

A Novel Undergraduate Research Program for Underrepresented Students

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**Loyola
Marymount
University**

Loyola Marymount University

- ▶ Private Jesuit R2 institution in Los Angeles
- ▶ Minority Serving Institution (MSI)
- ▶ 7,094 undergraduate; 2,906 graduate



A Novel Undergraduate Research Program for Underrepresented Students:

- ▶ Forming STEM Research Communities

June 18 at 10:20-11:20am ET

- ▶ Curriculum to Prepare Students for Research

June 24 at 1:00-2:00pm ET (online)



Howard Hughes Medical Institute Driving Change Initiative



The Driving Change program aims to **effect lasting culture change** on research university campuses **by creating a more inclusive learning environment** for all. Its goal is to support undergraduate students so that they may excel in STEM and assume leadership roles in the field.

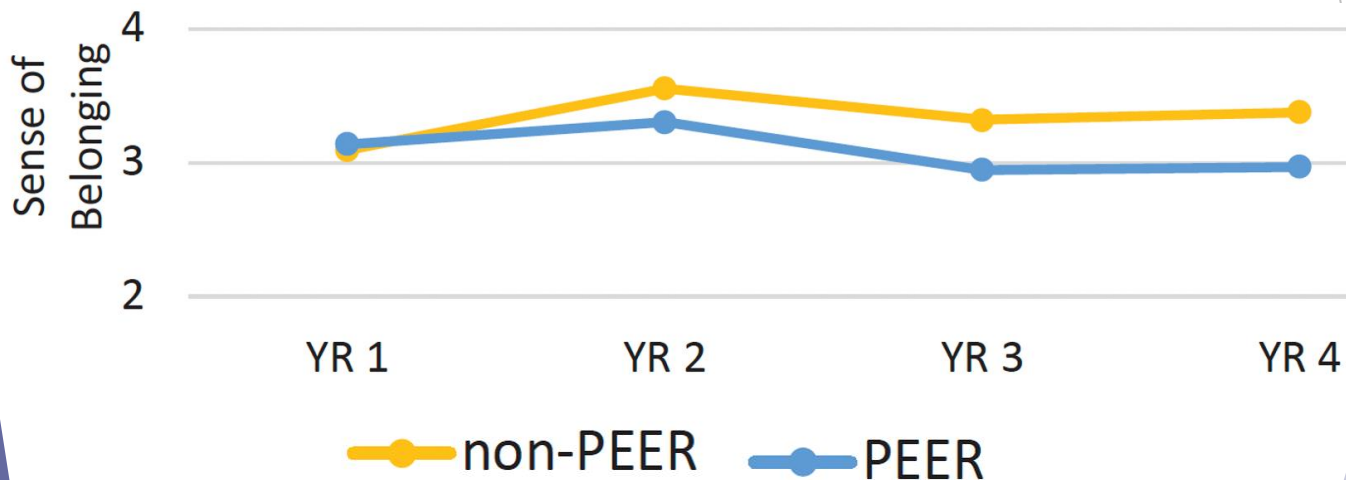


Understanding Climate & Culture

- ▶ Comprehensive self-study
 - Wide-reaching data collection
 - Analysis of extra-curricular activities
 - Continuing and exit surveys



Reported Sense of Belonging



PEER: Persons Excluded due to their
Ethnicity or Race (Asai, 2020)



Investigating Sense of Belonging

- ▶ Programs exist for first-year PEER students
 - ▶ TLC, First to Go, ACCESS
- ▶ Juniors and seniors are active in department activities and research programs
 - ▶ TAs, student organizations
 - ▶ Research: SURP, SOAR, RAINS, university-wide RLC
- ▶ There is a void in the sophomore year



A Two-Pronged Intervention

- ▶ Part 1: Research learning community (RLC) course
- ▶ Part 2: Faculty-mentored research experience



Fall semester



Spring semester

Outreach & Recruitment

- ▶ Emailed students individually
- ▶ Hosted pizza info sessions
- ▶ Distributed applications

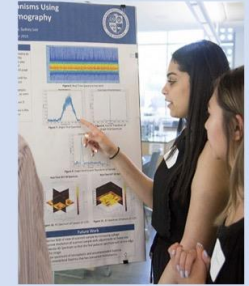


Join a STEM Research Learning Community!

This is a unique opportunity for those who will be second-year students in 2023-2024!

In **one** semester you'll gain:

- ✓ Research writing & critical reading skills
- ✓ Faculty mentorship
- ✓ Connections to springboard you into research opportunities
- ✓ Skills to apply for **PAID** research opportunities here at LMU and around the country



Bonus!

- \$375 stipend
- Opportunity to participate in a paid (\$2000 stipend) research experience in Spring 2024

Sign up for an information session to learn more:

<https://lmu.wufoo.com/forms/rlc-informational-session-registration/>

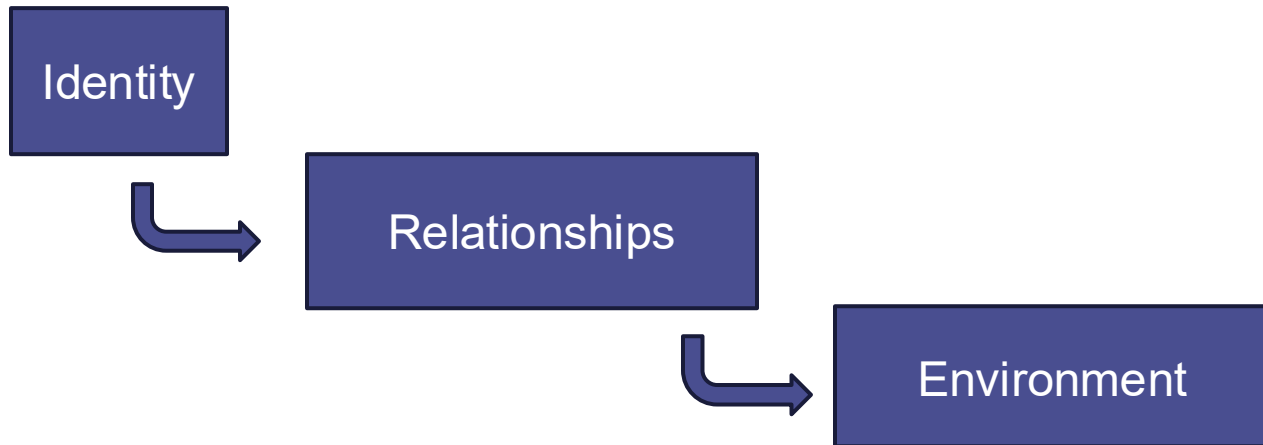


Course Curriculum

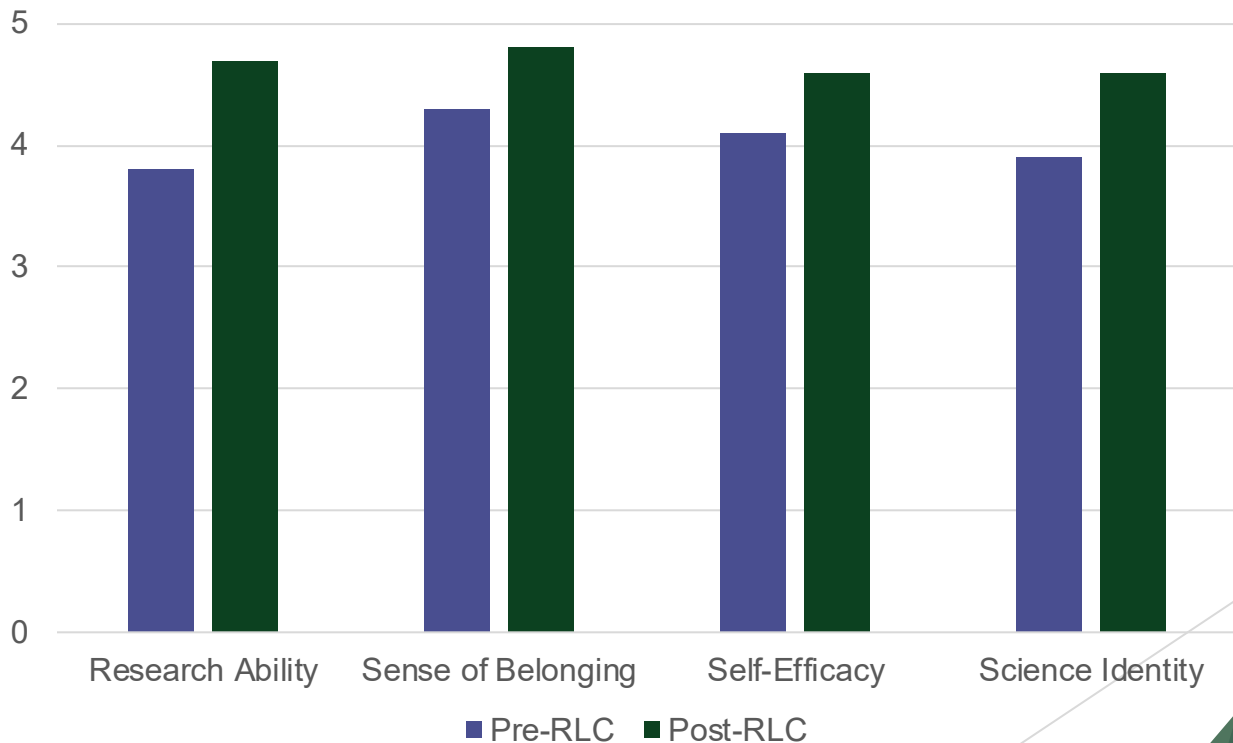
- ▶ Belonging and identity
- ▶ General research skills
- ▶ Writing skills
- ▶ Faculty mixer



Building Community



Quantitative Results



Qualitative Results

- ▶ Provided professional development
- ▶ Gained knowledge of imposter syndrome
- ▶ Increased understanding of what research is and what opportunities are available
- ▶ Would prefer lab skills over writing skills



Qualitative Results: Perceived Research Ability

"I think [the RLC] made me more open to like working in research. I wasn't really interested that much in research before, and the class was a good way to like learn about it and get into it. And now I'm like looking at a fellowship that has to do with working in a laboratory."



Qualitative Results: Belonging

"I also appreciated having a Latina professor for the class and also first gen since I'm also first gen and those look inspiring and also just made the environment very comfortable"



Qualitative Results: Self-efficacy

"I think it helps like give us an environment for confidence because like during the class like the fact that they brought in the faculty to talk about possibly getting involved in the research. I think that made me way more confident to like reach out to a professor and talk to them."



Key Takeaways

- ▶ Designed a sophomore PEER RLC to increase sense of belonging
- ▶ Built an inclusive community
- ▶ Prepared sophomores to engage in research



Future Plans – A Productive Pivot

- ▶ Amplifying our recruitment; increase capacity to include more students
- ▶ New community-building activities
- ▶ Revised STEM equity research introduction
- ▶ Aid with transition to research

Thank you!

Questions? 😁

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References

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Trujillo, G., & Tanner, K. D. (2014). Considering the role of affect in learning: Monitoring students' self-efficacy, sense of belonging, and science identity. *CBE—Life Sciences Education*, 13(1), 6–15.

Wimberly-Young, E., Morales, V. C., & Weaver, K. F. (2025). *Gateways into undergraduate research experiences: Creating a foundational learning community to increase access in undergraduate research* [Manuscript in preparation]. Office of Research and Creative Arts, Loyola Marymount University.

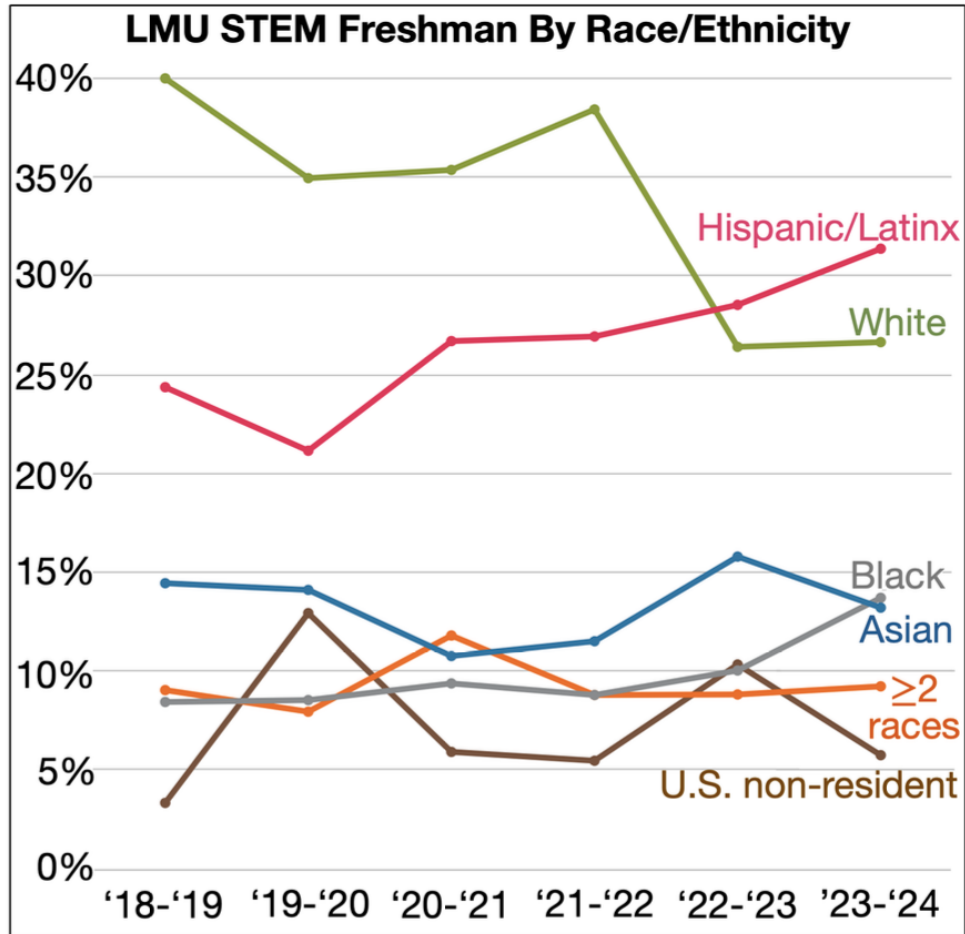
Appendix Slides

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Demographics of Incoming LMU STEM Students

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HHMI Driving Change Grant

- ▶ \$2.5M grant in 2022 for 5 years
- ▶ Objectives:
 - ▶ Faculty summer STEM Equity institute and academic-year learning community
 - ▶ Student RLC—this talk!

academics.lmu.edu/hhmi



RLC Quantitative Results: Perceived Ability

► Fall 2023 (n=18)

	Median
Pre	3.8
Post	4.7

► Spring 2024 (n=4)

	Median
Pre	3.5
Post	4.3

RLC Quantitative Results: Sense of Belonging

► Fall 2023 (n=18)

	Median
Pre	4.3
Post	4.8

► Spring 2024 (n=4)

	Median
Pre	4.3
Post	4.3

RLC Quantitative Results: Self-efficacy

► Fall 2023 (n=18)

	Median
Pre	4.1
Post	4.6

► Spring 2024 (n=4)

	Median
Pre	3.6
Post	4

RLC Quantitative Results: Science Identity

► Fall 2023 (n=18)

	Median
Pre	3.9
Post	4.6

► Spring 2024 (n=4)

	Median
Pre	4.3
Post	4.6

Research Results: Perceived Ability

	Median
Pre-RLC	3.8
Post-RLC	4.7
Post-Research	4.8

Research Results: Sense of Belonging

	Median
Pre-RLC	4.3
Post-RLC	4.8
Post-Research	5

Research Results:

Self-efficacy

	Median
Pre-RLC	4.1
Post-RLC	4.6
Post-Research	5

Research Results: Science Identity

	Median
Pre-RLC	3.9
Post-RLC	4.6
Post-Research	5

Research: Mentor Matching

- **Outcomes:** the majority of RLC students participated in faculty-mentored research

Students	RLC timing	Research timing
Cohort 1A	FA 2023 (N = 31)	SP 2024 (N = 19)
Cohort 1B	SP 2024 (N = 4)	FA 2024 (N = 15)
Cohort 2A	FA 2024 (N = 13)	SP 2025 (N = 17)

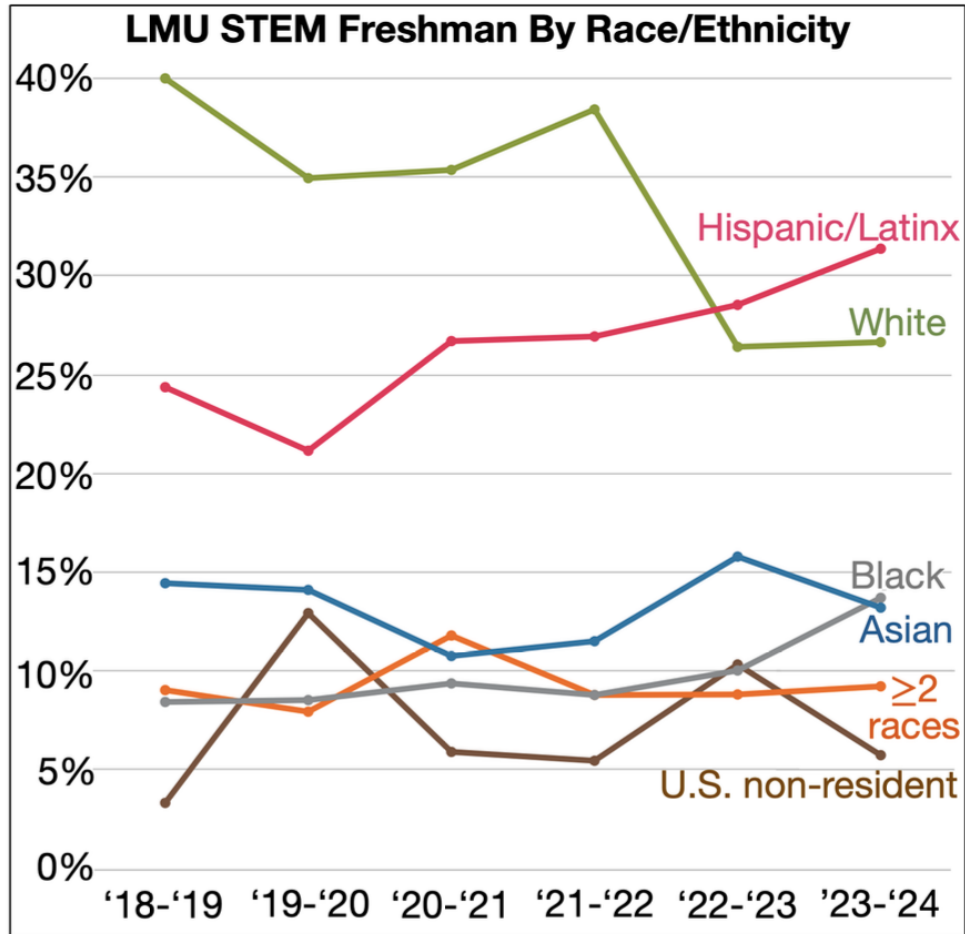
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