

Webinar Panel: Improving the Undergraduate Experience: Supporting Underrepresented Students in STEM & Computing



Ann Gates (Moderator), Preeti Gupta, Maria Santisteban, Jasmin Graham, and Patricia Morreale

Webinar Chat and Resources Mentioned During Webinar

Resources Mentioned During Webinar:

- McDonald, Melissa & Zeigler-Hill, Virgil & Vrabell, Jennifer & Escobar, Martha. (2019). A Single-Item Measure for Assessing STEM Identity. *Frontiers in Education*. 4 78 10.3389/feduc.2019.00078.
<https://www.frontiersin.org/articles/10.3389/feduc.2019.00078/full>
- <https://www.census.gov/dataviz/visualizations/stem/stem-html/>
- Affinity Research Group (ARG) model references from CAHSI (www.cahsi.org): A. Gates, S. Roach, E.Y. Villa, K. Kephart, C. Della-Piana, and G. Della-Piana, The affinity research group model: Creating and maintaining effective research teams, Los Alamitos, CA: IEEE Computer Society, 2008 <http://archive.fie-conference.org/fie2008/papers/1352.pdf>
- E. Villa, E., K. Kephart, A. Gates, H. Thiry, and S. Hug, "Affinity Research Groups in Practice: Apprenticing Students in Research," *Journal of Engineering Education*, Vol. 102, No. 3, pp. 444-466, 2013
<https://onlinelibrary.wiley.com/doi/10.1002/jee.20016>
- P. Morreale, E. Villa, A. Gates, S. Hug, "Faculty Development for Research Inclusion: Virtual Research Experiences for Undergraduates", *Proceedings of the 2021 ASEE Annual Conference and Exposition (ASEE '21)*.
<https://peer.asee.org/37179>
- WiscAMP STEM-Inspire Program (<https://uwm.edu/steminspire/>)
- LSMRCE in collaboration with the Louis Stokes Alliances for Minority Participation hosts live, interactive events where participants can ask their most pressing questions and share their thoughts and ideas. Topics include everything from life management skills, to preparing for graduate school, to exploring

different careers and pathways in STEM. Sessions are recorded and available here: <https://ismrce.org/students/speaker-series.aspx>

Webinar Chat

Preeti Gupta : Hi everyone, so nice to see familiar names and also new people that I look forward to chatting with!

Monica V : Monica VanDieren (she/her) Robert Morris University, Pittsburgh PA

Margie W : Hi! I'm a student advisor at UC Berkeley.

Abbie J : Abbie Jensen, Prof at Umass Amherst

Mirta F : Hello! Mirta Fuentes - TRIO STEM3S Academic Coach from Gainesville, FL

Kim Descoteaux : Visit the Theme of the Month on the STEM for All Multiplex:
https://multiplex.videohall.com/month_themes/13

Ann P : Math faculty from Harris-

Linda K : Linda Kekelis with STEM Next Opportunity Fund. Excited to learn more on this important topic.

Suzanne B : Suzanne Boyd, from Univ Wisconsin Milwaukee, Chair of the Department of Mathematical Sciences.

Marsha S : Marsha Semmel, museum consultant, Arlington,VA

Gemelli B : Gemelli Briceno NYC DDC STEAM Initiatives

Kim Descoteaux : Visit the Theme of the Month on the STEM for All Multiplex:
https://multiplex.videohall.com/month_themes/13

Ann P : Math faculty from Harris-Stowe State University

Nancy H : Nancy Holmes, University of Idaho

Greg C : Howdy all - Greg Cunningham from St. John Fisher College Biology - Rochester NY

Kelli P : Kelli Paul, Indiana University

Lynda G : Lynda Gayden, Biotech Partners, Berkeley, CA

Sonia M : Sonia Martinez, Great Minds in STEM

Kim Descoteaux : Visit the Theme of the Month on the STEM for All Multiplex:
https://multiplex.videohall.com/month_themes/13

bruce b : Bruce Bukiet - New Jersey Institute of Technology; STEM for Success project

Mirta F : Forgot to mention: From Santa Fe College in Gainesville, FL

Brian C : Brian Cannon, Loyola University Chicago

Lynn C : Lynn Cominsky, Sonoma State University, Learning by Making and NASA's Neurodiversity Network

Norma M : Hi everyone. I am the founder of Hispanics for STEM, small volunteer group of parents whose objective is to share information about free or at reduced price online resources and tools among low-income Hispanic/Latino students. I am based in Northern Virginia.

Kim Descoteaux : Visit the Theme of the Month on the STEM for All Multiplex:
https://multiplex.videohall.com/month_themes/13

Kavita M : Kavita Mittapalli/MN Associates, Inc (MNA). We are evaluators of several NSF grants. Nice to see some familiar faces and names. Thanks for hosting this session today.

Preeti Gupta : Go to next person

Preeti Gupta : I will log off and join back

Norma M : Fantastic resources! Thank you so much for sharing. I am taking note and I will certainly prepare a chart to share with our different constituencies. We are paying particular interest to elementary school students. We believe that the earlier the intervention, the better chances for success in persuading/encouraging/inspiring Hispanic/Latino students to pursue a career in the STEM and CS fields.

Maria S : @Norma. I totally agree with a great need for the earlier intervention. Stereotypes normally set in those early years

Linda K : Yes-- so great to hear the resources to support mentoring, Jasmin!

Nancy H : Jasmine, how many full time and part time interns do you serve per year? Thank you.

Preeti Gupta : Love that measurement approach

Margie W : I may have missed this - at what level are the mentors? Faculty?

Jasmin Graham : @Margie mentors are staff we train everyone in the lab all the way up to the program managers (PIs)

Nancy H : Jasmin: where can we see the venn diagram you shared with us? Thank you.

Jasmin Graham : @Nancy it was adapted from McDonald, Melissa & Zeigler-Hill, Virgil & Vrabel, Jennifer & Escobar, Martha. (2019). A Single-Item Measure for Assessing STEM Identity. Frontiers in Education. 4 78 10.3389/feduc.2019.00078.

<https://www.frontiersin.org/articles/10.3389/feduc.2019.00078/full>

Oscar V : I might have missed this. Is the study available? If so, where? Thanks

Nancy H : @Jasmin - Thank you!

Monica V : Regarding the issue of "what is a stem career" and who can have a "stem career" I love to show my students this interactive graph:

Monica V : McDonald, Melissa & Zeigler-Hill, Virgil & Vrabel, Jennifer & Escobar, Martha. (2019). A Single-Item Measure for Assessing STEM Identity. *Frontiers in Education*. 4 78 10.3389/feduc.2019.00078.

<https://www.frontiersin.org/articles/10.3389/feduc.2019.00078/full>

Norma M : @Ms. Gupta - Wonderful idea to include high schoolers in the science and research program. . Do you have a similar initiative in the Washington DC area? and what are the criteria to select the participants in this program?

Monica V : <https://www.census.gov/dataviz/visualizations/stem/stem-html/>

Marsha S : Are you also evaluating “STEM Identity”?

Linda K : Preeti-- love hearing how you intentionally recruit those rising stars (rather than super stars) for whom your program can be transformational.

Preeti Gupta : @Linda - it is hard. They are harder to identify and recruit. They are “under the radar” often.

Gemelli B : In school outreach about these great opportunities are needed

Norma M : @Biotech Partners Your program sounds very interesting and particularly relevant. We have identified resources for elementary school students and some for middle schoolers. But we notice that there are not so many for grades 11th and onwards. Would you please share your contact information. Thanks.

Hala S : Patricia, thank you for sharing your work. Where can we find more information about the faculty mentoring training you mentioned?

Patricia Morreale : Affinity Research Group (ARG) model references from CAHSI (www.cahsi.org) : A. Gates, S. Roach, E.Y. Villa, K. Kephart, C. Della-Piana, and G. Della-Piana, The affinity research group model: Creating and maintaining effective research teams, Los Alamitos, CA: IEEE Computer Society, 2008 <http://archive.fie-conference.org/fie2008/papers/1352.pdf>

Patricia Morreale : E. Villa, E., K. Kephart, A. Gates, H. Thiry, and S. Hug, “Affinity Research Groups in Practice: Apprenticing Students in Research,” *Journal of Engineering Education*, Vol. 102, No. 3, pp. 444-466, 2013
<https://onlinelibrary.wiley.com/doi/10.1002/jee.20016>

Patricia Morreale : 38) P. Morreale, E. Villa, A. Gates, S. Hug, “Faculty Development for Research Inclusion: Virtual Research Experiences for Undergraduates”, *Proceedings of the 2021 ASEE Annual Conference and Exposition (ASEE '21)*.
<https://peer.asee.org/37179>

Norma M : Great question. We have identified that families are key actors in the process.

Preeti Gupta : Our research has uncovered the key issue of parental understanding of STEM careers.

Joni Falk : Breakouts at 4:00 Eastern till 4:20

Willetta G : Where can one learn further about the parental....

Joni Falk : 4:20 - 4:30 we will get back together.

Preeti Gupta : During the pandemic, several of our alumni have shifted majors to more public health related careers. These alumni say that this is NOT STEM, even though we would say it is and they say that their parents are upset with them because they won't be in STEM.

Norma M : Indeed. In fact, one of the greatest challenge for diversifying the STEM and CS fields, is designing effective family outreach programs.

Willetta G : That is very unfortunate because the present pandemic has shown how vital MPH leadership can be....

Gabriella A : I am so amazed how everyone on the panel is speaking my deepest of experiences and volunteer work. I have hosted STEM for 10 years, used peer mentors, and brought these ideas organically into the community. This meeting is so amazing. My birds of a feather!

Kim Descoteaux : Anique, you can put your question in the chat

Anique R : We have faculty and peer mentoring in our WiscAMP STEM-Inspire Program (<https://uwm.edu/steminspire/>). For over 10 years, it has worked well. Now we are piloting getting our older alumni now in industry and academia involved as professional mentors. NALA is a good model for this: <https://www.lsampalumni.com/about-nala.html> .

Willetta G : great idea, I had grad students helping me with hybrid intro chem course (due to pandemic) and their presence was invigorating. one happened to be of color.

Willetta G : (you're speaking of structuring that of course..)

Joni Falk : @Anique, thanks for the URL

Norma M : @Santisteban- Excellent ideas: Ambassadors, including middle and high schoolers. Yes. Early intervention is critical.

Gabriella A : Where do I go to learn how to write grants to fund these peer mentor internships? Or is NSF funding something like this?

Joni Falk : Some quick replies Gabriella, Find someone to partner with who has done this already successfully once before,

Joni Falk : @Gabrielle, - read the NSF RFTs to see what is being asked for.

Gabriella A : Thank you!

Joni Falk : @Gabriella, look at the NSF database and STEM for All Video Showcase for similar ideas that have been funded.

Norma M : Thank you very much for this wonderful event.

Joni Falk : Ment RFP - Not RFT

Gabriella A : Do I have to be a professor? I am a nonprofit volunteer.

Joni Falk : @Gabriella, get a professor as part of your leadership team.

Nancy H : I am sure that our panelists are well aware of this, but it's good to remember to be mindful of over-tasking grads, undergrads, faculty, from underrepresented groups to be the mentors, the ambassadors, etc.

Gabriella A : thank you

Kim Descoteaux : As we move into breakouts, please turn your camera on and feel free to unmute if you'd like to talk.

Kim Descoteaux : BREAKOUT ROOMS will provide an opportunity for each of you to ask questions and share your own approaches for making change. To address the Call for Action, think about what we can do to work as a collective to make change

Kim Descoteaux : Don't forget, keep the conversation going by posting to the online discussion at: https://multiplex.videohall.com/month_themes/13

Lynn C : By developing courses with NSF support, we can institutionalize them after the grant is over, and then the courses are supported by the University.

Anique R : The Speaker Series hosted since May 2020 by LSMRCE and our Midwest LSAMP Alliance members was great to keep those connections going among students, faculty and staff across campuses. Our recordings can be found here: <https://lsmrce.org/students/speaker-series.aspx> . Excellent model of engagement and a special webinar on the difference between a mentor and sponsor for students.

Monica C : Thanks