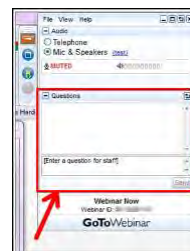




Have Questions?



Type them into questions box!

**“Why am I muted?”**

Don't worry. Everyone is muted except the presenter and host. Thank you and enjoy the show.

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### Drug Design and Delivery

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### Culinary Chemistry

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Why does food taste better when it is grilled or what molecular compounds make a great wine? Discover the delectable science of your favorite food and drink and don't forget to come back for a second helping.

### Popular Chemistry

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Feeling burdened by all that molecular weight? Listen to experts expound on the amazing side of current hot science topics. Discover the chemistry of rockets, how viruses have affected human history, or the molecular breakdown of a hangover.

### Business & Entrepreneurship

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How do ideas make it from the lab to the real world? Discover the ins and outs of the chemical industry whether you are looking to start a business or desire a priceless industry-wide perspective.

<https://www.acs.org/content/acs/en/acs-webinars/videos.html>

3



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A **collection of the best recordings** from the ACS Webinars Library will occasionally be rebroadcast to highlight the value of the content.

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### ◆ Industry Matters Newsletter

ACS Member-only weekly newsletter with exclusive interviews with industry leaders and insights to advance your career.

Preview & Subscribe: [acs.org/indnews](https://acs.org/indnews)



Connect, collaborate, and stay informed about the trends leading chemical innovation

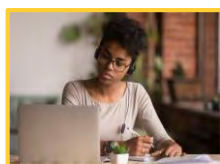
Join: [bit.ly/ACSinnovationhub](https://bit.ly/ACSinnovationhub)

## ACS Career Navigator: Your Home for Career Services



Whether you are just starting your journey, transitioning jobs, or looking to brush up or learn new skills, the **ACS Career Navigator** has the resources to point you in the right direction.

We have a collection of career resources to support you during this global pandemic:



Professional Education



Virtual Career Consultants



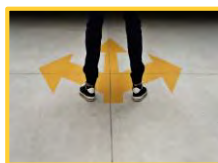
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## ACS Department of Diversity Programs

Advancing ACS's Core Value of Diversity, Inclusion & Respect



We believe in the strength of diversity in all its forms, because inclusion of and respect for diverse people, experiences, and ideas lead to superior solutions to world challenges and advances chemistry as a global, multidisciplinary science.

### Contact Us:

[https://app.suggestionox.com/r/DI\\_R](https://app.suggestionox.com/r/DI_R)

[Diversity@acs.org](mailto:Diversity@acs.org)



[acsvoices.podbean.com/](http://acsvoices.podbean.com/)



[www.acs.org/diversity](http://www.acs.org/diversity)

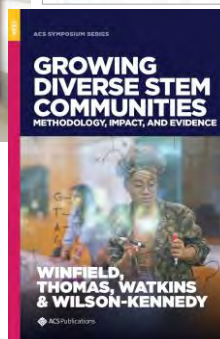
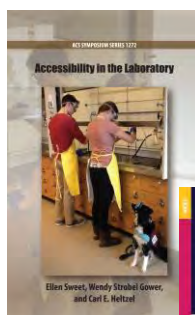
7

## ACS Publications Journals, Books and News

An indispensable resource for educators



- Prepare lecture and lab curriculum
- Increase diversity in STEM education
- Support accessibility
- Teach by example
- Assign supplemental reading
- Build communication skills
- Connect concepts to current events
- Add historic context

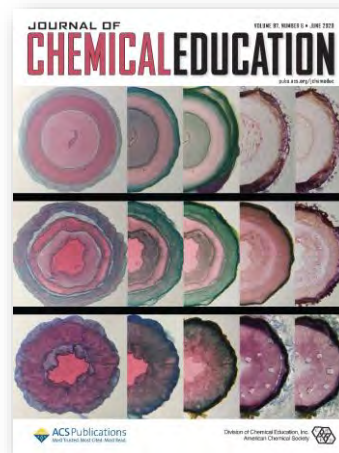


<https://connect.acspubs.org/getaccess>

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JOURNAL OF  
**CHEMICAL EDUCATION**

- The *Journal of Chemical Education* (*JCE*) is the official journal of the Division of Chemical Education of the American Chemical Society, co-published with the American Chemical Society Publications Division
- Launched in 1924, the *JCE* is the premier international journal for the teaching and learning of chemistry
- *JCE* considers and publishes chemistry education research, activities, laboratory experiments, instructional methods, and pedagogies
- Read and submit your research at [pubs.acs.org/jce](https://pubs.acs.org/jce)
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Please join the **National Science Foundation Division of Chemistry** for  
**A Listening session on Broadening Participation, Diversity, Inclusion, and Equity in Chemistry**

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

will lead a community discussion on this important and timely topic.

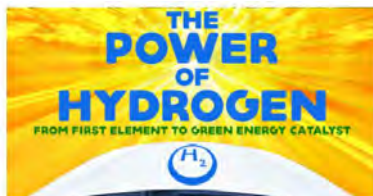
**Friday, March 5, 2021. 4 PM (Eastern).** Register here  
<https://nsf.zoomgov.com/meeting/register/vJl5d-2urDgqGadHnmAsAs9W17CmfRo-45o>



The Division of Chemistry (CHE) supports innovative research in chemical sciences, integrated with education, through strategic investment in developing a globally engaged U.S. chemistry workforce reflecting the diversity of America.

CHE invites our entire community to this listening session as we specifically invite those most affected by inequities in chemistry and related fields to add their voices to this conversation.

CHE is working to identify the areas of greatest concern where funding or other actions by the Division might have real, measurable, and sustainable impact in accelerating Broadening Participation, Diversity, Inclusion, and Equity in Chemistry.



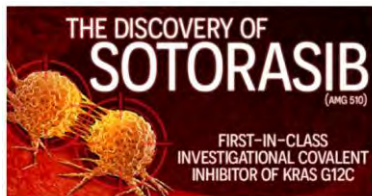
Date: Thursday, February 11, 2021 @ 1-2pm ET  
 Speaker: Vijay Kapur, (retired) International Solar Electric Technology  
 Moderator: Bill Tsuzynski, The Unami Group LLC

[Register for Free!](#)

What You Will Learn:

- Hydrogen production methods and its role as a transportation energy carrier in fuel cells
- Transportation opportunities using Hydrogen and fuel cells as an energy source
- Economic, storage, and safety issues when using hydrogen through different applications

Co-produced with: Science History Institute and Chemical & Engineering News



Date: Thursday, February 25, 2021 @ 2-3:30pm ET  
 Speaker: Brian Lanman, Amgen, Inc.  
 Moderator: Ariamala Gopalsamy, AstraZeneca

[Register for Free!](#)

What You Will Learn:

- Why identifying a direct inhibitor of KRAS has proven so challenging
- How covalent inhibition helped to turn KRAS G12C into a tractable target
- What hurdles were overcome in turning initial KRAS G12C binders into potential human therapeutics

Co-produced with: ACS Division of Medicinal Chemistry, American Association of Pharmaceutical Scientists, and ACS Publications



Date: Thursday, March 11, 2021 @ 1-2pm ET  
 Speakers: Julie Mann, Ingredion Incorporated / Joshua March, Artemis Foods / Andrew D Iwe, Big Idea Venture  
 Moderator: Christopher Gregson, Greenstalk Food Consulting LLC

[Register for Free!](#)

What You Will Learn:

- A better understanding of the most significant transformation of the food industry in decades
- The challenges of formulating plant-based products or using cell cultures to "grow" meat
- How it will affect peoples' dietary choices in the future

Co-produced with: Science History Institute and Chemical & Engineering News

[www.acs.org/acswebinars](http://www.acs.org/acswebinars)

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# Creating an Inclusive and Resilient Future in Chemistry Education

THIS ACS WEBINAR WILL BEGIN SHORTLY...

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## Creating an Inclusive and Resilient Future in Chemistry Education



**Anthony DePass**

Co-director, Understanding Interventions;  
Principal, Depass Academic Consulting;  
Professor of Biology, Long Island University



**Lourdes Echegoyen**

Research Assistant Professor Chemistry and  
Biochemistry and Director BUILDING SCHOLARS  
Center, University of Texas, El Paso



**Michelle Claville**

Assistant Dean and Professor of Chemistry,  
Hampton University and Program Director,  
NSF Undergraduate Programs



**Zakiya Wilson-Kennedy**

Assistant Dean, Diversity & Inclusion, College of  
Science and Associate Professor of Research,  
Chemistry Education, Louisiana State University

*Presentation slides are available now! The edited recording will be made available as soon as possible.*

[www.acs.org/acswebinars](http://www.acs.org/acswebinars)

*This ACS Webinar is organized by Leyte Winfield, Division Chair for Natural Science and Mathematics, Spelman College and co-produced with ACS Publications and ACS Education.*

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CALL FOR PAPERS

SPECIAL ISSUE:

# Diversity, Equity, Inclusion, and Respect

In Chemistry Education Research and Practice

JOURNAL OF

## CHEMICAL EDUCATION

Submissions due  
April 12, 2021.

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# Ask the Editors Office Hours



February: Wednesdays, 3 – 4 pm ET



March: Thursdays, 12 – 1 pm ET

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## Audience Survey Question

ANSWER THE QUESTION ON BLUE SCREEN IN ONE MOMENT



The upcoming special issue for the Journal of Chemical Education (JCE) will focus on diversity, equity, inclusion, and respect. **Are you planning to submit a manuscript for the upcoming special issue of JCE?**

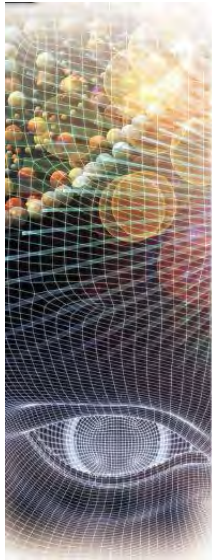
- Yes, I have a manuscript in development
- Maybe, I am thinking about it
- No, I am not planning on it
- I don't know if my efforts would fit into the special issue



*\* If your answer differs greatly from the choices above tell us in the chat!*

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## UNDERSTANDING INTERVENTIONS

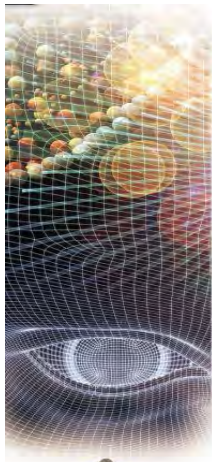
In collaboration with



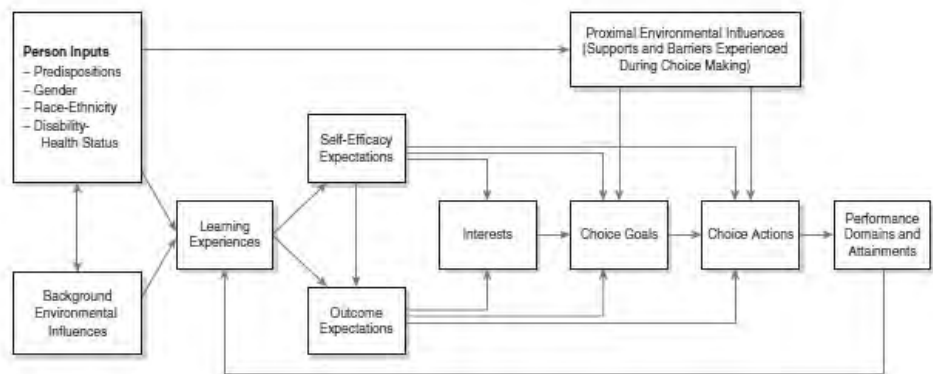
**SOSI CENTER**  
Louis Stokes Regional CENTER  
of Excellence for the STUDY of STEM INTERVENTIONS

Anthony L. DePass  
Director, Understanding Interventions  
Co-Director, SOSI Center

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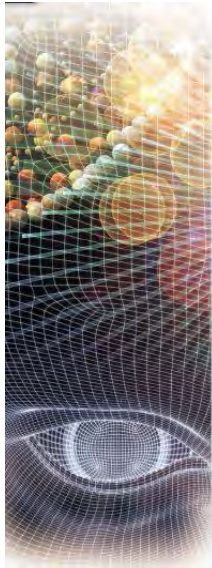
## Social Cognitive Career Theory



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## Community Cultural Wealth (Tara Yosso, 2005)

Community Cultural Wealth	Definition
Aspirational	The ability to maintain hopes and dreams for the future, even in the face of real and perceived barriers. - The power and culture of possibility.
Linguistic	Intellectual and social skills attained through communication experiences in more than one language and/or style. - Multiple languages and communication styles (e.g., world languages and racialized/cultural histories or communication).
Navigational	The skills of maneuvering through social institutions. - Inner resources, social competencies, cultural strategies that permit survival, recovery, and thriving (self-serving).
Resistance	Knowledge and skills fostered through oppositional behavior that challenges inequality. - Mindsets and behaviors employed to resist subordination (collectivist approach).
Familial	Cultural knowledge cultivated among family that carry community history, memory, and cultural intuition. - Practices that demonstrate a commitment to community (kin) well-being.
Social	Networks of people and community resources. - Utilizing communities to gain access to and insight on opportunities.



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## Community Cultural Wealth Model

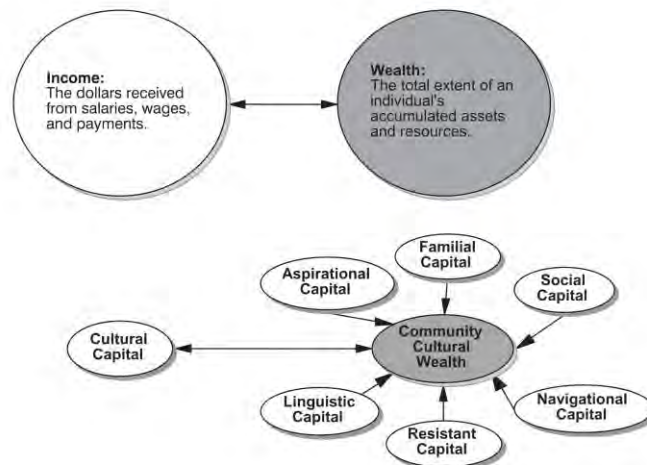
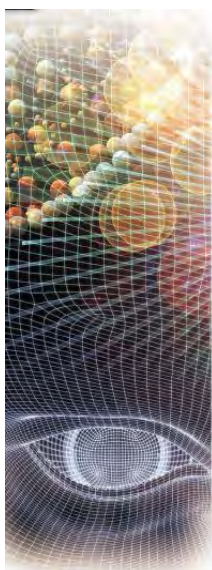
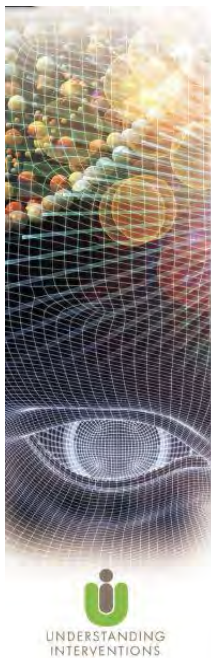


Figure 2. A model of community cultural wealth. Adapted from: Oliver & Shapiro, 1995

Yosso, Tara J. (2005). Whose culture has capital? A critical race theory discussion of community cultural wealth. *Race Ethnicity and Education*, 8(1), 69-91.



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**UNDERSTANDING INTERVENTIONS**

Understanding Interventions that Broaden Participation in Science Careers

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PRACTICES • SCHOLARSHIP  
2020 Conference



UI Journal



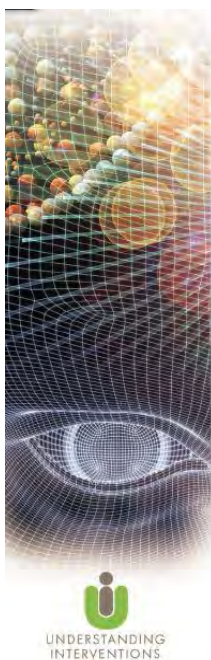
UI Community News



INDEX  
UI Index

<http://understandinginterventions.org>

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**Understanding Interventions**  
That Broaden Participation in Science Careers

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Full Reports  
October 30, 2020 EDT

### Language, Identity, and Becoming a Scientist

Carrise Cameron · Donovan Robinson

This paper lays out the rationale for, theoretical and methodological approach to, and significance of linguistically-based STEM research and interventions.

[Abstract](#)

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## Audience Survey Question

ANSWER THE QUESTION ON BLUE SCREEN IN ONE MOMENT



**Is there a community of faculty in your institution that collaborates on DEIR (diversity, equity, inclusion, and respect) efforts?**

- Yes, we have a well-formed group
- Yes, we have a loosely-formed group
- No, we don't have faculty collaborating in this way
- I wish there were faculty collaborating in this way



*\* If your answer differs greatly from the choices above tell us in the chat!*

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## What opportunities contribute most to the success of UTEP undergraduates? : The Case of BUILDing SCHOLARS

**Lourdes E. Echegoyen**

The University of Texas at El Paso

ACS Webinar Series:  
*Creating an Inclusive and Resilient  
Future in Chemistry Education*

February 10, 2021

24

How would you define student success?

&

How would you measure it?

25

## Roadmap

- **About the NIH BUILD initiative**

- General
- DPC Hallmarks of success

- **Perspective**

- About UTEP

- **About UTEP BUILDing SCHOLARS Student Training**

- Persistence, Degree Completion, Competitiveness, & Graduate School Enrollment
- Effect of academic year research on science/research self-efficacy and science identity
- Qualitative study on what has impacted students the most



# About the NIH BUILD Initiative

A core component of the NIGMS funded Diversity Program Consortium (DPC)

**BUILD** = Building Infrastructure Leading to Diversity (10 sites)

**NRMN** = National Research Mentoring Network (13 sites)

**CEC** = Coordination and Evaluation Center (1 site)

*“to implement and evaluate effective approaches to training and mentoring undergraduate students with the goal of increasing the participation and persistence of individuals from diverse backgrounds in the biomedical research pipeline”*

UTEP is one of ten BUILD sites across the US

All BUILD sites include activities for

- Institutional development
- Faculty development
- Student Development



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## Perspective: About UTEP

- ~25,000 students (21,000 UG)
- 80% Hispanic (83.3% at UG level)
- 51% 1<sup>st</sup> generation
- 60% Pell recipients
- 37% with family income under \$20K/year
- 83% from El Paso County
- 74 Bachelor's - 26 have BMRW\* relevance
- 74 Master's - 25 have BMRW relevance
- 22 doctoral programs - 16 have BMRW relevance

Well-positioned to enhance the diversity of  
the biomedical research workforce

\* BMRW = biomedical research work force

*BUILDing SCHOLARS  
Incoming Class-2105*



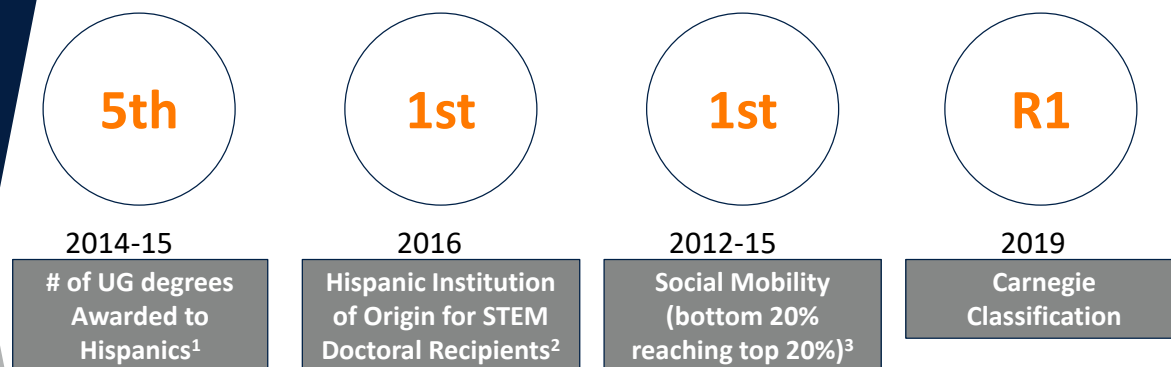
**ACCESS & EXCELLENCE MISSION**

**A Hispanic Serving Institution**  
*“We serve students with intentionality”*

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# Perspective: About UTEP

## ACCESS & EXCELLENCE MISSION



1. Excellencia in Education, 2016
2. NSF, NCSES, 2016 Survey of Earned Doctorates
3. Washington monthly, college guide rankings 2015

**A Hispanic Serving Institution**  
*"We serve students with intentionality"*

## UTEP BUILDing SCHOLARS Student Development Opportunities

### Financial & Academic Assistance

- Accepted as FR, SO or JR
- Tuition scholarship – up to 60%
- Monthly stipend (12 months)
- Research Foundations & CUREs for Freshman
- Mentored academic year research
- Summer research at **partner institutions**
- Travel to present at conferences
- Personalized advising
  - Degree plan - course enrollment
  - Complete 30 credit-hours/year
  - Research mentor selection assistance

### Professional development training

- Peer mentor training
- Responsible conduct of research
- How to travel to conferences
- Finding work-life balance
- Applying to graduate school
  - How to apply – requirements & timeline
  - GRE preparation
  - Grad school interview
- Writing intensive sessions
  - Abstract & poster preparation
  - Research report & thesis preparation
  - Crafting a personal statement
  - Resume/CV
- Multiple seminars

# The DPC Hallmarks of Student Success

## Basis for evaluating DPC member student activities

STU-1	High academic self-efficacy
STU-2	High self-efficacy as a researcher
STU-3	High science identity
STU-4	Satisfaction with quality of mentorship
STU-5	Perceived sense of belonging within the university
STU-6	Perceived sense of belonging within the research community
STU-7	Intent to pursue a career in biomedical research
STU-8	Entry into an undergraduate biomedical degree program
STU-9	<b>Persistence in biomedical degree or other formal research training program</b>
STU-10	Frequent receipt of mentoring to enhance success in the biomedical pathway
STU-11	<b>Participation in mentored or supervised biomedical research</b>
STU-12	<b>Evidence of competitiveness for transitioning into the next phase in the biomedical career pathway</b>
STU-13	Participation in academic or professional organizations related to biomedical disciplines
STU-14	<b>Evidence of excelling in biomedical research and scholarship</b>
STU-15	Strong academic and professional networks
STU-16	<b>Completion of biomedical degree or other formal training program</b>
STU-17	Application and acceptance to a subsequent research training program in a biomedical discipline
STU-18	<b>Entrance into a subsequent research training program in a biomedical discipline</b>

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## Persistence (STU-9), Competitiveness (STU-12), Evidence of Excelling in Research & Scholarship (STU-14), Degree Completion (STU-16), & Graduate School Enrollment (STU-18)

‡	FTF (2013-2016) N	Persistence		Graduated	Cumulative GPA	Entered Advanced Degree
		1-year retention	2-year retention			
Top 25%*	1,635	1,510 (92%)	1,395 (85%)	884 (54%)	3.52	514 (31%)
BUILD	71	71 (100%)	68 (96%)	53 (75%)	3.66	28 (40%)

As of Feb 2020, **26 peer reviewed publications** with UTEP BUILD students as co-authors

\*Comparison group: UTEP students who are

- ✓ Top 25% of cumulative GPA in 1st year
- ✓ First-time students in Fall 2013-2016
- ✓ From the following Colleges: Science – all majors; Engineering – all majors; Health Sciences – all majors & Liberal Arts - Psychology & Sociology only

‡ Data from UTEP's Center for Institutional Evaluation Research & Planning (CIERP)

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## What made the difference for the first two BUILDing SCHOLARS cohorts (2015 & 2016)?

Question on a **senior exit survey** (N=34):

*“Please provide a summary of the different ways that BUILD impacted your life”*

Themes	# responses
Funding (tuition, stipend support)	11
Learning opportunities	13
Research opportunities (general)	12
External summer research opportunities	5

– “Participating in workshops... I developed”  
 – “Writing skills”  
 – “Working with a team”  
 – “Presenting my work”  
 – “Critical thinking”  
 – “Research ethics”  
 – “Handling impostor syndrome”

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## BUILDing SCHOLARS Academic Year & Summer Research Experiences

- Positively & significantly impacts the **science self-efficacy** of both
  - continuing & (retrospective pre-post = 2.93 - 3.89;  $p = 0.002$ )
  - graduating students (retrospective pre-post = 3.17 - 3.78;  $p = 0.001$ )
- Positively & significantly impacts the **science identity** of graduating students (retrospective pre-post = 3.94 - 4.48;  $p = 0.01$ )
- Positively but not significantly impacts the **science identity** of continuing students (retrospective pre-post = 3.75 - 4.06;  $p = 0.19$ )

**Science self-efficacy may mediate, or be the first step in developing a science identity.\***

\*Robnett, R.D., Chemers, M.M., & Zurbriggen, E.L. (2015). Longitudinal Associations Among Undergraduates' Research Experience, Self-Efficacy, and Identity. *Journal of Research in Science Teaching* (52)6, 847-857. <https://doi.org/10.1002/tea.21221>

Expanding on Verna Myers quote:  
 “Diversity is being invited to the party; inclusion is  
 being asked to dance”

My six-word memoir:

**Inclusion requires dancing  
 with different partners**

*Lourdes E. Eshegoyen*

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## NanoHU: A Boundary-Spanning Education Model for Maximizing Human and Intellectual Capital

*Funded by NSF award HRD 1238838*

### **Human Capital**

“the collective skills, knowledge, or the other intangible assets of **individuals** that can be used to create economic value for the **individuals**, their **employers**, or their **community**,”

### **Intellectual Capital**

*The value of the nation’s **employee** knowledge, skills, business training or proprietary information that provides the **nation** with a competitive advantage.*<sup>7</sup>

### **Convergence**

- the merging of life and physical sciences with engineering
- drives the latest industrial revolution
- demands that the world’s workforce become proficient in multiple STEM disciplines

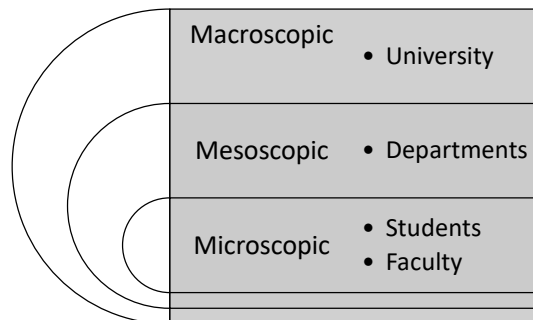


Figure 1. NanoHU boundary-spanning design

### **Fourth Industrial Revolution,**

“...is characterized by a range of new technologies that are fusing the physical, digital and biological worlds, impacting all disciplines, economies and industries, and even challenging ideas about what it means to be human.”<sup>9</sup>

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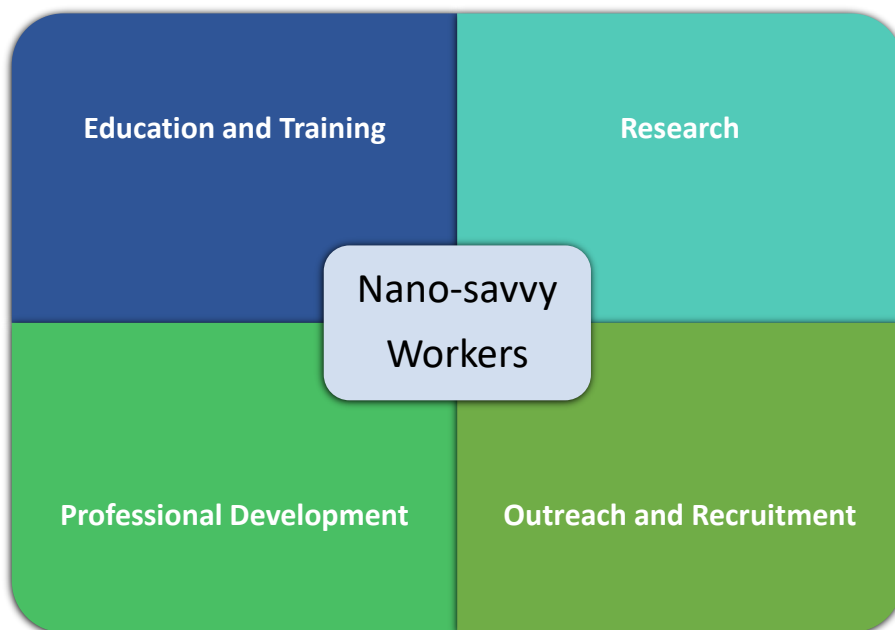
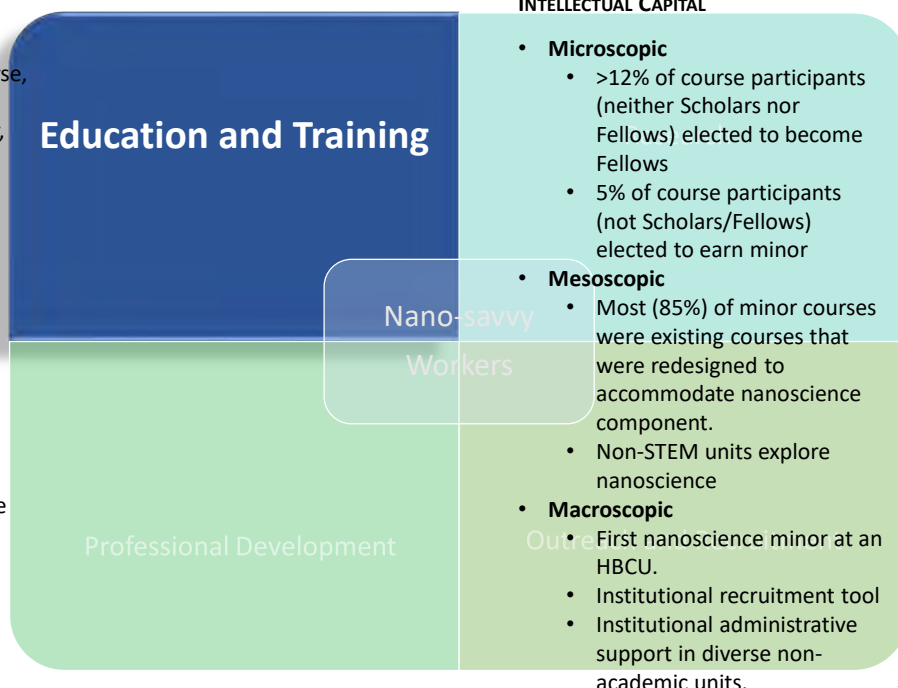


Figure 2. Key elements of the NanoHU Model.

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#### HUMAN CAPITAL

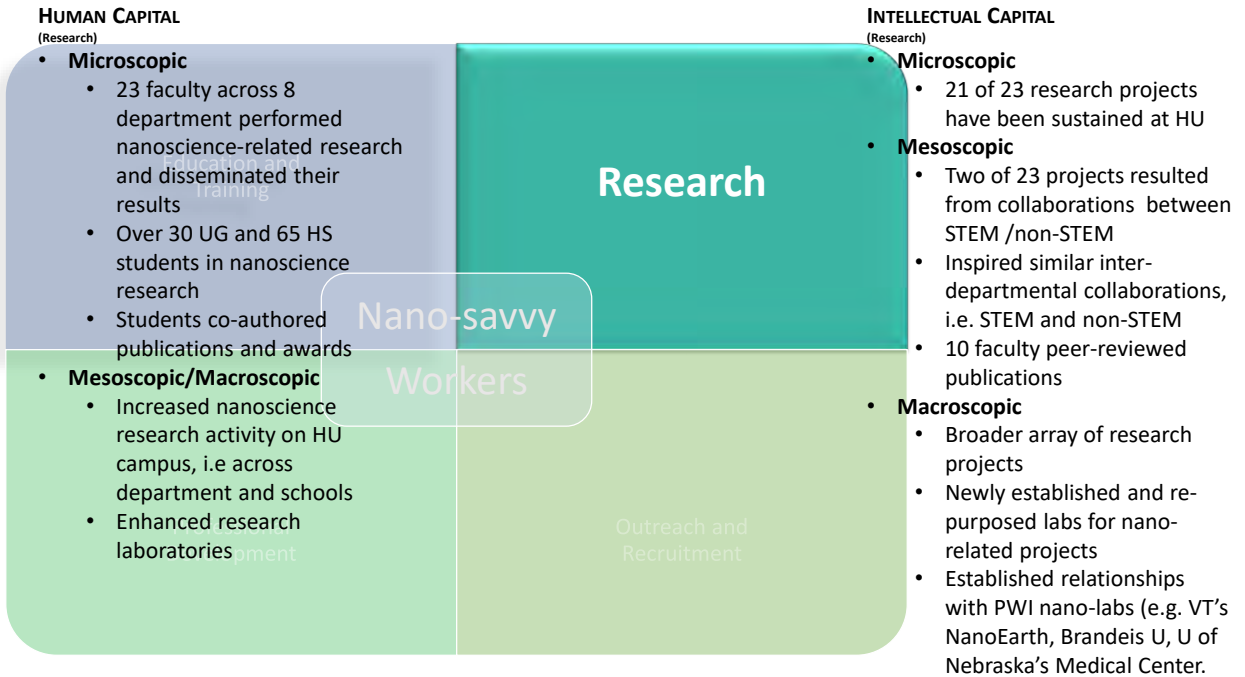
- **Microscopic**
  - 82 students took new course, earned STEM degrees, earned nanoscience minor, engaged in research, and other professional development activities
  - 23 faculty received startup funding, professional development
- **Mesoscopic**
  - Nanoscience minor development via inter-departmental and inter-school collaboration.
- **Macroscopic**
  - University approved course and minor. Both are available to all students.
  - Nanoscience minor model for creating other minors (e.g. material science).
  - Enhanced infrastructure



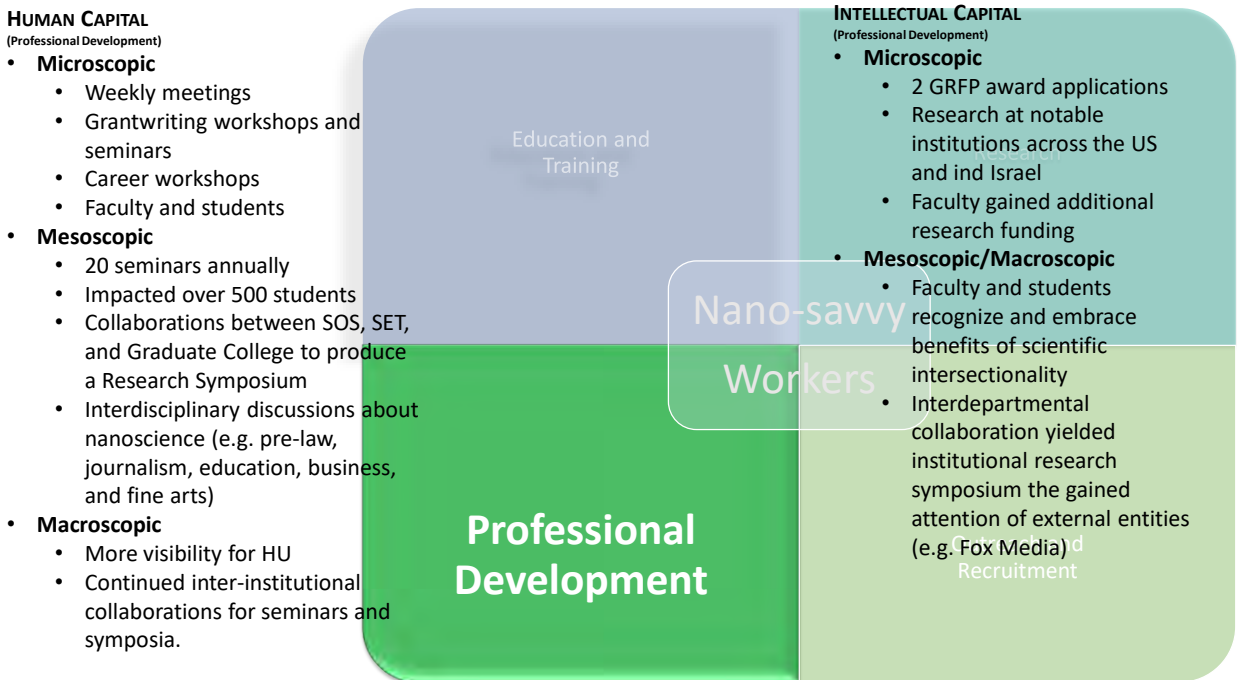
#### INTELLECTUAL CAPITAL

- **Microscopic**
  - >12% of course participants (neither Scholars nor Fellows) elected to become Fellows
  - 5% of course participants (not Scholars/Fellows) elected to earn minor
- **Mesoscopic**
  - Most (85%) of minor courses were existing courses that were redesigned to accommodate nanoscience component.
  - Non-STEM units explore nanoscience
- **Macroscopic**
  - First nanoscience minor at an HBCU.
  - Institutional recruitment tool
  - Institutional administrative support in diverse non-academic units.

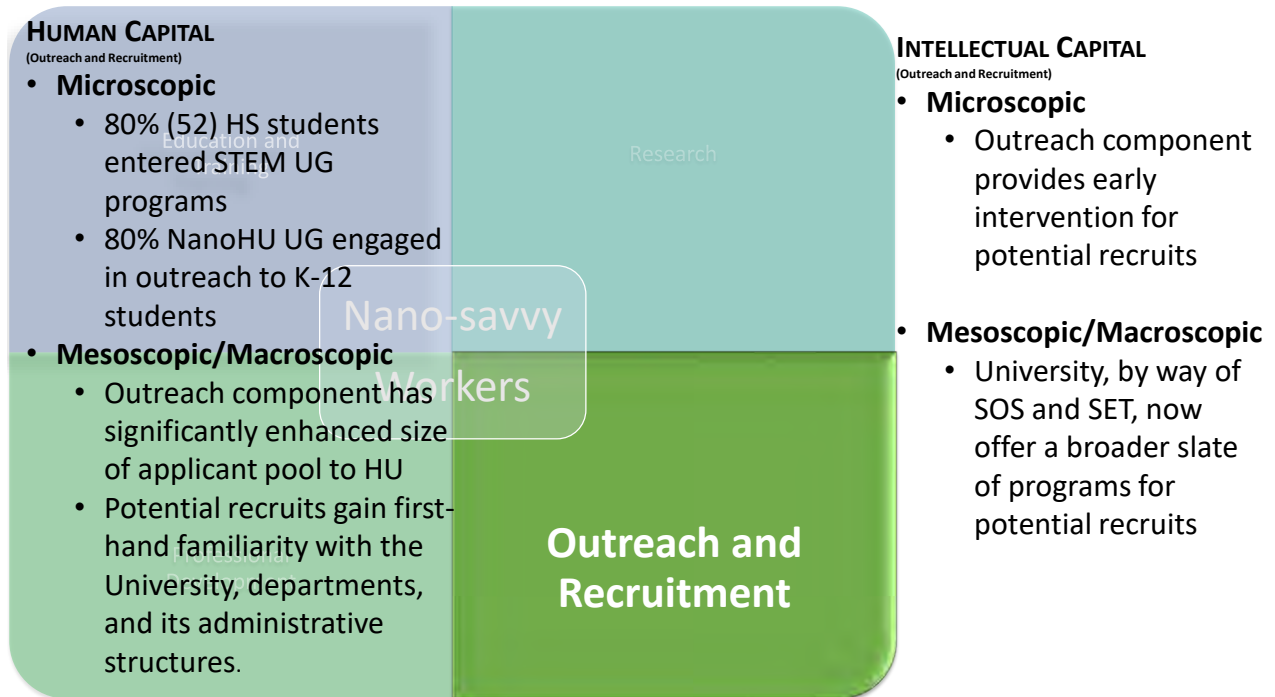
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39



40



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## NanoHU

*A successful broadening participation in STEM initiative*

requires

*Broad participation (collaboration)*

in order to be

**Successful and mutually beneficial!**

42

## Audience Survey Question

ANSWER THE QUESTION ON BLUE SCREEN IN ONE MOMENT



**I am engaged in broadening participation or DEIR activities that encompass:**  
(select all that apply)

- Education and training
- Research
- Professional development
- Outreach and recruitment
- I am not yet engaged in any of these activities



*\* If your answer differs greatly from the choices above tell us in the chat!*

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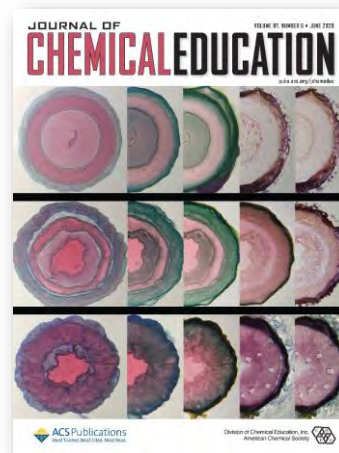
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ASK YOUR QUESTIONS AND COMMENTS NOW IN THE QUESTIONS BOX!

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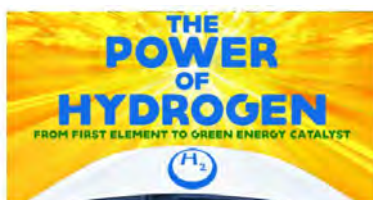
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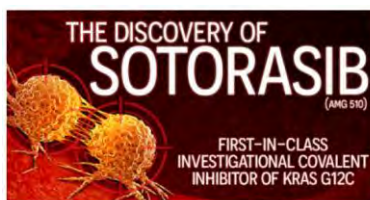
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- How covalent inhibition helped to turn KRAS G12C into a tractable target
- What hurdles were overcome in turning initial KRAS G12C binders into potential human therapeutics

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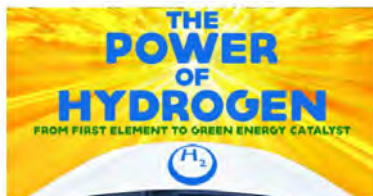


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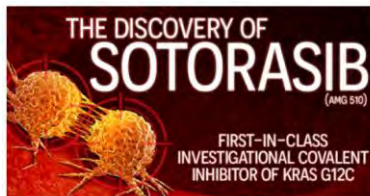
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