at the UNL McNair Summer Research Colloquium in July, when they gave 12-minute oral presentations in front of their peers, faculty, and graduate student mentors, as well as others from the University of Nebraska–Lincoln community.

In August, McNair Scholars participated in the Nebraska Summer Research Symposium Poster Session, along with over 100 other undergraduates who also spent their summer researching at UNL. Students from as far away as China came to the Heartland to collaborate with leading UNL scientists. It was inspiring to review the results of their research and to realize these students have the potential to be future leaders in scientific discoveries.



Dr. Melanie Simpson (left) and Brooke Micek, McNair Scholar and undergraduate research assistant, discuss their research project at the Nebraska Summer Research Symposium.

As a capstone event, UNL McNair Scholars traveled to the California McNair Symposium held at the University of California, Berkeley. Like so many UNL cohorts before them, they were unsure of what to expect at this conference, but were left with a feeling of confidence in their research and presentation skills.

UNL Scholars disseminated their research findings through oral presentations at the 2013 California McNair Scholars Symposium held at UC Berkeley.

As Erandi Herndon stated, "When I looked back at my progress from the start of summer to the actual conference, I was so proud of my accomplishments."

Olivia Reinert-Gehman noted, "The Berkeley conference was a very good experience for me and it gave me more confidence in my ability to seek out and relate to people from other institutions who are doing research I'm interested in."

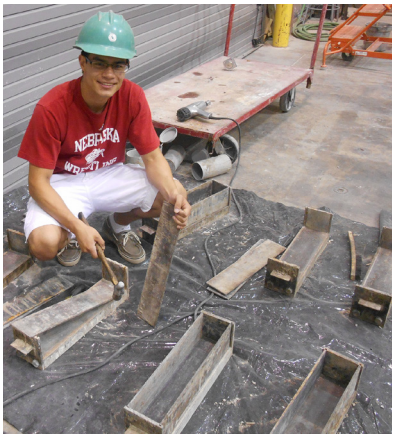
"All in all," David Pacheco emphasized, "the conference was a great ending to a summer of tedious work, long nights, and fruitful discoveries. I was able to do research with a great faculty mentor and had the support of my McNair directors and staff throughout. I look forward to seeing what opportunities I will find in graduate school and in future research."

Dina Morales commented, "While at Berkeley, I watched multiple scholar presentations and I was amazed at how dedicated the students were, and I felt proud to be a part of the McNair community."

"The entire McNair Summer Research Experience and the California McNair Symposium were the pinnacle of my undergraduate research career thus far," Alyssa Yeates summed up. "The next few years are going to be long and, at times, scary, but what this experience has shown me is that I'm capable of being a successful researcher and scientist."

Special Thanks to the faculty, postdoctoral, and graduate student mentors who contributed their time and expertise to work with McNair Scholars during the 2013 McNair Summer Research Experience and who continue to support the Scholars' research and graduate application efforts. Your support is invaluable to the success of our program.

Pacheco Conducts Research at Michigan State



Moses Pacheco conducted research with Civil and Environmental Engineering faculty at Michigan State University during the 2013 SROP.

When Moses Pacheco received word he was accepted to the Michigan State University Summer Research Opportunties Program (SROP), he was hesitant at first. He had planned to do a summer internship and was torn between the two. He talked with several McNair staff who encouraged him to go to Michigan State, because they knew his ultimate goal was to attend graduate school. They told him that participating in a summer research program at another university is the best graduate interview you could possibly have. If you show yourself to be an accomplished researcher and scholar, they'll want to recruit you for their graduate program.

It was after talking to Reinaldo Alcalde, a McNair Scholar who had a great experience the prior summer at the University of Illinois Urbana-Champaign's SROP, that Moses was finally convinced. Rei reminded Moses that only a few students are invited to participate in an undergraduate summer research opportunity at a top research institution. Since Rei had extensive experience in both internships and research experiences, he helped Moses decide that Michigan State was the next step toward success at the graduate level.

Moses Pacheco shows models of the concrete beams containing piezoelectric strip sensors.

While at Michigan State University, Moses worked in the Civil and Environmental Engineering Department with Dr. Karim Chatti and Dr. Nizar Lajnef on a robust, wireless, and autonomous network system for structural health monitoring. This system can help reduce maintenance and rehabilitation expenditures on roadways by providing fatigue data in pavements. Moses examined strain measurements of piezoelectric strip sensors that were embedded in concrete beams and placed in three-point bending. This was part of a two-phase proposal to advance wireless, self-powered sensing in pavements and place sensors in the pavement on-site without disrupting the construction process.

Moses felt the McNair Scholars Program and the 2012 McNair Summer Research Experience (MSRE) prepared him for the Michigan State SROP. He noted, "I knew about the research process and how to navigate it."

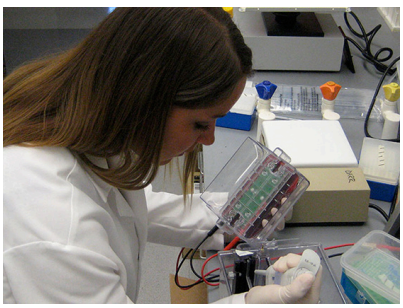
Even though Moses felt well-prepared for designing a research project at Michigan State, there was much to learn when it came time to designing the concrete beam model in *Abaqus Finite Element Analysis (FEA)* and conducting the statistical analysis for the results. *Abaqus FEA* is an advanced software program, typically mastered at the graduate level or during internships, so it was an entirely new experience for him. A graduate student helped him learn the software and create the model.

His summer experience helped solidify the type of research that interests him. Moses explained, "I loved working on a hands-on project, especially with the concrete. My focus on graduate programs is more direct and I know what kinds of things I'm looking for in a program." Moses hopes to pursue a Ph.D. in structural engineering with research focusing on structural health monitoring and sustainable structures.

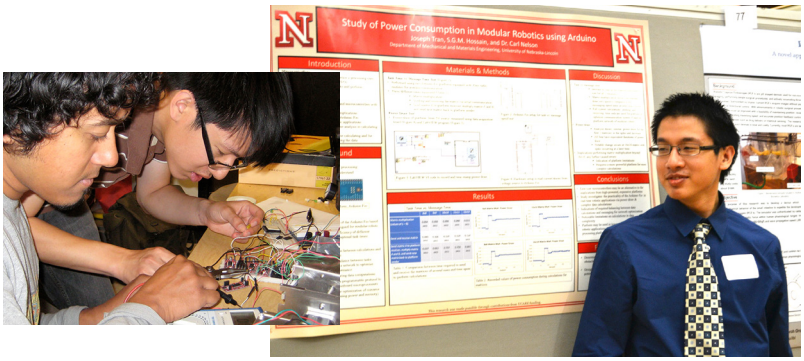
His advice to current McNair Scholars who are thinking about doing a summer research experience is to take the time to complete the application and apply to as many programs as possible. He strongly recommends searching broadly and early for research opportunities and narrowing choices once the deadlines approach.

Moses added, "The learning experience is well worth the time and energy it takes to complete the application process."

McNair Scholars Conduct UCARE Summer Research



Brooke Micek spent last summer working with Dr. Melanie Simpson, UNL Department of Biochemistry. Brooke received funding from the Undergraduate Creative Activity and Research Experiences (UCARE) to continue her research on the characterization of glutathione metabolizing enzymes in prostate cancer.



For his UCARE project, **Joseph Tran** studied the power consumption in modular robotics using arduino under the guidance of Dr. Carl Nelson, UNL Department of Mechanical & Materials Engineering. Joseph is pictured above with his graduate student mentor, Mamur Hossain.

Postdoctoral and Graduate Student Mentors

Welcome, 2013-14 McNair postdoctoral and graduate student mentors!

They include: Sebastien Blanchard, earth & atmospheric sciences; Christa Christ, psychology; Hazel Delgado, psychology; Zane Gernhart, chemistry; Bryce Kennedy, psychology; Miriam Martinez, psychology; Amanda Moen, educational psychology; Baoliang Zhao, mechanical engineering; and Brenna Zimmer, biochemistry. They join continuing graduate mentors: Christine Booth, biochemistry; Greg Golden, student affairs; Belinda Hinojos, counseling psychology; Mamur Hossain, mechanical engineering; Gwen Nuss, psychology; and Brett Sallach, civil engineering.

Scholars Receive Undergraduate Research Funding

Through the Undergraduate Creative Activities and Research Experiences Program (UCARE), McNair Scholars receive support that allows them to remain engaged in a research project with their faculty mentors. UCARE is funded by the Pepsi Endowment and Program of Excellence funds. The following McNair Scholars received UCARE awards for Summer 2013 and Academic Year 2013-14:

Scholar	Research Project and Faculty Research Advisor
Emmilie Baker	**Project:** *The Interactive Influence of Genes and Objectification on Eating Behavior* **Faculty Advisor:** Dr. Sarah Gervais, Psychology
Janeigh Castillo-Barraza	**Project:** *Efficacy of the Getting Ready Intervention: Enhancing Young Children's Behaviors in the Home Setting;* **Faculty Advisor:** Dr. Susan Sheridan, Center for Research on Children, Youth, Family & Schools
Bryan Hermosillo	**Project:** *Biostratigraphic Representation of Oceanic Anoxic Event 3 During Late Creataceous* **Faculty Advisor:** Dr. David Watkins, Earth & Atmospheric Sciences
Jackie Hernandez	**Project:** *Arm Rehabilitation Device for Cerebral Palsy* **Faculty Advisor:** Dr. Carl Nelson, Mechanical & Materials Engineering
Erandi Herndon	**Project:** *Immigrant Assimilation as a Construct of Socioeconomic Status and Self-Esteem* **Faculty Advisor:** Dr. Cynthia Willis-Esqueda, Psychology
Brooke Micek	**Project:** *Characterization of Glutathione Metabolizing Enzymes in Prostate Cancer* **Faculty Advisor:** Dr. Melanie Simpson, Biochemistry
Jennifer Milliman	**Project:** *Consenting to Searches and the 4th Amendment: Situated Social Cognition within the "Totality of Circumstances" Analysis;* **Faculty Advisor:** Dr. Eve Brank, Psychology
Dina Morales	**Project:** *Caching and Intertemporal Choice: The Domain Specificity of Self-control in Corvids* **Faculty Advisor:** Dr. Jeffrey Stevens, Psychology
Ivan Moreno	**Project:** *Cerium Oxide Nanorods for Visually Detecting Toxic Environmental Contaminants* **Faculty Advisor:** Dr. Barry Cheung, Chemistry
David Pacheco	**Project:** *Optimization of a Robotic Drivetrain* **Faculty Advisor:** Dr. Carl Nelson, Mechanical & Materials Engineering
Olivia Reinert-Gehman	**Project:** *Behavioral Associations of Genetic Variation in FKBP5* **Faculty Advisor:** Dr. Scott Stoltenberg, Psychology
Eric Reiss	**Project:** *The Three-dimensional Modelling of Subsurface Geology of the Upper Cretaceous Succession in the Henry Mountains Syncline, Southern Utah* **Faculty Advisor:** Dr. Christopher Fielding, Earth & Atmospheric Sciences
Daniel Rico	**Project:** *Streamflow Sensitivity to Changes in Temperature on the Platte River Basin* **Faculty Advisor:** Dr. Francisco Munoz-Arriola, Biological Systems Engineering
Elia Soto	**Project:** *Identifying the Neural Signatures of Inhibitory Control in Four Year Olds* **Faculty Advisor:** Dr. Hye-Jeong Choi, Psychology
Jason Thomas	**Project:** *Applying Tissue Culture Technologies on Pomegranate Plants* **Faculty Advisor:** Dr. Paul Read, Agronomy & Horticulture
Joseph Tran	**Project:** *Study of Power Consumption in Modular Robotics Using Arduino* **Faculty Advisor:** Dr. Carl Nelson, Mechanical & Materials Engineering
Alyssa Yeates	**Project:** *Role of UGDH in Prostate Cancer Cells and Their Treatment* **Faculty Advisor:** Dr. Melanie Simpson, Biochemistry

Alumni News: Advanced Degrees

Congratulations to these alumni who earned advanced degrees during 2012-13:

Doctoral and Professional degrees

Sahar Hasim (McNair Scholar 2006-08) completed her Ph.D. in biological sciences from the University of Nebraska–Lincoln in August 2013. Sahar has secured a Postdoctoral Research Associate position in the Department of Microbiology at the University of Tennessee.

Masoud Mahjouri Samani (McNair Scholar 2006-08) earned his Ph.D. in engineering from the University of Nebraska–Lincoln in May 2013. He has accepted a Postdoctoral Research Associate position at the Oak Ridge National Laboratory in Oak Ridge, Tennessee.

Willie Novotny (McNair Scholar 2007-09) earned his M.D. degree from the University of Southern California in May 2013. He is currently doing a family medicine residency at the Montefiore Medical Center in Bronx, New York.

Molly A. Ruhlman (McNair Scholar 2001-03) earned her Ph.D. in political science from Temple University in May 2013. She currently teaches courses in global governance, international law, and human rights at Towson University.

Jeanette Samuels (McNair Scholar 2008-10) earned her Juris Doctorate from Chicago-Kent College of Law in May 2013.

Master's degrees earned

Karise Carillo (McNair Scholar 2009-11) earned her master's degree in criminal justice from the University at Albany–SUNY in December 2012. She is pursuing her Ph.D. in criminal justice at Albany, with a focus on comparative criminology of violence.

Morgan Conley (McNair Scholar 2008-10) earned her master's degree in counseling psychology from the University of Nebraska–Lincoln in May 2013 and is pursuing her Ph.D. at UNL.

Justin Escamilla (McNair Scholar 2009-11) earned his master's degree in criminology, law, and justice from the University of Illinois–Chicago in May 2013 and is enrolled in the doctoral program at UIC.

Alan Goyzueta (McNair Scholar 2009-11) earned his master's degree in mechanical engineering from the University of Nebraska–Lincoln in May 2013. Alan has accepted a position with Garmin in the Kansas City metro area.

Michael Harpster (McNair Scholar 2008-10) earned his master's of architecture degree from the University of Nebraska–Lincoln in May 2013. He has secured a position with Sinclair Hille Architects in Lincoln, Nebraska.

Maegan Stevens-Liska (McNair Scholar 2006-2009) earned her master's degree in information science and learning technology from the University of Missouri-Columbia in May 2013.

Brittany Sznajder-Murray (McNair Scholar 2008-2011) earned her master's degree in human development and family science from Ohio State University in December 2012 and is pursuing her Ph.D. in couple and family therapy at OSU.

McNair by the Numbers

Since the UNL McNair Scholars Program began in 1995, it has served **240** students. Of the **221** eligible to graduate, **214** – **or 96.8 percent** – have earned bachelor's degrees. **Twenty-three** UNL McNair Program alumni have achieved PhDs, **109** have earned master's degrees, and **16** have earned professional degrees. Currently, **26** UNL McNair alumni are enrolled in Ph.D. programs, **7** are pursuing master's degrees, and **4** are pursuing professional degrees.

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

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