Berkeley | Division of Equity & Inclusion

STEM Equity & Inclusion Initiative: Program Leaders Meeting Series

February 2018

Shaila Kotadia, STEM Planning Director, Division of Equity & Inclusion

STEM Equity & Inclusion Initiative Overview

The STEM Equity & Inclusion Initiative, started in July 2016, began with a data collection on STEM diversity programs at UC Berkeley for all levels (K-12 to faculty). Two reports were developed based on the information: 1) An aggregate data analysis that gave a snapshot of the landscape of programming for the fall of 2016; and 2) A working draft glossary that categorized programs by the services provided by target constituency. In addition, a large community gathering in May 2017 brought together interested parties, including program and student group leaders, deans, chairs, and high-level administrators, to discuss the direction of the initiative.

One major outcome of the May convening and subsequent feedback was the need to have smaller facilitated discussions for individuals running STEM diversity programs in similar areas. In response to this request, we organized a series of three meetings for program leaders based on the constituency targeted: K-14, undergraduates, and graduate students and postdoctoral researchers. In these meetings, our goal was to provide an opportunity for new partnerships to grow, for individuals to share best practices in their work, and to explain more about the Division of Equity & Inclusion. Each meeting started with an introduction to the initiative and an introduction by co-organizers within the division, followed by facilitated discussions and time to network.

This report includes a summary of each of the facilitated discussions, a pared down organizational chart of the Division of Equity & Inclusion, and a compilation of best practices collected from participant RSVPs.

Doing It Right in K-14 STEM Diversity Programs

The meeting was co-organized with individuals in the Center for Educational Partnerships (CEP): Abby Garcia Patton, Associate Director of the Pre-College Trio Programs; Merryl Owen, Director of Community College Transfer Center/Transfer Alliance Project; and Miya Hayes, Deputy Director of CEP and Director of Strategic Initiatives & P-20 Partnerships. Program leaders that attended the meeting were split in half and group discussions were held around two topics, Intentional Recruitment and Culturally Responsive Content, followed by a share-out.

Intentional Recruitment

Several themes emerged from the Intentional Recruitment group. To begin with, a better connection is needed between recruitment and admissions for outreach programs as they work diligently to attract students to UC Berkeley. From there, students that arrive at Berkeley need to be welcomed and connected to undergraduate programs that will support them during their time on-campus, especially their first two years. In implementing this practice, we need to provide multiple avenues of encouragement, such as through program staff, graduate student mentors, and faculty, in a culturally and linguistically competent way, for example providing financial options for low-income families and communicating through multiple languages especially Spanish. Ultimately, more wraparound services from start to finish are needed to ensure recruitment and retention success in a coordinated manner for STEM students.

Multiple suggestions arose from practices already being conducted by the group participants. These include sending postcards from faculty to students, bringing students to campus and exposing them to research, bringing UC Berkeley students into K-14 classrooms, offering to read essays for student applications, recruiting students similar to athlete recruitment and with incentives, and demystifying myths about and improving awareness of STEM majors.

Culturally Responsive Content

The Culturally Responsive Content group saw a need for a detailed definition of their topic. In developing a definition, several points arose: content will be different in different contexts, it should be relatable and not demeaning, curriculum must be accessible, it must contain a component for long-term student engagement, mentors must be eager to develop content for diverse students, and there must be a connection to social justice. Overlaying all of this is the ability to break out of the way we were taught.

One subject that arose from multiple participants is that to be culturally competent, diversity training for staff, mentors, and incoming students is important. Everyone must be aware of the culture and that requires increasing the capacity of each individual to do the work in a way that is relevant to program participants to provide truly meaningful experiences. In the end, the students need to feel like they are a part of the culture, whether that is in a department, program, or largely on-campus.

Several recommendations were made based on existing work from the group participants. These include having peer leaders develop student-to-student content, creating customizable training for individual STEM departments, creating multiple entry points for activities and curriculum, having graduate student mentors help with coordinating efforts, providing an interactive space to administer content, using culturally responsive pedagogy strategies, incorporating restorative justice practices and mindfulness (restorative justice aims to build communities of care and facilitate responses to conflict and harm caused by social justice inequities, see Restorative Justice Center at UC Berkeley for more information), and using project based learning with embedded social justice components.

Strengths and Opportunities for Growth in Undergraduate STEM Diversity Programs

This meeting was co-organized with Mitzi Iniguez, Assistant Director of the Educational Opportunity Program (EOP) and Lead for EOP STEM, and Diana Lizarraga, CalNERDS Director. Program leaders that attended the meeting held a share-out after they were split into five groups for discussion based on the model generated from the data analysis of STEM diversity programs on-campus (see Executive Summary, page 12):

- Student learning, e.g. supplemental courses, GPA improvement
- Pathways, e.g. research experience, professional development, networking opportunities
- Community, e.g. sense of belonging, STEM identity, cohort model
- Connection, e.g. research connected to societal problems, local community
- Inclusive practices, e.g. mentor training, unconscious bias and microaggression training

Student Learning

The Student Learning group recognized that STEM education goes beyond a set of courses and requires research experiences, internships, and additional non-STEM support, for example financial aid and advising, to enhance the student experience regardless of typical benchmarks like GPA thresholds. Conversely, summer research and internship experiences need to have a student learning component. Overlying this is the need to build student confidence and support systems, address impostor system, and develop community and connection. Put best by the group, the hidden curriculum and unspoken norms of STEM need to be a core part of student learning.

Pathways

The Pathways group consisted of participants providing research experiences to undergraduates in various capacities. They suggested that we should tap into each other's expertise. In doing so within their group, they shared several best practices from their work: offer research experiences the summer before entering the university, provide boot camp training prior to starting in a lab, gain buy-in from parents, provide guidelines to encourage equity and inclusion and highlight those when doing outreach, consider multi-institutional and global partnerships creating large networks for students, provide stipends for food and housing, build an inclusive community/cohort that includes peer-to-peer mentoring, acknowledge impostor syndrome and challenges faced by students and provide validation to create a sense of belonging, make students feel like they are a part of the Berkeley community by exposing them to additional opportunities on campus even if they are only here for a summer, and offer specialized training for staff and faculty on cross cultural communication, overcoming barriers, and implicit bias.

Community

Three major themes emerged from the Community group: defining community, challenges to building community, and how to face those challenges to build an equitable and inclusive community. In defining

community, they determined that it has to be focused around a sense of belonging. Community can be as small as 2-3 individuals and come in different forms ranging from in-person to wide-ranging messaging from the university. These various concepts of community need to be taught and accepted to be effective. Challenges to building community were exposed in the results of the Campus Climate Survey (administered in early 2013) where students cited that they do not feel like they belong at UC Berkeley. This is associated with impostor syndrome, the harsh overly competitive sink or swim environment for students that is relayed by campus and by students themselves to each other, microaggressions, heavy coarse loads with high expectations of academic performance and career trajectories, and staff having limited time and capacity to support students and not knowing where to start due to the overwhelming amount of resources across campus. To start building an equitable and inclusive community, we need more spaces to listen and learn, have deep dive discussions, and share valuable resources.

Connection

The Connection group explored this topic in two ways, connections between STEM learning to student's communities and lives and the connections between programs on campus. For the former, underrepresented students need better and earlier exposure to STEM subjects and role models in a way that does not dumb down the content. Many faculty do not get involved in community work and do not have incentives to do so but without them addressing the issue immediately in a respectful way halts progress. To motivate faculty, we need to share data on outcomes of reaching out locally, connecting local issues to their research, and incorporating that into curriculum in the classroom. Students already tend to be more motivated to do so and can set an example by having an informal requirement to present back to their communities. For connections between programs, the group proposed finding better means to connect at a deeper level across campus in order to vastly improve what each person or program is doing. This also requires more data and assessment about our work, sharing of best practices, and growing the impact of annual reviews on diversity for academic units. To accomplish these goals a mechanism to connect and build across faculty, staff, and students is needed.

Inclusive Practices

The Inclusive Practices group discussion addressed a need for creating a bank of inclusive practices that are shared and adopted widely across campus to be used by staff and faculty. In conjunction with this, inclusive practices should be an integral part of all job descriptions and job titles in a way that overlays with the duties of the position and not dealt with separately. To accomplish this goal, all onboarding should include professional development training on inclusive practices. In regards to undergraduates, research opportunities should be offered to students regardless of GPAs and other qualifications that can create barriers and inequities and an exceptions committee should be created across campus to increase advocacy for decisions on undergraduate and graduate student admissions. To encourage students, divisions can provide examples of

successful diverse graduate students to undergraduates, for example through a symposium to create a positive culture for students to relate to each other as researchers. Deans and department chairs need to reflect honestly on what diversity looks like internally and what action needs to be taken in response, potentially using the bank of inclusive practices mentioned above.

Best Practices for Grads and Postdocs in STEM Diversity Programs

The meeting focused on graduate students and postdocs was co-organized with Abby Rincon, Assistant Dean for Graduate Diversity and head of the Office for Graduate Diversity. A facilitated large group discussion with program leader attendees was conducted around two central questions: What are the gaps and opportunities? What are your hopes and dreams? The meeting brought together primarily staff and graduate student and postdoc group leaders.

Gaps & Opportunities

The discussion on gaps and opportunities began with the many student graduate affinity groups on-campus and the opportunity to connect with all of them in an easy seamless way. The Office for Graduate Diversity has a connection to the large affinity graduate groups and is open to helping student and postdoc leaders streamline their efforts to help relieve the burden of hosting events. To build on this, the idea of sharing space such as Stephens Hall where CalNERDS is located lent to the idea of creating a sense of belonging and providing opportunities for better communication. This tied into the need for a better sense of inclusivity at UC Berkeley for graduate students and postdocs and the need for institutionalizing certain practices such as staff support in the form of diversity directors, multicultural education program (MEP) training for all levels, leveraging of faculty equity advisors, support from the top at the dean's level, and the role of the Division of Equity & Inclusion in helping academic units work together to create a better climate. Graduate students and postdocs feel limited in their ability as affinity group leaders when they have limited support and lack a voice from the top that supports their efforts.

Another large part of the conversation centered on fellowship opportunities for graduate students and especially postdocs. While UC Berkeley produces a large proportion of diverse STEM graduate students, the postdoc and faculty population is much more homogenous. In addition, two models for fellowships, the UC President's Postdoctoral Fellowship Program and the California Alliance, help attract diverse postdocs to UC Berkeley, support them while they are here, and help them matriculate into faculty positions. The College of Engineering is spearheading a new pilot effort to increase diverse faculty hiring as a cohort to build community and concomitantly increase the population of diverse role models. Expanding on these avenues is seen as a way to change the culture at UC Berkeley.

Hopes & Dreams

The hopes and dreams identified by the participants mainly focused on increased support for graduate students and postdocs and having faculty champions. Institutional support in the form of sustained funding, better infrastructure for communication with faculty, and a greater commitment from faculty was seen as the grandest hopes. A balance of actively receiving money and the time, stress, and logistics of organizing events is essential for the many grassroots efforts spearheaded by students and postdocs that require a large time

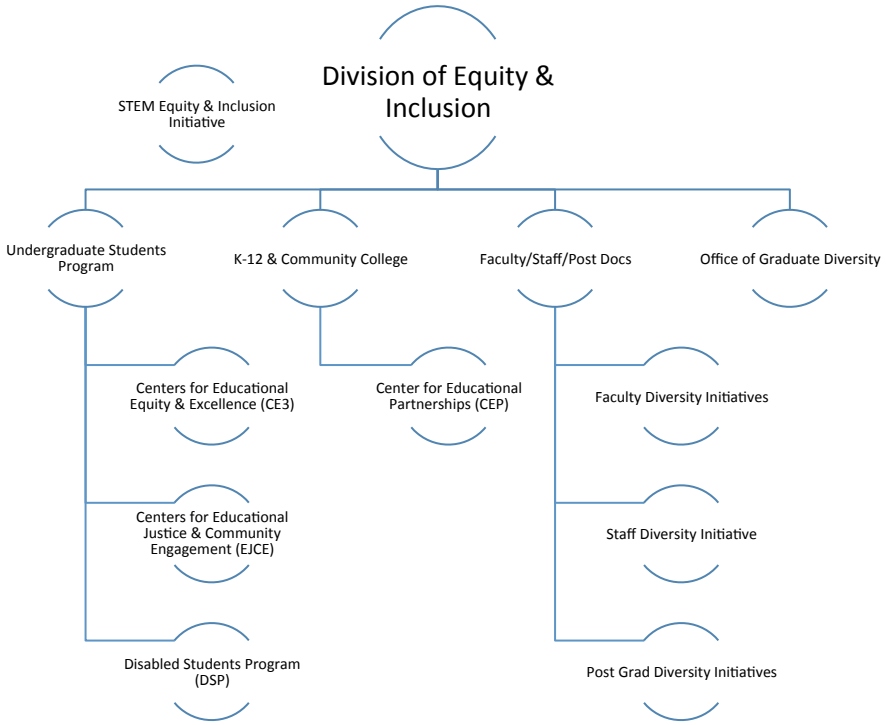
commitment. How to generate a flow or a system of staff support that connects to high-level faculty like chairs and deans would be ideal for every college, division, and/or department.

Graduate students and postdocs would like to see faculty starting to care on a broader scale about equity, diversity, and inclusion issues. Furthermore, it is essential to highlight the efforts of faculty champions and how their efforts can change the conversation in a college, division, or department. Overlying this is the need for training faculty and also having a training and certificate program for graduate students and postdocs to show their commitment, for example institutionalizing the Multicultural Education Program (MEP) offered at UC Berkeley. Students and postdocs also want to have more input into faculty hiring and changes being implemented that affect them, for example aspects of STEM graduate studies and education or postdoc experience that needs to be enhanced to achieve diversity, equity, and inclusion and increasing support for mental health and wellness. Additional items noted were that better assessment and metrics are needed to measure the success of events, the participation of men running graduate student and postdoc programs, and groups having the ability to strategize together.

Division of Equity & Inclusion

The Division of Equity & Inclusion advocates for equity by providing programs and services that lead to academic access and success for students, pathways to leadership and advancement for staff, building equitable structures with faculty advisors, and closing opportunity gaps for our most marginalized groups. Below is a simplified organizational chart. Each office and center and several initiatives within the division include multiple programs. The STEM Equity & Inclusion Initiative aims to engage multiple entities within the division and is not limited to those listed. To learn more about the division, visit https://diversity.berkeley.edu/ and for a more comprehensive organizational chart, visit https://diversity.berkeley.edu/about/vice-chancellors-immediate-office.

Organizational Chart (simplified)



Compilation of Best Practices

Meeting participants were required to RSVP and when doing so, were given the opportunity to provide a best practice for K-14 students, undergraduate students, and graduate students and postdoctoral researchers based on experiences in their efforts. Below is a compilation of those best practices (edits were made for clarity).

K-14 Students

In addition to exposing our participants to UC Berkeley students and staff who can act as mentors, we also bring in high school volunteers. These young women are a fantastic resource since they encourage the girls to be excited about learning, and they are happy to answer questions about what middle school and high school are like. Finally, our volunteers also bring their own recent experiences from summer camp, which helps us to continually improve our program.

Don't let the smartest kids drive the pace of the program.

Provide a range of professional learning activities with teachers and students to enhance curriculum and problem solving skills at the pre-college level.

Invite local high school students to visit your department, meet students and faculty, and learn more about your subject. Consider ways to expand outreach efforts to touch base with interested high school and community college transfers.

Not using canned lessons/exercises but actual current research projects connects the students to what our labs are doing.

Hands-on experiences and projects are great for getting young students excited about STEM topics.

For our community college program, we partner with MESA in order to recruit diverse students. We also have a "laboratory bootcamp" for our students to ensure that they have the basic knowledge needed to be successful in the lab and to also boost their confidence.

Hire staff that come from similar backgrounds as the students.

Host visits here at UC Berkeley to educate students about your subject and get them excited about attending college at a place like Cal!

Integrate scientific content and STEM inquiry practices in teacher preparation courses.

Reinforce that each child (or visitor) identifies themselves as a scientist -- that they are capable and deserving of the "label" -- simply by being curious, asking questions about the world around them, and thinking about how to find the answers.

Have advisers monitor students' academic progress and develop tailored strategies for successful transfer based on each student's academic preparation, interests and needs.

Provide opportunities for students to experience the Berkeley campus environment, for example taking free summer courses, conducting research with UCB faculty and 3-day residential programs to experience student life at Cal.

Have advisers help to demystify major choices and the multiple undergraduate pathways to achieve their career and post-graduate goals.

Work with local high school teachers to identify students that would have the most potential benefit from a scientific internship. Rather than looking for the most qualified, look where you can make the most difference for students.

Provide mentoring to middle and high school students to take college prep courses and pursue STEM fields.

Use Science, Technology, Engineering, Executive/functioning, Arts, Athletics, Math (STEEAAM) approaches in programming.

Recruit instructors who are effective communicators, able to deliver curriculum that caters to the needs of your student population, and flexible in their approach to teaching.

Provide both multiple entry-points to engage in your activities as well as multiple solutions/outcomes for your activities. This engages all learners where they are and allows you to adapt your facilitation to where they want to go.

Provide academic support, counseling, and research experiences.

Provide students with individual advising and group workshops on topics such as college admissions, the college application process, writing a personal statement, financial aid, and scholarships.

Have staff work with students to create Individual Academic Plans ensuring that they are fulfilling the coursework required by the UC and CSU systems for admission.

Facilitate workshops for parents/guardians and families, host school and district-wide college fairs, and participates in evening school activities.

Offer students academic enrichment programs, for example SAT prep, pre-college prep, and summer sessions.

Undergraduate Students

Our student leadership model includes asking students to participate in recruitment and hiring for student staff. We advise students on how to reach diverse audiences for recruitment messages and provide unconscious bias training to student staff to help them understand their own biases and how bias impacts the workforce.

Make sure students know you are available for advice/help and have office hours.

Provide intensive academic enrichment in your subject to provide solid foundations for subsequent STEM courses.

Look at the starting point of each student when advising, recognizing that each student is an individual and that students don't all fall neatly within the 4 year to graduation plan.

Offer a number of departmental resources to meet various student needs including community building activities, tutoring, academic support seminars, and targeted advising for struggling students. Send a weekly message containing information about all of the aforementioned details.

Critique multiple practices of presentations by STEM students to build confidence and the skills for presenting to general audiences.

Consistently engage students to ensure continuity and sustainability.

Some students will not explore STEM resources and programs because they feel like those programs are not meant for students "like them." Find proactive ways to ensure that students from diverse backgrounds feel welcome in your programs.

Create web resources for grad/postdoc/faculty mentors to be allies.

Use a cohort model for first generation, under-resourced students.

Conduct diversity training for both graduate student mentors and incoming undergraduate mentees.

Offer a "bridge" program for students coming from smaller, less research oriented schools, that gives the students the chance to become better oriented within your programs.

Allow space and time for undergraduates to informally engage with graduates students and faculty in STEM.

Provide resources for co-curricular and educational student experiences, such as travel to research conferences.

Role models and mentoring 101 are critical workshop themes.

Pair students with advisors based on their major so there is continuity with their advising experience and a sense of belonging; establish a separate undeclared advisors for bioscience and social science students; start a "How to Be a Scientist" course for first semester freshmen.

Allow students the space to speak about their personal experiences in the STEM field, as the experience is not always academically focused.

Offer tangible opportunities to get 'exposure' to your STEM subject. Often after presentations folks want to know how they can get involved right now, so we connect them with external internships/research opportunities/volunteer opportunities and in-house programs.

Send a weekly email newsletter that focuses on community events, professional development opportunities, and STEM education job openings.

Provide mentorship, workshops, and SMART goal planning.

Aim to increase scholarship, achievement and retention, all through rigorous research based approaches that stand up to scientific peer review.

Ask student teams to submit a connection (URL) that includes classes, organizations, discoveries, and novel designs of interest for their project.

Meet student before they arrive to UCB in a setting that allows them to honestly explain their strengths, weaknesses and especially their fears. Follow that with several and continuous on going contacts as a group (e.g. weekly) and individually (e.g. twice/month) that allow for issues to be more readily addressed. Freely and consistently use campus and group partners to leverage not only more dialogue with each student but to have a web of support.

Inform undergraduates as early as possible about on and off-campus research opportunities (especially transfer students), in order for them to explore graduate school options and to prepare to be a competitive applicant.

Work on writing and oral communication skills with students.

Collaborate with graduate students to enhance research program objectives.

Provide a classroom environment that encourages collaborative student learning.

Organize a mentoring component to connect grads and undergrads. Consider hosting monthly dinners and professional development events, such as a research fair, aimed at undergraduates.

Strive to create a community for underrepresented students of color on campus in order for them to feel validated enough to do research projects, which are relevant to their identities and experiential knowledge.

Provide mentoring and space for students to conduct research, financial support in the form of stipends, and research support during the semester and summer. Provide connections to health and environmental social justice work as it is a draw for students.

Graduate Students & Postdoctoral Researchers

When you notice yourself thinking a biased thought against someone of a certain demographic, imagine a counter stereotypical example to replace the stereotype. This mental practice can help reprogram your brain to be less biased!

Provide project management and mentoring experience, additionally these are explicitly mentioned in federal training grant assessment instruments.

Bolster career development through informal networking events and workshops.

Engaging students, postdocs, faculty, and staff in the process of addressing climate in the department makes the work more meaningful to everyone. Different populations bring different perspectives and thus programs and initiatives are more creative as a result.

Hold monthly lunch meetings to discuss inclusion.

Talk about imposter syndrome and make sure that there is a mentor that they can talk with about imposter syndrome.

Build a network of students and scientists of all ages and backgrounds that can form mentor-mentee relationships, act as role-models for each other, share diverse experiences and grow into a supportive community for each other.

Give space and time for graduate students to informally engage with postdocs and faculty in STEM.

Open your program to all genders and experiences, resulting in both men and women attending events and engaging in meaningful dialogue. For example, at events with invited speakers, we look to find individuals from different backgrounds who can comment on different aspects of the inequities in STEM.

Work to increase the number and career success of women scientists and engineers through innovative career building workshops, programs and strategies.

Programs must provide academic support, social support and professional development, especially for people of color.

Graduate recruitment success, with regards to increasing diversity, requires a very high level of personal interactions throughout the admissions process including significant interaction prior to the application process. It's not just a matter of meeting a student once or having a one-time conversation; it's the process of developing a relationship with the student over the course of time and helping them identify Berkeley as a place they can succeed.

Design and implement strategies that are based on rigorous research and testing of approaches that result in equity.

Offer training workshops over 3 weekends, for example the Multicultural Education Program (MEP) curriculum and restorative justice.

Freely and consistently use campus partners to leverage dialogue with each student and build a web of support.

Encourage new graduate students to apply for funding to attend conferences.

Contacting UC system-wide faculty program supporters when postdoctoral fellows apply for UC tenure-track positions.

Simultaneously engage both students/postdocs and faculty in designing and carrying out diversity and inclusion programming. Having strong faculty voices contributing to D&I programs can elevate student and postdoc needs and open up access to additional resources, while the voices of students and postdocs should drive inclusivity efforts.

Foster connections between graduate students and undergrads and host events that bring postdocs and grad students together for networking.

Organize events at which students are encouraged to meet and work with fellow students of different backgrounds from themselves.

Provide a daylong conference for admitted URM graduate students that brings in the special focus of life at UC Berkeley as a graduate student from a marginalized group. This is a major yield event with proven success in URM students choosing UCB.