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Current and Recent BPDIE-Related Activities in Chemistry:

**Supplements:**
- REU (Research Experiences for Undergraduates – summer research programs)
- RET (Research Experiences for Teachers – support for secondary school teacher research experiences)
- ROA (Research Opportunity Awards – support PUI faculty for research in R1/PhD school collaborator’s lab)
- MPS-GRSV (Graduate Research Supplement for Veterans)
- MPS AGEP-GRS (Graduate Research Supplement to enhance participation of underrepresented minorities in MPS grants)
- FASED (Facilitation Awards for Scientists or Engineers with Disabilities – supplement to assist faculty or graduate student)
- CLB (Career-Life Balance)

**Special Projects:**
*Historical:* OXIDE (Rigoberto Hernandez PI); COACH (Geraldine Richmond PI)

*Current or recent:*
- NOBCChE (various PIs, typically supports student travel to the conference)
- GEM (elevates URM students entering grad school with first year fellowships and internships)
- New faculty career workshops (also MPS-sponsored workshops annually)

**Additional grant support:**
- EiR support – research at HBCUs (through NSF Division of Education and Human Resources)

**Outreach Trips:**
- Traveled (preCOVID) to HBCU, MSI, and EPSCoR state institutions for outreach to faculty and students.
- Outreach at conferences: NOBCChE, SACNAS, ACS, AISES
- Virtual visits to department faculty meetings
A Listening session on Broadening Participation, Diversity, Inclusion, and Equity in Chemistry

National Science Foundation Division of Chemistry
March 5, 2021

Guest Hosts: Miguel García-Garibay of UCLA
Rigoberto Hernandez of Johns Hopkins University
Kayunta Johnson-Winters of University of Texas at Arlington

Real-time captions can be viewed at: event ID# 4726877
The **STEM pipeline** is the *educational pathway* that prepares individuals for careers in science, technology, engineering and math (STEM).

- Begins in grade school
- Advances in middle and high school
- More specialized in college and graduate school

- Need sufficient graduates
- Need input of those students throughout their studies
- Address threats to retention through the completion of their academic program.

Kayunta Johnson-Winters

Graphic: http://www.neu writewest.org/blog/inequality-in-stem-a-dive-into-the-data
pipeline issues

- **STEM Doctorates working as Full/Assoc/Asst Profs in 2yr & 4yr institutions in 2008**: 7.3%
- **STEM Doctorates awarded in 2010**: 8.3%
- **STEM Masters degrees awarded in 2010**: 12.6%
- **STEM Bachelors degrees awarded in 2010**: 14.7%
- **2010 US Population (all ages)**: 29.3%

**URM (African American, Hispanic or Latino/Latina, & American Indian)**

**Asian/Pacific Islander**

**White**

Kayunta Johnson-Winters

Estrada et al., CBE-Life Sciences Education, 2017, 15, 1-10
pipeline issues

Women, underrepresented minorities, blacks, and Hispanics in S&E and all occupations: 2017

Note(s): Underrepresented minorities includes individuals who are black, Hispanic, or American Indian or Alaska Native. The S&E and all occupations data are for those with a bachelor's degree and above. The U.S. residential population data are for those at all education levels.

### Pipeline Issues

**Lack of mentorship/sponsorship**

**Reaction to racism & bias**

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Everyone suffers when a person of color leaves academia due to racism, inequalities or marginalization, because a lifetime of productivity, scholarly contributions, discoveries and student mentoring is lost when that individual exits.

Being Black in the ivory tower
Kayunta Johnson–Winters writes about her journey through the criminal justice system and academia.

Kayunta Johnson-Winters

first-generation challenges

There is no frame of reference or family member who can provide advice about experiences, challenges Coursework, finances, career development. "You don’t know what you don’t know” adds complexities.

Under-represented groups (urm):

1. Conversations about issues that other cultures take for granted (some simply shouldn’t matter).
   - Hair
   - Dress
   - General Biases that affect student persistence
2. Finances (affordability)
   - Basic needs (food, clothing, shelter)
   - Tuition
3. Time management
   - Lab work
   - Coursework

Kayunta Johnson-Winters
first-generation challenges

4. Institutional Barriers

- Sense of belonging (from faculty & fellow students)-important issue, time consuming.
  - COSBGSA
- Remediation (evaluating student circumstances-failing out vs. what courses and other mech. can be implemented to support student success.) Do we care enough?

5. Career Development (time consuming)

- COSBGSA-Resume/CV work
- Interviewing
- Negotiation activities
first-generation challenges

6. What is Considered Valuable Impact (some “heart work” is not valued)

- Impact on the individual’s life and then the impact that they will have.
- Dealing with first generation can slow down productivity (i.e., training and teaching work ethic)
- Consider (or reconsider) how reviewers and funding agencies value impact (i.e., urm vs first gen. urm)

7. Mentorship and Sponsorship
university models
training cohorts
top down models
diversity culture
Virtual Diversity Equity Workshop (VDEW) 2021

• VDEW 2021
  • ”Managing Inclusive Excellence”
  • April 27, 1:00PM to 5:00PM
  • Free registration at oxide.jhu.edu/VDEW2021

• NDEW 2022
  • April 25-26, 2022 (save-the-date)
  • Westin, Alexandria, VA (Near NSF HQ)
  • Registration Fee TBA
• What are the areas of greatest need?
• What is needed next?
• What new opportunities would be most impactful for accelerating broadening participation, diversity, inclusion, and equity in chemistry if led by an agency such as the NSF Chemistry Division?
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