

Dean's Innovation Fund

Building Inclusive Pathways: A Collaboration between MASP and the Natural Sciences

Submitted by:

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Project Abstract: We propose a new collaboration between MASP and Natural Sciences to: (1) explore scaling up MASP programming to reach more students, (2) better integrate students into their respective academic programs, and (3) increase retention for NS first-year students. The collaboration centers on a one-year, reimagined bridge program, for a cohort of incoming NS first-year students who are first generation college students and/or members of historically underrepresented communities. These students will join MASP for their first year and receive targeted programming aimed at success strategies in the sciences, including community building and academic enrichment opportunities such as a MASP-taught one-credit NS seminar, an immersive weekend research experience, and NS department-led academic programming. This collaboration draws upon MASP's expertise in identity conscious programming known to help students develop a sense of belonging and scholarly identity as well as departmental expertise to connect students with high impact practices within their field of studies.

Background/Rationale

In the College of Arts & Sciences, students who are first generation college students and/or members of historically underrepresented ethno-racial groups continue to be retained and graduated at lower numbers than their peers (see Charts 1&2 in appendix). Studies consistently show that a sense of belonging (feelings of being valued, included, and accepted at university) are essential to student success. Students who have a greater sense of belonging tend to have higher motivation, more academic self-confidence, higher levels of academic engagement and higher achievement.¹ However, the recent campus climate survey demonstrates both first gen/non-first gen and racial gaps in student sense of belonging at the University of Colorado (see table 1 in appendix).

The Miramontes Arts & Sciences Program was created almost 30 years ago to specifically address some of these ongoing issues. It is an inclusive academic community focused on the recruitment, retention, and graduation of students who are the first in their family to attend college and/or are members of historically underrepresented communities. Students enter MASP through cohorted bridge programs and stay with MASP throughout their time at CU.

¹ Freeman, Anderman, and Jenson 2010; Gillen-O'Neel 2019; Maunder 2018; Murphy and Zirkel 2015; Osterman 2000; Pedler, Willis and Nieuwout 2021; Slaten et al 2016.

MASP programming focuses on community building, academic enrichment, and professional development. Students receive a participation scholarship and supplemental advising and mentorship. MASP students are consistently retained at higher rates and have higher 6 year graduations not only among matched cohorts in A&S, but all A&S students (see Charts 1&2). While MASP has doubled in size in the last decade, it still only serves a small percentage of students who might be considered MASP eligible. Furthermore, while students in MASP develop a sense of belonging in MASP, that does not always transfer to the college or campus. This is in part because for a long time it was treated as apart from rather than an integrated part of the college. With MASP's movement into student success and the college reorganization, work is being done to re-envision MASP not as a singular program, but a center with multiple programs that reach a larger number of students and that is better connected to the divisions and departments of the College.

This proposal seeks to explore innovative ways to both scale-up and better integrate MASP programming into division and department efforts at cultivating a more inclusive academic environment in which our diversifying student body can better achieve academic success.

Program Summary:

With this project, MASP is partnering with seven natural science departments (APS, BCHM, EBIO, IPHY, MCDB, PHYS, PSYC/NRSC) to pilot new first- year programming that utilizes MASP best practices but is tailored to address the academic challenges and opportunities unique to the natural sciences and these programs.

Working with these programs through the new Natural Sciences Director of Inclusive Practices, MASP will recruit a cohort of 15 incoming first-year natural science majors who are first generation and/or students of color. MASP will use the same targeted outreach it currently uses, working with the A&S Director of Recruitment, to solicit applications to the program. Students selected to the program will receive a \$2000 participation scholarship their first year (\$1000/semester).

Programming will start during orientation and continue throughout the academic year, with most of the intensive programming occurring in Fall 2023. It will include the following:

1. Orientation. During orientation week, students will participate in a one-day event that includes an introduction to MASP, the program, and community building activities. Programming will be led by MASP faculty and two peer mentors who are upper-division MASP students in STEM fields. The peer mentors will continue to work with students as learning assistants and mentors throughout the academic year.
2. Fall 2023 MASP Course (*1 credit*). Students will take Dr. Semsar's *Scientific Literacy* course. The course includes discussions of: ways of knowing, scientific method, bias, deductive and inductive reasoning, experimental design, and social justice issues related

to science. The course will be tailored build students' critical thinking skills in the sciences to prepare them for both STEM coursework and undergraduate research.

3. Fall 2023 Weekend Research Experience & Community Building Retreat. Students will attend an immersive weekend retreat at the CU Mountain Research Station. Similar to LINC (our bridge program for current CU students), retreat programming will be a mix of community building activities and academic programming. The academic programming for this retreat will be tailored to a laboratory experience that is integrated into the *Scientific Literacy* course.
4. Spring 2024 Natural Science Colloquium. Students will attend bi-monthly community events led by participating departments. These events will be open to all MASP students and may include laboratory visits, professor talks, workshops on STEM success strategies, undergraduate research networking, etc. Students in the cohort will receive one credit (pass/fail) for participating in these events.

In addition to the specific program components, students will have access to all other MASP resources, such as mentoring (by Dr. Semsar) and use of the MASP office space including computers and printing.

The long-term goal of this project is to kick-start the growth of a new cohort model that is high-touch the first year with the potential of creating new tailored pathways and programming that can extend after the scholarship year. In future years, a larger cohort could be recruited and could draw on program alums to serve as student mentors.

Project Budget:

Instructor (1 credit)	\$5040
Instructor summer money (1 month)	\$6250
Learning Assistants / Peer Mentors (2 - \$1500/student per semester)	\$6000
Orientation (meals and ropes course)	\$1,000
Weekend Lab Experience <ul style="list-style-type: none"> • Lodging (\$1290) • Lab space (\$280) • Lab supplies (\$400) • Transportation (\$800) • Food (\$500) 	\$3,270
Spring Programming	\$3,000
Scholarships (\$1000/per student for 1 semester)	\$15,000*
Total	\$39,560

* In support of this new Natural Science Bridge Program, MASP has secured interest from seven natural science programs (see letter in appendix). All departments have either already committed matching funding of \$1000/student for the second semester of the \$2000 scholarship or are looking into doing so.

Appendix

Chart 1: Retention

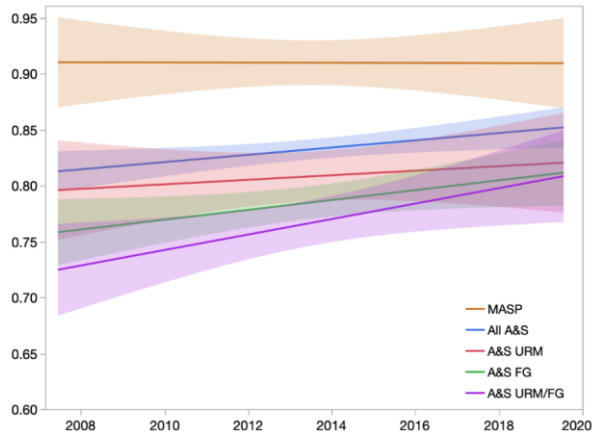


Chart 2: Graduation Rates

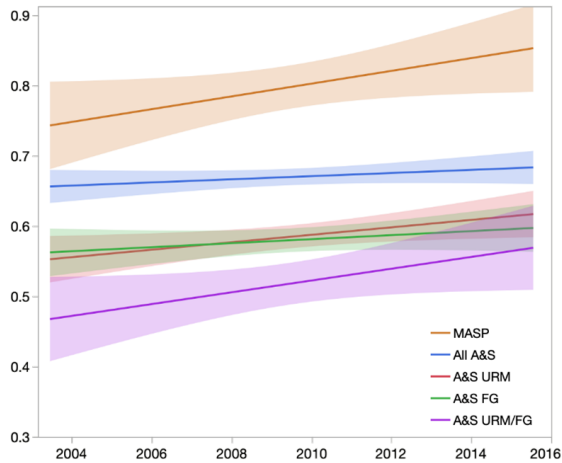


Table 1: Campus Climate Survey for Natural Science Undergrads (Agree/Strongly Agree)

	1st Gen	Non 1st Gen	White	SOC	Asian
I have made friends here.	69	73	66	62	63
At CU, I'm treated like I belong.	46	57	59	47	45
Faculty are invested in my success.	46	56	55	51	54
I feel supported.	44	49	51	43	43
I have a sense of community.	36	46	47	39	40
I feel valued	38	43	44	38	40
I do not feel left out	39	43	46	36	36



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November 10, 2022

To Whom It May Concern:

In support of this new Natural Science Bridge Program, MASP has secured interest from the following Natural Science Departments. All departments have either already committed matching funding or are looking into doing so.

Integrative Physiology, Pei-San Tsai

Biochemistry, Amy Palmer

MCD Biology, Nancy Guild

Psychology and Neuroscience, Roselinde Kaiser

Physics, Eleanor Hodby

Ecology and Evolutionary Biology, Andrew McAdam

Astrophysical and Planetary Sciences, Seth Hornstein