



ANNUAL REPORT

September 2019 – August 2020



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WISCIENCE advancing the practice and impact of STEM (photos taken before pandemic)

DIRECTOR'S REFLECTION

The challenges of a global pandemic and national racial unrest we faced this year have been and continue to be unlike anything I've experienced in my twenty-five years at UW–Madison. The pandemic has shown us that the health of our nation's citizens relies on their ability to understand the scientific process and evaluate scientific information to make informed decisions. The racial unrest has shown us that the preservation of our nation's democracy relies on the equal access and full engagement of *all* our citizens. WISCIENCE's mission to improve STEM education and support STEM learners from diverse backgrounds, especially those who are members of historically excluded groups, has never been more important.

The story of this year's annual report is one of resilience, flexibility, and creativity. Again, and again, WISCIENCE staff members worked collaboratively with our partners to find ways to pivot to remote delivery of courses and programs that maintained both high quality STEM learning experiences and inclusive participant engagement. Since March 2020, WISCIENCE staff have engaged in countless hours of professional development and hard work to deliver high-quality online programs to our participants. They created online STEM Immersion Orientation programs to welcome incoming first-year and transfer students to the UW–Madison STEM community; they supported BioCommons Ambassador peer leaders to produce YouTube videos that deliver academic and social support to students finding their way in online STEM classes; they developed and taught a novel course to keep undergraduate research students engaged in reading scientific literature even though they were unable to go to the lab; they restructured classes to foster an increased sense of community and student engagement; and they worked with the Madison Metropolitan School District to find ways to remotely deliver Science Club programming to elementary school children in high needs districts across the city. The impact of these innovations is seen in the evaluation data and outcomes of our programs, and particularly in the reflections offered by our participants. These are just a few of the accomplishments reflected in this report.

Never before have I been prouder to represent WISCIENCE and the extraordinary students and staff members who work there. In addition, I am sincerely grateful for our university and community partners who collaborate with us to make a difference in STEM education for students at UW–Madison and beyond. I invite them to take pride in all we've accomplished together this past year.



Janet Branchaw

Janet L. Branchaw, PhD
Assistant Professor, Department of Kinesiology, School of Education
Director, WISCIENCE



UW-Madison STEM students work during a summer microbiology lab session taught by Michelle Rondon (photo taken before pandemic)

VISION, MISSION, AND GOALS

Vision:

Advancing the practice and impact of STEM.

Mission:

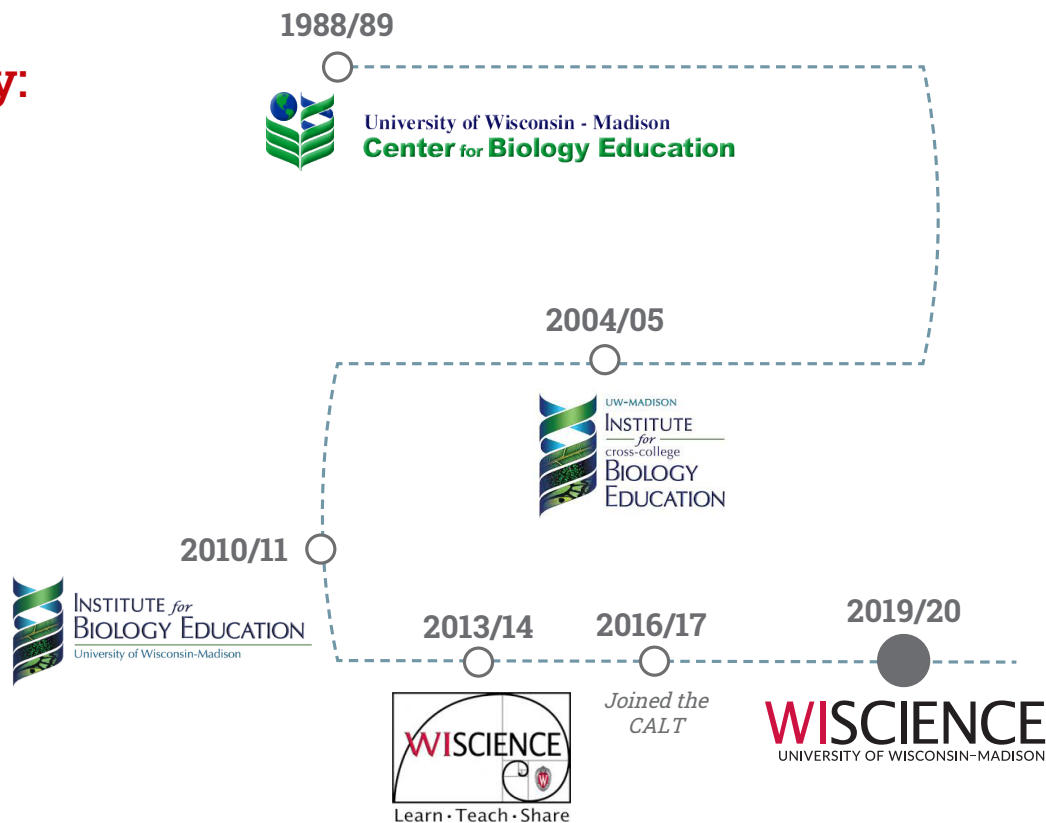
Enhance engagement and strengthen success in STEM through equitable and inclusive initiatives, collaborations, service, and scholarship.

Goals:

WISCIENCE will...

- I. Build and support communities of STEM learners, leaders, and practitioners.
- II. Deliver courses and programs that:
 - a. Develop knowledge and skills for success in STEM.
 - b. Build STEM identities and confidence.
 - c. Provide professional development in teaching, public service, leadership, and research in STEM.
 - d. Provide opportunities to engage in teaching, public service, leadership, and research in STEM.
- III. Foster equity and inclusion in STEM through initiatives and programs that support diverse populations.
- IV. Lead and collaborate on local and national efforts to improve STEM education by developing and disseminating evidence-based programs, curricula, resources, and other scholarly products.

History:



Our history dates back to 1988/89 with the founding of the Center for Biology Education, a cross-campus unit within the Provost's office focusing on improving biology education. We have gone through multiple transformations over the years in response to campus needs but we have always remained a cross-campus unit, serving the entire university as well as the surrounding community.

In 2004/05, the Center became the core entity from which the Institute for Cross-College Biology Education was created. The Institute was an experiment to combine several biology-related programs whose audiences went beyond any single school/college. A major grant from the Howard Hughes Medical Institute in 2010 allowed an expansion of programming for first-year students in the biological sciences. Our name was changed in 2011 to the Institute for Biology Education to better reflect our entire mission, both across campus and beyond.

In 2013/14, a review of the Institute and its largest academic program found that although our experiment had been very successful in some areas, the Institute needed changes. Responsibility for academic programs like undergraduate majors and course sequences was reassigned to units within schools/colleges. The core programs and initiatives that had grown from the original Center for Biology Education were recognized as making significant contributions, particularly with regard to facilitating cross-campus collaboration and expanding access to science education for groups underrepresented in science. To support further development of this work, our mission was expanded beyond the biological sciences to all of STEM. To match the mission, our name was changed to WISCIENCE, the Wisconsin Institute for Science Education and Community Engagement.

In 2016/17, we joined the Collaborative for Advancing Learning and Teaching (CALT), a partnership of cross-campus units at UW-Madison that unites and leverages a collective wealth of wide-ranging expertise to advance teaching and learning in the classroom and beyond.



Left to right, top to bottom: Amber, Jon, Jahmese, Robert, Liza, Jessica B., Keegan, Cara, Janet, Jerí, Amanda, Brit, Anna, Jessica T., and Kevin.

PERSONNEL

Leadership

Janet Branchaw, PhD	Director
Jessica Belcher, MPA	Administrative Director
Amber Smith, PhD	Associate Director

Staff

Liza Chang, PhD	Research Mentor and Mentee Training Coordinator
Anna Courtier, PhD	Director of Community-Based Learning
Robert Bohanan, PhD	Outreach Program Manager
Jerí Bryant, PhD	Director of BioCommons
Keegan Buscaino, BS	Office Manager
Amanda Butz, PhD	Director of Evaluation & Research
Jon Hess Jr, MBA	Director of Marketing & Communications
Kevin Niemi, PhD	Director of Outreach Programs
Jessica TeSlaa, PhD	Community-Engaged Curriculum Developer & Instructor
Cara Theisen, PhD	Director of Professional Development in Teaching & Learning
Brit Wagner, PhD	Postdoctoral Research Associate
Jahmese Williams, PhD	Director of First-Year and Retention Programs in Science



Aerial view of WISCIENCE and Henry Mall

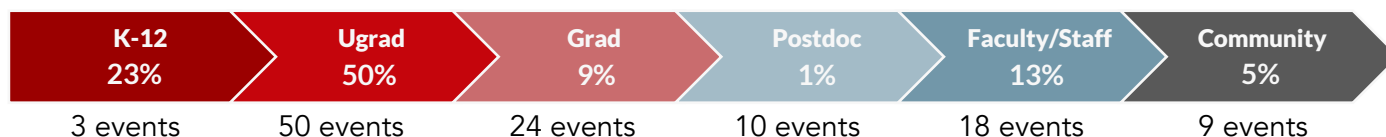
OVERVIEW

Our programs promote diversity, educational innovation, engaged scholarship, outreach and collaboration. We provide cross-campus services to undergraduate students, graduate students, postdoctoral scholars, staff, and faculty to support the University's strategic goal of excellence in education.

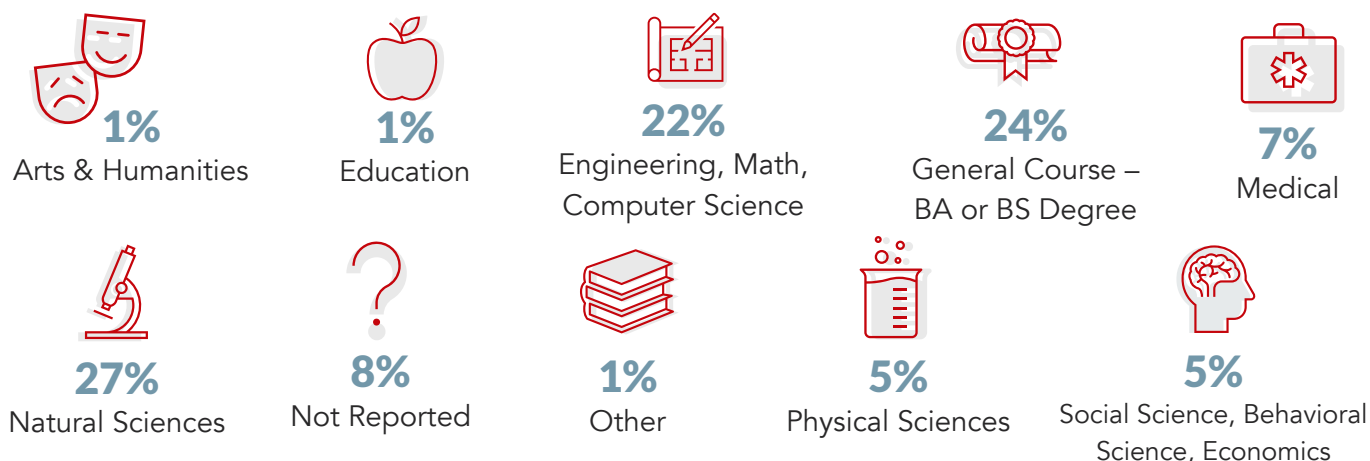
Who We Impact

We reach individuals at all stages of training and levels of exposure to STEM, from K-12 students to undergraduate students to community professionals and citizen scientists. In 2019/20, we reached 3,325 participants. *Note: Data is only of recorded participants and does not include all participants who may have attended but didn't formally register.*

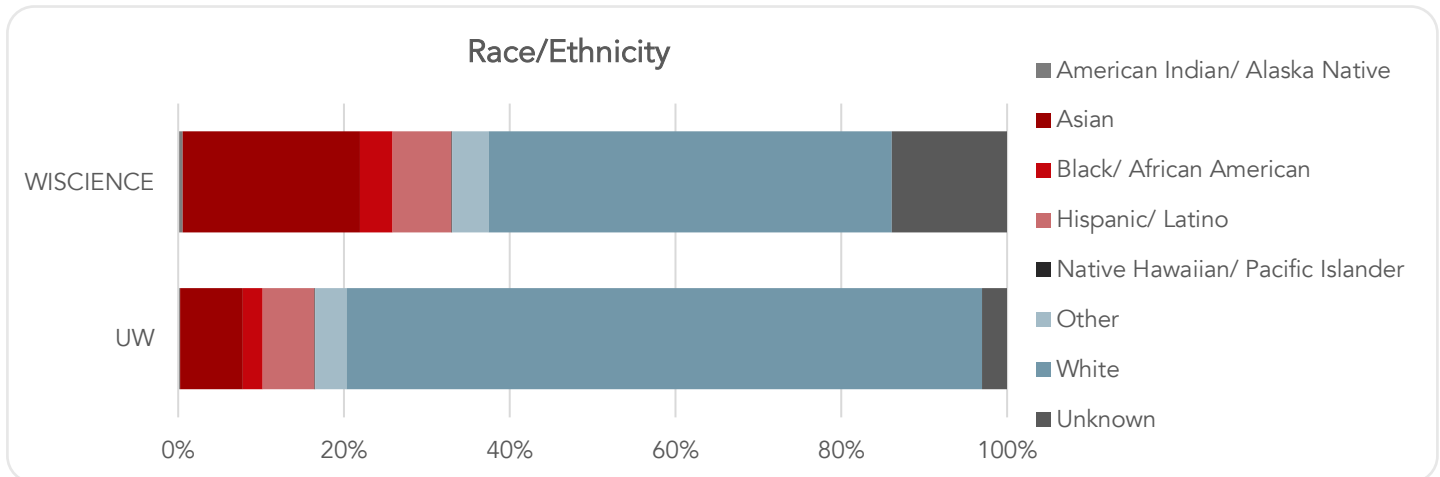
Total Number of Participants: 3,325



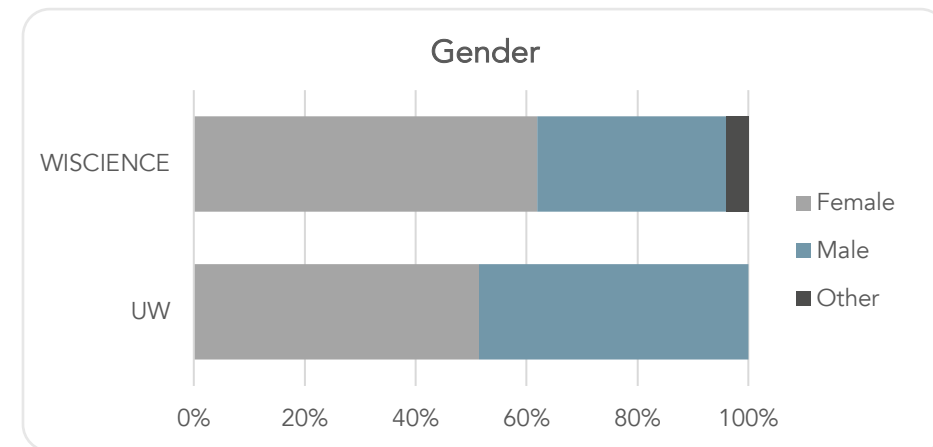
Discipline of UW-Madison Participants (n = 1,226)



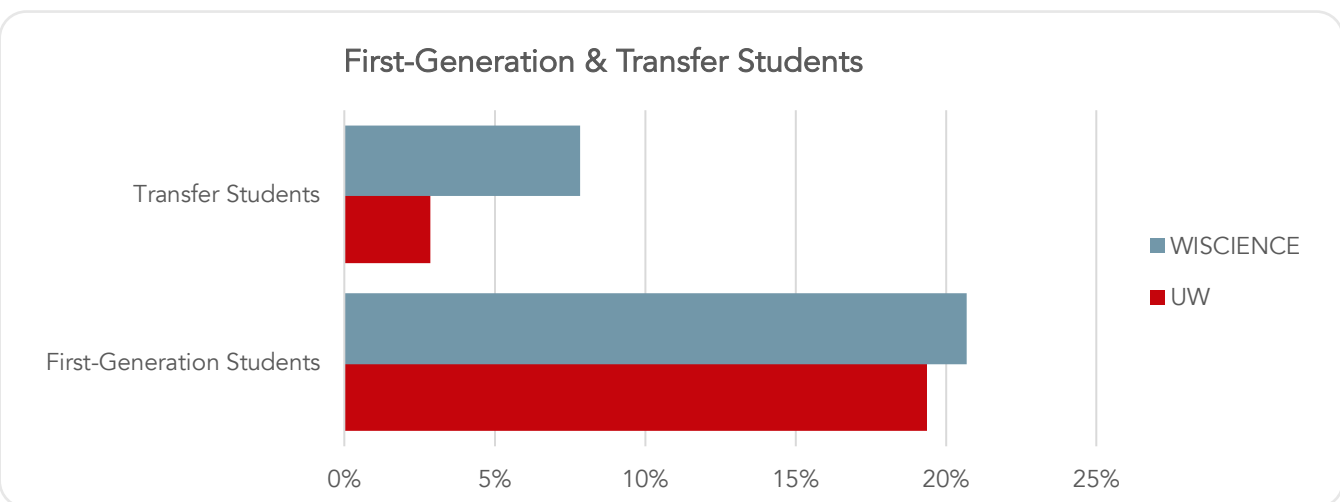
Demographics of Participants Compared to UW-Madison



Note: UW-Madison data comes from Fall 2019 Semester in 2019-20 Data Digest (<https://apir.wisc.edu/data-digest/>). WISCIENCE data represent only 35% of all participants (1,169).



Note: UW-Madison data comes from Fall 2019 Semester in 2019-20 Data Digest (<https://apir.wisc.edu/data-digest/>). WISCIENCE data represent only 35% of all participants (1,169). UW Data reports gender with Male and Female categories only.



Note: UW-Madison data comes from Fall Semester Undergraduate Enrollment, First Generation and New Transfer Students and Fall Semester FTE Enrollment in 2019-20 Data Digest (<https://apir.wisc.edu/data-digest/>). WISCIENCE Data come from participants in courses and programs for undergraduates where this information was collected (N = 996).

Course and Program Alignment to Goals

In 2019/20, we offered 34 different types of courses and programs in alignment with our Institute's goals. Full details on course and program alignment to goals can be found in the next section. A list of course and program descriptions can be found in the appendix.

Percentage of Courses and Programs that Address Each WISCIENCE Goal:

Goal I

Build and support communities of STEM learners, leaders, and practitioners.

91%

31 courses/programs

Goal II

Deliver courses and programs that:

A. Develop knowledge and skills for success in STEM.

82%

28 courses/programs

B. Build STEM identities and confidence.

74%

25 courses/programs

C. Provide professional development in teaching, public service, leadership, and research in STEM.

76%

26 courses/programs

D. Provide opportunities to engage in teaching, public service, leadership, and research in STEM.

65%

22 courses/programs

Goal III

Foster equity and inclusion in STEM through initiatives and programs that support diverse populations.

85%

29 courses/programs

Goal IV

Lead and collaborate on local and national efforts to improve STEM education by developing and disseminating evidence-based programs, curricula, resources, and other scholarly products.

38%

13 courses/programs



Liza Chang and Amber Smith meeting with the Biological Interactions Summer Research Program students

Course and Program Alignment to Goals

Course/Program Name	Goal I	Goal II				Goal III	Goal IV
		A	B	C	D		
STEM Student Explorations							
BioHouse Seminar (INTEGSCI 110)							
Exploring Biology (INTEGSCI 100)							
Exploring Research (INTEGSCI 150)							
Exploring Service (INTEGSCI 140)							
STEM Immersion							
Transfer STEM Immersion							
STEM Student Engagement							
Biological Interactions Summer Research Program							
Entering Research Scholarship Summer Research Program							
Entering Research Part 1 (INTEGSCI 260)*							
Entering Research Part 2 (INTEGSCI 261)*							
Service with Youth in STEM (INTEGSCI 240)							
Service with Youth in STEM Practicum (INTEGSCI 341)							
Research Mentor Training Workshops							
STEM Student Leadership							
Exploring Discipline-Based Leadership (INTEGSCI 230)							
IMPACT Leadership Program							
Peer Leader Interns							
STEM Professional Development							
Mentoring Fellows							
Culturally Aware Mentoring							
Research Mentor Training (INTEGSCI 660)							
Research Mentor Training Workshops							
Service Fellows							
Public Service in STEM (INTEGSCI 675)							
Relationships and Materials Development in STEM (INTEGSCI 675)							
Mentored Practicum in Public Service in STEM (INTEGSCI 675)							
Teaching Fellows							
College Science Teaching (INTEGSCI 650)							
Instructional Materials Design (INTEGSCI 750)							
Practicum in Science Teaching (INTEGSCI 850)							
Scientific Teaching for TAs (INTEGSCI 605)							
WISCIENCE Partnerships							
Integrated Initiatives							
BioCommons							
After school science programs							
HHMI Inclusive Excellence							
Connections and Collaborations							
ARIS/ CASIR							
AI SL – Broader Impacts Project							
APSI - Biology							
Science Alliance							
Research Mentor & Mentee Training Presentations & Consultations							
Inclusive Teaching							
LTER/Citizen Science							
PEOPLE							
Wisconsin Scientific Teaching Design Institute							

* Course not offered due to constraints of the COVID-19 pandemic

Overall Course/Program Satisfaction

As part of our ongoing evaluation efforts, WISCIENCE examines the extent to which our courses and programs are meeting the mission and goals of the institute. WISCIENCE leadership and program directors evaluate their programs using multiple sources of data, including participant information, common evaluation questions, and course and program data. The collective results of this evaluation effort follow.

The **majority** of WISCIENCE course participants **were satisfied** with their experience. N=436

Evaluation results (excellent, very good, good, fair, and poor)

- **82%** would rate their experience in our course or program as **good, very good, or excellent**. 13% would rate their experience as fair and 5% said poor. N=431



Evaluation results (strongly agree, agree, neutral, disagree, and strongly disagree)



- **68% agreed or strongly agreed** that they would recommend this course or program to other potential participants. 15% felt neutral about recommending and 17% disagreed or strongly disagreed with recommending. N=431



- **72% agreed or strongly agreed** that activities and assignments completed as part of this program or course enhanced their learning. 17% felt neutral. N=429



- **81% agreed or strongly agreed** that they are likely to apply what they learned in this program or course in the future. 11% felt neutral. N=431

- **84% agreed or strongly agreed** that their course or program met the stated goals or objectives. 12% felt neutral. N=433



Cara Theisen and students from Exploring Biology and Exploring Research (photo taken before pandemic)

Online Learning Satisfaction

Due to the constraints of the COVID-19 pandemic, academic staff shifted spring 2020 courses from in-person learning to online learning. The following evaluation data comes from 4 undergraduate and 6 graduate courses offered during Spring 2020.

Evaluation results (strongly agree, somewhat agree, neutral, somewhat disagree, and strongly disagree)



- **78% strongly agreed** that instructors provided adequate support to students when transitioning the course from in-person to online. 16% somewhat agreed, 3% were neutral, and 3% strongly disagreed. N=67

What about the online version of this course worked well in supporting your learning?



I really liked how the course pages were organized. It made it clear what tasks we needed to complete. I also thought the work level was very comparable to what we would have done in class because I could usually get my online work done during the class time.

– Undergraduate Program Participant



I guess just the sense of normalcy the instructors created worked best in continuing to support my learning though the change. Their individual check-ins were nice, and I really liked how we all had a say in how the course would run (via surveys, personal e-mails, and class discussions).

– Graduate Program Participant



Liza Chang and research students engaging online

Course/Program Evaluation Results Highlighted by Goal

Evaluation data is collected from all WISCIENCE programs and courses to measure the extent to which they are meeting the Institute's goals. The following outlines evaluation results aligned to institutional goals.

Goal I: Build and support communities of STEM learners, leaders, and practitioners.

Evaluation results (strongly agree, agree, neutral, disagree, and strongly disagree)



- **82% agreed or strongly agreed** our program or course **created a community that supported their learning and growth** as a learner, leader, or practitioner in STEM. 13% felt neutral. N=430

Goal II: Deliver courses and programs that:

Evaluation results (strongly agree, agree, neutral, disagree, and strongly disagree)

A. Develop knowledge and skills for success in STEM.

- **78% agreed or strongly agreed** they **developed their abilities and skills in the subject areas/topics** covered in our program or course. 15% felt neutral. N=430



B. Build STEM identities and confidence.



- **64% agreed or strongly agreed** that our program or course **strengthened their STEM identity**. 24% felt neutral and 12% disagreed or strongly disagreed. N=431
- **67% agreed or strongly agreed** that participating in our program or course has **increased their confidence in their ability to be successful in STEM**. 24% felt neutral. N=430



C. Provide professional development in teaching, public service, leadership, and research in STEM.



- **75% agreed or strongly agreed** that our program or course **provided opportunities for them to grow as a STEM professional or aspiring STEM professional**. 17% felt neutral. N=431

GOAL I

GOAL II

D. Provide opportunities to engage in teaching, public service, leadership, and research in STEM.



- **65**: Undergraduate students served as Peer Leaders
- **8**: Research Peer Leader drop-in events held at BioCommons
- **6**: Graduate students and postdocs completed Teaching Fellows Program
- **4**: Graduate students who completed Service Fellows Program in 2019/20

Goal III: Foster equity and inclusion in STEM through initiatives and programs that support diverse populations.

Evaluation results (strongly agree, agree, neutral, disagree, and strongly disagree)

- **66% agreed or strongly agreed** that participating in our program or course has **helped them feel like they belong in STEM**. 25% felt neutral. N=430



Goal IV: Lead and collaborate on local and national efforts to improve STEM education by developing and disseminating evidence-based programs, curricula, resources, and other scholarly products.

Manuscripts:

2 currently in revision or review



1. Machiavelli-Giron, S., Caudill, E., **Theisen, C. H.** (in review). Defining Life through the Past, Present, and Future: Weaving Creativity into Introductory Biosciences Courses. Course Source.
2. Byars-Winston, A., & **Butz, A. R.** (revised & in review). *Measuring research mentors/ cultural diversity awareness for race/ethnicity in STEM: Validity evidence for a new scale.*

10 peer-reviewed papers published or in press

1. **Branchaw, J. L., Butz, A. R., and Smith, A. R.** (2020) Entering Research: A Curriculum to Support Undergraduate and Graduate Research Trainees, 2nd ed., Macmillan.
2. **Butz, A. R. and Branchaw, J. L.** (2020) Entering Research Learning Assessment (ERLA): Validity Evidence for an Instrument to Measure Research Trainee Development. Life Sciences Education. Vol 19(2) DOI: 10.1187/cbe.19-11-0243



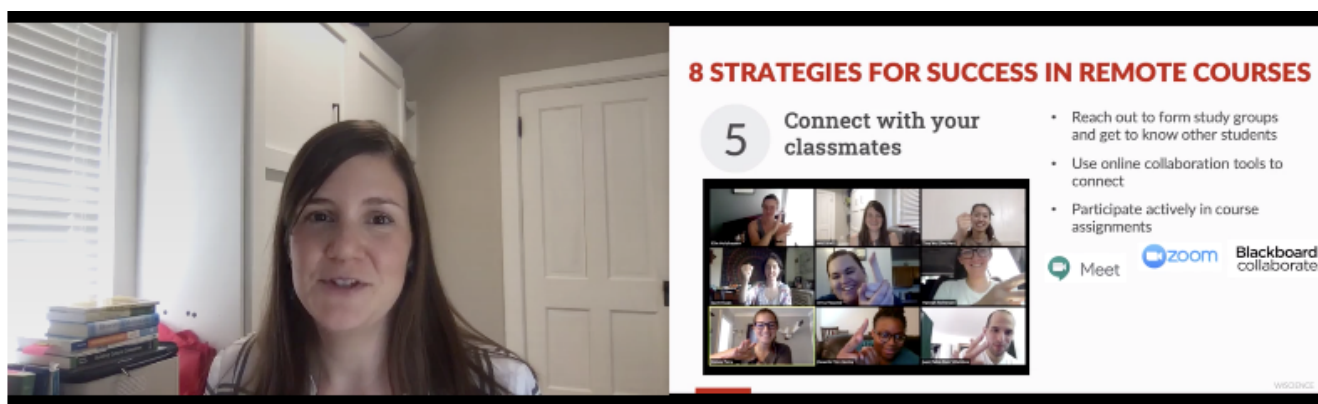
3. **Branchaw, J.L., Butz, A.R., and Smith, A.R.** (2020) Evaluation of Entering Research: A Customizable Curriculum for Undergraduate and Graduate Research Training Programs and Courses. *Life Sciences Education* vol. 19(1), DOI: 10.1187/cbe.19-04-0073
4. **Branchaw, J., Theisen, C. H., and Trimby, C.** (in press). Leveraging a Graduate Student Teaching Fellows Program to Enhance Undergraduate Education. In *Approaches to Graduate Student Instructor Development and Preparation*, New Directions for Teaching and Learning. San Francisco: Jossey-Bass. Publication Oct 2020.
5. **Cary, T., Wienhold, C. J., and Branchaw, J. L.** (2019) A Biology Core Concept Instrument (BCCI) to teach and assess student conceptual understanding. *Life Sciences Education*. Vol18(3) DOI: 10.1187/cbe.18-09-0192
6. **Theisen, C. H., Modell, A., Munoz, Y., & Saichaie, K.** (in press). Peer Teaching Consultants: Design Principles for Instructional Development and Program Alignment. In *Approaches to Graduate Student Instructor Development and Preparation*, New Directions for Teaching and Learning. San Francisco: Jossey-Bass. Publication Oct 2020.
7. **Theisen, C. H., Paul, C. A., Roseler, K.** (in press). Fostering Reflective Teaching: Using the Student Participation Observation Tool (SPOT) to Promote Active Instructional Approaches in STEM. *Journal of College Science Teaching*.
8. Saichaie, K., & **Theisen, C. H.**, (in press). Editors' Notes. In *Approaches to Graduate Student Instructor Development and Preparation*, New Directions for Teaching and Learning. San Francisco: Jossey-Bass. Publication Oct 2020.
9. Saichaie, K., & **Theisen, C. H.**, eds. (in press). *Approaches to Graduate Student Instructor Development and Preparation*. New Directions for Teaching and Learning. San Francisco: Jossey-Bass. Publication Oct 2020.
10. Alexander S, **TeSlaa J.** 2020. Exploring the broader impacts of science and society in an active learning environment. *CourseSource*. <https://doi.org/10.24918/cs.2020.22>



22 Presentations & Workshops Offered by WISCIENCE Staff at Conferences:

- Barbeau, L., Ferracuti, A., Stewart, L., **Theisen, C. H.** Graduate and Postdoc Development Showcase: Diverse Approaches, Communities, and Connections. Annual POD Network Conference, November 2019.
- **Branchaw, J.** - Keynote Address and Workshop: The Importance of Mentoring in Undergraduate Research, Virginia Tech
- **Branchaw, J.** - Panelist: National Academies of Science, Engineering and Medicine Convocation on Faculty Promotion and Advancement
- **Branchaw, J.** - Workshop: Research Mentor Training, University of Virginia Medical School
- **Branchaw, J.** - Workshops: Entering Research Facilitator Training (CIMER collaboration)
- **Butz, A.** – Invited Panelist: Better Mentors: A workshop for early career motivation scholars. American Educational Research Association (cancelled due to Covid-19)
- Castro, C., **Theisen, C. H.** Teaching Fundamentals for New Instructors. UW-Madison.
- **Chang, L.** - Invited Speaker & Workshop Facilitator, Getting the Most Out of Your Mentoring Relationship, American Physical Society National Mentoring Community Conference
- **Courtier, A.** - Panel: Stem Cell and Regenerative Medicine Center Fall Conference Career Panel.
- **Courtier, A.** – Presentation: Service Learning in the Sciences, Mount Mary University

- **Courtier, A.** – Workshop: Service-Learning Workshop for STEM Scientists and Engineers, Rutgers University (postponed due to Covid-19)
- **Courtier, A. and TeSlaa, J.** - Presentation: A Public Service Fellows Program - Preparing Graduate Students for Community Engagement, National Science Foundation Principal Investigators meeting, January 2020.
- **Courtier, A.,** - Virtual Networking Workshop: Strategies and Ideas for Adapting Programming and Courses in a Changing World, Morgridge Center for Public Service, June 2020.
- **Courtier, A., Walker, K., Willoughby, S., Riesen, J., and TeSlaa, J..** - *Panel Submission Pending; Submitted July 2020: Training for STEM engagement: Identity, Communication, and Partnerships, AAAS Annual Meeting 2021.*
- **Niemi, K.** – Presentation: Interdisciplinary and Innovative Broader Impacts Programming. ARIS Summit
- **Niemi, K.** – Presentation: Communicating Science Seminar: Broader Impacts 101 Workshop. AAAS Annual conference.
- **Smith, A.** – Presentation: Uncovering What Is Hidden: Supporting First-Generation Researchers, UW-Whitewater
- **Smith, A.** - Presentation: Can I do this? : The Role of Self-Efficacy in Mentoring, UW-Madison Academic Staff Institute
- **TeSlaa, J.** - Panel: Integrating 21st century skills in STEM learning outside of the classroom: communication centers, makerspaces, and community-engaged science, Symposium on College Internship Research.
- Wixon, D., Silverman, S., **TeSlaa, J.**, Gillian-Daniel, D. Presentation: Teaching Inclusively: Building Students' Sense of Belongingness to Promote Learning. University of Wisconsin System, OPID Conference on Teaching and Learning. (Cancelled due to COVID-19)
- Jong, L., Salmon, N., **TeSlaa, J.**, Johnson, J. Presentation: Centering Student Curiosity: Designing for Transparency and Inclusive Inquiry in the College Classroom. University of Wisconsin System, OPID Conference on Teaching and Learning. (Cancelled due to COVID-19)
- **Theisen, C. H.**, Miller, S. Wisconsin Scientific Teaching Design Institute. UW-Madison.



Cara Theisen giving a presentation at UW-Madison

Grants and Funding

Grants:

4 grants submitted to the following funding sources during 2019/20

- Genentech (1 proposal submitted)
- National Institutes of Health (1 proposal submitted)
- National Science Foundation (2 proposals submitted)

2 new grants awarded in 2019/20

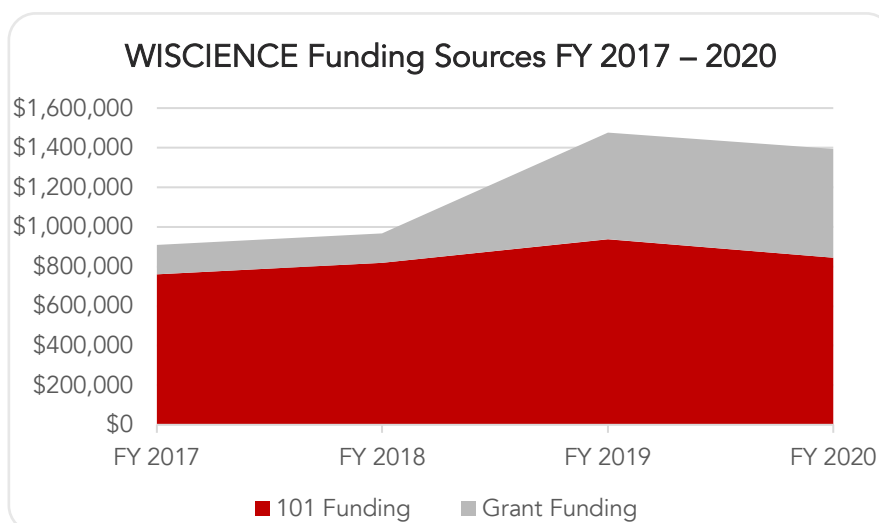
Funding Agency	Project Title	Principal Investigator	Funding Amount	Funding Period
National Institutes of Health	Collaborative Project with iBiology: Online Courses for Navigating Research Mentoring Relationships	Janet Branchaw, PhD Amanda Butz, PhD (Co-I)	\$932,720	08/01/2020 – 07/31/2025
Genentech Foundation for Biomedical Science	Genentech Foundation Summer Scholarship	Amber Smith, PhD	\$47,125	02/01/2020 – 01/31/2021

Other current grant funding

Funding Agency	Project Title	Principal Investigator	Funding Amount	Funding Period
Howard Hughes Medical Institute	Beyond Access to Success: Creating Flexible Pathways to STEM Degrees for Transfer Students in the UW-System	Janet Branchaw, PhD	\$1,010,000	09/01/2018 – 08/31/2023
National Science Foundation	NSF-REU Site: SIGNALS Summer Research Program	Janet Branchaw, PhD	\$348,454	03/01/2015 – 02/29/2021
National Science Foundation	NSF IGE: A Public Service Fellows Program - Preparing Graduate Students for Community Engagement	Anna Courtier, PhD Jessica TeSlaa, PhD (Co-PI)	\$490,101	09/01/2018 – 08/31/2021
National Science Foundation	Center for Advancing the Societal Impacts of Research (Subaward from the University of Missouri-Columbia)	Kevin Niemi, PhD	\$48,036	09/15/2018 – 08/31/2023

Funding Sources:

The funding source table to the right, reflects WISCIENCE's ability to seek innovative grant funding for projects that build novel and pioneering initiatives that bring STEM to all. These grants enable WISCIENCE to capitalize 101 funding to create stability and longevity of our innovative initiatives.





Jahmese Williams with the 2019 STEM Immersion students (photo taken before pandemic)

EXPLORING, ENGAGING, AND LEADING

Undergraduate and Graduate Student Programs and Courses

i. **STEM Student Explorations**.....Page 20

BioHouse Seminar (INTEGSCI 110; INTEGSCI 375)
 Exploring Biology (INTEGSCI 100)
 Exploring Research in STEM (INTEGSCI 150)
 Exploring Service in STEM (INTEGSCI 140)
 STEM Immersion Orientation Program
 Transfer STEM Immersion Orientation Program

ii. **STEM Student Engagement**.....Page 21

Bioscience Research Discussion (INTEGSCI 375)
 Biological Interactions Summer Research Program
 Entering Research Part 1 (INTEGSCI 260)*
 Entering Research Part 2 (INTEGSCI 261)*
 Research Mentee Training Workshops
 Service with Youth in STEM (INTEGSCI 240)
 Service with Youth in STEM Practicum (INTEGSCI 341)

** Course not offered due to constraints of the COVID-19 pandemic*

iii. **STEM Student Leadership**.....Page 23

Exploring Discipline Based Leadership (INTEGSCI 230)
 IMPaCT Peer Leadership Program
 BioCommons Ambassadors
 Exploring Biology Peer Leaders
 Research Peer Leaders
 Service with Youth in STEM Peer Leaders
 STEM Immersion Peer Leaders and Coordinators
 Transfer STEM Immersion Peer Leaders

STEM Student Explorations

WISCIENCE STEM Student Explorations are courses and programs designed to benefit diverse populations of first-year or novice STEM students.

Target Audiences for STEM Student Exploration Programs



Course/Program Name	Semesters offered			Director	Target Audience	Total Participants
	Fall	Spring	Summer			
BioHouse Seminar (INTEGSCI 110; INTEGSCI 375)				William Karasov & M. Kotelnicki		62
Exploring Biology (INTEGSCI 100)				Cara Theisen with Teaching Fellows		197
Exploring Research in STEM (INTEGSCI 150)				Amber Smith & Liza Chang		24
Exploring Service in STEM (INTEGSCI 140)				Anna Courtier		14
STEM Immersion Orientation Program				Jahmese Williams		164
Transfer STEM Immersion Orientation Program				Jahmese Williams		9

STEM Student Explorations: Participant Feedback



I am so glad I got into Biohouse! It was an amazing way to meet new people from all different walks of life. It was great having, essentially, a built-in group of friends that are all interested in the same majors and careers.

– BioHouse Participant



The open discussions were very informational and all of the topics we talked about related to one another. Also, the service was very impactful and fun.

– Exploring Service in STEM Participant



I really love the transfer community on campus, it's something I probably wouldn't have looked into if I hadn't done this.

– Transfer STEM Immersion Participant



Jahmese Williams and Transfer STEM Immersion students make a stop for ice cream at the Babcock Dairy Plant (photo taken before pandemic)

STEM Student Engagement

WISCIENCE STEM Student Engagement Programs provide learning experiences that build science literacy. These programs develop participants' skills, knowledge and confidence as a STEM learner and future professional.

Target Audiences for STEM Student Engagement Programs



Course/Program Name	Semesters offered			Director	Target Audience	Total Participants
	Fall	Spring	Summer			
Bioscience Research Discussion (INTEGSCI 375)				Liza Chang		9
Biological Interactions Summer Research Program				Amber Smith & Liza Chang		15
Entering Research Part 1 (INTEGSCI 260)*				Amber Smith & Liza Chang		Not offered
Entering Research Part 2 (INTEGSCI 261)*				Amber Smith		Not offered
Research Mentee Training Workshops				Amber Smith & Liza Chang		433
Service with Youth in STEM (INTEGSCI 240)				Anna Courtier; Kevin Niemi		36
Service with Youth in STEM Practicum (INTEGSCI 341)				Anna Courtier; Kevin Niemi		19

* Course not offered due to constraints of the COVID-19 pandemic

13 Mentee training workshops offered during academic year 2019/20

14 After School Science Clubs hosted by Service with Youth in STEM students in Fall 2019

22 After School Science Clubs hosted in Spring 2020

In response to the COVID-19 pandemic:

The Biological Interactions Summer Research Program was offered online.

In response to the COVID-19 pandemic:

Find a mentor workshops were converted to an 8-video series on YouTube in Spring 2020.

469 These videos were viewed 469 times between mid-March and mid-August 2020

In response to the COVID-19 pandemic:

The new online course, Bioscience Research Discussion (INTEGSCI 375), was developed to support students who would have normally been involved in Entering Research Parts 1/2 (INTEGSCI 260/261). This new course was designed to keep students engaged in research through reading and discussing the research literature.

STEM Student Engagement Programs: Participant Feedback



I have gotten much better at picking up a paper no matter the topic and being able to read and find understanding and ask questions that would further my understanding.

– Bioscience Research Discussion Participant



It was a learning experience to have certain expectations of myself and feel like I never met those expectations in one hand and to hold the reactions of the kids in the other. I got hugs and waves when I left, and it reminded me that the actual impact you have on kids isn't always visible.

– Service with Youth in STEM Participant



Given the situation and not being able to have face-to-face interactions, I think the instructors did a wonderful job in trying to give us the most realistic class environment that they could. I also really appreciate the fact that Anna made it clear that we could feel free to talk about our frustrations and concerns with the situation; this really made the environment feel open and friendly.

– Service with Youth in STEM Participant



Being in the company of people like me with similar goals and experiences as well as people who are experienced in research was something new for me and extremely helpful in fostering my own development as a scientist. I now have a much greater understanding of myself, my abilities, and the research process.

– Biological Interactions Summer Research Program



A UW-Madison student in Service with Youth in STEM works on a snap circuit experiment with an elementary school student
(photo taken before pandemic)

STEM Student Leadership

WISCIENCE STEM Student Leadership programs and courses help students develop leadership knowledge and skills through the personal and professional development of themselves and others.

Target Audiences for STEM Student Leadership Programs



Course/Program Name	Semesters offered			Director	Target Audience	Total Participants
	Fall	Spring	Summer			
Exploring Discipline Based Leadership (INTEGSCI 230)				Jahmese Williams		42
IMPACT Peer Leader Program				Jahmese Williams		65
BioCommons Ambassadors				Jerí Bryant		6
Exploring Biology Peer Leaders				Cara Theisen		14
Research Peer Leaders				Amber Smith & Liza Chang		2
Service with Youth in STEM Peer Leaders				Anna Courtier		2
STEM Immersion Peer Leaders and Coordinators				Jahmese Williams		47
Transfer STEM Immersion Peer Leaders				Jahmese Williams		2

98%

Of peer leaders agreed or strongly agreed that their peer leadership experience was rewarding.

88%

Students served by peer leaders found them to be very or extremely effective.



Keegan Buscaino presenting at an IMPACT Peer Leader in-service training (photo taken before pandemic)

STEM Student Leadership Highlights: Participant Feedback



Jeri Bryant and her IMPaCT Peer Leaders/BioCommons Ambassadors at the WISCIENCE Senior Send Off celebration
(photo taken before pandemic)



My peer leader was amazing and she got me involved in student orgs and research I was interested in and I was very fortunate to have her as my peer leader.

– Exploring Biology Student



They genuinely care about us and our well-being. Every time I came to class, [peer leader] asked me how my weekend was and greeted me with a smile. No other instructor did this.

– Exploring Biology Student



Transfer STEM Immersion Leaders showing Badger pride with the Dub “W” sign on Engineering Mall



Anna Courtier and Jessica TeSlaa with the 2019 Public Service Fellows (photo taken before pandemic)

TEACHING, MENTORING, AND SERVICE

STEM Professional Development

i. STEM Professional Development.....Page 26

STEM Public Service Fellows Program

Public Service in STEM (INTEGSCI 640)

Relationships and Materials Development in STEM (INTEGSCI 740)

Mentored Practicum in Public Service in STEM (INTEGSCI 840)

Scientific Teaching Fellows Program

Practicum in Science Teaching (INTEGSCI 850)

College Science Teaching (INTEGSCI 650)

Instructional Materials Design (INTEGSCI 750)

Scientific Teaching for TAs (INTEGSCI 605)

Research Mentor Training (INTEGSCI 660)

Research Mentor Training Workshops

STEM Professional Development

WISCIENCE STEM Professional Development programs are courses and multi-semester programs to train graduate students, postdoctoral scholars, and faculty in teaching and mentoring.

Target Audiences for STEM Professional Development Programs



Course/Program Name	Semesters offered			Director	Target Audience	Total Participants
	Fall	Spring	Summer			
STEM Public Service Fellows Program				Anna Courtier		
Public Service in STEM (INTEGSCI 640)				Anna Courtier; Jessica TeSlaa		10
Relationships and Materials Development in STEM (INTEGSCI 740)				Anna Courtier; Jessica TeSlaa		10
Mentored Practicum in Public Service in STEM (INTEGSCI 840)				Anna Courtier; Jessica TeSlaa		4
Scientific Teaching Fellows Program				Cara Theisen		
Practicum in Science Teaching (INTEGSCI 850)				Cara Theisen		8
College Science Teaching (INTEGSCI 650)				Cara Theisen		8
Instructional Materials Design (INTEGSCI 750)				Cara Theisen		8
Scientific Teaching for TAs (INTEGSCI 605)				Cara Theisen		10
Research Mentor Training (INTEGSCI 660)				Amber Smith; Liza Chang		118
Research Mentor Training Workshops				Amber Smith; Liza Chang		97



UW-Madison students engaging in research and mentorship (photos taken before pandemic)

STEM Professional Development Programs: Participant Feedback

“

I found all aspect of the training useful. I never mentored before, so this class provided a good framework and made me aware of things I need to think about when I am interacting with my mentee.

– Research Mentor Training Participant

“

The Public Service Fellow program is set up to have such a great impact; to bring to life the knowledge and experience that these students have and put it to work in the community.

– Feedback from Community Partner

“

Fellows described how, after two semesters with the PSF program, they have a better working knowledge of historical and local contexts for community engagement and of how to carry it out in a "mindful" way.

– Focus Group Feedback from Public Service Fellows



Public Service Fellow in action working on their practicum project with the UW–Madison Arboretum (photo taken before pandemic)



Teaching Fellows brainstorm with their peers to create their lesson plans for the course section they will teach to UW–Madison students (photo taken before pandemic)

“

Getting hands on experience teaching students was very useful and was the most beneficial aspect of the entire program. I learned a lot about everything that goes into designing, implementing, and executing a course.

– Teaching Fellow



BioCommons Ambassadors (photo taken before pandemic)

WISCIENCE PARTNERSHIPS:

Collaborations to Increase Impact and Access of STEM Programming

- i. **STEM Integrated Initiatives**.....Page 29
 - BioCommons
 - After School Science Clubs
 - MSCR After School Workshop
- ii. **HHMI Inclusive Excellence Project**.....Page 30
 - HHMI Inclusive Excellence: Faculty, Advisor and Peer Leader Development Programs
 - HHMI Inclusive Excellence: Transfer Student Development Programs
 - HHMI Inclusive Excellence: Institutional Change
- iii. **Connections and Collaborations**.....Page 31
 - ARIS/ CASIR
 - AIISL – Broader Impacts Project
 - APSI - Biology
 - Science Alliance
 - Inclusive Teaching
 - LTER/Citizen Science
 - PEOPLE
 - Wisconsin Scientific Teaching Design Institute

STEM Integrated Initiatives

STEM Integrated Initiatives involve multiple WISCIENCE partners, programs, and staff.

Target Audiences for STEM Integrated Initiatives



Course/Program Name	Semesters offered			Instructor(s) /Director	Target Audience	Total Participants
	Fall	Spring	Summer			
BioCommons				Jerí Bryant		2,600
After School Science Clubs				Anna Courtier; Kevin Niemi		540
MSCR After School Workshop				Kevin Niemi		15

During 2019/20, WISCIENCE students and staff served:

540 K-12 Students at **27** different sites

- Allied Learning Center
- Allis Elementary
- Bridge Lake Point Neighborhood Center
- Elver Park Neighborhood Center
- Emerson Elementary
- Falk Elementary
- Glendale Elementary
- Goodman Community Center
- Hawthorne Elementary
- Juvenile Detention Center
- Kennedy Heights
- Lake View Elementary
- Lincoln Elementary
- Lindbergh Elementary
- Lowell Elementary
- Lussier Community Education Center
- Meadowood Neighborhood Center
- Mendota Elementary
- Mt. Zion Academic Learning Center
- Nuestro Mundo Community School
- Orchard Ridge Elementary
- Randall Elementary
- Sandburg Elementary
- Schenk Elementary
- Shorewood Hills Elementary
- Theresa Terrace Neighborhood Center
- Thoreau Elementary

301 events and programs hosted by BioCommons drew **2,600** participants

523 of participants were affiliated with a WISCIENCE program or course

HHMI Inclusive Excellence Project

The collaborations supported by the Howard Hughes Medical Institute (HHMI) Inclusive Excellence (IE) Project has yielded:

- **7 STEM transfer pathway course packages**, all designed to help transfer students receive the best preparation possible to successfully transfer from a two to a four-year institution
- **4 professional development events**
- **4 workshops for transfer students**

In addition, the HHMI IE Leadership Team visited with **144** faculty, staff and administrators, **5** Wisconsin Technical Colleges, and **13** UW System Institutions to discuss dissemination of the transfer model across the systems.

Target Audiences for HHMI Inclusive Excellence



Course/Program Name	Semesters offered			Instructor(s) /Director	Target Audience	Total Participants
	Fall	Spring	Summer			
HHMI Inclusive Excellence: Faculty, Advisor and Peer Leader Development Programs				Cara Theisen		61
HHMI Inclusive Excellence: Transfer Student Development Programs				Amber Smith		46
HHMI Inclusive Excellence: Institutional Change				Janet Branchaw		144



STEM transfer students attending a mock lecture at UW-Madison (photo taken before pandemic)

Connections & Collaborations

WISCIENCE Connections & Collaborations increase the reach and impact of STEM programs and courses through partnerships between WISCIENCE and other programs on and beyond campus.

Target Audiences of Connections & Collaborations



Course/Program Name	Semesters offered			Instructor(s) /Director	Target Audience	Total Participants
	Fall	Spring	Summer			
Advancing Research Impact in Society				Kevin Niemi		Not offered
Advancing Informal STEM Learning/Broader Impacts Design				Kevin Niemi		163
The Advanced Placement Summer Institute–Biology				Kevin Niemi		17
Citizen Science				Robert Bohanan		62
Conversations about Conservation				Robert Bohanan		67
PEOPLE				Robert Bohanan		209
Science Alliance				Kevin Niemi		758*
Wisconsin Scientific Teaching Design Institute				Cara Theisen		9
Inclusive Teaching Workshops				Jessica TesLaa		14
Research Mentor/Mentee Training Presentations & Consultations				Amber Smith; Liza Chang		317

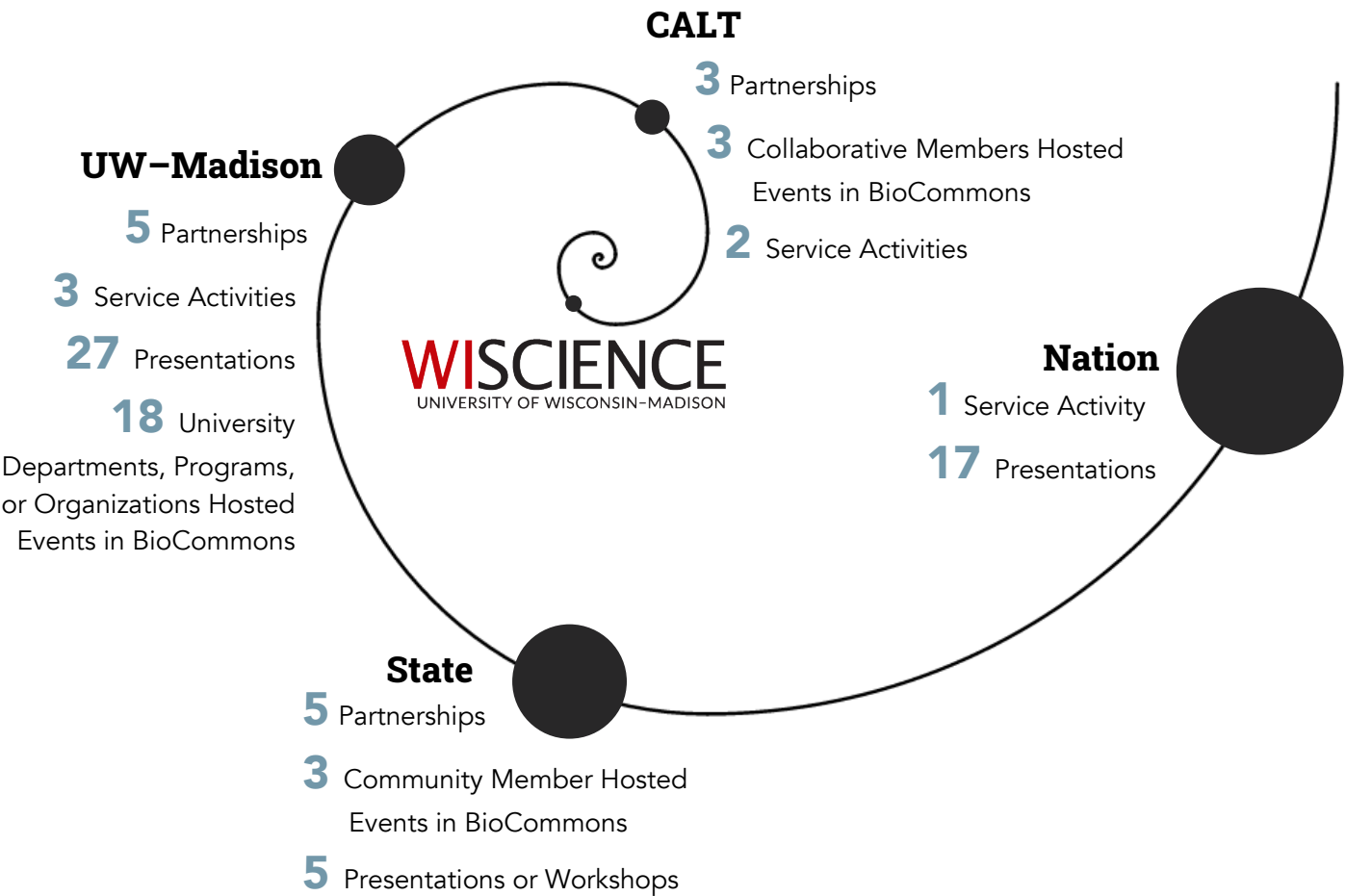
*Not reflected in participation data



Students in the Pre-College Enrichment Opportunity Program for Learning Excellence (PEOPLE) tour the Botany Greenhouse (photo taken before pandemic)

WISCIENCE and Beyond

Our courses and programs impact the Collaborative for the Advancement of Learning & Teaching (CALT), UW–Madison, the State, and the Nation through our partnerships, service, and outreach. A full detailed list of all engagements can be found in the following section.



WISCIENCE and the Collaborative (CALT)

Collaborations/Partnerships

Delta
MTLE
Office of Undergraduate Advising

BioCommons-hosted events

Delta
Office of Undergraduate Advising
WISCIENCE

Service

Delta Steering Committee

WISCIENCE and UW–Madison

Collaborations/Partnerships

Center for the Improvement of Mentored
Experiences in Research
Precollege Enrichment Opportunity Program
for Learning Excellence
UW Arboretum
Science Alliance
Wisconsin Scientific Teaching Design Institute

Service

Wisconsin Institute for Discovery, ID Hub
Advisory Committee
Lab Course Instructional Continuity Team
Professional Development Collaborators

BioCommons-hosted events

Alpha Omega Epsilon
Animal Sciences
Bioscience Advising Team
Cellular and Molecular Biology
Cereals Breeding and Quantitative Genetics
Lab
Chemistry
College of Agricultural and Life Sciences
Academic Affairs/ Career Services
Equity and Diversity Committee
College of Letters and Science
Career Services
Collegiate Farm Bureau UW Madison
Data Science Hub
Design Lab
Division of Diversity Equity and Educational
Achievement
Life Sciences Communication
Partners in Giving
Pharmacology and Toxicology
Society for Advancement of Chicanos and
Native Americans in Science
University Archives
UW-Madison Libraries

WISCIENCE and UW–Madison (continued)

Presentations & Workshops

Academic Staff Executive Committee
Atmospheric and Oceanic Sciences
BioHouse
Biophysics
Cellular and Molecular Biology
Center for Academic Excellence
Center for Demography and Ecology
Chemistry
College of Agricultural and Life Sciences
Computer Science
Entomology and Agronomy
First Generation Student Success
Organization
Genetics
The Graduate School
Health Occupations Students of America
Health Services Research in Pharmacy
Life Sciences Communication
Morgridge Center for Public Service
Nutritional Sciences
Pharmacy
Psychology
SciMed GRS
Soil Science
Stem Cell and Regenerative Medicine
Center
UW – Madison Academic Staff Institute
Waisman Center
Women in Science and Engineering

WISCIENCE and the State

Collaborations/Partnerships

Department of Health Services
Elver Park Community Center
Feeding Wisconsin
Madison Schools and Community Recreation
UW System collaborations:
UW System Administration,
UW-Eau Claire,
UW-Green Bay,
UW-LaCrosse,
UW-Milwaukee,
UW-Oshkosh,
UW-Parkside,
UW-Platteville,
UW-River Falls,
UW-Stevens Point,
UW-Stout,
UW-Superior,
UW-Whitewater
Wisconsin Youth Company
WTCS System Collaborations:
WTCS System Administration,
Madison College,
Milwaukee Area Technical College,
Chippewa Valley Technical College,
Nicolet College,
Western Technical College

WISCIENCE and the State (continued)

BioCommons – hosted events

American Red Cross
Cargill
Madison Metropolitan School District

Presentations and Workshops

Madison College STEM Center
Madison School and Community Recreation
WI Master Naturalists
Friends of Pheasant Branch Conservancy
WI DNR
US Geological Survey
University of Wisconsin – Whitewater

WISCIENCE and the Nation

Service

POD Network

Presentations & Workshops

Advancing Research Impacts in Society
American Association for the Advancement
of Science
American Educational Research Association*
American Physical Society
Annual POD Network Conference
Center for the Improvement of Mentored
Experiences in Research
Mount Mary University
National Academics of Science, Engineering
and Medicine
National Science Foundation
National Science Foundation: Advanced
Technological Education
National Science Foundation: Disabilities and
the STEM Workforce
National Science Foundation: Materials
Research Science and Engineering
Centers
OPID Conference on Teaching and Learning*
Rutgers University*
Symposium on College Internship Research
Virginia Polytechnic Institute and State
University
University of Virginia Medical School

*indicates event was cancelled or postponed due to COVID-19



Photo by Roman Koval from Pexels

APPENDIX

Explorations

BioHouse Seminar (INTEGSCI 110) is for BioHouse residential learning community students. Careers in biology are explored as well as how biology can help solve current problems. Students develop skills in cooperative learning, integrating information across disciplines, and science communication. Goals: I, IIa, IIb, III

Exploring Biology (INTEGSCI 100) is a first-year seminar for students interested in majoring in the biosciences. Students explore biology core concepts and research, and learn about careers, on-campus opportunities, and how to connect with a bioscience community on campus. Goals: I, IIa, IIb, III, IV

Exploring Research in STEM (INTEGSCI 150) is a seminar course that introduces students to STEM research at UW–Madison. Students explore how scientists from different disciplines approach research, are provided guidance in finding a research mentor, and help in building their scientific thinking skills. Goals: I, IIa, IIb, IIc, III

Exploring Service in STEM (INTEGSCI 140) supports first-year students interested in becoming STEM majors as they explore the public purpose of STEM. Students learn about successful university-community partnerships and experience public service opportunities firsthand. Goals: I, IIa, IIb, IIc, III

STEM Immersion prepares low-income, underrepresented, and first-generation college students for success at UW-Madison through an immersive, STEM-focused orientation program the week before they begin classes. Goals: I, IIa, III

Transfer STEM Immersion prepares transfer undergraduate students for success at UW-Madison through an immersive, STEM-focused orientation program. Goals: I, IIa, III

Engagement

Biological Interactions Summer Research Program provides intensive, full-time bioscience research and professional development for undergraduate students as they prepare for graduate school and research careers in biology. Goals: I, IIa, IIb, IIc, IIc, III

Entering Research Summer Program provides opportunities for UW–Madison undergraduate students to engage in high impact learning through coursework and authentic research experiences. Goals: I, IIa, IIb, IIc, IIc, III

Entering Research Part 1 (INTEGSCI 260)* is for first-time research students taking 1–3 independent research credits in science, technology, engineering, or math (STEM). Students develop skills and knowledge to foster a successful mentor/mentee relationship and tailor research experiences to meet their interests and goals. Goals: I, IIa, IIb, IIc, IIc, III

Entering Research Part 2 (INTEGSCI 261)* is for students with 1 or more semesters of research experience who are taking 1–3 independent research credits in STEM. Students improve scientific communication skills, build independence and confidence as researchers, and develop plans to guide their STEM professional development and careers. Goals: I, IIa, IIb, IIc, IIc, III

Service with Youth in STEM (INTEGSCI 240) teaches community building, communication, the needs and learning styles of children, and how to assess informal (non-classroom) STEM learning experiences. Students practice what they learn by serving as leaders of after-school science clubs in the Madison area while reflecting on their learning in individual and group settings. Goals: I, IIa, IIb, IIc, III

Service with Youth in STEM Practicum (INTEGSCI 341) matches students who have completed Service with Youth in STEM with after-school science clubs. The practicum gives UW–Madison students experience with new community partners with a variety of missions and leadership styles, and experience with different student populations and different science curricula. Goals: I, IIa, IIb, IIc, III

Research Mentee Training Workshops. WISCIENCE fulfills requests by the UW-Madison community to implement workshops in research mentee training for departments and programs across campus. Goals: I, IIa, IIb, IIc, IIc, III

Leadership

Exploring Discipline Based Leadership (INTEGSCI 230) A course in which students learn leadership theories and practical peer leadership skills. The course provides a community of peers who support and offer insight as students learn and reflect on their personal experiences. In particular, students learn to think critically about issues of privilege and identity. Goals: I, IIc, III

* Course not offered due to constraints of the COVID-19 pandemic

IMPACT Peer Leadership A program that prepares students for leadership within and beyond the STEM classroom. Participants take INTEGSCI 230, serve as peer leaders, and take in-service training sessions where they continue to develop leadership competencies. Goals: I, IIb, IIc, IId, III

- **BioCommons Ambassadors** guides their undergraduate peers who participate in BioCommons programs by helping them to navigate the STEM landscape at UW–Madison and beyond. Ambassadors lead through one-on-one engagement and event planning and coordination
- **Exploring Biology Peer Leaders** are mentors, role models, and points of connection to the larger university community for first-year students taking Exploring Biology. They develop leadership and mentoring skills, deliver informative presentations on campus resources and college experiences, and support student success in and out of the classroom.
- **Research Peer Leaders** facilitate WISCIENCE research-related workshops, and serve as peer mentors, role models, and points of connection to the larger university community for students interested in or participating in research on campus.
- **Service Peer Leaders** provide mentoring and guidance to students in the Exploring Service and Service with Youth in STEM courses. Their perspective bridges the experiences of instructors and students. As leaders, they also reflect on how their own perspectives and identities have changed during their involvement in science education in the Madison community.
- **STEM Immersion Leaders and Coordinators** help facilitate STEM Immersion, an orientation program for first-year and transfer students. They guide participants during the program and maintain connections with participants throughout their first year at UW-Madison.

Professional Development

STEM Public Service Fellows was established in 2019 with funding from the National Science Foundation. It connects graduate students with the Madison-area community in one of four pathways (community-engaged teaching, direct service, policy, and social entrepreneurship). Fellows complete a practicum with a community partner to address issues of public concern in their chosen pathway. Goals: I, IIa, IIb, IIc, IId, III, IV

- **Public Service in STEM (INTEGSCI 675)**
- **Relationships and Materials Development in STEM (INTEGSCI 675)**
- **Mentored Practicum in Public Service in STEM (INTEGSCI 675)**

Scientific Teaching Fellows is a year-long intensive professional development experience for graduate students and postdocs. The program integrates training in college teaching with practical teaching experience. Teaching Fellows learn about research-based and inclusive teaching, develop instructional materials that engage students in active learning, and then teach an undergraduate STEM course (INTEGSCI 100). Goals: I, IIa, IIb, IIc, IId, III, IV

- **College Science Teaching (INTEGSCI 650)**
- **Instructional Materials Design (INTEGSCI 750)**
- **Practicum in Science Teaching (INTEGSCI 850)**

Scientific Teaching for TAs (INTEGSCI 605) gives new TAs survival skills in scientific teaching through theory, practice, and learning community. TAs learn the core themes of scientific teaching (active learning, assessment, and diversity) and apply them in real time to the courses they are teaching. Goals: I, IIa, IIb, IIc, III

Research Mentor Training Workshops. WISCIENCE fulfills requests by the UW-Madison Community to implement workshops in research mentor training for departments and programs across campus. Goals: I, IIa, IIb, IIc, IId, III

WISCIENCE Partnerships

STEM Integrated Initiatives

After School Science Clubs: WISCIENCE trains UW–Madison students to lead science clubs with elementary school children through the Service with Youth in STEM service learning course (INTEGSCI 240) to provide Madison-area after-school programs with science club leaders and programming. Goals: I, IIa, IIb, IIc, IId, III, IV

BioCommons is a collaboration with Steenbock Library to build community for STEM students. Physical and virtual spaces serve to connect students, faculty and staff; provide venues for departments, schools and colleges to host events; offer professional development, networking and wellness events for students; and provide peer support through BioCommons Ambassador peer leaders. Goals: I, IIa, IIb, IIc, IId, III, IV

HHMI Inclusive Excellence

HHMI Inclusive Excellence: Beyond Access to Success is an initiative to create flexible pathways to STEM degrees for transfer students in Wisconsin. A comprehensive 2-year to 4-year transfer model program and policy changes are in development to transform the way UW System universities and Wisconsin Technical Colleges prepare and support STEM transfer students for success. Goals: I, IIa, IIb, IIc, IId, III, IV

Connections & Collaborations

Advancing Research Impact in Society (ARIS): WISCIENCE partners with The Center for Advancing Research Impact in Society (ARIS) to fulfill ARIS's mission. The ARIS Center, located at the University of Missouri-Columbia and funded by the National Science Foundation, works with scientists and engagement practitioners to build capacity, advance scholarship, grow partnerships and provide resources to help them engage with, and demonstrate the impact of research in their communities and society. Goals: I, IIa, IIb, IIc, IId, III, IV

Advancing Informal STEM Learning (AISL)/Broader Impacts Design Project: WISCIENCE partners with the Discovery Outreach group at the Wisconsin Institutes for Discovery to advance informal science education through Broader Impacts Design, an NSF Advancing Informal STEM Learning grant. Goals: I, IIa, IIc, IId, IV

The Advanced Placement Summer Institute–Biology is a partnership with the School of Education that offers professional development for AP biology teachers. Goals: IIc, III

LTER/Citizen Science: WISCIENCE and the North Temperate Lakes Long-term Ecological Research (LTER) Education and Outreach group partner with schools and communities throughout Wisconsin to develop, disseminate and evaluate programs and to develop curriculum and training that incorporate long-term ecological research. Faculty, staff and students collaborate with educational and environmental organizations to provide resources and expertise related to environmental issues. Goals: I, IIa, IIb, IIc, IId, IV

PEOPLE: WISCIENCE collaborates with the Precollege Enrichment Opportunity Program for Learning Excellence (PEOPLE) program to develop, implement and evaluate learning experiences for their program that integrate UW–Madison STEM research. Goals: I, IIa, IIb, IIc, III

Science Alliance is an informal science outreach group at UW–Madison and in the Madison community. WISCIENCE staff organize meetings and coordinate communication among the members. Goals: I, IIc, IId, IV

Wisconsin Scientific Teaching Design Institute is a pilot program to train graduate students and postdoctoral fellows the core principles of scientific teaching. It a partnership between WISCIENCE and Tiny Earth (WID), where participants will apply their learning to develop a new Tiny Earth course. Goals: IIa, IIc, III, IV

Inclusive Teaching Workshops. Workshop participants learn about issues impacting underrepresented students' academic performance and well-being and develop knowledge and skills to teach more inclusively. Goals: I, IIc, III, IV

Research Mentor and Mentee Training Presentations and Consultations. WISCIENCE fulfills requests by the UW-Madison community to give presentations and provide consultations to support research mentor and mentee training in STEM for departments and programs across campus. Goals: IV