ACS Webinars
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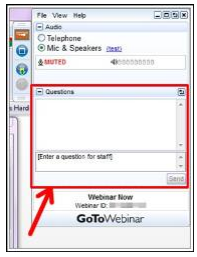
ACS Chemistry for Life®

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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Check out the ACS Webinar Library!

An ACS member exclusive benefit

Hundreds of presentations from the best and brightest minds that chemistry has to offer are available to you on-demand. The Library is divided into 6 different sections to help you more easily find what you are searching.

Professional Development

▶ View the Collection

Learn how to write better abstracts, deliver more engaging presentations, and network to your next dream job. Brush up on your soft skills and set a new career path by mastering what can not be taught in the lab.

Technology & Innovation

▶ View the Collection

From renewable fuels to creating the materials for the technology of tomorrow, chemistry plays a pivotal role in advancing our world. Meet the chemists that are building a better world and see how their science is making it happen.

Drug Design and Delivery

▶ View the Collection

The Drug Design Delivery Series has built a collection of the top minds in the field to explain the mechanics of drug discovery. Discover the latest research, receive an overview on different fields of study, and gain insight on how to possibly overcome your own med chem roadblocks.

Culinary Chemistry

▶ View the Collection

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

▶ View the Collection

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

▶ View the Collection

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

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Learn from the best and brightest minds in chemistry! Hundreds of webinars on diverse topics presented by experts in the chemical sciences and enterprise.

Edited Recordings are an exclusive ACS member benefit and are made available once the recording has been edited and posted.

Live Broadcasts of ACS Webinars® continue to be available to the general public several times a week generally on Wednesdays and Thursdays from 2-3pm ET!

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

www.acs.org/acswebinars

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From ACS Industry Member Programs

- **Industry Matters Newsletter**

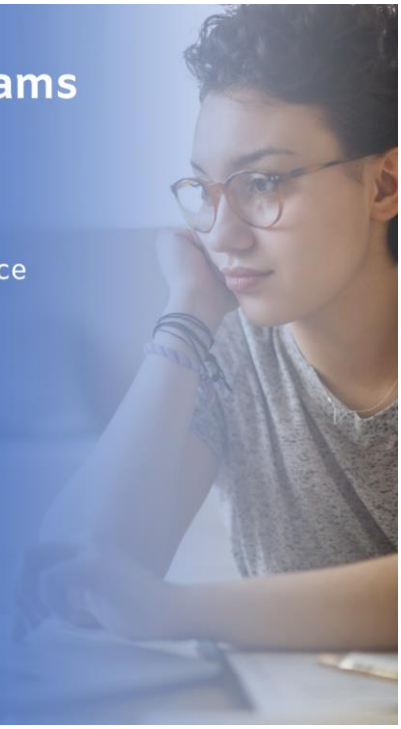
  ACS Member-only weekly newsletter with exclusive interviews with industry leaders and insights to advance your career.

  Preview & Subscribe: acs.org/indnews

- ACS Innovation Hub

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

  Join: bit.ly/ACSinnovationhub

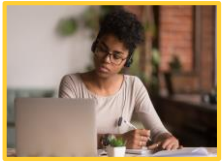


ACS Career Navigator: Your Home for Career Services

ACS Chemistry for Life®

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:

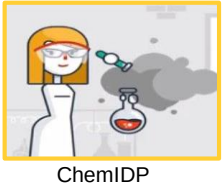


Professional Education

Virtual Career Consultants

ACS Leadership Development System

Career Navigator LIVE!



ChemIDP

College to Career

ACS Webinars

Virtual Classrooms

Visit www.ACS.org/COVID19-Network to learn more!

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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
Diversity@acs.org

@ACSDiversity

ACS Diversity

ACS Voices Diversity Podcast

acsvoices.podbean.com/

www.acs.org/diversity

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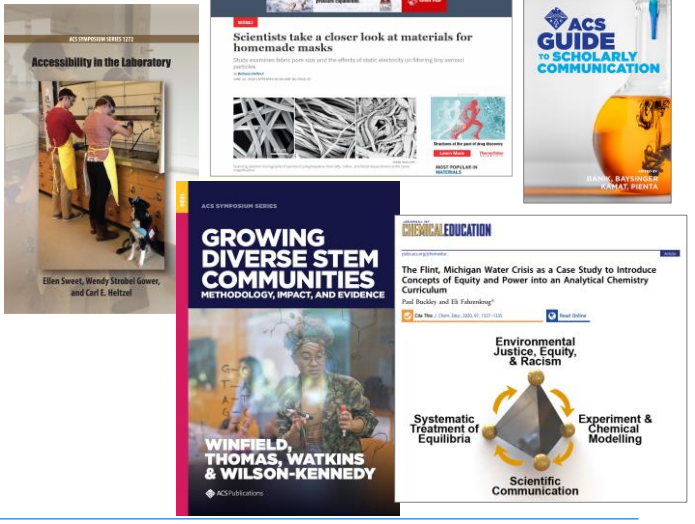
ACS Publications Journals, Books and News

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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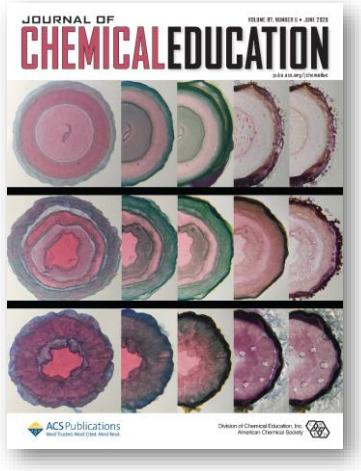
JOURNAL OF CHEMICAL EDUCATION

ACS Publications
Most Trusted. Most Cited. Most Read.

- 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 publishers chemistry education research, activities, laboratory experiments, instructional methods, and pedagogies
- Read and submit your research at **pubs.acs.org/jce**
- Follow us on Twitter: **@ACSDivCHED**



www.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/vJIsd-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.

ACS Webinars
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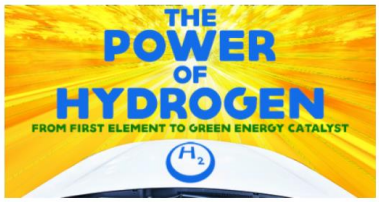


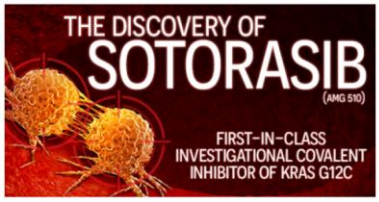
Date: Thursday, February 11, 2021 @ 1-2pm ET
Speaker: Vijay Kapur, (retired) International Solar Electric Technology
Moderator: Bill Tsuzynski, The Unami Group LLC

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, Artemys Foods / Andrew D Ive, 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

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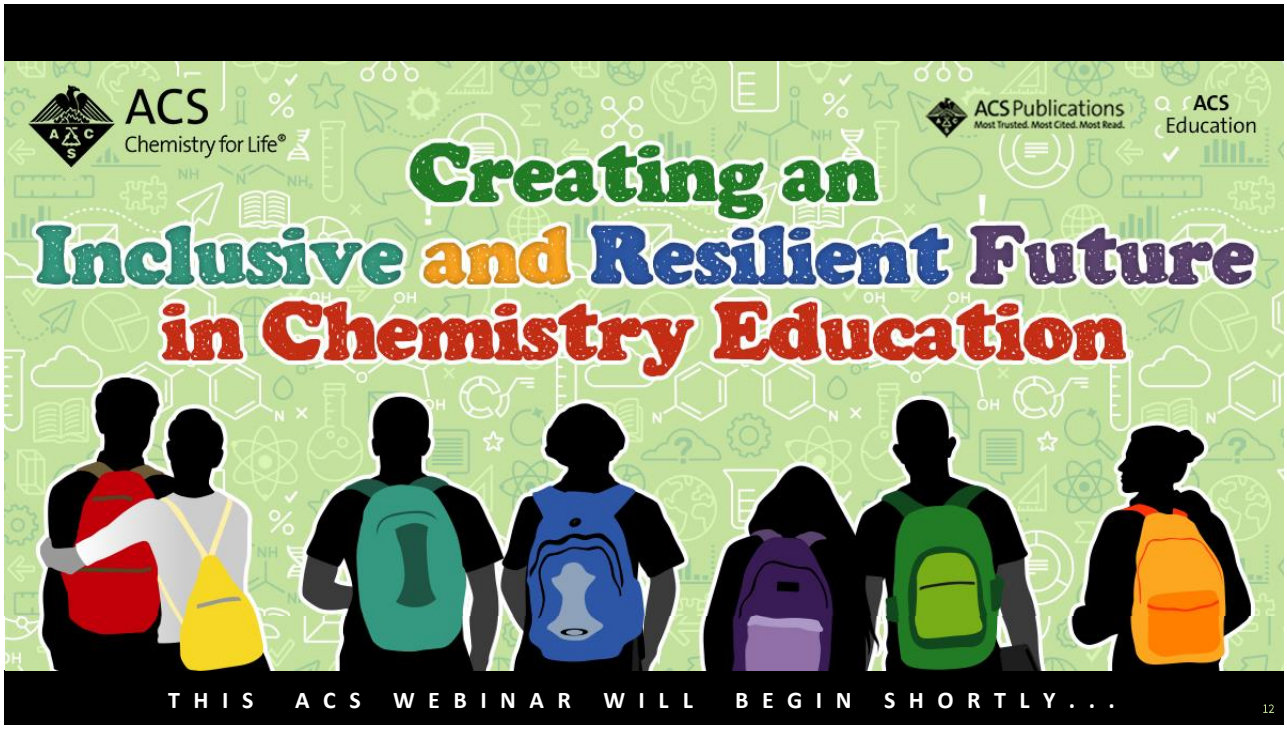

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ACS Webinars
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ACS Chemistry for Life®

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

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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Ask the Editors Office Hours

SCAN ME

February: Wednesdays, 3 – 4 pm ET

SCAN ME

March: Thursdays, 12 – 1 pm ET

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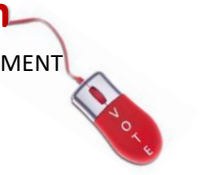
Audience Survey Question

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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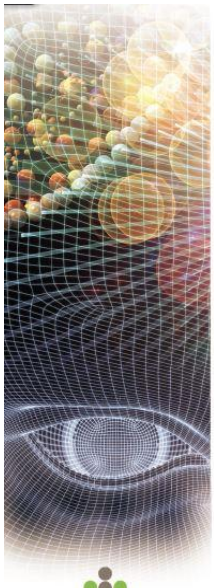

UNDERSTANDING INTERVENTIONS

In collaboration with

SOSICENTER
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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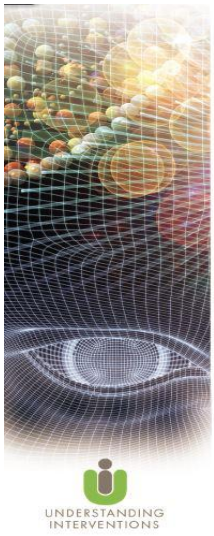
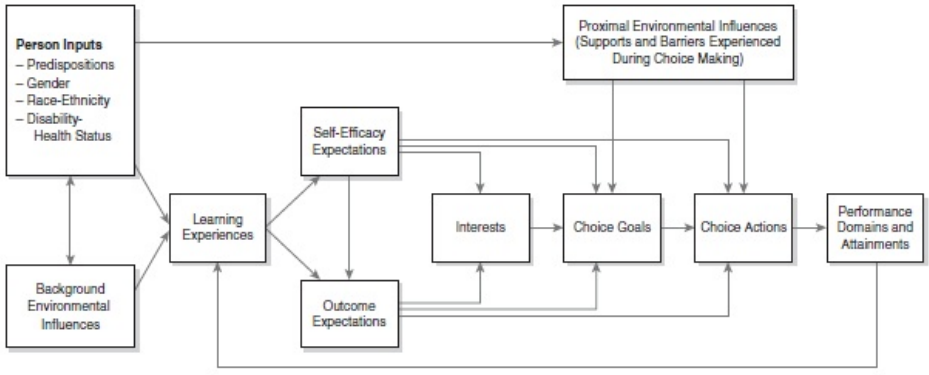


Social Cognitive Career Theory



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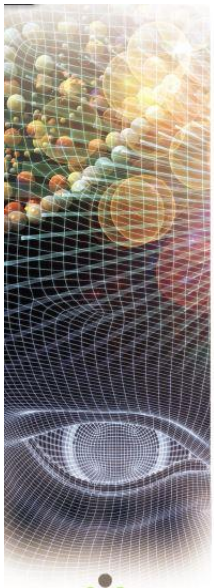

UNDERSTANDING INTERVENTIONS

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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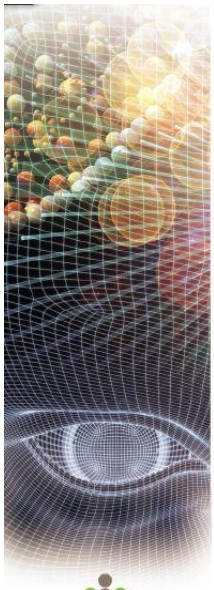

UNDERSTANDING INTERVENTIONS

Community Cultural Wealth Model

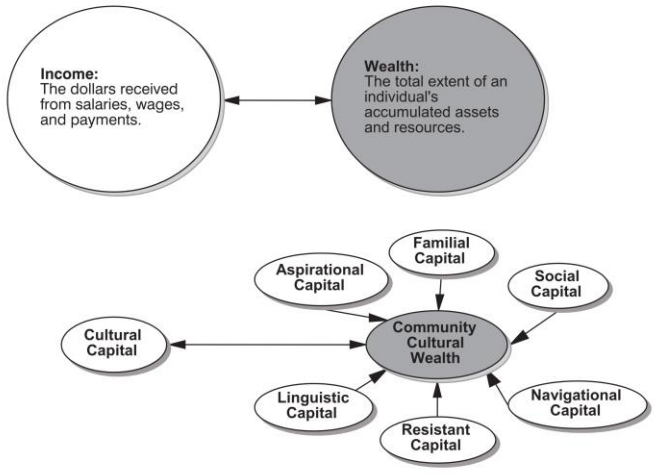

Figure 2. A model of community cultural wealth. Adapted from: Oliver & Shapiro, 1995

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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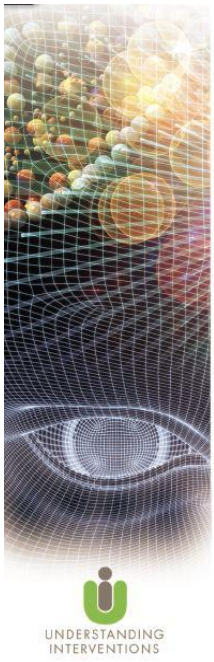
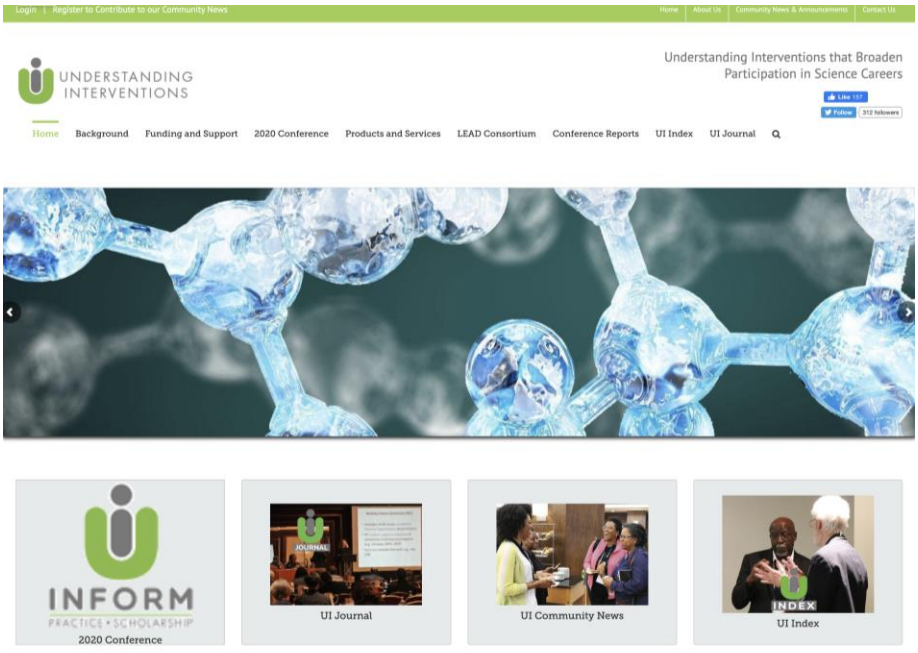
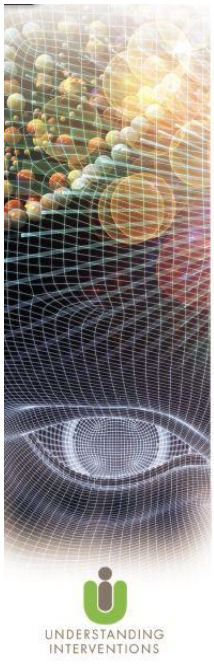
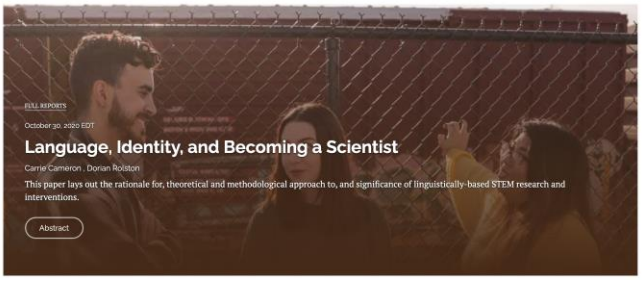




http://understandinginterventions.org





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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BUILDing SCHOLARS

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

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How would you define student success?

&

How would you measure it?

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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

NIH National Institute of General Medical Sciences

Diversity Program Consortium
Supported by the National Institutes of Health

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Perspective: About UTEP

- ~25,000 students (21,000 UG)
- 80% Hispanic (83.3% at UG level)
- 51% 1st 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

BUILDing SCHOLARS
Incoming Class-2105

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

ACCESS & EXCELLENCE MISSION

A Hispanic Serving Institution
"We serve students with intentionality"

* BMRW = biomedical research work force

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Perspective: About UTEP

ACCESS & EXCELLENCE MISSION

5th	1st	1st	R1
2014-15	2016	2012-15	2019
# of UG degrees Awarded to Hispanics[1]	Hispanic Institution of Origin for STEM Doctoral Recipients[2]	Social Mobility (bottom 20% reaching top 20%)[3]	Carnegie Classification

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

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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	**Persistence in biomedical degree or other formal research training program**
	STU-10	Frequent receipt of mentoring to enhance success in the biomedical pathway
➡	STU-11	**Participation in mentored or supervised biomedical research**
➡	STU-12	**Evidence of competitiveness for transitioning into the next phase in the biomedical career pathway**
	STU-13	Participation in academic or professional organizations related to biomedical disciplines
➡	STU-14	**Evidence of excelling in biomedical research and scholarship**
	STU-15	Strong academic and professional networks
➡	STU-16	**Completion of biomedical degree or other formal training program**
	STU-17	Application and acceptance to a subsequent research training program in a biomedical discipline
➡	STU-18	**Entrance into a subsequent research training program in a biomedical discipline**

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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	Persistance		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. Echegoyen

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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.*[7]

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

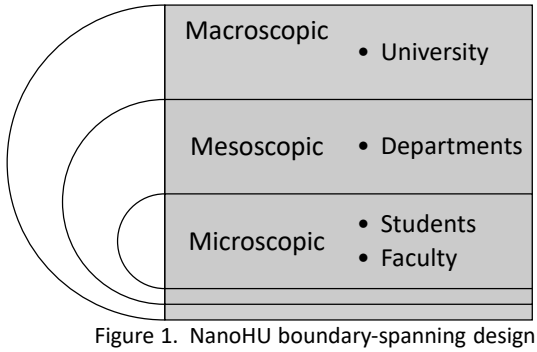

Figure 1. NanoHU boundary-spanning design

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."[9]

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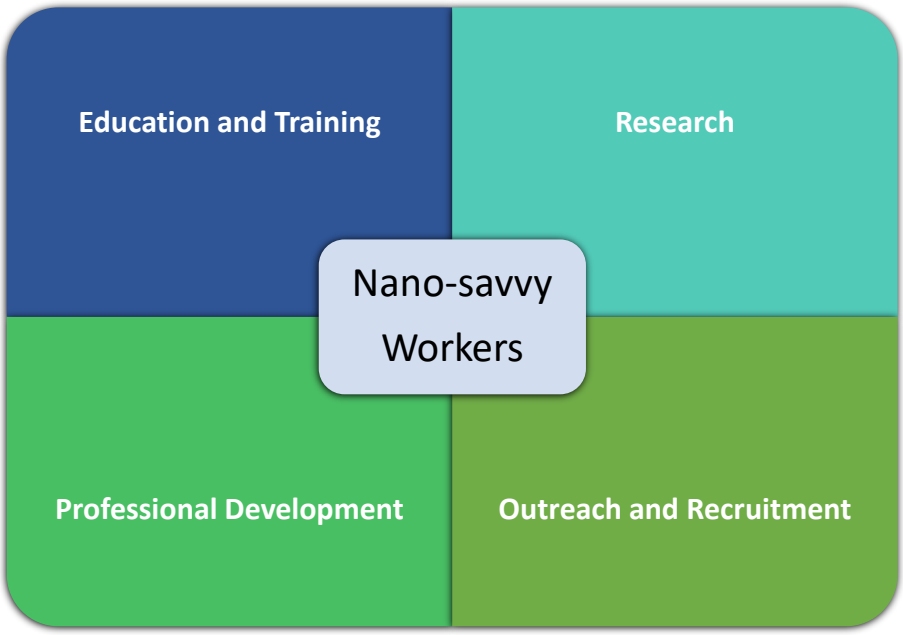

Figure 2. Key elements of the NanoHU Model.

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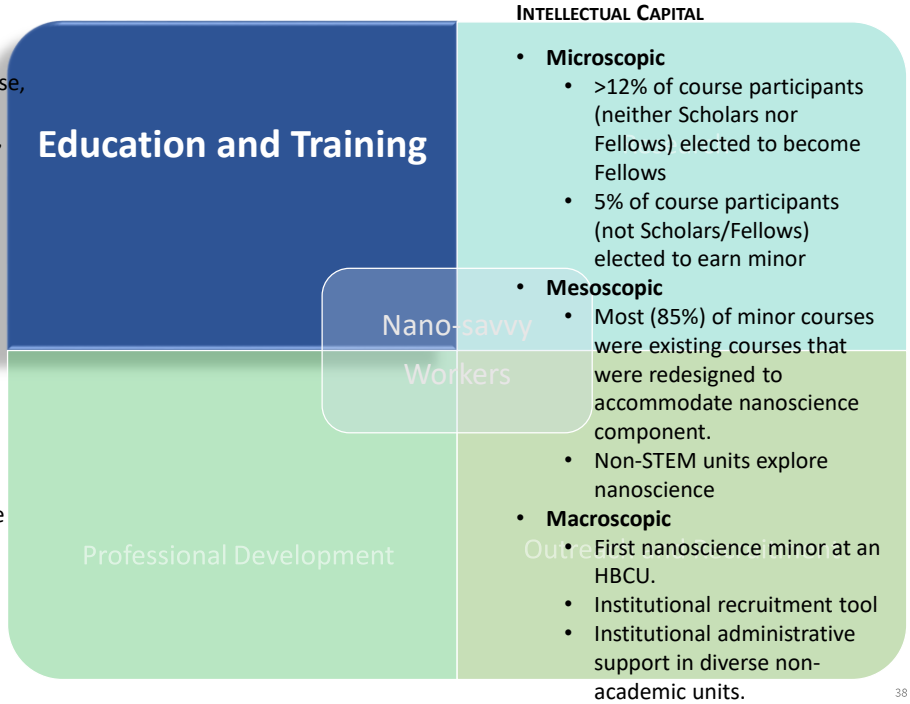
HUMAN CAPITAL

- **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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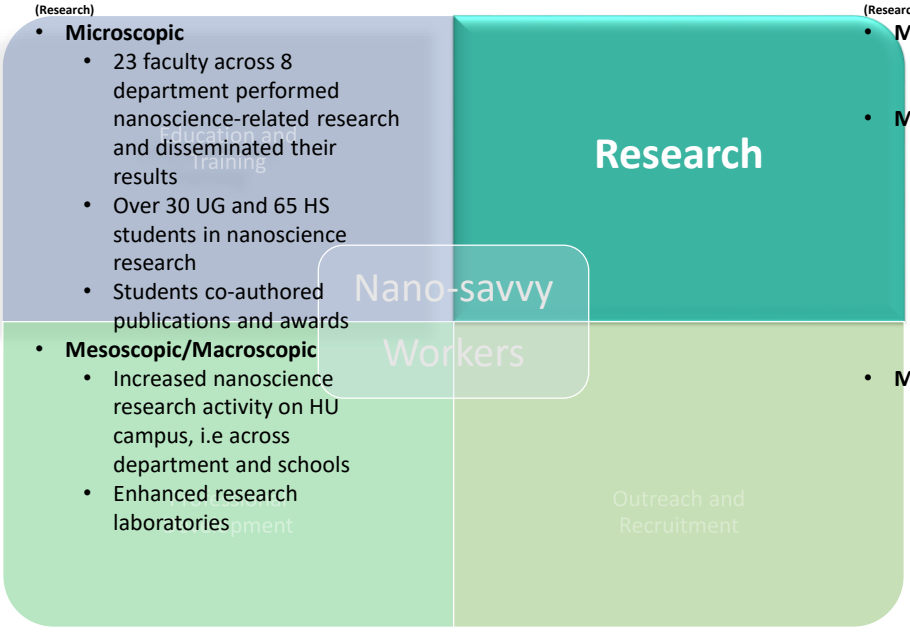
HUMAN CAPITAL
(Research)

- **Microscopic**
  - 23 faculty across 8 department performed nanoscience-related research and disseminated their results
  - Over 30 UG and 65 HS students in nanoscience research
  - Students co-authored publications and awards
- **Mesoscopic/Macroscopic**
  - Increased nanoscience research activity on HU campus, i.e across department and schools
  - Enhanced research laboratories



INTELLECTUAL CAPITAL
(Research)

- **Microscopic**
  - 21 of 23 research projects have been sustained at HU
- **Mesoscopic**
  - Two of 23 projects resulted from collaborations between STEM /non-STEM
  - Inspired similar inter-departmental collaborations, i.e. STEM and non-STEM
  - 10 faculty peer-reviewed publications
- **Macroscopic**
  - Broader array of research projects
  - Newly established and re-purposed labs for nano-related projects
  - Established relationships with PWI nano-labs (e.g. VT's NanoEarth, Brandeis U, U of Nebraska's Medical Center.

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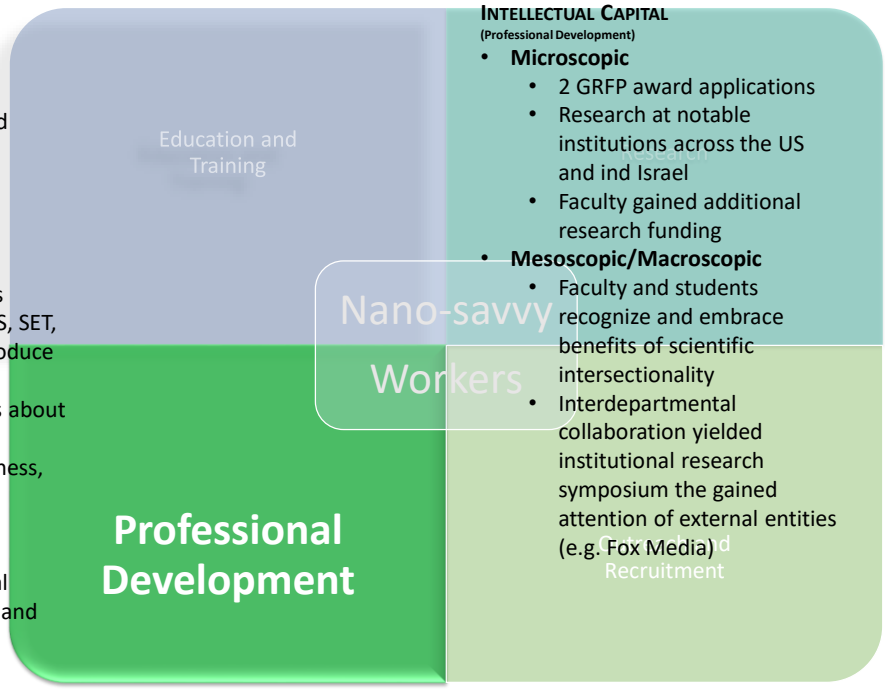
HUMAN CAPITAL
(Professional Development)

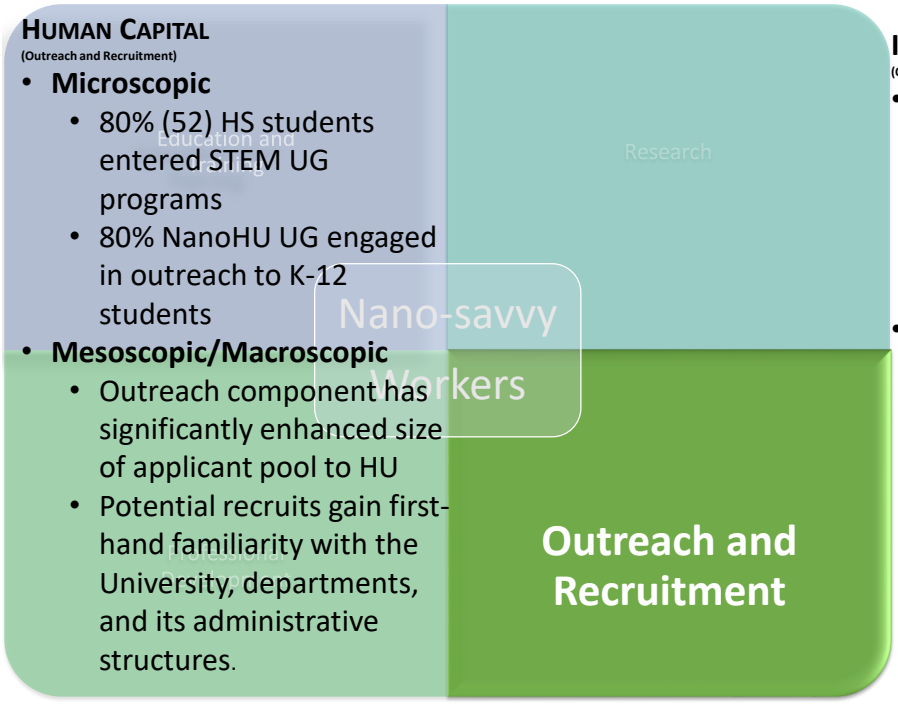
- **Microscopic**
  - Weekly meetings
  - Grantwriting workshops and seminars
  - Career workshops
  - Faculty and students
- **Mesoscopic**
  - 20 seminars annually
  - Impacted over 500 students
  - Collaborations between SOS, SET, and Graduate College to produce a Research Symposium
  - Interdisciplinary discussions about nanoscience (e.g. pre-law, journalism, education, business, and fine arts)
- **Macroscopic**
  - More visibility for HU
  - Continued inter-institutional collaborations for seminars and symposia.



INTELLECTUAL CAPITAL
(Professional Development)

- **Microscopic**
  - 2 GRFP award applications
  - Research at notable institutions across the US and ind Israel
  - Faculty gained additional research funding
- **Mesoscopic/Macroscopic**
  - Faculty and students recognize and embrace benefits of scientific intersectionality
  - Interdepartmental collaboration yielded institutional research symposium the gained attention of external entities (e.g. Fox Media)

40



HUMAN CAPITAL
(Outreach and Recruitment)

- **Microscopic**
  - 80% (52) HS students entered STEM UG programs
  - 80% NanoHU UG engaged in outreach to K-12 students
- **Mesoscopic/Macroscopic**
  - Outreach component has significantly enhanced size of applicant pool to HU
  - Potential recruits gain first-hand familiarity with the University, departments, and its administrative structures.

INTELLECTUAL CAPITAL
(Outreach and Recruitment)

- **Microscopic**
  - Outreach component provides early intervention for potential recruits
- **Mesoscopic/Macroscopic**
  - University, by way of SOS and SET, now offer a broader slate of programs for potential recruits

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NanoHU

A successful broadening participation in STEM initiative

requires

Broad participation (collaboration)

in order to be

Successful and mutually beneficial!

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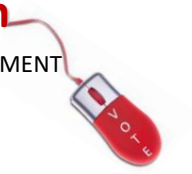
Audience Survey Question

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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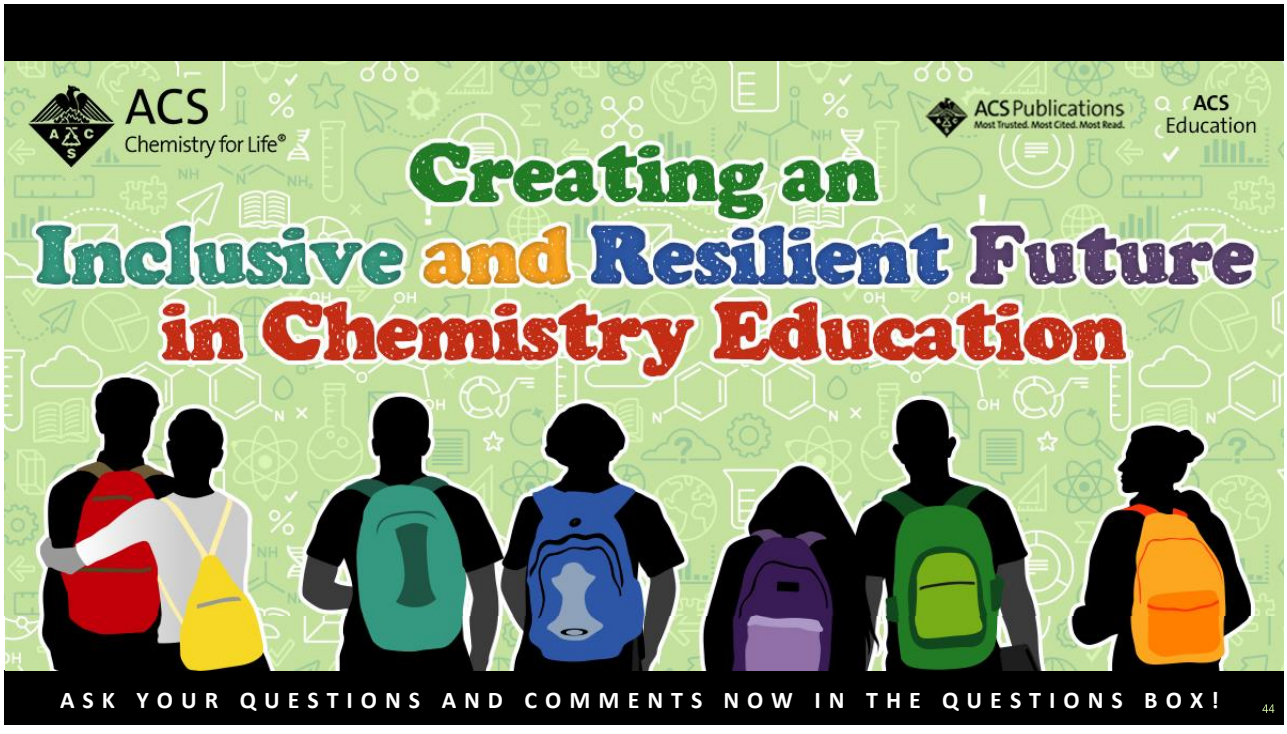

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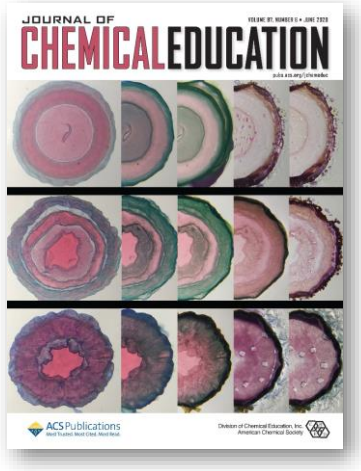

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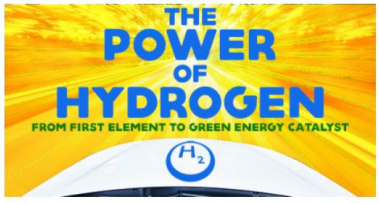

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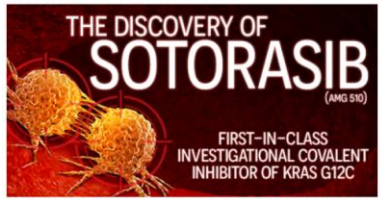

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- What hurdles were overcome in turning initial KRAS G12C binders into potential human therapeutics

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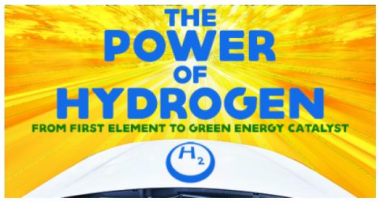

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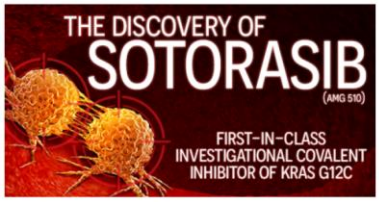

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