

# Diversity and Inclusion in the Chemical Sciences PhD: American Chemical Society Bridge Program

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Member, Advisory Board ACS Bridge Program

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## Diversity, Equity, and Inclusion in Chemistry and Chemical Engineering

A Virtual Workshop from the Chemical Sciences Roundtable

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# This Project is in collaboration with:



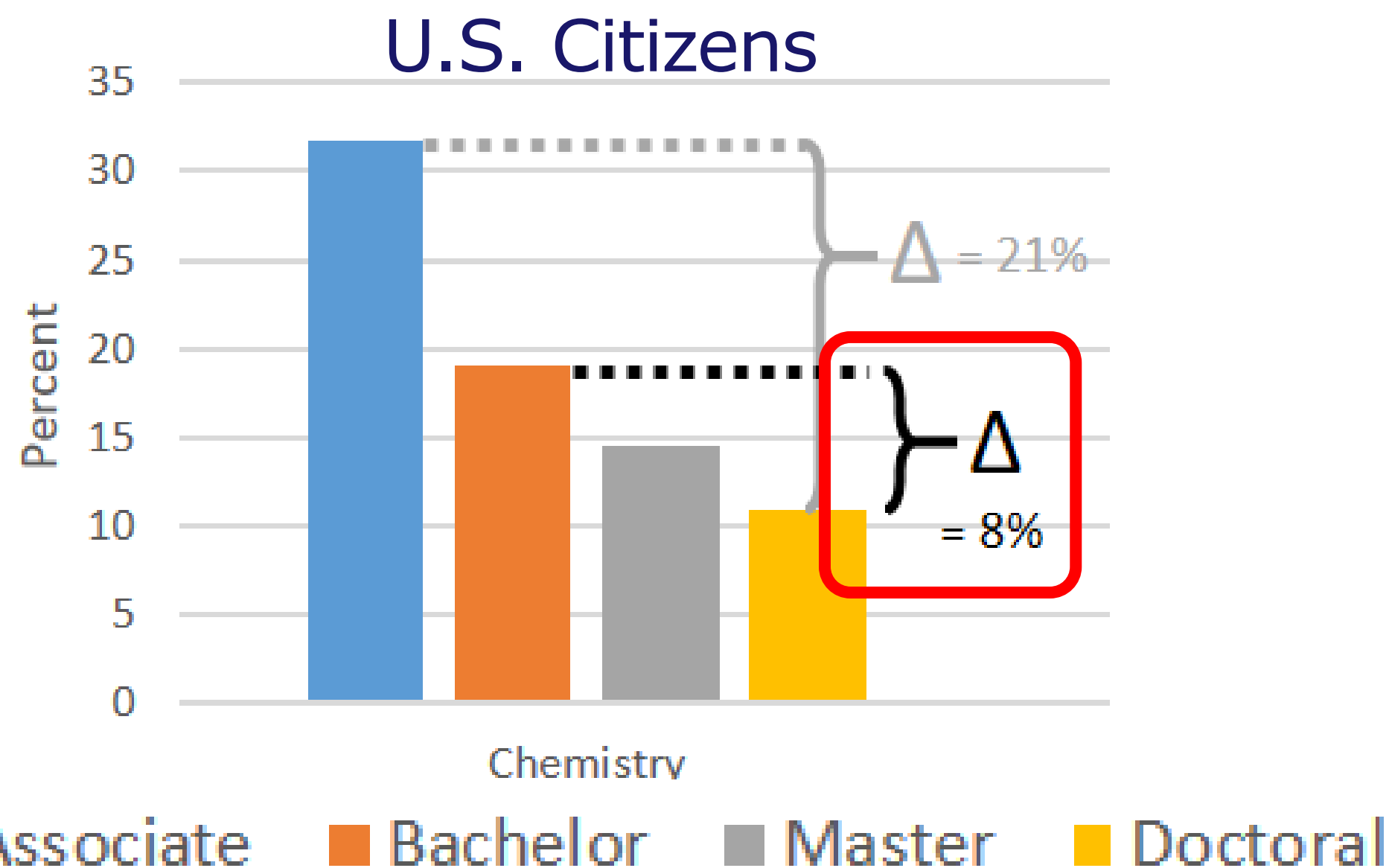
# and supported by:



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# The Challenge

There is a gap between percentage of URM degree recipients at the BS, MS, and PhD levels in the Chemical Sciences



Data for degree recipients are five-year averages (2018-2014) from IPEDS Completion Survey from the Department of Education (IPEDS Field CIP4 Code 40.05 for Chemistry)

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# ACS Bridge Project Goals

- 1. Increase**, within ten years, **the fraction of chemical science PhDs awarded to under-represented minority students** to match the fraction of chemical science Bachelor's degrees granted to these groups.
- 2. Develop, evaluate, and document sustainable model bridging experiences** that improve the access to and culture of graduate education for all students, with emphasis on those underrepresented in doctoral programs in chemical sciences.
- 3. Promote and disseminate** successful program components to the chemical science community.
- 4. Provide professional development guidance to undergraduate students, graduate students, and postdoctoral scholars** underrepresented in the chemical sciences.



# Project Components

1. ACS Bridge Program (Students/Bridge Departments)



2. ACS Bridge Career & Professional Development Awards (Undergraduate/Graduate Students)



3. Inclusive Graduate Education Network



4. NSF INCLUDES National Network



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# Project Components

4. ACS Career Kick-Starter (Grad Students/Postdoc)



5. ACS Graduate School Readiness and Professional Development Bootcamp (Undergraduate)



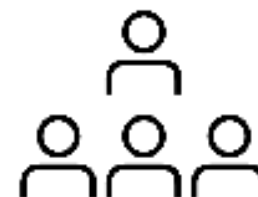
6. E-Courses



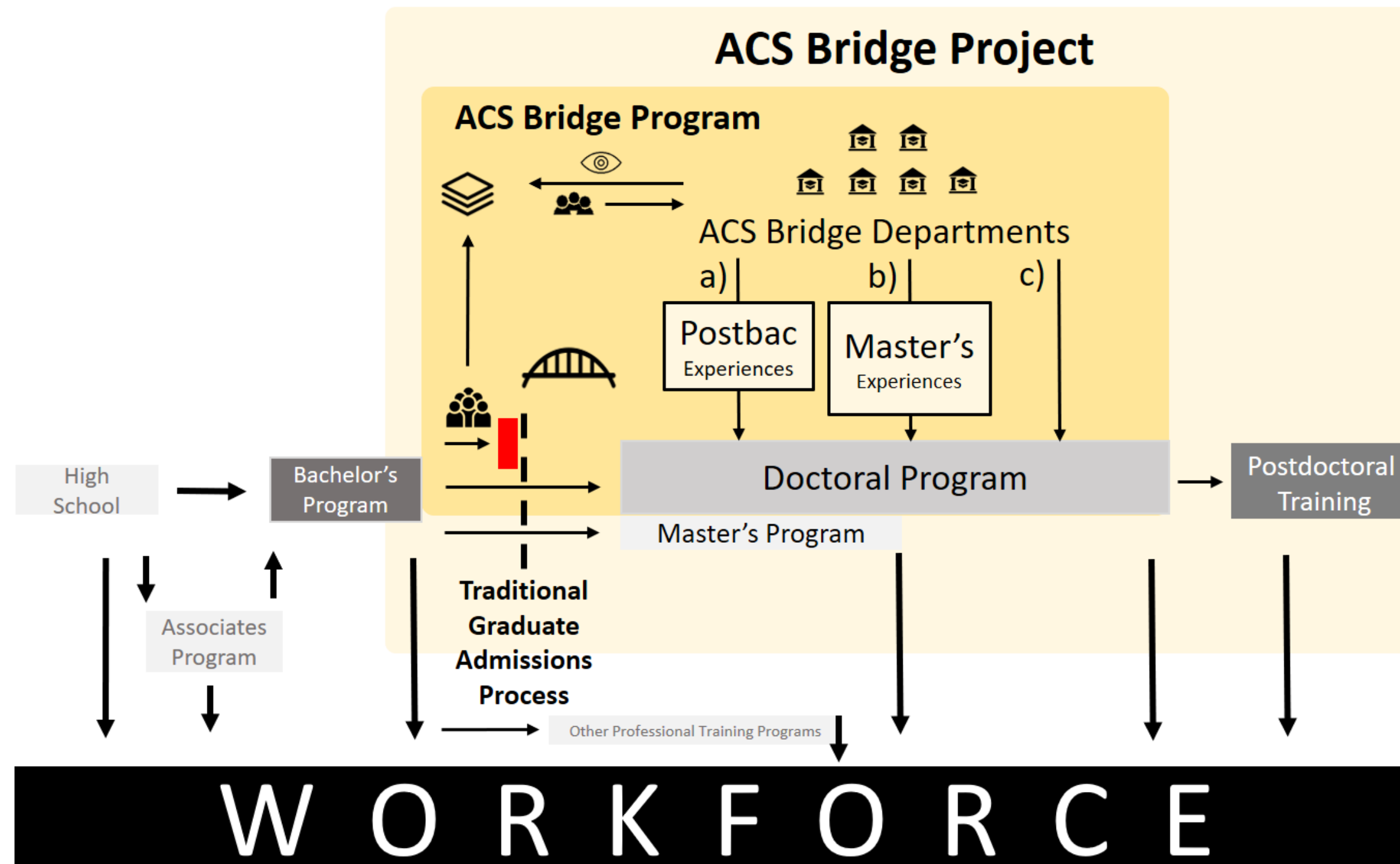
7. Research (postdoc)

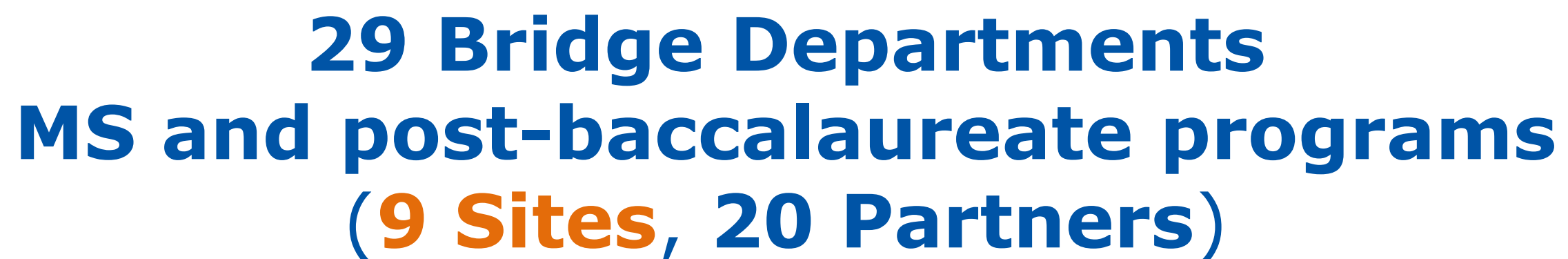


8. Career Symposium (2023)



# ACS Bridge Project

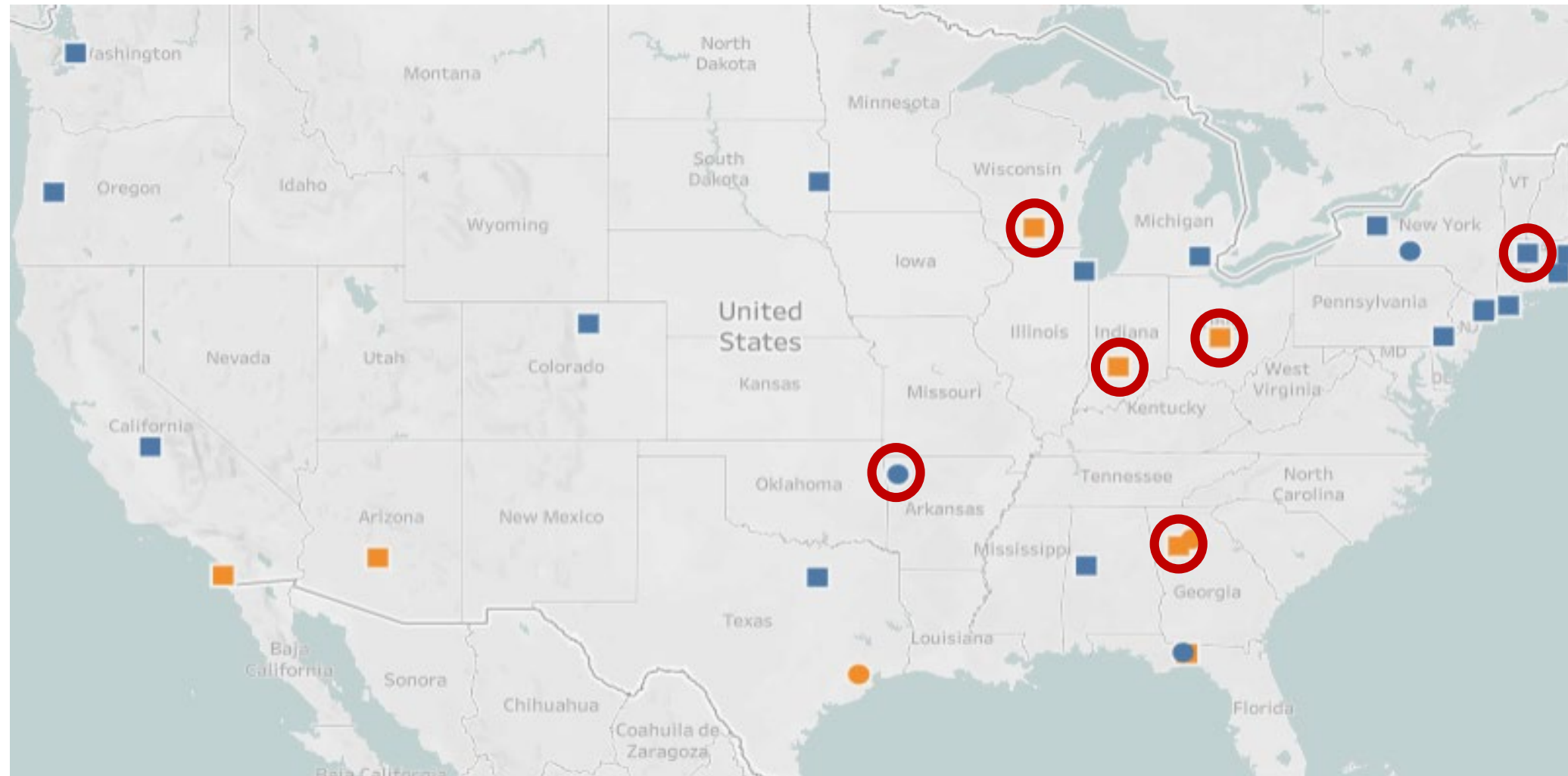






# Bridge Departments

2019/2020



**29 Bridge Departments**  
**MS and post-baccalaureate programs**  
**(9 Sites, 20 Partners)**

# Bridge Departments

2020/2021



**29 Bridge Departments**  
**MS and post-baccalaureate programs**  
**(9 Sites, 20 Partners)**



# Bridge Departments



**2021/2022  
May 2021**

**29 Bridge Departments**  
**MS and post-baccalaureate programs**  
**(9 Sites, 20 Partners)**



# Bridge Departments

## Bridge Sites

1. **Arizona State University**  
Chemistry and Biochemistry
2. **Florida State University**  
Chemistry and Biochemistry
3. **Georgia Tech**  
Chemical Engineering
4. **Georgia Tech**  
Chemistry and Biochemistry
5. **Indiana University, Bloomington**  
Chemistry
6. **The Ohio State University**  
Chemistry and Biochemistry
7. **University of California, San Diego**  
Chemistry and Biochemistry
8. **University of Houston**  
Chemical and Biomolecular Engineering
9. **University of Wisconsin, Madison**  
Chemistry

## Bridge Partners

1. Brown University      Chemistry
2. California State University, Fresno      Chemistry
3. Columbia University      Chemistry
4. Cornell University      Chemical and Biomolecular Engineering
5. CUNY      Chemistry
6. Florida Agricultural Mechanical University      Chemical Engineering
7. Northeastern University      Chemistry and Chemical Biology
8. South Dakota State University      Chemistry and Biochemistry
9. Stony Brook University      Chemistry
10. The University of Alabama, Tuscaloosa      Chemistry and Biochemistry
11. University of Arkansas, Fayetteville      Chemical Engineering
12. University of Illinois, Chicago      Pharmaceutical Sciences Department
13. University of Massachusetts, Amherst      Chemistry
14. University of Michigan, Ann Arbor      Chemistry
15. University of Northern Colorado      Chemistry and Biochemistry
16. University of Oregon      Chemistry and Biochemistry
17. University of Rochester      Chemistry
18. University of Texas Southwestern Medical Center      Biochemistry  
& Organic Chemistry
19. University of Washington      Chemistry
20. Villanova University      Chemistry





# How are Sites selected?

A webinar provides information for interested departments

A proposal-writing workshop is offered

A 3-page pre-proposal is solicited, followed by an invitation to submit a full 15-page proposal

Reviewers (internal and external to ACS) review the written proposals

Site visits to the top applicants are made (in person or Zoom), followed by final recommendation



# How are Sites selected?

New **Request For Proposals**

will be posted in **early June 2021**

at **[www.acs.org/bridge](http://www.acs.org/bridge)**

Deadline: **September 1, 2021**



# ACS remains connected

Annual reports and virtual site visits  
Bimonthly Bridge Department leadership meetings  
IGEN Annual Conference  
Holistic Admissions Workshop (IGEN Hub)  
Virtual Happy Hours, check-in with cohorts  
Social Media: GroupMe, Slack  
Professional development workshops  
Peer mentoring  
Fellow profile in *InChemisry*  
IGEN Annual Conference  
Advisory Board Meetings



# Students

Students apply through a common ACS portal  
(no application fee, no GREs)

Bridge Sites have first access, followed by Bridge Partners

Students are interviewed and offers are sent during specific windows

**As of Summer 2020: 30 Bridge Fellows with >50% female**

**Some students from the first cohort have already transferred to PhD programs**





# Bridge Program at UC San Diego

**Bridge students enroll in the UC San Diego MS program**

Three students in the first cohort (Fall 2020)

Five new students expected in the second cohort (Fall 2021)

## **Offer includes:**

- Full financial support (tuition, fees, salary at the PhD level)
- Housing guarantee
- Multiple mentors (peer, academics, research, staff)
- Integration with PhD students (orientation, rotations)
- Priority for TAship, some Fellowships
- Bridge activities



# Typical path at UCSD

## **Year 1**

Regular orientation + Bridge-specific orientation

Research rotations

Courses (minimum of two)

TA training and TAships

Join a research group

## **Year 2**

Prepare for PhD applications (at UCSD and/or beyond)

Research

Thesis defense

**Throughout:** Active mentoring and  
community-building activities



# Challenges

## **Expected and unexpected challenges**

- First year: recruitment of students as a new program
- Compact timeframe in the context of the academic year
- Relocation costs for students
- Broader community for the Fellows
- Sense of belonging and identity for the Fellows among our ~300 other graduate students
- Eagerness from the Fellows to potentially do too much
- Successful integration during the 1<sup>st</sup> quarter (e.g. appropriate workload)
- Sustainability beyond the 3-year period



# Essential components

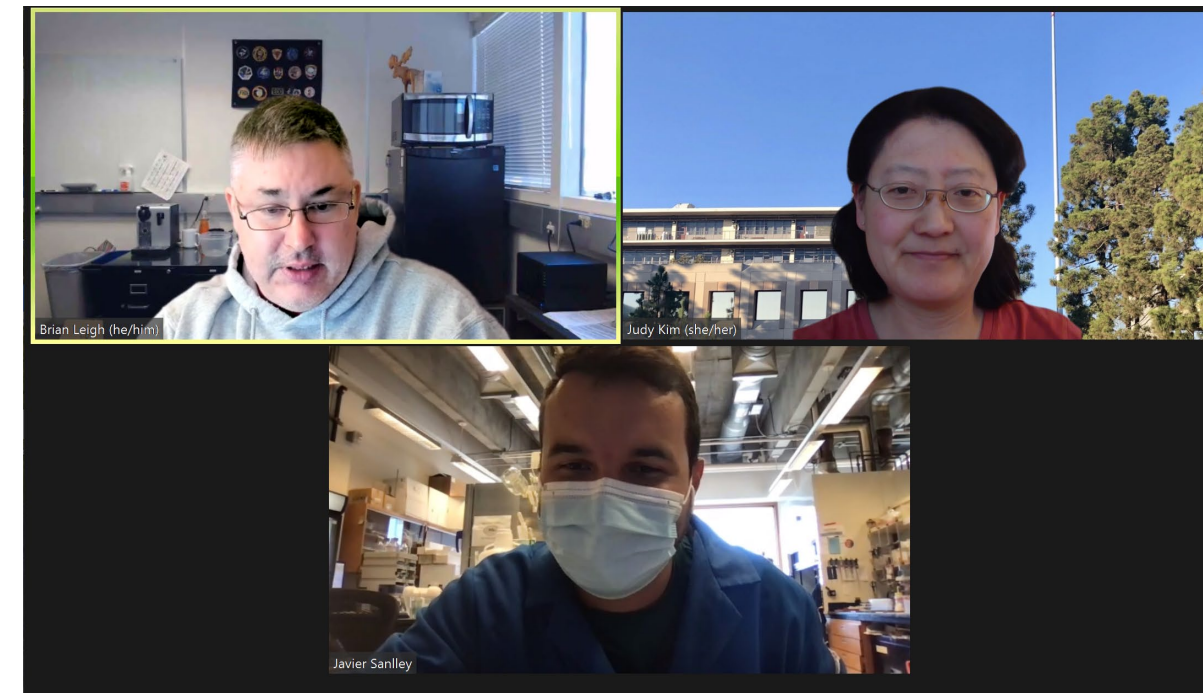
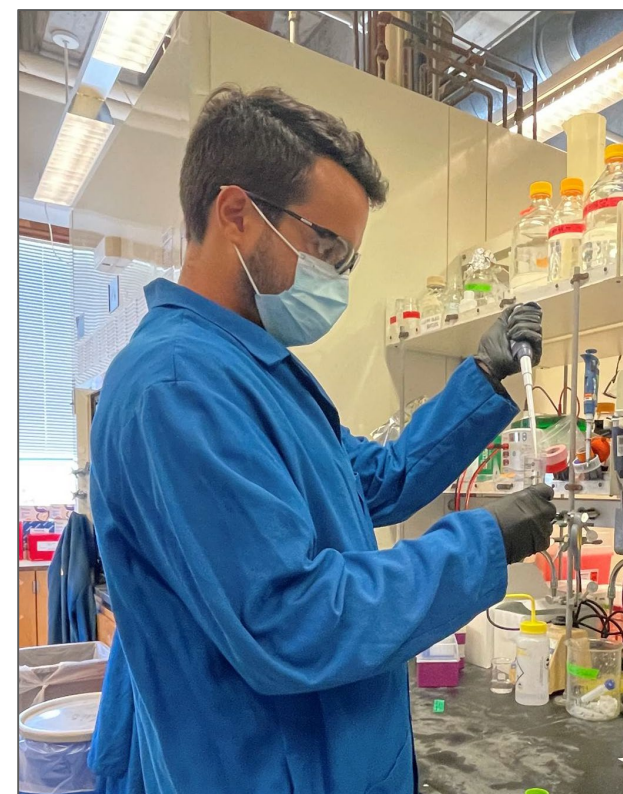
**The success of the UCSD Bridge Program relies upon:**

- **Strong Executive Committee** comprised of *engaged* faculty and staff
- Understanding of the Program by the Department
- Diverse advisory committee representing different sectors (academia, industry, government)
- Guaranteed housing
- Opportunities identical to the PhD students
- Support outside the Department (Graduate Division, Physical Sciences, general Campus)



# Meet one of our Fellows Javier Sanlley-Hernandez

- Moved to Florida from the Dominican Republic (“came to the U.S. to pursue science”)
- Earned bachelor’s degree from Florida International University
- Pursued additional research at the University of Miami for one year
- Entered the UC San Diego Bridge Program in 2020
- In March 2021, joined the Burkart lab (chemical biology)





# THANKS to the ACS Bridge Project Team

[www.acs.org/bridge](http://www.acs.org/bridge) | [bridge@acs.org](mailto:bridge@acs.org)



Terri  
Chambers



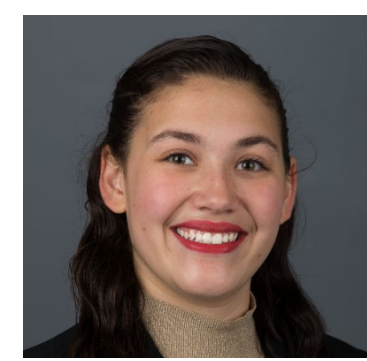
Ben  
Fiore-Walker



LaTrease  
Garrison



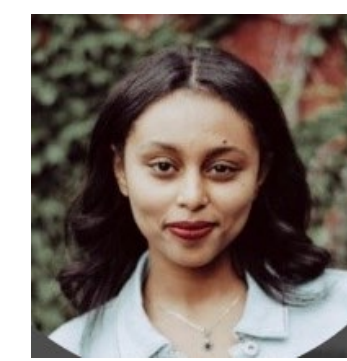
Zebib  
Gebretensae



Leah  
Martinez



Joerg  
Schlatterer



Ruth  
Tessema



## UC San Diego

## Department of Chemistry and Biochemistry

Bridge Team: Brian Leigh, Betsy Komives, Haim Weizman,  
Erica Lennard

## Division of Physical Sciences Graduate Division

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<https://chemistry.ucsd.edu/graduate-program/masters-program/ACSBridge.html>