

TRIO

RONALD E. MCNAIR
POST-BACCALAUREATE
ACHIEVEMENT PROGRAM

McNair Program Guide



CE+HD
COLLEGE OF EDUCATION
+ HUMAN DEVELOPMENT

UNIVERSITY OF MINNESOTA

McNair Scholars:

Powering the Next Generation of Scholars and Industry Leaders

- First generation, low income and underrepresented students left behind
- Increasing demand for jobs requiring advanced degrees
- Nationally recognized program design
- Empirically supported program effects
- Faculty mentors from all disciplines, guiding Scholars in the research process
- Return on investment
- Connecting McNair to the health sciences



2018 McNair Scholars

Presentation Guide:

- Program model
- Looking to donate
- Faculty mentor tips
- Program outcomes



Welcome from the McNair Director

Thank you for your interest in the federally funded TRIO McNair Program at the University of Minnesota (UMn). Whether you're an interested student, a new faculty mentor, a community partner, looking to donate, or, just happened across this page, this guide provides an overview of the U of M program model, tips for faculty mentors, highlights program outcomes, and outlines external challenges that significantly impact McNair's work. Importantly, this guide shares how the McNair Team is addressing these challenges through multi-faceted, collaborative and innovative approaches. Additionally, this [FAQ](#) provides **real-time information** on how [UMn McNair is navigating COVID-19](#).

The U of M's TRIO McNair program is in its 30th year, making us one of the oldest McNair programs in the country. We support students who are the most marginalized and least likely to get a college degree to not only graduate college, but also advance to graduate and doctorate programs. This work is high stakes. McNair scholars are contributing to research that is finding cures to diseases and generating innovation in a wide range of industries including biotechnology, healthcare, agriculture, etc.

McNair scholars are also in faculty positions, helping develop the next generation of experts and innovators who will allow the United States to continue to lead and quickly adapt to emerging challenges. The return on investment of the McNair program is exponential. Our program success is a *testament to the many outstanding faculty mentors and University partners who volunteer their services and expertise*. **Thank you!** For those looking to get involved, please complete this [brief questionnaire](#).

Thank you for your interest and taking time to learn more about how the U of M McNair program benefits students, scholars, and communities across the state, the nation, and the world.

Anthony Albecker, Director
U of M TRIO McNair Scholars Program



Ronald E. McNair Program Background

Ronald E. McNair was an American astronaut and physicist. His recognitions include a Ph.D. from MIT, two honorary doctorates of science, being a Presidential Scholar, and the second African American in space. He served as a mission specialist on the Challenger in 1984 and again in 1986, where he passed away in the explosion. That year, congress created this program in his honor, the goal to encourage underrepresented students to obtain graduate degrees and academic careers.

- U.S. Department of Education: TRIO



[Ronald E. McNair PostBaccalaureate Achievement Program](#)

[National McNair Website](#)

- University of Minnesota:

[TRIO Programs Website](#)

[Facebook](#)



[McNair Website](#)

[LinkedIn](#)

[Research Profiles](#)



[Instagram](#)

- Key links

[TRIO History Module](#)

[Story of Dr. Ronald E. McNair](#) and his [Legacy](#)

[National McNair Directory](#)

[Scholar Stories](#)



Dr. Ronald E. McNair

First Generation, Low Income and Underrepresented Students Left Behind

Need For McNair



Students whose parents have graduate degrees enroll in doctoral study at rates **5 times (3.0% vs. 0.6%)** that of students who's parents have only a high school diploma



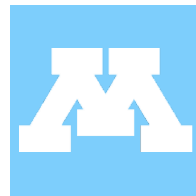
High income students complete undergraduate degrees at rates **7 times (79% vs. 11%)** that of low income students



Only 10% of our adult population has a post-BA degree **35%** of doctorates had parents within that 10%



Underrepresented students account for just **10% of US Ph.D.'s**



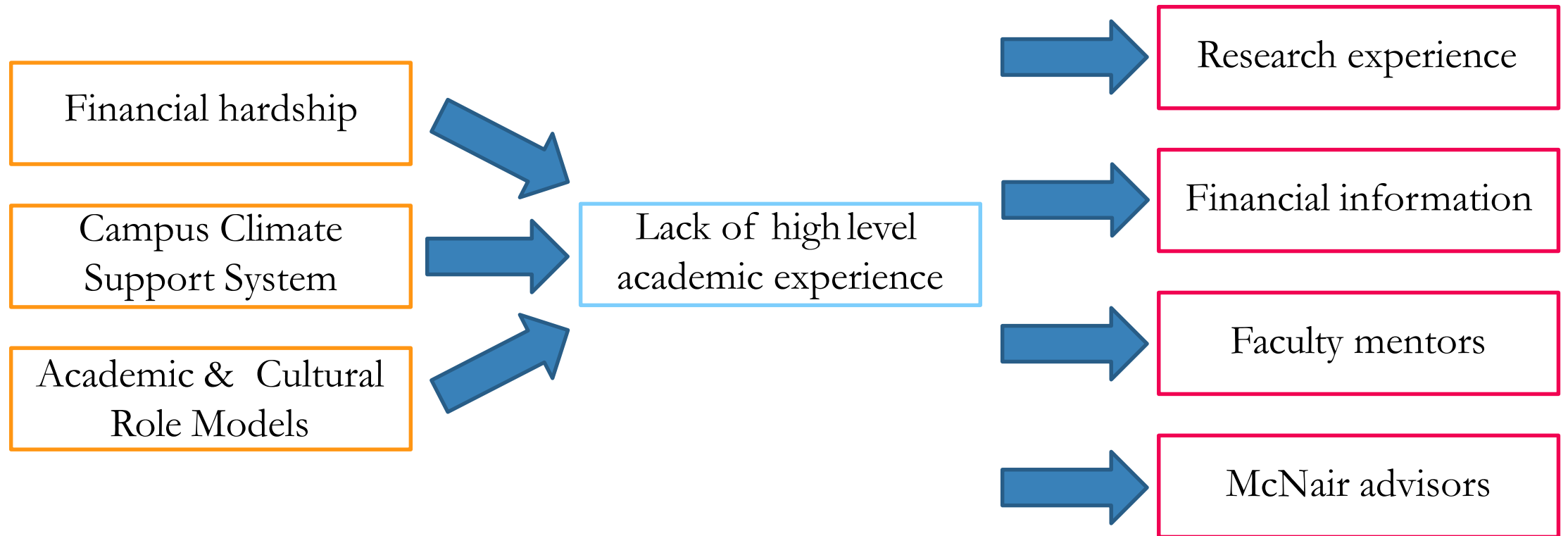
Underrepresented students were **less than 5%** of the doctorates awarded at UMN in 2010.



At rank of full professor, the most powerful group on US campuses, whites outnumber underrepresented faculty by **13 to 1**

McNair Directly Supports Students Who...

- Face Critical Barriers ● Have Limited Opportunity ● Demonstrate Needs*



*Identified by Ph.D. Graduate Employers & PhD Completers Study

Projected Worker Shortages Create an Increased Need for Advanced Degrees*



By MARY BROPHY MARCUS | CBS NEWS | March 20, 2017, 4:24 PM

New report predicts "troubling" shortage of doctors in the U.S.



The US has a shortage of tech workers. Here's how kids and schools can solve the problem

Ruth Umoh | @ruthumohnews | 12:09 PM ET Wed, 23 Aug 2017



American businesses can't find workers

by Patrick Gillespie | @CNNMoney
January 17, 2018 4:28 PM ET



The U.S. News/Raytheon STEM Index Shows America Will Have to Depend on Foreign Workers to Fill STEM Jobs

Despite gains in education and hiring, gender and racial gaps remain.

May 17, 2016, at 12:01 a.m.

The New York Times

Lack of Workers, Not Work, Weighs on the Nation's Economy

By BINYAMIN APPELBAUM | MAY 21, 2017



America's worker shortage: One million and counting



By Stephen Moore | Published August 16, 2014 | Fox News



By AIMEE PICCHI | MONEYWATCH | April 19, 2016, 3:06 PM

Desperately seeking workers: The looming job crunch



Markets Tech Pursuits Politics Opinion

July 7, 2017, 12:23 PM CDT

Five Signs Point to Skill Shortages in the United States

● A new report says deficits are most severe in health "and they'll only get worse."

By Peter Coy



The U.S. Is Running Out of Nurses

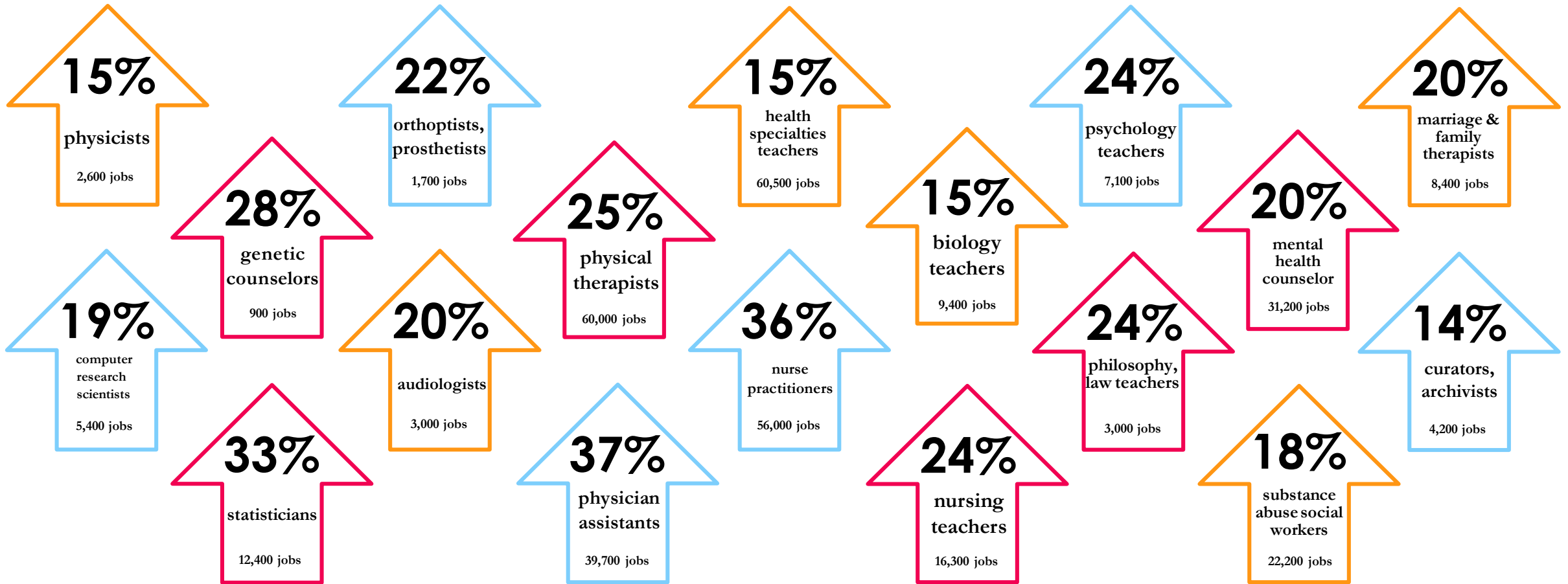
The country has experienced nursing shortages for decades, but an aging population means the problem is about to get much worse.

REBECCA GRANT | FEB 3, 2016 | HEALTH

*Advanced post-bac includes M.A., Ph.D., M.D., M.S.W., J.D., D.D.S., Pharm.D., D.P.T., M.S.N., and other doctorate and professional degrees

Data collected from the [US Bureau of Labor Statistics](https://www.bls.gov)

Projected Worker Shortages Create an Increased Need for Advanced Degrees*



*Advanced post-bac includes M.A., Ph.D., M.D., M.S.W., J.D., D.D.S., Pharm.D., D.P.T., M.S.N., and other doctorate and professional degrees

Data collected from the [US Bureau of Labor Statistics](https://www.bls.gov)



Powering the Next Generation

The McNair Program Strives to...

- **Increase** the rate of doctoral program application, matriculation, and degree attainment by first-generation college students who are underrepresented in graduate programs
- **Generate** in our students the higher-level academic and research skills necessary to gain admission to and successfully complete graduate study



2016 McNair Scholars



Applying a Cultural Capital Framework to McNair

Aspirational capital refers to the ability to maintain hopes and dreams for the future, even in the face of real and perceived barriers. Linguistic capital includes the intellectual and social skills attained through communication experiences in more than one language and/or style (see Faulstich Orellana, 2003).

- **McNair Advisors meet with Scholars to discuss their academic and career goals among other subjects.**

Familial capital refers to those cultural knowledges nurtured among familia (kin) that carry a sense of community history, memory and cultural intuition (see Delgado Bernal, 1998, 2002).

- **McNair strives to create an inclusive environment that values cultural knowledge.**

Social capital can be understood as networks of people and community resources. These peer and other social contacts can provide both instrumental and emotional support to navigate through society's institutions (see Gilbert, 1982; Stanton-Salazar, 2001).

- **McNair facilitates an environment for Scholars to form community amongst themselves.**

Navigational capital refers to skills of maneuvering through social institutions.

- **McNair assists Scholars in navigating the steps to apply for graduate school.**

Resistant capital refers those knowledges and skills fostered through oppositional behavior that challenges inequality (Freire, 1970, 1973; Giroux, 1983; McLaren, 1994; Delgado Bernal, 1997; Solórzano & Delgado Bernal, 2001).

- **McNair is an engine for diversifying graduate programs.**

Source: Yosso, T.J. (2005). Whose culture has capital? A critical race theory discussion of community cultural wealth. *Race ethnicity and education*, 8(1), 69-91.

Nationally Recognized Program Design

UMN MCNAIR PROGRAMMING

To meet year-round academic program grant objectives:

Fall

- Scholar Recruitment
- Direct Advising
- Graduate School Application Support
- Seminars (Research/Graduate School Preparation/Leadership and Resiliency)
- Campus Outreach (Present to Departments and Program Partners)
- Assist Scholars Navigate Additional Research Opportunities
- Federally Mandated Annual Performance Reporting/Scholar Matriculation Data
- Contributions to college, U of M Community Partners
- National McNair Research Conference

Spring

- Applicant Selection
- Curriculum Development/Planning/Logistics
- Direct Advising
- Mentor Pairing
- Participant Eligibility/Data Verification Process
- Scholar Retreat

Summer

- McNair Scholar Orientation
- Weekly Seminars (Research/Graduate School Preparation/Leadership & Resiliency)
- Direct Research Under Faculty Mentor
- Ten-week Intensive Research
- Enrichment Activities/Cohort Development

McNair staffing consists of flex positions based on program phases and needs.



Year-round Programming is Designed to Holistically Advance Student Development

Summer and academic year advising services focus on:

1. Careers requiring graduate education
2. Successful selection of schools
3. Applications to graduate school
4. Introduction to discipline-specific research
5. Research writing skills
6. Graduate level research papers and posters
7. Leadership Development
8. Active engagement and focus
9. Financing graduate studies

Twenty 10-week apprenticeships available with a University faculty mentor whose research interests match those of the McNair student and includes a stipend of \$3,500.



Weekly seminars on enhancing research skills, graduate school preparation and leadership and resiliency.



Comprehensive Curriculum

RESEARCH | GRADUATE SCHOOL PREPARATION | LEADERSHIP

EDHD 3XXX
Demystifying and Engaging the Research Process
3 credits

Course Instructor: Anthony Albecker
Office: 40 Education Sciences (East Bank), 56 East River Road
Office Hours: T 1:00 to 4:00, Th 12:00 to 3:00
E-mail: albecker@umn.edu
Phone Number: 612-625-0772

Course Pre-requisites: Admission to the University of Minnesota's (U of M) TRIO McNair Scholars Program AND 60-semester credits and/or minimum of two courses in declared major and minimum one writing intensive course.

Course Texts/Materials: No single book is absolutely required for this course. The best texts, or combination of texts, is dependent on the type of research you will be conducting. Canvas is the official McNair online course management system. Mindful of monetary and environmental considerations, McNair program material is primarily digital and incorporates the most current open source materials. Required readings and multimedia resources will be posted on the course Canvas site. Scholars are responsible for readings as assigned by their faculty mentor.

Required Reading: Assigned weekly reading listed by lecture date and as assigned by faculty mentor.

Additional Readings: A wide range of resources can be found on the [TRIO McNair Website](https://trio.mcnair.umn.edu/)

Course Website(s): <https://canvas.umn.edu/courses/119606>

Course Description:
Have you ever considered participating in academic research but felt intimidated or uncertain on what the process includes? If so, this course is for you. The University of Minnesota is one of the largest research universities in the world and provides ample opportunity to get involved with world class faculty and cutting edge research. The primary goal of the class is to simultaneously *introduce* and *engage* students in demystifying the research process. Course includes guest lecturers and draws upon the expertise of nationally recognized faculty and professional staff from across campus representing a broad range of disciplines. This course also strives to maximize the benefits of diversity within the cohort, which will help scholars maximize their work in diverse teams and in a multidisciplinary way.

This course is a credit bearing component of a broader McNair academic experience which includes three strands: Demystifying and Engaging the Research Process, Graduate School Preparation, and development of scholarly leadership skills. This credit bearing component focuses on the research component.

Class lectures will provide broad and multidisciplinary introduction of the research process. High quality and direct work with a professor on the professor's research (NOT the student's research. This will come later), will provide discipline specific engagement to course topics. Scholars will

Summer Research Syllabus

Dynamic Course Portal

Robust Online Resources

2020 UNIVERSITY OF MINNESOTA
McNAIR SCHOLARS
Research Graduate School Preparation Leadership & Resiliency

RETREAT

Date/Time	Topic
Friday, May 29 8:45am-12pm	TRIO McNair Orientation <i>This will be interactive, informative and fun.</i>
Assignments	<ul style="list-style-type: none"> Faculty Mentor Profile Research Timeline Scholar Spotlight: Facebook, LinkedIn, Instagram Pre-Seminar Preparation: Literature Review & Introduction <p style="text-align: right;">Due 05/31/20 11:59pm</p>

WEEK ONE

Date/Time	Topic
Tuesday, June 2 9:00am-12:30pm	Literature Review & Library Orientation; Introduction/Hypothesis/Statement of Problem <i>Presenters: Kim Clarke & Meghan Lafferty</i>
Assignments	<ul style="list-style-type: none"> Demonstrate progress on Literature review Weekly timesheet & Reflection Pre-Seminar Preparation: Good Writing for Good Scholarship <p style="text-align: right;">Due 06/07/20 11:59pm</p>

WEEK TWO

Date/Time	Topic
Tuesday, June 9 8:30 to 12:30 (approx.)	Good Writing for Good Scholarship <i>Presenter: Dr. Wilbers</i>

© 2020 University of Minnesota TRIO McNair Scholars Program z.umn.edu/mcnair

Summer & Academic Year Programming

Program Objectives

80%

of program participants served will have completed appropriate research or scholarly activities during the McNair Program academic year

40%

of bachelor's degree recipients will be enrolled in post-bac **IMMEDIATELY** following completion of the bachelors degree

90%

of first year graduate students will continue to be enrolled in graduate school at beginning of fall term of the next academic year.

10%

of McNair participants served will attain a doctorate degree within 10 years of the attainment of the bachelors degree, which is 10 times the national average



Snapshot of Scholar Enrollment

28

Students are currently undergraduates



2014 McNair Scholars

354

Students have entered graduate school



Dr. Tammy A. Butterick, [Nicole A. Lynn](#)

66

Are currently enrolled in graduate school



[Lekie Dwanyen](#)



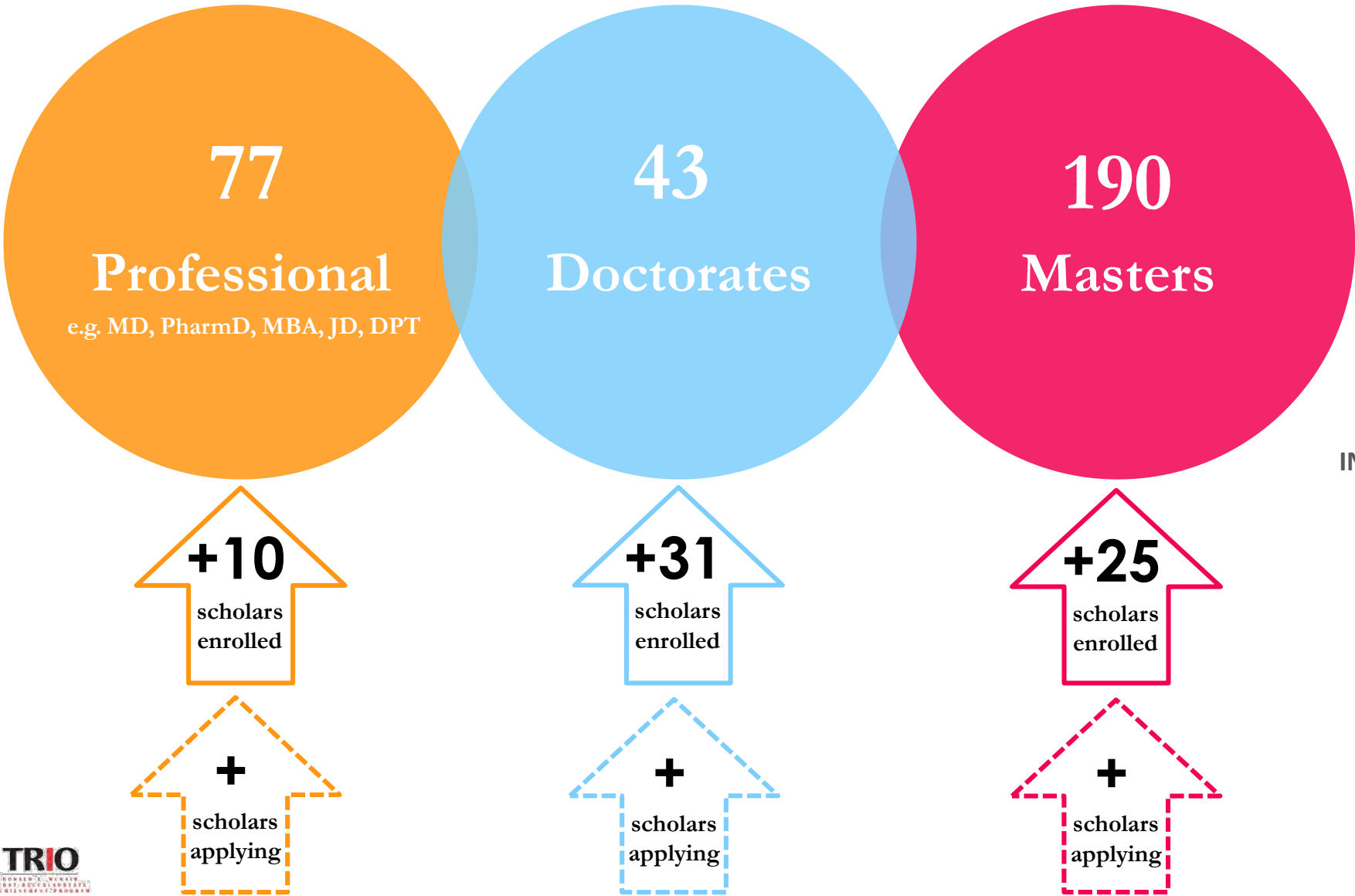
2016 McNair Scholars

31

Students are enrolled in doctorates

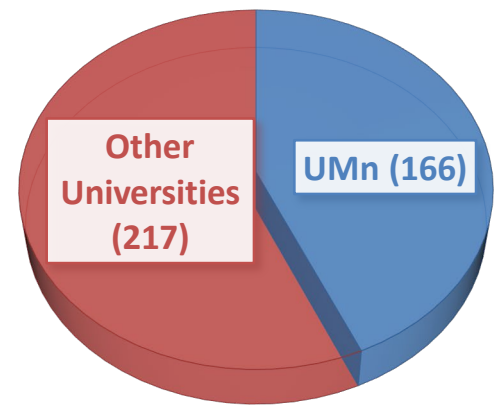


UMn McNair Scholars: Advanced Degree Completion



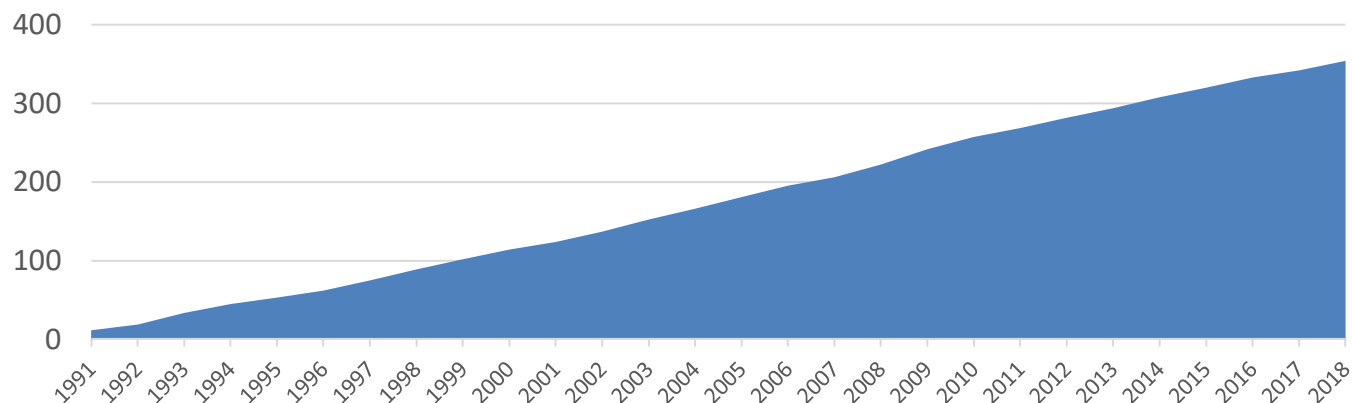
- UMn McNair Scholar Alumni have completed a total of 310 post-baccalaureate degrees.
 - 25% professional degrees
 - 14% doctorates
 - 61% master's degrees
- UMn McNair Scholar Alumni are enrolled in an additional 66 advanced degrees.
- UMn academic programs account for 43% of advanced degrees enrolled in by UMn McNair Scholars.

INSTITUTION ASSOCIATED WITH ADVANCED DEGREE ENROLLMENT

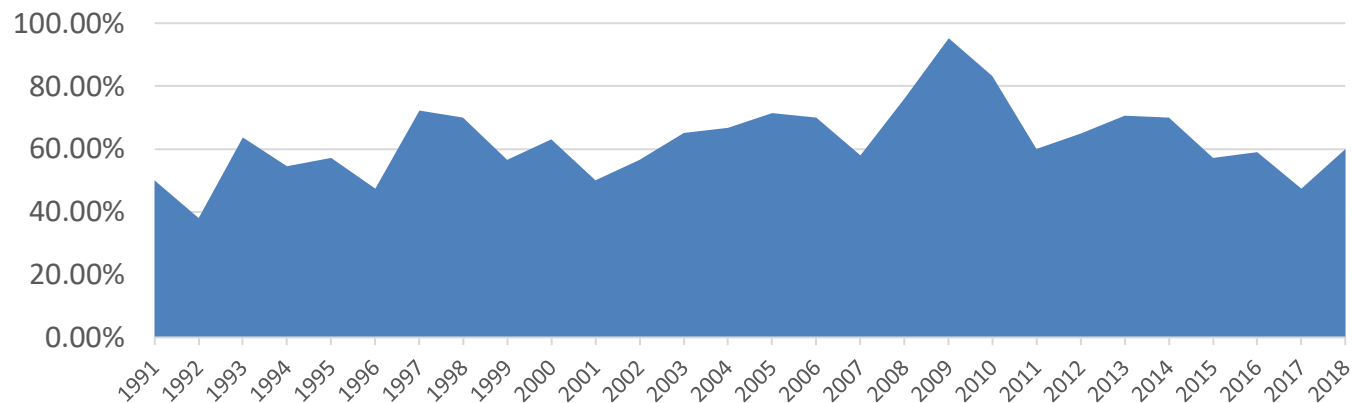


UMn McNair Scholars: UMn Grad School Enrollment

Aggregated Number of UMn McNair Scholars Enrolled in Post-baccalaureate Programs



Percentage of UMn McNair Scholars per Cohort Enrolled in Post-baccalaureate Programs



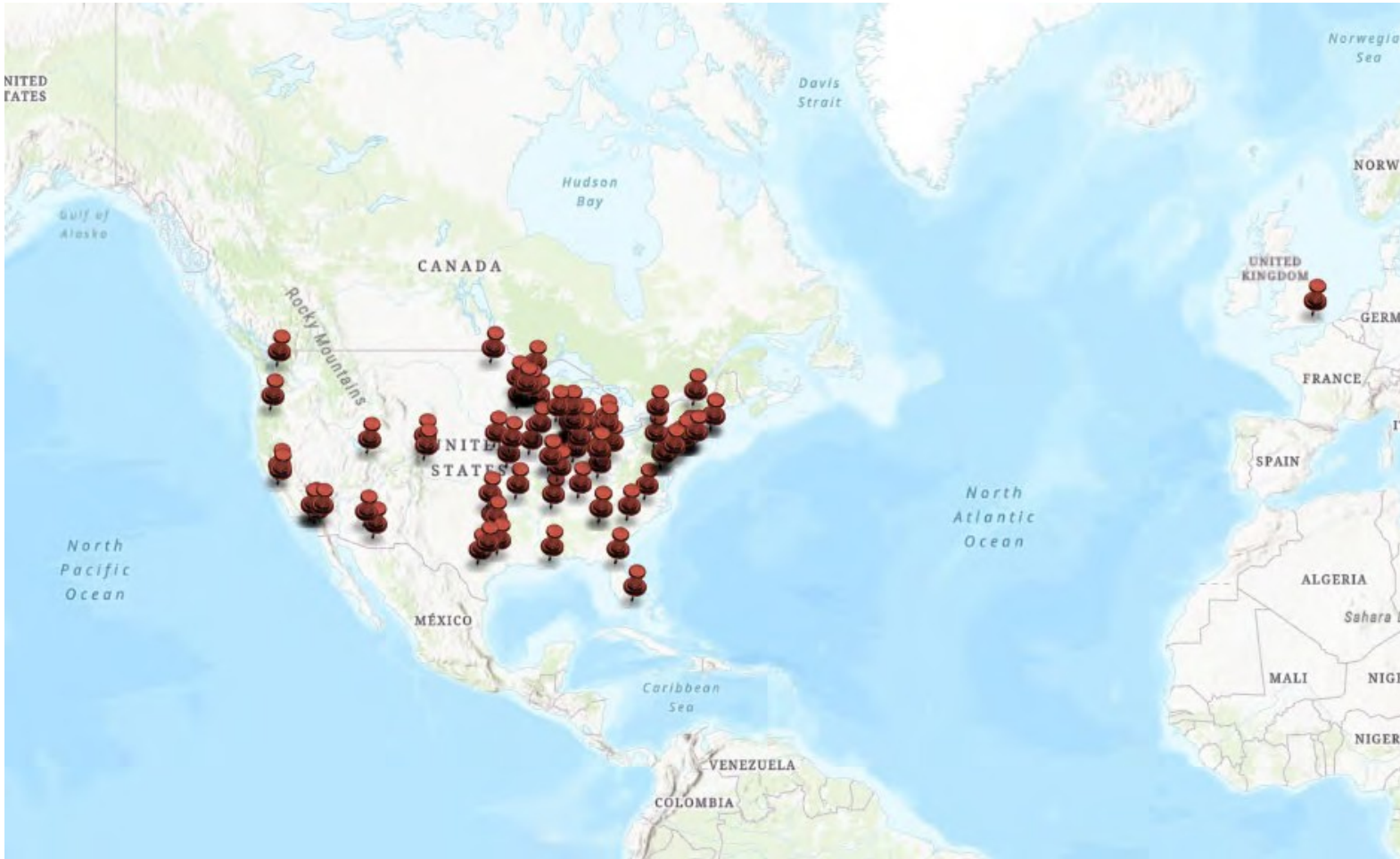
- **From 1991-2018, 566 undergraduate students participated in the UMn McNair Scholars Program.¹**
 - Low-Income Eligible: 472 Scholars
 - First-Generation: 503 Scholars
 - Underrepresented by Ethnicity: 368 Scholars
- **In total, 354 UMn McNair Scholars enrolled in post-baccalaureate programs over this duration.¹**
 - Low-Income Eligible: 289 Scholars
 - First-Generation: 318 Scholars
 - Underrepresented by Ethnicity: 223 Scholars
- **On average, 62.5% of UMn McNair Scholars per cohort enrolled in post-baccalaureate programs.²**
 - 61.2% of Low-Income Eligible Scholars
 - 63.2% of First-Generation Scholars
 - 60.6% of Scholars Underrepresented by Ethnicity

¹ Some scholars are eligible by more than one criteria.

² The lower 2017-2018 enrollment rates may be due to scholars taking a gap year before attending graduate school. This percentage and, consequently the overall average, may increase in subsequent years.

Graduate Schools attended by UMn McNair Scholars

104 unique institutions attended by 354 UMn McNair Scholars



View the interactive map via [ArcGIS](#).

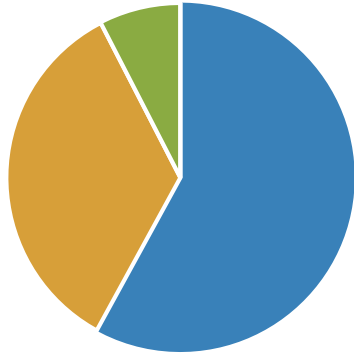
• A high density of UMn McNair Scholars stay in the Midwestern United States for graduate school as illustrated in the following list of most frequently attended institutions for post-baccalaureate degrees.

- 166 Scholars
 - University of Minnesota*
- 10 Scholars
 - University of St. Thomas
- 9 Scholars
 - St. Mary's University in MN
 - University of Wisconsin*
- 7 Scholars
 - Mitchell Hamline School of Law
- 6 Scholars
 - Hamline University
- 5 Scholars
 - Columbia University
 - Duke University
 - University of Michigan

* Denotes systemwide numbers.

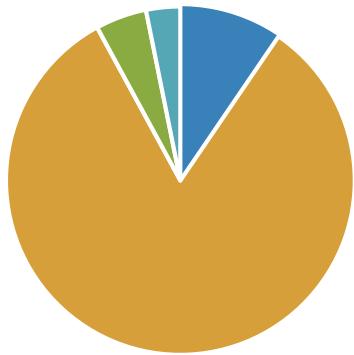
All McNair Scholars: UMn Grad School Enrollment

McNair Scholars in UMn Master's Programs
(2013-2019)



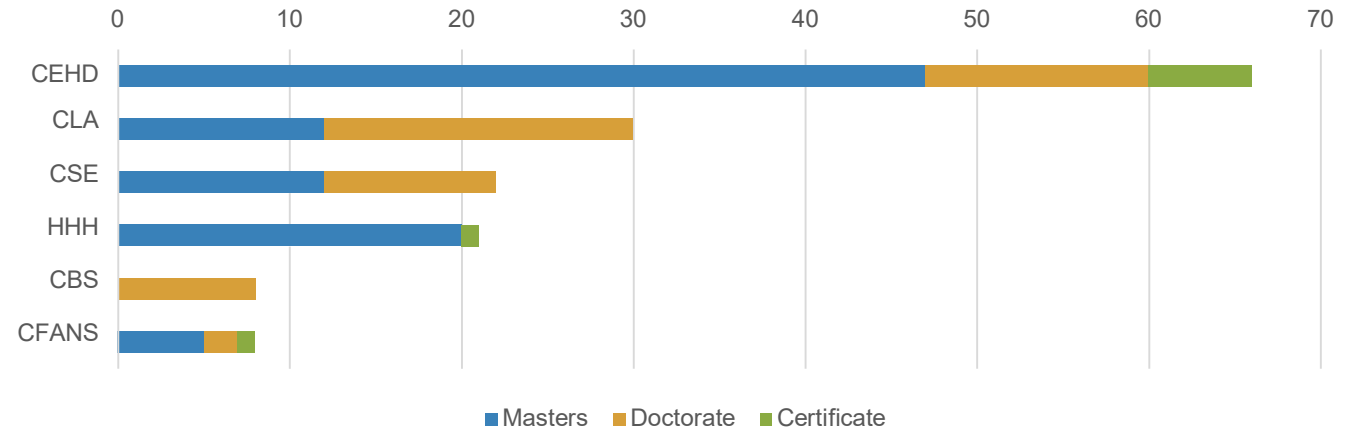
■ Completed (69) ■ Active (41) ■ Discontinued (9) ■ Leave of Absence (0)

McNair Scholars in UMn Doctoral Programs
(2013-2019)



■ Completed (6) ■ Active (52) ■ Discontinued (3) ■ Leave of Absence (2)

UMN Colleges/Schools with 8+ Admitted McNair Scholars
(2013-2019)



- Over the past 7 years (2013-2019)
 - 81.2% of McNair Scholars admitted to the UMn Graduate School are in CEHD, CLA, CSE, HHH, CFANS, or CBS.
 - 92.4% of McNair Scholars enrolled in **master's programs** have either completed or are active in their program.
 - 92.1% of McNair Scholars enrolled in **doctoral programs** have either completed or are active in their program.
 - On average, 9 out of 10 McNair Scholars admitted to the UMn are continuing or finished their graduate programs.

McNair Applications to UMn Graduate School (2013 - 2020)

(1,038 applications from 876 McNair Scholars)



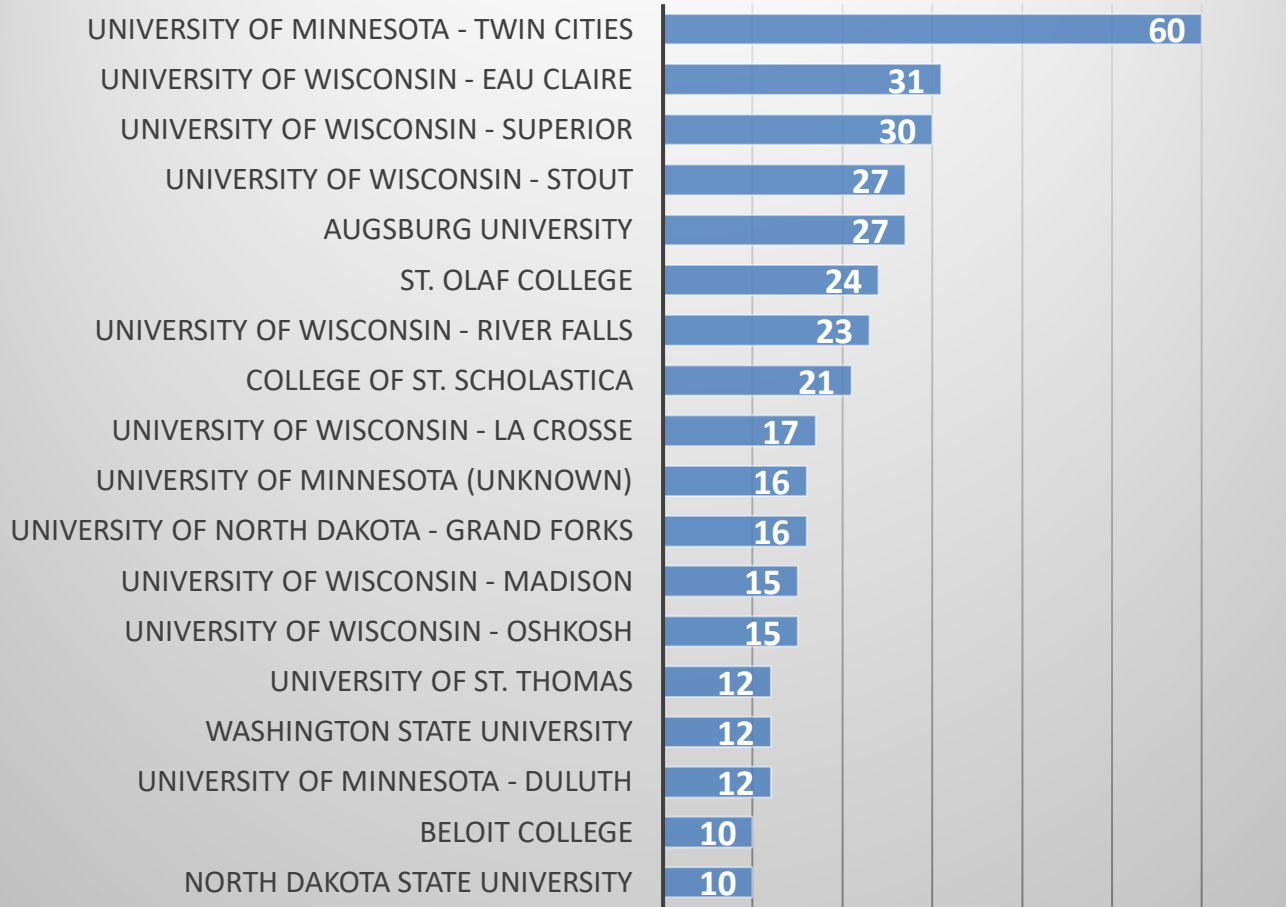
- The Federal [TRIO McNair Scholars](#) Program is funded at 187 institutions across the United States and Puerto Rico by the U.S. Department of Education.
 - In all projects, at least two-thirds of participants must be [low-income](#) AND first-generation college students.
 - Remaining one-third may be from groups underrepresented in higher education.
- The UMN Graduate School received McNair applications from 175+ institutions.
 - Total of 1,038 applications
 - From 876 unique applicants
 - Applying to 199 post-bac programs (master's and PhD are listed separate).
- The UMN admitted 432 of the applicants
 - Among whom 228 matriculated in their respective programs.

View the interactive map via [ArcGIS](#).

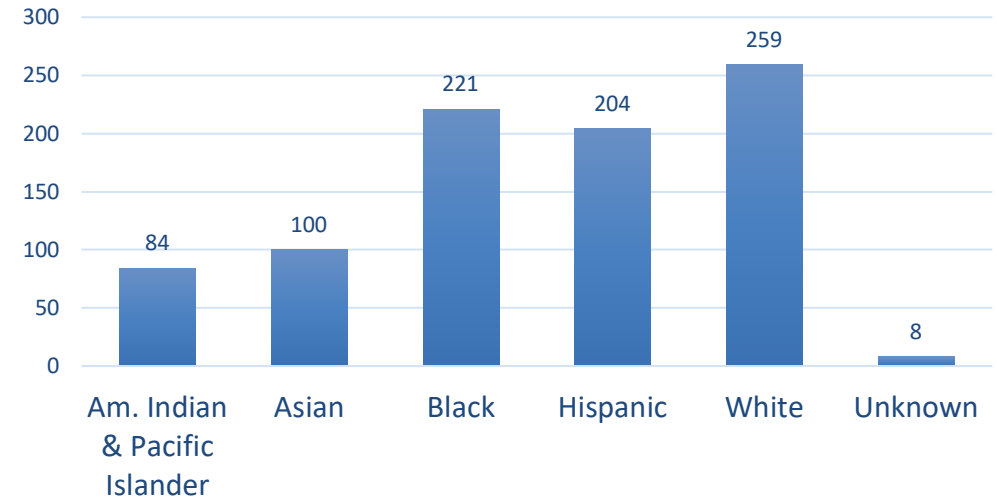
Data Courtesy of Dr. Rhiannon Williams, Brad Bostrom and Derek Maness, UMn Graduate School.

McNair Applications to UMn Graduate School (2013 - 2020)

Institutions with 10+ McNair Applications to the UMn Grad School



Race/Ethnicity of McNair Applicants

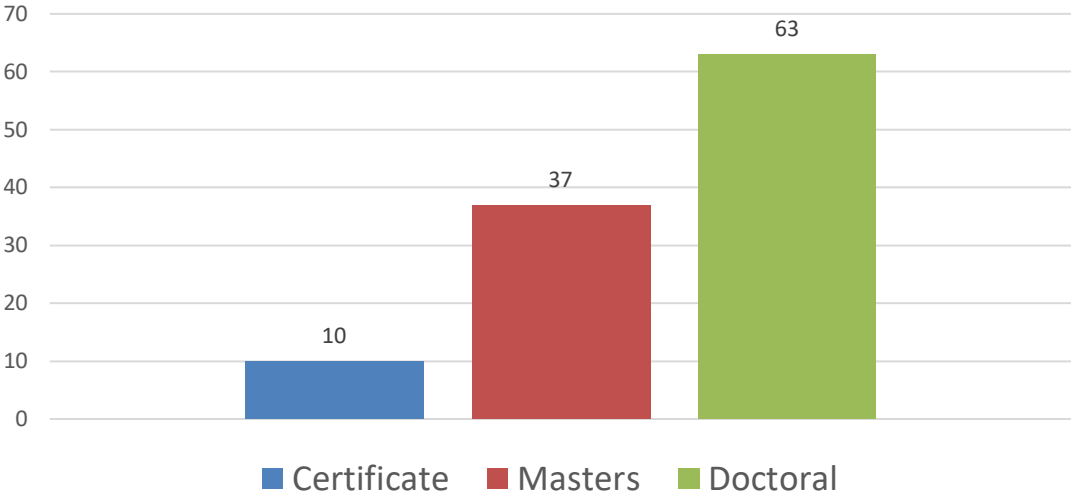


- The McNair Scholars Program prepares under-represented populations for graduate school through their supports and services.
- According to the program legislation, all Asian and White students admitted to the program are expected to be low-income, first-generation college students.
- Therefore, McNair assists in diversifying the pool of UMn graduate school applicants with respect to race/ethnicity, household income, and first-generation college students.

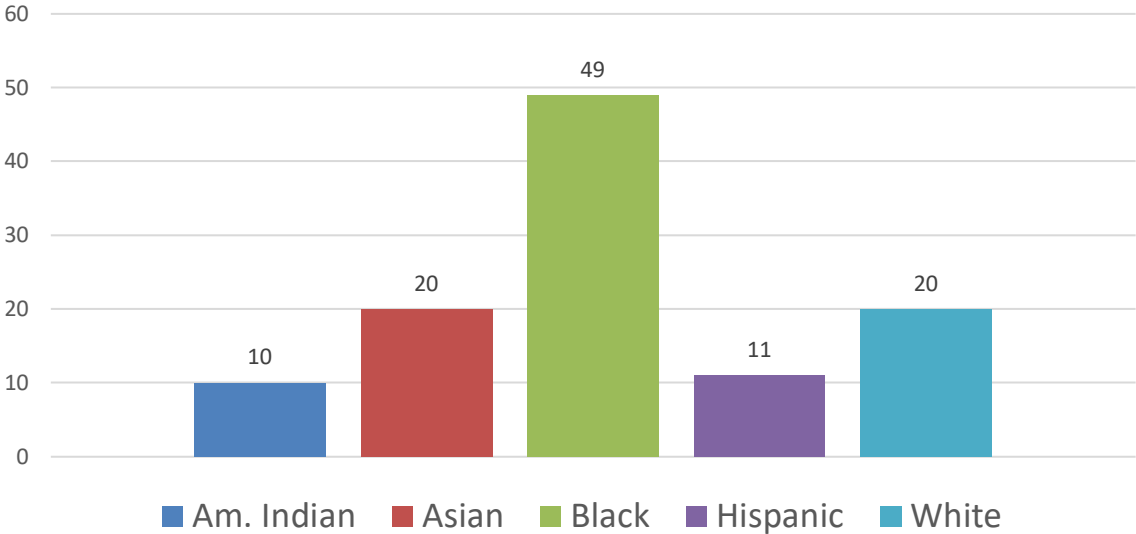
Note: College-level information is only available for 786 applications. Actual totals are likely greater than those listed in the above chart.

UMn Graduate School Pipeline

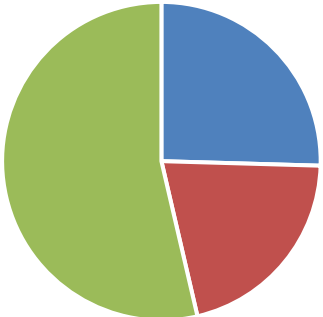
UMn-TC McNair Alumni Applications to UMn Graduate School (2013-2020)



Race/Ethnicity of UMn-TC McNair Alumni Applications to UMn Graduate School (2013-2020)



UMn Graduate School Application Status for UMn-TC McNair Alumni (2013-2020)



■ Only Applied (28) ■ Only Admitted (23) ■ Matriculated (59)

- Over the past 8 years (2013-2020):
 - 110 of 1,038 McNair applications to the UMn Graduate School are from UMn-TC McNair Alumni.
 - Equivalently, 10.6% of all applications from McNair Scholars are alumni of the UMn-TC McNair Scholars Program.
 - 74.5% of their applications resulted in graduate admission to the UMn.
- The UMn-TC McNair Scholars program accounts for the greatest proportion of McNair applications to the UMn Graduate School. Moreover, the high rates of admission suggest that the UMn-TC McNair Scholars Program may have a direct and/or indirect influence on the recruitment and admission of students from underrepresented backgrounds to the UMn Graduate School.



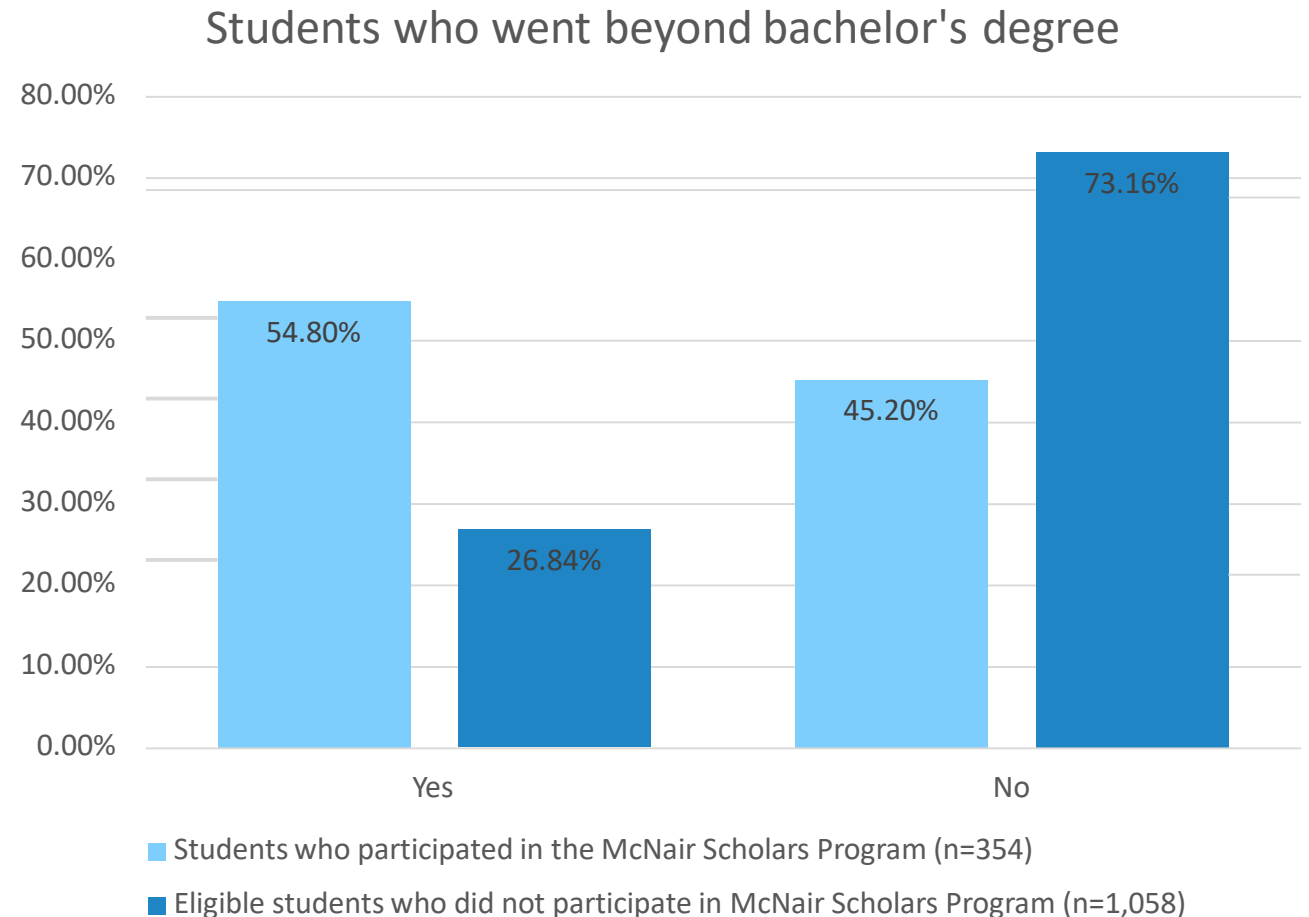
Empirically Supported Program Effects

Quantitative Study on McNair Participation

- How does participating in the McNair Scholars Program influence, if at all, the educational attainment of students from underrepresented backgrounds?
- A quantitative research method known as a “[propensity score analysis](#)” was conducted to compare the educational attainment of UMN McNair Scholars Program participants against non-participants of similar attributes who enrolled at the UMN between 1991-2012.
 - Attributes in this propensity score analysis: low income, first generation, race, sex, age when first enrolled, cumulative GPA, STEM degree, ACT score
- Data on students’ academic trajectories was obtained from the National Student Clearinghouse for the purpose of this analysis.

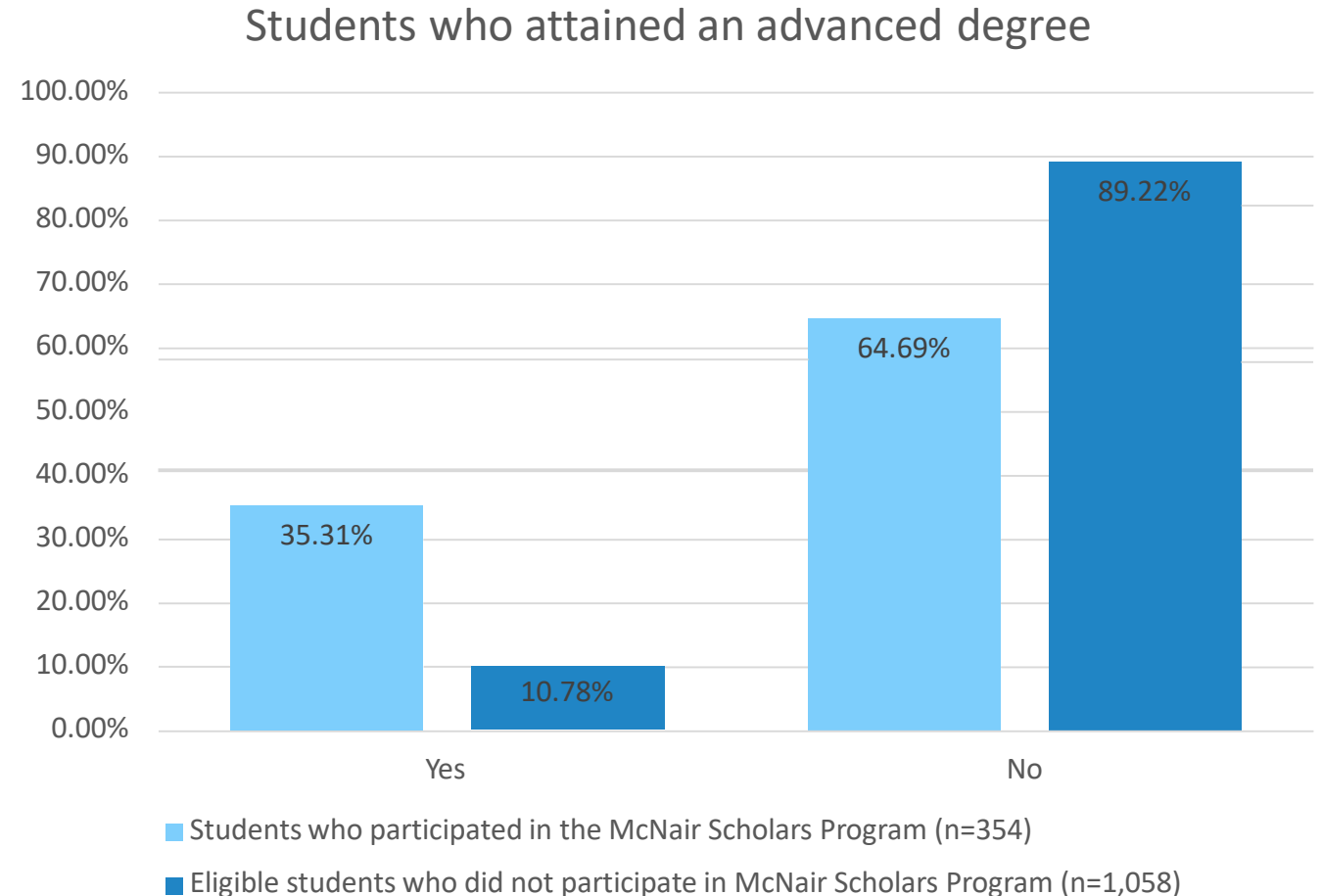
Results: Beyond the Bachelor's Degree

- Students who participated in the McNair Scholars Program were **twice as likely** to pursue education beyond a bachelor's degree compared to UMN students who were equally qualified for McNair but did not participate in the program.



Results: Advanced Degree Attainment

- Students who participated in the McNair Scholars Program were more than **three times as likely** to attain an advanced degree relative to their peers who were of similar attributes but did not participate in the program.



Key Takeaway from Study

- Participating in the McNair Scholars Program **doubled** the probability of underrepresented students of similar attributes continuing their academic studies past a bachelor's degree and **tripled** the likelihood of this underrepresented student population attaining an advanced degree.
- Conclusion: According to this study's results, the McNair Scholars Program **exponentially increases** the chances of students from underrepresented backgrounds pursuing and attaining advanced degrees.

U of Mn Graduate School Diversity Office

The U of Mn Graduate School Diversity Office is a vital TRIO McNair partner committed to recruiting and supporting underrepresented graduate and professional students.

Comprehensive services include: prospective student advising; proactive approach to recruitment; host Annual Graduate School McNair Summer Visitation Program represent University at National McNair Conferences; pay application fee waivers; provide information on McNair DOVE fellowships, etc.

- University of Minnesota



[Graduate School](#)

[Graduate School Diversity Office](#)

- Services Offered:



[Recruitment & National Outreach](#)

[Application Fee Waiver](#) [Additional](#)

[Resources](#)

[Admission Process](#)

[McNair Scholar/DOVE Fellowship](#)

- Get Connected



[333 Johnston Hall](#)

101 Pleasant St. SE

Minneapolis, MN 55455

612.625.6858

gsdo@umn.edu

Note: Derek retired on January 13, 2021, after 30 Amazing Years of Service to the Graduate School. Continue to reach out to the Graduate School Diversity Office w/ questions.



[Derek Maness](#)

Director of Outreach & Recruitment

Since 1996, Derek Maness has been the driving force recruiting McNair Scholars to the U of M.

Among his notable accomplishments:

- [Created the U's Annual McNair Scholars Visitation Day](#)
- Met with every [UMn McNair Scholar](#) since 1996 (600 plus meetings)
- Travels extensively to National McNair Conferences
- Exceptional McNair Advocate



From McNair Scholars to U of M faculty

Sociology



[Dr. Joyce M Bell](#)

Speech
language
& hearing
sciences



[Dr. Evelyn E Davies-Venn](#)

Sociology



[Dr. Michael Walker](#)

American
Indian
Studies



[Dr. Jill Doerfler](#)

Family
Social
Science



[Dr. Tabitha Grier-Reed](#)

Kinesiology



[Dr. Beth Lewis](#)

U of M McNair in the News

- [Taking Flight Through Research](#)
- [House Education Budget Bill Softens White House's Proposed Cuts](#)
- [From serving in Iraq to working on PhD, U scholar is 'like a kid in a candy store'](#)
- [Evelyn Davies-Venn: From McNair Scholar to U Professor](#)



More stories can be found via U of M TRIO McNair [Facebook Page](#)

Scholar Profiles

McNair profiles including dream statement, research posters and mentors available online:
www.cehd.umn.edu/trio/mcnair/alumni/

UNIVERSITY OF MINNESOTA
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McNair Scholar 2017 Taylor Westfall-McCoy

Taylor Westfall-McCoy is a rising junior at the University of Minnesota, Twin-Cities. She is majoring in Animal Science through the College of Food, Agricultural and Natural Resource Sciences, and is on the pre-veterinary medicine track. She also is working on a minor in the History of Science and Technology. Taylor's interests are mainly surrounding the study of performance animal care, specifically with equines and dogs. She plans to obtain her Doctorate of Veterinary Medicine in addition to her PhD in Animal Science.



“ My dream is to revolutionize the way that people think about the care of their animals. There is much work to be done as far as educating the average pet owner, and I believe that many things can be learned from the performance animal industry.” ”

COLD PLASMA FOR DECONTAMINATION OF CHICKEN BREAST, ROMAINE LETTUCE, AND STAINLESS STEEL SURFACES FROM MULTI-DRUG RESISTANT *SALMONELLA ENTERICA* SEROVAR HEIDELBERG

HAMADA ABOUBAKR¹, TAYLOR WESTFALL-MCCOY², GAURAV NAYAK³, PETER BRUGGEMAN³, SAGAR M. GOYAL¹

¹-Veterinary Diagnostic Laboratory, Veterinary Population Medicine, University of Minnesota ²-McNair Scholar, University of Minnesota ³-Department of Mechanical Engineering, University of Minnesota

Background

- In the United States, 1.2 million illnesses are caused by non-typhoidal salmonella resulting in 19,000 hospitalizations and 450 deaths, annually (CDC).
- Poultry meat is the major implicated food, but contaminated fresh produce is also implicated.
- Estimated economic cost somewhere between \$2.3 and \$11.3 billion annually.
- Of the 2500 serovars of Salmonella, *Salmonella enterica* serovar Heidelberg (SH) is most commonly found in chickens and turkeys.
- Antimicrobial drug resistance in SH is notable and is associated with increased risk of hospitalization of infected individuals.
- Increasing number of multi-drug resistant S. Heidelberg (MDR-SH) outbreaks linked to poultry have occurred recently in the US.

What is Cold Plasma?

Plasma is the 4th state of matter. It is partially or completely ionized gas with a net neutral charge consisting of:

- Electrons
- Protons
- Neutral molecules
- Negative ions
- Positive ions & Radicals
- Light species
- Heavy species

The electric field accelerates electrons in the gas and their energetic collision with the surrounding gas leads to ionization, dissociation of molecules, and the formation of UV and reactive chemical species such as OH•, NO•, ¹O₂, O₃, H₂O₂, and O₂⁻.

Cold atmospheric gaseous plasma (CAP) is a non-thermal technology that may play a significant role in decontaminating food and food-contact surfaces from bacterial pathogens.

Aim of Investigation

- Studying the bactericidal efficacy of a 2D-air-based DBD-plasma microdischarge array (2D-APMA) against an MDR-SH isolate on three different surfaces (stainless steel, romaine lettuce, and chicken breast).
- Understanding the factors affecting the bactericidal activity on each surface.

Methods

1- Cold Plasma generation setup:

2- Bacterial Strain: Four drug resistant strains of *Salmonella enterica* serovar Heidelberg isolated from a chicken farm in Minnesota.

3- Samples: Stainless steel discs and squares (1 cm²) of romaine lettuce leaves and chicken breast meat. Food samples were initially disinfected by sodium hypochlorite solution then rinsed with distilled water. Each sample was spiked with 20μL of stationary phase culture of SH grown in trypticase soy broth. The initial count was adjusted by McFarland standard. All samples were dried in a biosafety cabinet for approximately 20 minutes.

4- Operational conditions of cold plasma treatment:
 Air flow rate: 16.4 SLM -- Power: 12.7 Watt -- Exposure distance: 10 cm
 Wet exposure (water sprayed every 2 min.)

5- Enumeration of survived bacteria: Agar plate count technique using tryptic soy agar was used. The plates were incubated at 37°C for 24hr. The count of survived bacteria was calculated by the difference between bacterial count in control and treated samples.

Results

Figure 2: Bactericidal activity of CAP against MDR-SH on agar culture exposed at 12.5 cm to the 2D-APMA treatment.

Figure 3: Comparison between the efficacy of CAP against MDR-SH on various food and food-contact surfaces.

Figure 4: Bactericidal effect at low and high initial count of MDR-SH.

Figure 5: Suppression effect of proteins on CAP bactericidal activity.

Conclusion

- 2D-APMA setup is cost-effective since it can be used for decontaminating surfaces using "air" at relatively low power.
- It showed a strong bactericidal activity against MDR-SH.
- Bactericidal activity of CAP depends on operational conditions e.g., initial bacterial load of treated surface, humidity, and topography and nature of the treated surface.

Acknowledgments

I would like to thank Hamada Aboubakr for his continued patience and brilliant mentorship throughout this summer. He has continued to inspire me throughout my work with his diligence and determination. Dr. Sagar Goyal is always a bright and welcoming face to work with, and his quiet guidance has served me well. I would also like to extend the warmest regards to the entirety of the McNair program, in addition to my cohort.

World Class Faculty Mentors & Advisers

Diverse Faculty Essential to Higher Education



“A diverse faculty is essential to the success of higher education in our country. Our universities simply cannot achieve the excellence to which we aspire without honoring and incorporating the diversity of expertise, experience and perspectives that exist among our larger population. Initiatives like the TRIO McNair Scholars Program provide a vital way for us to expand the pipeline of well-prepared scholars who will be the leaders of both higher education and many other sectors in our future communities.”



Dr. Rebecca Roepers,
Vice Provost for Faculty and Academic Affairs
Office of the Executive Vice President and Provost
University of Minnesota

Who are McNair Faculty Mentors?

Since 1991, more than 150 different faculty from all University of Minnesota colleges have mentored McNair Scholars. Some have mentored for more than 10 years

Sociology



Dr. Christopher Uggen

Psychology



Dr. Gloria Leon

Public
Affair
s



Dr. Samuel L. Meyers

[List of faculty mentors 1992-2017](#)

UNIVERSITY OF MINNESOTA McNair Scholar Faculty Mentors

McNair faculty come from all disciplines, at rank of assistant professor or higher, and are interested in guiding summer research experiences of high potential, first-generation, and minority undergraduates.

University of Minnesota McNair Mentors: 1991-2018



Dr. Keith Mayes
African American & African Studies



Dr. Teresa Swartz
Sociology



Dr. Kathleen Thomas
Institute of Child Development



Dr. John Sartori
Electrical & Computer Engineering



Dr. Keisha Varma
Educational Psychology



Dr. Zha Blong Xiong
Family Social Science



Dr. Susan Walker
Family Social Science



Dr. Victor Reiner
Mathematics



Dr. Tai Mendenhall
Family Social Science



Dr. Matt Weber
Journalism & Mass Communication



Dr. Chris Ugeux
Sociology



Dr. Mary Jo Maynes
History



Dr. Richard Douglass
Psychology



Dr. Marc Bellemare
Applied Economics



Dr. Kate Adamala
Genetics, Cell Biology, & Development



Dr. Jaime Slaughter-Acey
Epidemiology & Community Health



Dr. Gretchen Hansen
Fisheries, Wildlife, & Conservation Biology



Dr. Viann Nguyen-Feng
Psychology



McNair Program Partners

Special thanks and appreciation to our institutional and community partners who have helped make University of Minnesota McNair Scholars program nationally recognized.

McNair Scholars is federally funded and administered through the United States Department of Education.

A very special thank you to the College of Education and Human Development (CEHD), Dean Jean Quam and leadership team for their generous financial and institutional support. Additional financial support provided by the U of M Provost for Undergraduate Education and the Office of Equity and Diversity.

Douglas Hartmann
Rebecca Shuster
Latara Gertner
Evelyn Davis-Vern
Ann Masten
Richard B. Lerner
Suzanne Rodan-Jones
Lynn Erickson
Craig Schneider
Meghan Connor
Dahela Ben-Anderson
Nancy Steing
Yuchiro Oishi
Mehmet C. Ozgen
Yoon Yoo
Vuk Maric
Christina Schelm
Patricia Schmitt
Demetrius Escobar
Katie Johnson-Goodstar
William Jacono
Beth Lewis
David Potter
LeAnn Snow
David Wood
Joanna Stanik
William F. Schwartz
Michael F. Young
Cheryl Cimam
Manda Hartway
Shaul Hanany
Scott McConnell
Angela Paschos-Kostar
Amy Meyer
Dan Kessler
Michael P. Hogg
Maria Sera
Naim Malun
Elizabeth
Lisa M. Goren
Eileen Weber
Ken Valerius
Tabitha Lerner-Read
Elizabeth Boyle
Joseph Giacomin
Rose W. O'Neil
Lori Johnson
Gabrielle Prates
Sinead M. O'Connell
Megan M. O'Connell
Megan M. O'Connell
Virgil J. Zuber
Michele M. O'Connell
Veronica Deenath
Jon Schmitt
Benjamin Morrison
Susan Mason
Tammy Buttschick
Nathan Kumpel
Susan Ross
Michael C. Rodriguez
Barbara McMorris
Jarron Cohen
Yanyan Wang
Ryan P. Allen
Carl Rosen
Christopher Johnston
R. Lee Pinn
David Weiss
Jon Liang Lu
Shin L. Frontier
Steve Yussen
Georgina M. O'Connell
Luis Martinez
Dan Voytes
Carolyn Garcia

Paul Memelstein
Gary G. G. G.
Karen Steinhilber
Terrence Adam
Robert Poch
Josh P. Poch
Shandi Craft
Yoon M. Martinson
Cory Hayes
Dan Dahlberg
Ryoko Kuryama
Sonia Brady
Kim Worsley
Lisa M. Garcia
Peggy M. Martin
Jennifer Bialla
Ana Paula Ferreira
Marco Pravelino
Mati Shick
Bibi Weiss
Rissa Rorick
Eugene Rorick
John Gaffney
Wiley Galsani
Lou O'Neil
Marti Shick
Joseph N. Sherman
Barbara Fry
W. Andrew Collins
Cheryl Cimam
Manda Hartway
Stacy Ingraham
Laurie Cuellette
Patricia Frazer
John Sullivan
Michael Goldman
Moira Byrd
David Pellow
Lisa Paik
Carolyn Lueber
Nicole Lopez
Raymond L. Larasati
Brynn
Ann O'Neil
Raymond O'Neil
Patrick McNamee
Rebecca Sewing
Karan Chakrabarti
Catherine Barnes
Jonathan Marchant
Abd Samatar
Alex P.
Dore Hollister
Susanne Jones
Eric Brodsky
Martha Miller
Ulrike Mundardt
Kerneth Barbell
Rose Brewer
Gilbert Rodman
Eric Tenby
Enik Logar
John Nichols
Carmel Wilentz
Penny Edgell
Robert P. Poch
Abigail Gervitz
Ana Poch
Kathleen Poch
Claudia Schmitt
Lesley Craig-Underhill
Craig Hassel
Victor Kozlovsky
John Poch
Michael Poch
Vincent Barnett
Jennifer DiPhant
Michelle Mason
M. Brian Caselmann
Dario M. Poch
Leonard Barasack

Bryan Shuman
Darwin Handel
Thomas C. C.
Brenda O'Neil
Gonias W. O'Neil
Rochia Raga
Cory M. O'Neil
April A. O'Neil
Wendy Rahn
Robert M. O'Neil
Karen-Sue Tausig
Moria A. Full
Dawn York
R. Lawrence Edwards
Oliver J. Williams
John Robert Warren
Ann Miller
David E. Wilkins
Justin Revenaugh
Gary J. O'Neil
Tracy L. Thorney
Brian Southwell
Tim O'Neil
Dorothy H. O'Neil
Cory O'Neil
Margaret K. Di Biase
Joseph N. Sherman
Caroline Hayes
Held Leskey Bonajus
Joanna B. Eicher
Jon J. Huchman
Sharon K. Shannon
Wayward E. Roland
John Sullivan
Gordon Legge
Jonathan C. O'Neil
George A. O'Neil
Shari Turner
Robert Schaubert
David O'Neil
Evan O'Neil
Vivian O'Neil
John Wilson
Helen O'Neil
David O'Neil
Scott Spornstein
Catherine O'Neil
Terry Wilson
Wendy L. Moore
Joan Howland
Patricia Bruch
Frank K. Lach
William O'Neil
Dennis O'Neil
Priscilla Elison
Nathaniel Harder
Carol Freeman
Andrzej Piotrowski
Chern Muzani
Peter O'Neil
Enik Logar
John C. O'Neil
George O'Neil
Martha O'Neil
John O'Neil
Richard Huang
Philip O'Neil
Jim O'Neil
Daniel Wackman
Murray O'Neil
Rodney L. Johnson
Willis Peterson
Edward Martin
John Liang Lu
Robert O'Neil
Lorraine F. Francis
Francis A. Kuzack
M. David O'Neil
Gary Barnes
David Anderson

Walter G. Miller
Candyn Tuttle
Kyla Wahlstrom
Chun Chan
Joseph E. Schweitzberg
Francis Michel
James Collins
Ramesh Harijani
John Shultz
Evan O'Neil
Erik O'Neil
Ray Fremmel
Sandra O'Neil
Kay Thomas
Jeffrey Edleson
Douglas O'Neil
Ann O'Neil
John O'Neil
Michael Holly
Lisa O'Neil
Carol O'Neil
Gerald O'Neil
Wayne E. O'Neil
John A. O'Neil
Earl Scott
Michael Woodson
Kevin O'Neil
Robert K. Herman
Richard King
Shelia O'Neil
Erik Arthur
Rina Tammenbaum
Robert O'Neil
George Barany
Candace Kruttschnitt
Ladonna O'Neil
Doreen O'Neil
Gurumohan Hansardran
John Romano
Gara Phillips
Jayson T. Mortimer
Dennis O'Neil
Todd Rhodes
John Wallace
Patricia Avery
William M. Grove
Peter A. Hancock
Daniel Detzner
Vigil A. O'Neil
Daniel O'Neil
J. Stephen Weiss
Peter A. Hancock
Lillian S. Brundage-Bowles
John M. O'Neil
Marta L. O'Neil
John M. Taborn
Michael J. O'Neil
Garin C. O'Neil
Judith Martin
Harry C. Boyl
Ron R. O'Neil
Allen H. O'Neil
Mark Hope Gonzalez
Jennifer Bloom
Arthur G. Erdman
Brian A. Crooker
John H. Fleming
Raymond Neumann
Eleanor F. Wallenberg
Margaret Kowalski
Marta H. O'Neil
John P. Stambarger
Tom M. O'Neil
Andrew O'Neil
Louis Alice A. Larson
James E. O'Neil



Faculty Testimonial



“As an academic I value the McNair Program for its commitment to academic excellence and as an important and effective vehicle for recruiting low-income, first-generation and underrepresented students. The McNair Program does an excellent job preparing students to pursue and successfully obtain advanced degrees.”

-Dr. Samuel L. Myers

[More Testimonials](#)

Who are McNair Faculty Mentors?

1. Come from **all disciplines**, at rank of assistant professor or higher, and are interested in guiding summer research experiences of high-potential, first-generation, and minority undergraduates.
2. Are **recognized** by their peers and students as **valued mentors** and **exceptional teachers**. Several members of the faculty have leadership positions in their departments, such as associate dean, director, and department chair.
3. Are recognized **leaders** in their field and serve as members of professional associations and editors of professional journals.



Catherine Solheim and [Julie Vang](#)



McNair Program Faculty Mentor Framework

1

Some undergraduate research programs allow students to conduct their own research. This is **not the purpose** of the McNair Scholars Program.

2

The McNair Program assigns students to work with a professor on the **professor's research**, not the student's research.

3

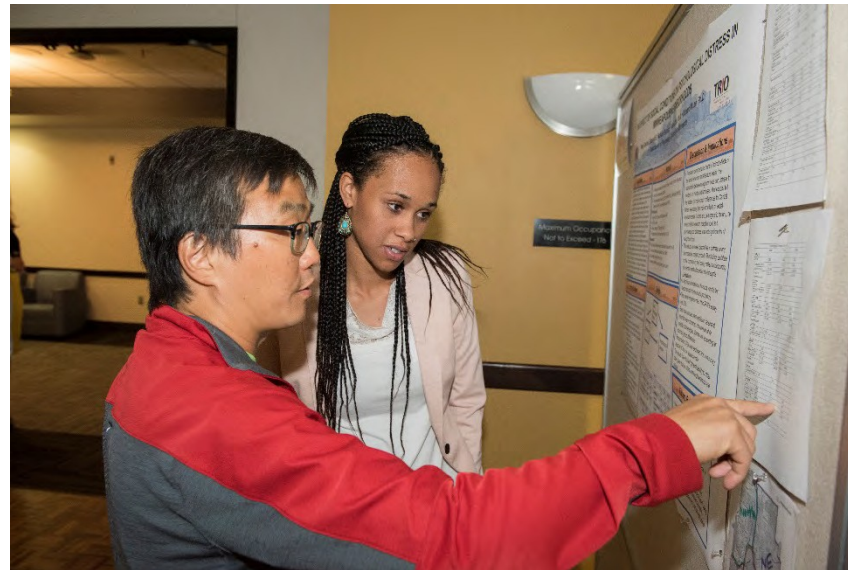
The **greatest academic and personal growth** has come when students are engaged in **30-40 hours** doing research or other academic pursuits.

4

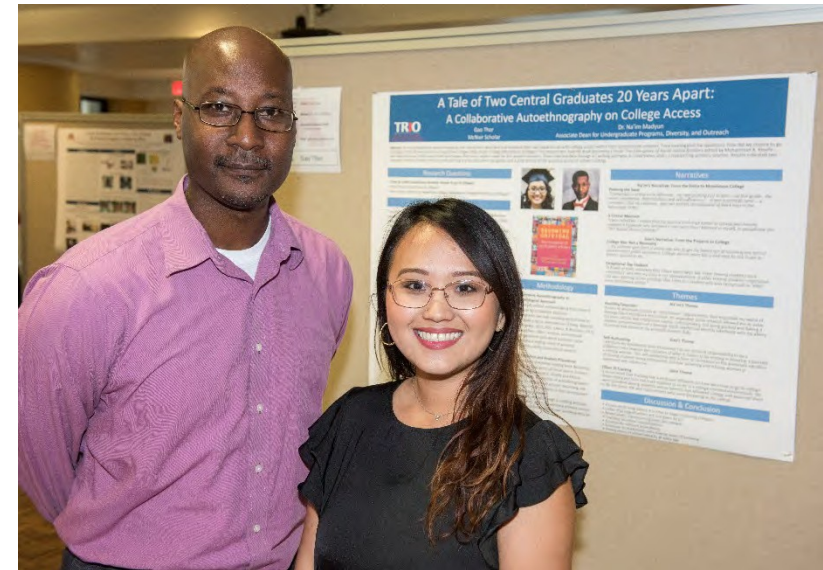
Mentors determine the research engagement and activities that will enhance the student's ability to attend graduate school.



[Kayne Lussier](#) and Dr. Scott McConnell



[Mary K. Onchiri](#) and Dr. Richard M. Lee



[Gao Thor](#) and Dr. Na'im Madyun

Remember,

the majority of the McNair Scholars do not have the advantage of family members with graduate degrees and are uncertain about the path from Baccalaureate Degree, to Master's Degree, to Ph.D. attainment.

So,

- Guide the scholar on how to make presentations in his/her field.
- Allow the student to sit in on your course, if it is related to their research project.
- Supervise and accompany the McNair Scholar to professional conferences and association meetings.

Talk with your Scholar

about your own

- undergrad experiences
- grad school experiences
- career decisions
- research projects

Build rapport, open lines of communication between you and your Scholar and help build motivation for doctoral study.

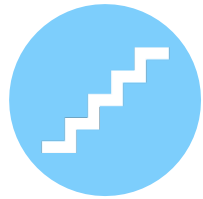
Faculty Mentor Responsibilities



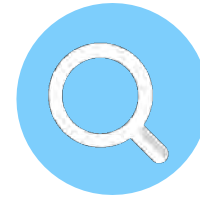
Point scholars in the right direction. Provide an outline of current research and point out ideas for your scholar's contribution to the project.



Establish the framework for a successful mentoring relationship. Lay out clear expectations early in your working relationship.



Guide scholar along the steps. Assist the Scholar with establishing realistic goals for the project, completing a research proposal and meeting the research benchmarks and deadlines.



Provide close supervision of the research project during the summer, evaluate student research/contribution to team and mentor/advise the Scholar during and after the research experience.



Help your scholar feel comfortable in the research milieu. Acquaint them with the research tools of the discipline. Integrate them on the research team. Invite your scholar to attend seminars and meetings, if appropriate.



Set up regular, in person meetings with your Scholar. If you are away from campus for an extended period, make sure that the Scholar knows what to do in your absence and that you are accessible by phone and email.

Summer Time Commitment

June 1, 2021– August 6, 2021



Ideally,

Faculty Mentors will be on campus and available to meet with **students several times during the week.**



At a minimum,

Faculty Mentors and Scholars will meet in person **two hours per week.**

Preferably,

- One hour at the beginning of the week to set goals and activities
- One hour at the end of the week to evaluate progress

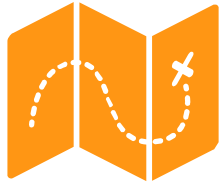


We understand that the number of contact hours between the Faculty Mentor and the Scholar may vary considerably depending upon the discipline and the nature of the research project.

If Faculty Mentors will not be on campus regularly during the week, they will be **easily accessible** by both phone and e-mail in the event that Scholars need assistance or direction.

Summer Time Commitment

June 1, 2021– August 6, 2021



Scholars work **30-40 hours per week** on their research projects for **10 weeks** during the summer.

Scholars will plan their time by **creating a research timeline** during the first week of the program and complete weekly **reflection** and **time log** that faculty approves. Scholars encouraged to create a **communication plan** with mentors to lay out expectations and set stage for productive working relationship.



Scholars are required to meet as a group **every Tuesday morning until noon** for a research methods or graduate school prep seminar led by McNair Staff and academic partners.

Scholars are required to meet with their McNair Advisor **one hour per week.**



The mentor will set the appropriate expectations for the student.

Additional required meetings and seminars may be scheduled.

The Scholars' stipends are paid in biweekly installments of \$500 based on successful progress towards timely completion of the project.

Return on Investment

Return on Investment

- The UMn McNair Scholars Program increases the likelihood of undergraduate students from underrepresented backgrounds continuing their education beyond the bachelor's degree as demonstrated in the results from a [propensity score analysis](#) which monitors key program objectives.
- [As such, McNair is involved in addressing the shortage of workers with advanced degrees in certain fields and the demand for proportional representation of underrepresented populations in higher education.](#)
- The return on investment into the McNair Scholars Program [occurs at the societal level by equipping students from underrepresented backgrounds with the skills and research experience to diversify graduate programs and job market demographics in academia \(e.g., \[UMn faculty\]\(#\)\) and industry.](#)



2019 McNair Scholars

U of M McNair Program Funding Breakdown

Key

Funding
Per Participant Cost
Total Program Cost
Percentage

Total McNair Annual Budget (10/1/17 to 9/30/22)
\$378,371

Federal TRIO McNair Grant
\$309,371

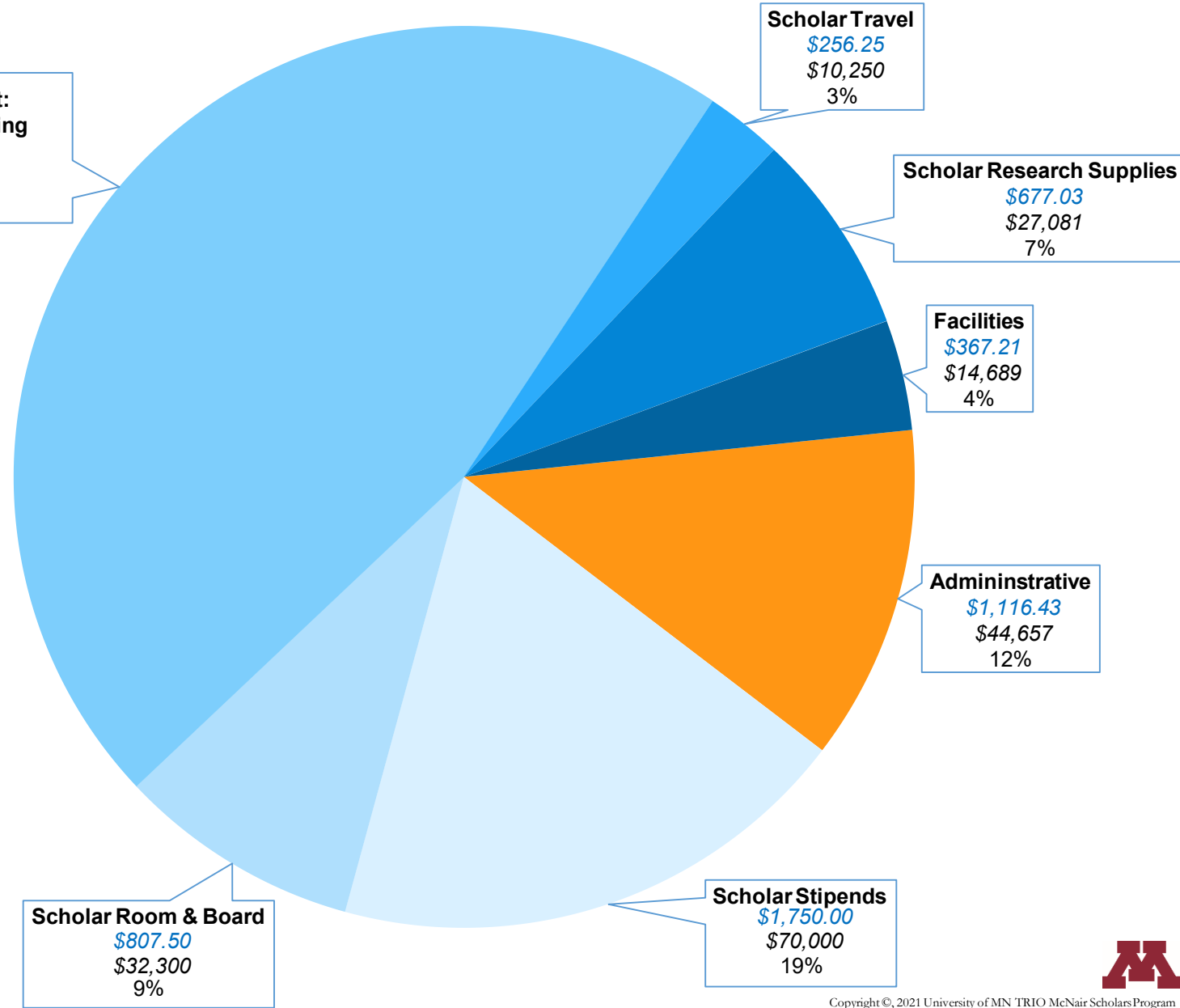
INSTITUTIONAL FINANCIAL COMMITMENT BREAKDOWN

- \$43,000** College of Education & Human Development (CEHD)
- \$21,000** Undergraduate Vice Provost (VP)
- \$5,000** Office of Equity & Diversity (OED)
- \$69,000**

Per Scholar Cost
\$9,459

Stipend Breakdown (\$3,000 summer \$500 fall semester*)

- \$2,800** @ 18 scholars (Federal)---\$50,400
- \$3,500** @ 2 scholars (CEHD/VP)--\$7,000
- \$700** @ 18 scholars (CEHD\$250/VP\$200/OED\$250)---\$12,600



U of M McNair Direct Service Hours to Scholars

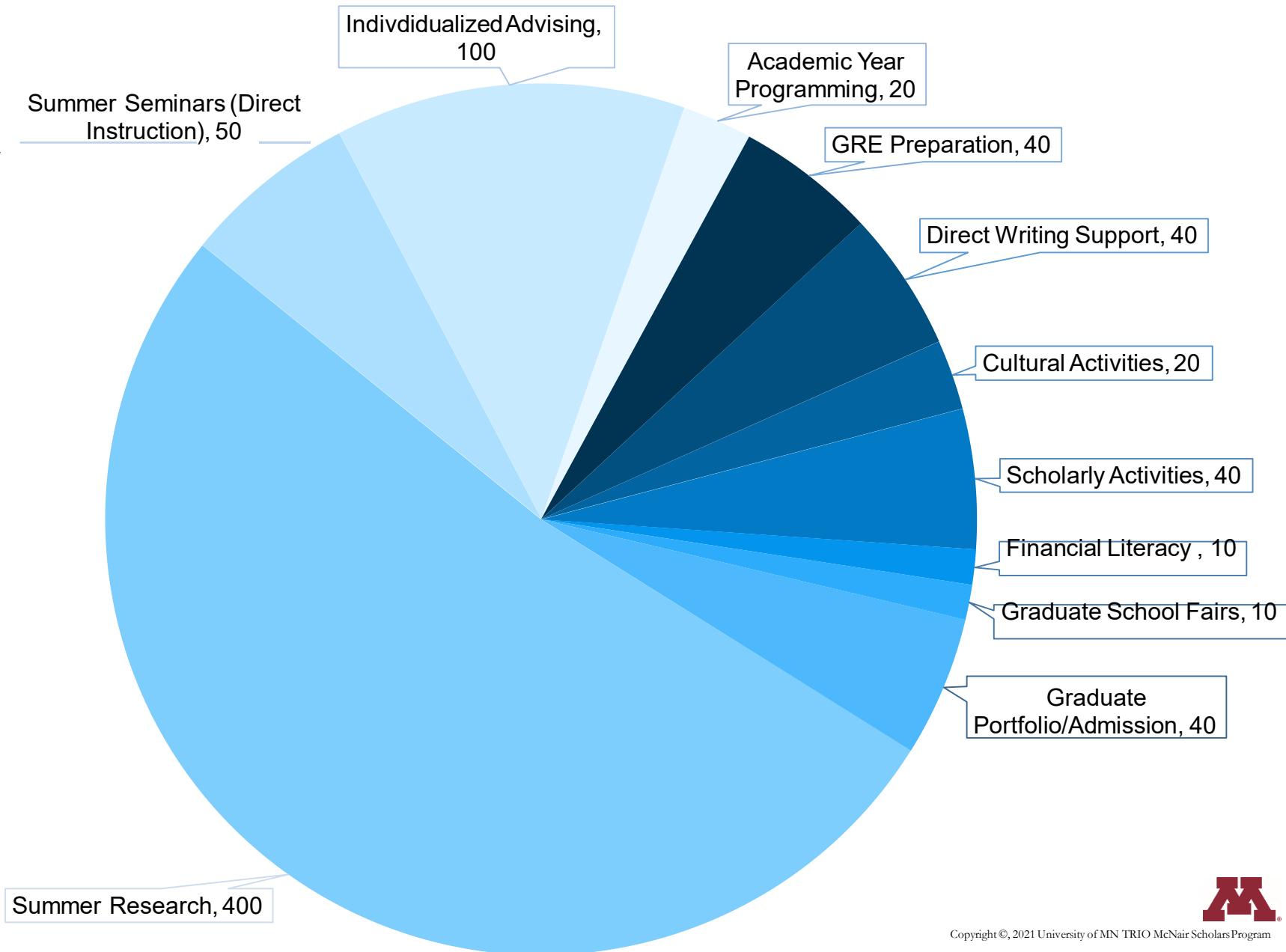
U of M McNair is a **summer & academic year** program. Each scholar engages in approximately 770* effort hours of research and graduate school preparation.

\$3,500 stipend equates to ~\$5/hr.

*hours tracked through advising CRM, signed attendance and weekly timesheets.



[Aarinola Esther Okelola](#)



McNair: Surfing the Chaos

The federally funded TRIO McNair Programs face challenges: legislative, political, graduate education system and collegiate dynamics that significantly impact McNair's work on individual student and academic development. These existential threats left unaddressed will adversely impact the time to matriculation and graduate school completion for first generation, income eligible and underrepresented students. The McNair team is addressing these challenges through multi-faceted, collaborative and innovative approaches

Changing Graduate Education

Challenges

- Graduate Education model is not responsive to 21st Century societal and industry needs and particularly detrimental to TRIO eligible students:
 - Discipline approaches that don't foster interdisciplinary work
 - Limited support systems to help students develop/hone/identify transferability of their advanced degrees
 - Departmental politics frequently create problematic and siloed environments
 - Limited Tenure track jobs
 - Significant debt is not commensurate to future wage earnings

Opportunities

- Support initiatives:
 - For student centered Graduate education approach
 - Integrate a multiple mentor model that engages students in multi and inter disciplinary ways of learning, teaching, research and community engagement
- Personal, social and non-cognitive Development opportunities—transferable skills, interdisciplinary lenses
 - Exposure to opportunities such as work in Veterans Administration: "from research bench to patient bedside"
 - Provide student opportunities to develop and demonstrate emotional intelligence
 - Increase students social capital through developing more robust higher education networks

Collegiate Dynamics

Challenges

- Significant change in leadership throughout University
- Sustainability of volunteer mentor model
- Possible reduction of institutional support: monetary and other resources

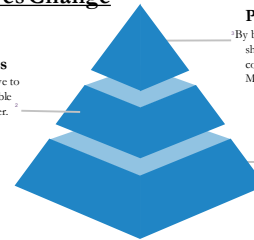
Opportunities

- Continue to inform community
 - Robust social media engagement and online presence
 - Service to community
 - Keep community informed on key policy and program successes
 - Intranet
 - Committee service across campus
 - Alignment across U-System
 - Sharing of resources and practices
 - Sharing of compelling stories, concise/accessible/visual data



How McNair Drives Change

Build Robust Processes
systems and processes are responsive to evolving need, data driven and enable staff to work smarter and not harder.



Develop a Community of Practice
By building bridges with program partners, sharing ideas and advancing pedagogy, a coalition can be fostered that connects the McNair programs and outside community

Set the tone
Staff is committed to Innovation, being proactive, setting ambitious goals, rigor+ fun and modeling a growth mindset.



Outdated Legislation

Challenges

- Legislation remains unchanged since 1990's.
 - Research Stipend stuck at \$2,800 since 1998 and significantly lower than all other research programs
 - Highest need students lowest paid
 - Dissuades TRIO eligible who can't "afford" to take advantage of McNair
 - Students are required to matriculate to graduate program immediately following undergraduate degree (Gap years are not recognized)
 - Scholars participating in postbac enrichment opportunities shows grant as "not meeting objectives"
 - Southeast (SE) Asian Students are not considered Underrepresented in graduate school and do not qualify for McNair unless they are both low income and first generation
 - Ten-year PhD completion window not representative of trends in most fields

Opportunities

- Advocates for change at department, college, institution, state, regional and national levels
- Active participants/leaders building and sustaining National McNair Network, TRIO professional associations and partnerships
- Presenters of effective practices. Approach work w/ innovative and open-mind—continually evolving and adapting/adopting effective practices.
- Advocate to expand McNair mandate to serve Professional degrees and explicitly add language around programming and resources related to student mental health issues
- Broaden financial literacy mandate. Can increased funding provide designated funds to offset first-year graduate costs for student who directly matriculate?
- Incorporate career services component discussing "transferability of skills" versatility of advanced degrees

Political Threats

Challenges

- Sustained efforts to eliminate and or reduce TRIO McNair Funding, strategy to eliminate, then over mandate and underfund TRIO SSS Program
- State cuts directly impacting institutional support
- Political paralysis and Congressional gridlock
 - Higher Education Reauthorization continues to be in limbo
 - Impacts release of funds
 - Year-to-year volatility on McNair funding
- Public distrust & skepticism of higher education
- Higher education affordability
 - Student debt crisis (\$1.5 Trillion)
 - Deters students from pursuing postbac

Opportunities

- Diversify funding: focus on corporations and foundations
 - Eliminates funding volatility
 - Allow program to broaden services to diversify professional degree tracks
 - Opportunity to scale-up for limited cost
 - Create greater program efficiency not having to work through arcane Department of Education policies
 - Latitude to create more responsive and sustainable programming
 - Increase stipend amounts
- Design flexible staffing models that reduce administrative costs while maintaining continuity of care model.
 - Engage staff in unique and multifaceted ways that current grant regulations don't allow
 - Foster unique partnerships and collaborations throughout University System to expand program footprint
 - More stability for staff to reduce volatility caused by continued calls for program elimination



Meet the McNair Team

McNair staffing consists of flex positions that fluctuate based on program phases



**Sharyn Schelske,
Director Emeritus**



**Anthony Albecker,
Director**



**Bai Vue,
Advisor**



**Amani Stumme-Berry,
Advisor**



**Kayla Cory,
Advisor**

Thank You for your valuable collaboration with McNair Scholars!


Thank you and acknowledgements to the following contributors to this program guide: **McNair Team** for their respective contributions, key program partners **Amy Kampsen, Christina Clarkson, Kyle Blume**, and **Amaniel Mrutu** for data support. Special thanks for Dr. Rhiannon Williams, Brad Bostrom and Derek Maness for UMn Graduate School data.

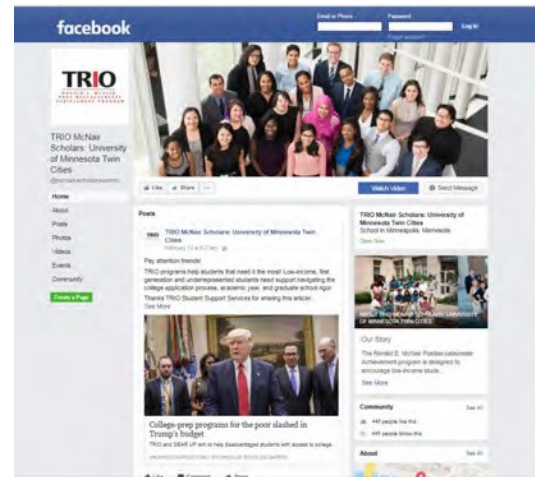
Thank you all!

College of Education & Human Development
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56 East River Road
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 z.umn.edu/mcnair

 facebook.com/mcnairscholarsumntc

 612-625-0772



Odds & Ends

University of Minnesota

EOAA & Title IX Statement & Resources

In accordance with the United States Higher Education Opportunity Act (2008) (HEA), The federally funded TRIO McNair Program is providing the following EOAA & Title IX Statement and Resources as provided by Kimberly D. Hewitt, Director, University of Minnesota Office of Equal Opportunity and Affirmative Action Title IX Coordinator.

The purpose of this message is to provide another reminder about our responsibilities to foster a positive campus climate that is responsive to and takes prompt and effective measures to address all forms of sexual misconduct including sexual harassment, sexual assault, relationship violence and stalking. University policy specifically prohibits sexual misconduct by employees towards students, and any other form of harassment on the basis of sex.

Students are encouraged to report all incidents of sexual misconduct. Employees have a duty to report all incidents or allegations of sexual harassment or assault. Specifically, employees who have supervisory responsibility or who advise students or who could be considered by a student to have the authority to take action must report sexual misconduct incidents to the Office of Equal Opportunity and Affirmative Action Office (EOAA). The University takes such reports seriously, and will promptly investigate them. The University prohibits retaliation against anyone for reporting or participating in an investigation of sexual harassment or sexual assault. Students or employees found to have engaged in sexual harassment or assault, employees who fail to appropriately report observed or suspected harassment or assault, and students or employees found to have engaged in retaliation will be subject to discipline, which may include suspension, expulsion, or termination if circumstances warrant.

The University's Office of Equal Opportunity and Affirmative Action (EOAA) is available to all members of the University community to receive reports, help resolve issues, and address concerns regarding sexual harassment, sexual assault, or retaliation. Any individual may make a report to EOAA in a variety of ways as outlined in the following slide.

University of Minnesota

EOAA & Title IX Statement & Resources, Continued

The University's Office of Equal Opportunity and Affirmative Action (EOAA) is available to all members of the University community to receive reports, help resolve issues, and address concerns regarding sexual harassment, sexual assault, or retaliation. Any individual may make a report to EOAA in a variety of ways:

- Directly to the EOAA office, [612-624-9547](tel:612-624-9547), eoaa@umn.edu. See also <https://diversity.umn.edu/eoaa/reportingresources>
- Through [the bias incident website](https://diversity.umn.edu/eoaa/reportingform)----<https://diversity.umn.edu/eoaa/reportingform>
- Using the [EthicsPoint](https://secure.ethicspoint.com/domain/media/en/gui/9167/index.html) anonymous online reporting system---- <https://secure.ethicspoint.com/domain/media/en/gui/9167/index.html> If

you are located on a campus other than the Twin Cities campus, you may contact either EOAA or the point people on your campus:

- Morris Campus: Sarah Mattson, Human Resources Director, mattsosj@morris.umn.edu, [320-589-6024](tel:320-589-6024). For student sexual assault or harassment reports contact Henry Fulda, fuldah@morris.umn.edu, [320-589-6470](tel:320-589-6470).
- Duluth Campus: Mary Cameron Interim Director of Human Resources and Equal Opportunity, mcameron@d.umn.edu, [218-726-7912](tel:218-726-7912). For student sexual assault or harassment reports, contact Lisa Erwin, Vice Chancellor for Student Life, laerwin@d.umn.edu, [218-726-8501](tel:218-726-8501).
- Rochester Campus: Andrea Wilson, Director of Human Resources, University of Minnesota Rochester, wils1236@r.umn.edu, [507-258-8010](tel:507-258-8010). For student sexual assault or harassment reports, contact Parry Telander, tela0009@r.umn.edu, [507-258-8023](tel:507-258-8023).
- Crookston Campus: Les Johnson, Director, Office of Human Resources, University of Minnesota Crookston, ljumc@crk.umn.edu, [218-281-8345](tel:218-281-8345). For student sexual assault or harassment reports, contact Peter Phaiyah, phaiah@crk.umn.edu, [218-281-8505](tel:218-281-8505).

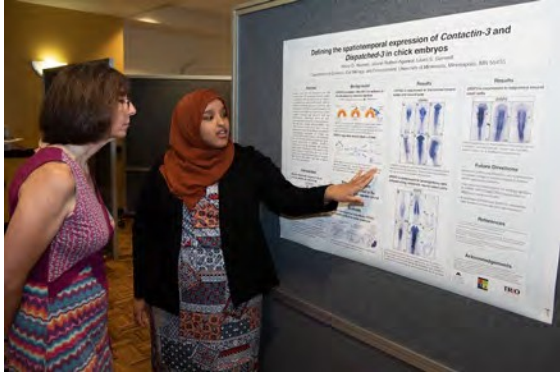
[Inquiries regarding Title IX may be directed to the University's Title IX Coordinator \(contact information below\), or to the U.S. Department of Education's Office for Civil Rights \(Chicago Office, 312-730-1560\).](#)

Kimberly D. Hewitt, Director, Office of Equal Opportunity and Affirmative Action Title IX Coordinator, [612-624-9547](tel:612-624-9547) khewitt@umn.edu



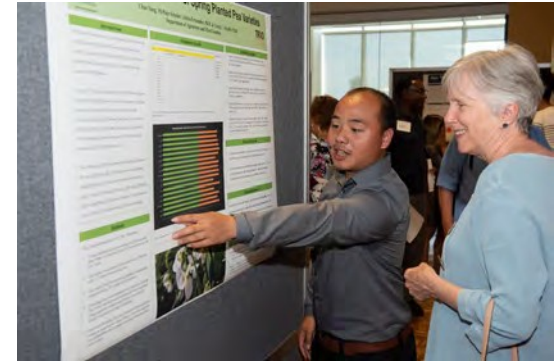
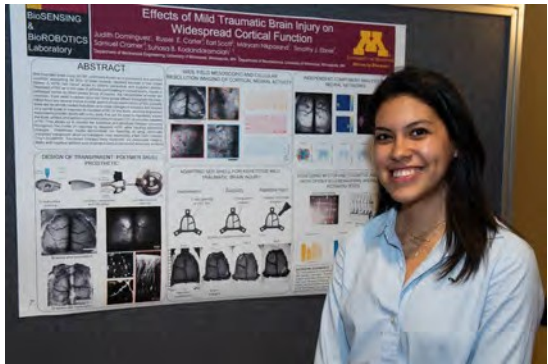


Envisioning New Opportunities



Slide under construction. **COMING SOON!**

- **Engaging** multidisciplinary and Interdisciplinary models
- **Responding** to changing Graduate Education systems
- **Advocating** for more comprehensive pipelines of support for underserved, underrepresented first generation students across academic and professional post baccalaureate degree tracks
- **Seeking** new collaborations and partnerships



UMn McNair Scholars Program & Health Sciences

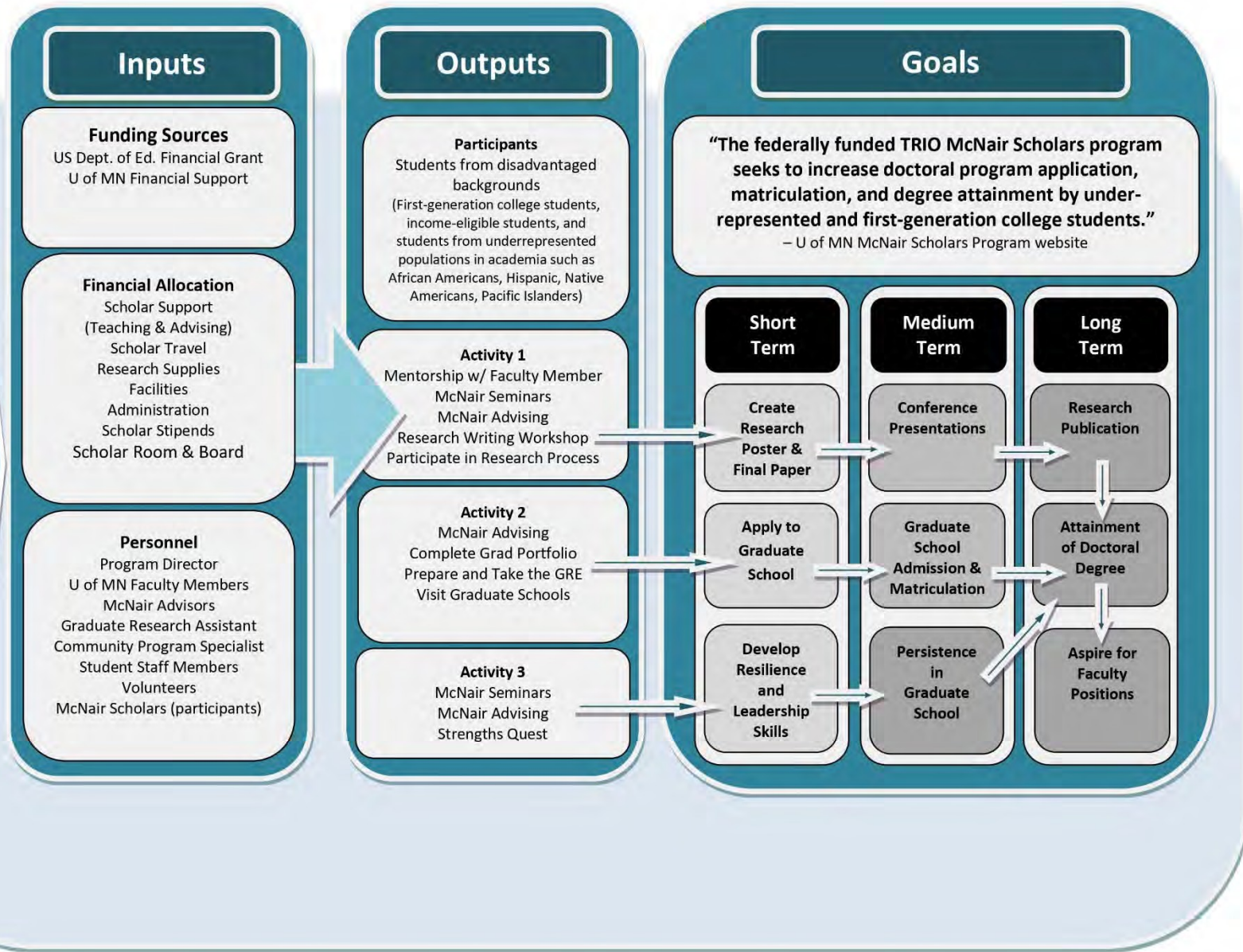
The following slides under construction and in draft version.

Share in the spirit of collaboration. Anthony welcomes any questions in the meantime. Acknowledgement and thank you to
Amaniel Mrutu, UMn QME doctoral students and McNair Alum, for these slides.

UMn McNair Scholars Program Pipeline Template

Rational

Provide students from under-represented backgrounds with the resources to apply to and prepare for graduate school.



- The UMn McNair Scholars Program is an engine for diversifying graduate programs.
- The techniques used by the program can be modified to accommodate the objectives for attaining advanced degrees in the medical and health science professions.
- For example, instead of preparing to take the GRE for being admitted to graduate school, participants prepare to take the MCAT for being admitted to medical school.
- While some objectives differ, certain professional skills espoused by McNair such as resilience and leadership are still valuable skills to instill in aspiring medical and pre-health students.
- Complement existing initiatives to diversify faculty pipelines in medical and health science fields.





UNIVERSITY OF MINNESOTA
Driven to Discover™

Envisioning New Opportunities

The UMn Medical School provides corresponding expertise for such areas of medical care.

1. [Department of Orthopedic and Spine Surgery](#)
2. [Department of Medicine: Division of Diabetes, Endocrinology and Metabolism](#)
3. [Department of Orthopedic Surgery: Hand Subspecialty](#)
4. [Department of Surgery: Division of Plastic and Reconstructive Surgery](#)
5. [Department of Neurology](#)
6. [Department of Neurosurgery](#)
7. [Department of Medicine: Division of Rheumatic and Autoimmune Diseases](#)
8. [Department of Urology](#)



Shriners Hospitals
for Children® – Twin Cities

[Shriners Hospitals for Children in the Twin Cities](#) provides medical care to children in the following areas:

1. Orthopedic and Spine Surgery
2. Endocrinology
3. Hand and Upper Extremity Surgery
4. Hand, Plastics and Upper Extremity Surgery
5. Neurology
6. Neurosurgery
7. Rheumatology
8. Urology

CE+HD

COLLEGE OF EDUCATION
+ HUMAN DEVELOPMENT

UNIVERSITY OF MINNESOTA

The emphases of Shriners Hospitals for Children – Twin Cities also align with the research interests of CEHD

Institute of Child Development (ICD)

- [Cognitive Development and Neuroimaging Lab](#)
 - “examine stimulus and response factors that constrain learning at different ages and relate these cognitive changes to ongoing brain development.”
- [ELAB: The Elison Lab for Developmental Brain and Behavior Research](#)
 - “examine the developmental processes that contribute to individual differences in social communication for infants and toddlers... [focusing] on risk factors that may predict autism.”
- **School of Kinesiology**
 - [Laboratory of Integrative Human Physiology \(LIHP\)](#)
 - “examine the effects of various disease states and treatments on vascular as well as cardiac systems in an integrative approach.”
 - [Skeletal Muscle Plasticity and Regeneration Laboratory \(SMPRL\)](#)
 - “[examine] the plasticity and regeneration of skeletal muscle, in efforts to mitigate the devastating functional limitations of limb salvage and traumatic muscle injuries.”

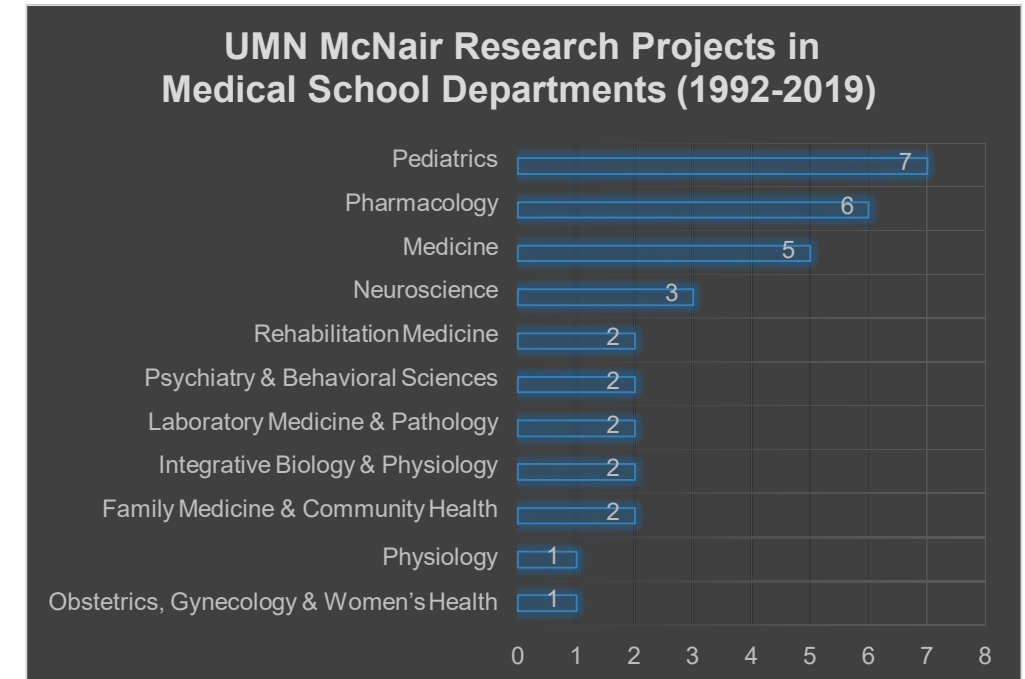
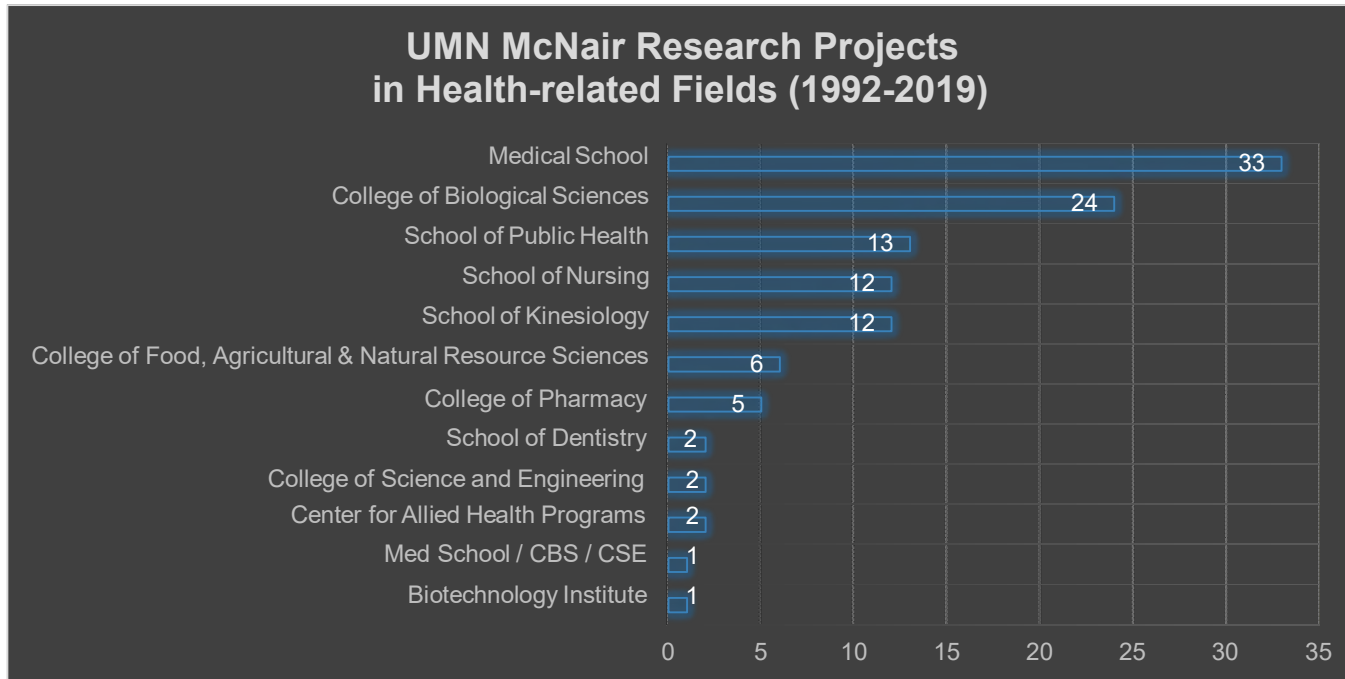


UMn McNair Scholars & Health-related Postbac Programs



- UMN McNair Scholars were admitted to 74 postbaccalaureate programs in health-related fields.
- The most frequently attended programs are as follows:
 - Medicine (15)
 - Nursing (15)
 - Dentistry (7)
 - Pharmacy (5)
 - Environmental Health (3)
 - Kinesiology (3)
 - Occupational Therapy (3)
 - Physical Therapy (3)

UMn McNair Scholars Program & the Medical School



- From 1992-2019, the McNair Scholars Program supported 113 research presentations in health-related fields.
 - This is equivalent to an average rate of approximately 4 presentations per year.
- Among the research projects, 33 presentations were associated with the disciplines of the UMN Medical School.
 - The Department of Pediatrics (7) contributed the greatest number towards this total.
 - [Dr. Rebecca Shlafer](#) was involved in 3 of the projects and may be an apt point of contact for learning about the McNair Scholars Program from the primary experiences of a faculty mentor in the Medical School.