Recommended Strategies for Increasing Participation of Underrepresented Groups in STEM
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Many institutions understand the benefits of diversity and would like to enhance diversity among its students, faculty, and staff, including postdocs.

This has been easier to accomplish in certain fields, yet the science, technology, engineering, and math (STEM) fields lag behind. There have been some positive changes at the level of diversifying the students in the STEM fields, but this is not translating into diversification at the faculty level. The long-term goal is to increase the diversity of STEM faculty.

In order to do that, steps need to be taken to ensure that a pipeline of individuals can progress through undergraduate programs into graduate programs through a postdoctoral position and into a tenured faculty position.

In order to move qualified individuals through the pipeline these primary components are essential 1) recruitment 2) retention, and 3) preparation for the next phase. Below are some suggestions of ways institutions can increase the number of underrepresented minority (URM) participation in STEM fields.
1. Recruitment

Outreach and Generating a Pipeline

Sponsor graduate student/postdoc recruitment days to bring undergraduates/graduate students from underrepresented groups on to campuses and introduce them to STEM research programs; include panel discussions, workshops, and lab tours. These events can also be done virtually with institute-specific information and professional development sessions like interviewing skills, how to pick a postdoc, etc. (Chicagoland Postdoc Recruitment Event, Michigan Postdoc Preview, OSU Postdoctoral Recruitment, Stanford PRISM)

Offer summer research experiences for undergraduates where students participate in a seminar series, attend workshops and panels, tour facilities, and meet individually with underrepresented graduate students.

Create nationwide “sustainable partnerships” with predominantly minority-serving institutions nationwide involving outreach, faculty exchanges, and graduate student visits. There are NIH grant mechanisms that support these endeavors (NIH Blueprint ENDURE).

Send university representatives to attend meetings focused on underrepresented groups such as the Society for the Advancement of Chicanos and Native Americans in Science (SACNAS) and the Annual Biomedical Research Conference for Minority Students (ABRCMS) where there will be undergraduate, graduate, and postdoctoral scholars in attendance.

Create endowed postdoctoral fellowships (President’s Postdoctoral Fellowship Program)
2. Retention

Fostering a Sense of Community

Have a dedicated Office of Diversity/Minority/Multicultural Affairs that serves and advocates on behalf of the undergraduate, graduate, and postdoctoral communities (these can be separate offices or compiled into one office). These offices can also work closely with postdoc offices at the institution.

Facilitate an institutional culture of diversity and inclusion through trainings, dialogues, and events.

Utilize student organizations and institutional postdoctoral associations to ensure that incoming graduate students and postdocs have an instant peer network and mechanisms to facilitate peer to peer interactions, foster peer accountability, and build leadership skills.

Support and train skills in digital networking via listservs and social media platforms.

Provide organizations that foster professional networking and peer support (The National Research Mentoring Network and Out to Innovate).

Mentoring

Peer and faculty mentoring - New students can be assigned another doctoral student or postdoctoral fellow as a peer mentor in addition to the faculty mentor that they are assigned to. This relationship persists through the student's time in the program and, as they become a senior doctoral student or postdoctoral fellow, they are assigned as a peer mentor to another new student.

Mentor training for faculty - training faculty how to be effective mentors for mentees at all stages including undergraduates, graduate students, and postdoctoral fellows.
2. Retention

Fellowships/Funding Opportunities

Inform graduate students, postdoctoral fellows and their mentors of NIH’s minority supplement to R01 grants (this program allows a faculty member with an R01 to apply jointly with an underrepresented minority student for additional funding to cover stipend/salary/cost of research above and beyond the grants allotted budget).

Offer competitive research fellowships (recipients selected via application process).

Provide travel grants that trainees can apply for to use to attend a discipline-specific or professional development conference and/or courses. Presenting a poster or oral presentation should be a prerequisite for the award. This will give the trainee more opportunities to be immersed in their field of study and if it is a competitive application process receiving such a travel award enhances one’s CV.

Workshops/Seminars

Sponsor a seminar series where the speakers are researchers from underrepresented backgrounds that have excelled in research in part due to membership in and familiarity with the diversity groups.

Sponsor professional development workshops to help underrepresented minorities succeed in graduate school and beyond, such as "Dissertation Writing in the Life Sciences," "Excelling in Graduate School and Beyond," "Enhancing Communication Skills," and "Discovering funding opportunities."

Sponsor workshops/seminars discussing diversity issues and other sensitive issues in a secure, accepting environment.
3. Preparing for the Next Phase

Encourage students and trainees to complete individual development plans to set short and long-term goals and evaluate their success. ScienceCareers provides the free and widely utilized myIDP tool, or you can create your own that highlights your institutional resources and programs (Georgetown).

Provide teaching opportunities and expand teacher training workshops.

Provide mentoring opportunities within the research setting for trainees to build out their mentoring and delegation skills.

Offer skills building courses and workshops (i.e. giving a seminar, writing a teaching statement, grant writing, interviewing skills, conflict resolution, resume/CV building, or managing research projects).

Sponsor programming to enhance awareness of varied funding mechanisms at each level of the training process (i.e. graduate student, postdoctoral fellow, new faculty, tenured faculty).

Create networking and collaboration opportunities.

Minoritypostdoc.org works to connect postdocs with job opportunities and provides professional development resources.