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SUMMARY BRIEF

The seventh annual Broader Impacts Summit was held April 30-May 2nd, 2019, hosted by the University of Arizona at the Westward Look Wyndham Grand Resort and Spa.

HIGHLIGHTS

The Summit was kicked off by a keynote address highlighting the past five years of NABI accomplishments and introduced the newly awarded Center for Advancing Research Impact in Society (ARIS). Dr. Susan Renoe (PI, NABI, ARIS) discussed the transition from NABI to ARIS and gave the community time to ask questions about the new center. Dr. Renoe’s presentation and other presentations from the Summit 2019 sessions can be found on the ARIS Youtube page.

Dr. Suzi Iacono (top), Head of the NSF Office of Integrative Activities, gave a keynote talk and provided data compiled on broader impacts trends in funded and non-funded proposals.

Dr. Lina Dostilio (bottom) delivered an engaging keynote, “Now, These are My People!” that highlighted the important work that members of engaged scholarship and broader impacts communities do.

On Wednesday evening, participants traveled to Biosphere II to tour the research center and listen to a panel discussion led by Cyverse.
Tuesday, April 30th

10:00 a.m.–12:00 noon  **Registration**
Sonoran Ballroom Lobby

12:00 noon–1:00 p.m.  **Lunch**
Sonoran Ballroom

12:30–1:45 p.m.  **Welcome and Opening Keynote**
Sonoran Ballroom

- **Dr. Jeffrey Goldberg**, Interim Senior Vice President for Academic Affairs and Provost, University of Arizona
- **Dr. Marla Franco**, Assistant Vice Provost of Hispanic Serving Institution (HSI) Initiatives and the Executive Director of Assessment, Research, and Grant Development, University of Arizona
- **Dr. Susan Renee**, Assistant Vice Chancellor for Research, Extension, & Engagement, University of Missouri and PI, National Alliance for Broader Impacts (NABI) and the Center for Advancing Research Impact in Society (ARIS)
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<th>2:00–3:30 p.m.</th>
<th><strong>Workshop Session I</strong></th>
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<td></td>
<td><strong>Identifying and Breaking Down Barriers to Participation in Undergraduate Research</strong></td>
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<td>• <strong>Presenters:</strong> Heather Haeger, Corin White, Carla Fresquez, Nizhoni Chow-Garcia, and Camille Smith, California State University, Monterey Bay ................................. Canyon Room</td>
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<td><strong>Designing and Implementing Innovative Broader Impacts Activities in Nontraditional Venues: The STEM Ambassador Program</strong></td>
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<td>• <strong>Presenters:</strong> Caitlin Weber and Nalini Nadkarni, University of Utah and Dennis Schatz, Pacific Science Center ................................................................. Cholla Room</td>
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<td><strong>Workshop: Broader Impacts through Social, Behavioral, and Economic Sciences Research</strong></td>
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<td>• <strong>Presenters:</strong> Jane Zavisca, Associate Dean for Research and Graduate Studies, College of Social and Behavioral Sciences, University of Arizona; Cecil McKee, Professor of Linguistics, University of Arizona; and Alan Tomkins, Acting Director, Social and Economic Sciences Division, SBE Directorate, National Science Foundation ................................................ Ocotillo Room</td>
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<td><strong>Broader Impacts 101</strong></td>
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<td>• <strong>Presenters:</strong> Megan Heitmann, Iowa State University; Janice McDonnell, Rutgers University; and Jory Weintraub, Duke University .................................................. Palm Room</td>
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<td>3:45–5:15 p.m.</td>
<td><strong>Lightning Talks</strong></td>
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<td><strong>How NSF Research Experiences for Teachers Programs Support University Broader Impacts</strong></td>
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<td>• <strong>Presenter:</strong> Carolyn Nichol and Matthew Cushing, Rice University ............................................ .................................</td>
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<td><strong>STEM Teacher Persistence, Retention, and Practices Related to Research Experiences: Preliminary Findings Connecting Student Development to Broader Impacts Opportunities</strong></td>
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<td>• <strong>Presenter:</strong> Austin Cruz, Dan Moreno, and Sanlyn Buxner, University of Arizona and Elsa Bailey, San Francisco State University ..................................................</td>
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<td><strong>Stanford SeeME: Student-driven Outreach within an R1 Institution</strong></td>
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<td>• <strong>Presenter:</strong> Zachary del Rosario, Stanford University, Department of Mechanical Engineering ............</td>
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<td><strong>Science Storytellers: Where Public Engagement Meets Science Journalism</strong></td>
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<td>• <strong>Presenter:</strong> Jennifer Cutraro, Science Storytellers ..........................</td>
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<td><strong>Hospitality Counts and Venue Matters: Making Campuses Destinations for Explorations</strong></td>
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<td>3:45–5:15 p.m.</td>
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<td><strong>The Role of an Engagement Database as a Tool for Knowledge Transfer, Connectedness and Co-Creation</strong></td>
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<td>• <strong>Presenter:</strong> Oludurotimi Adetunji, Brown University ।</td>
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<td><strong>Evaluation of STEM Outreach—Tackling the Tough Questions</strong></td>
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<td>• <strong>Presenter:</strong> Karen Kinsman, MS, PMP, UNM Health Sciences Center Office for Diversity, Equity and Inclusion/UNM STEM-H Center ।</td>
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<td><strong>What Do Faculty Want? Institutional Supports to Boost Broader Impacts</strong></td>
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<td>• <strong>Presenter:</strong> Patricia Wonch Hill, Kiyomi Deards, Saundra Frerichs, and Julia McQuillan, University of Nebraska-Lincoln ।</td>
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<td><strong>Expanding Transdisciplinary Capacity: Creating Connections across STEM and Non-STEM Disciplines</strong></td>
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<td>• <strong>Presenter:</strong> Todd Nicewonger and Catherine Amelink, Virginia Tech ।</td>
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Linking Process and Impacts in the Evaluation of Collaborative Research

- **Presenter:** Alison Meadow and Tamara Wall, *Desert Research Institute and Alexandra Horangic, University of Arizona-Institute of the Environment*

Research Experiences and Teacher Retention, Persistence, and Practice: Triangulating Teacher Accounts with Observation and Student Data

- **Presenter:** Dan Moreno, Austin Cruz, and Sanlyn Buxner, *University of Arizona; John Keller, University of Colorado; Larry Horvath, San Francisco State University; and Dermot Donnelly, Cal State University Fresno*

3:45–5:15 p.m. **Lightning Talks**  
Ocotillo Room

Linking Southwest Heritage Through Archaeology: Using Critical Heritage Dialogues to Engage High School Students and Promote Higher Education Pursuits

- **Presenter:** Sara Chavarria and Barbara Mills, *School of Anthropology, University of Arizona; Stanley Bond, National Park Service, Department of the Interior; and Corey Knox, College of Education, University of Arizona*

Detailing the Construction of Undergraduate Latinx Women’s and Black Men’s Performativity of Race-Gender Identities in STEM

- **Presenter:** Alexandria Cervantes, Zander Alley, and Luis A. Leyva, *Vanderbilt University*

From Research Impact to Critical Community Engagement: Partnering for Justice

- **Presenter:** Caroline Duvieusart-Dery and Elizabeth Jackson, *Community Engaged Scholarship Institute, University of Guelph*

Engagement Begins at Home: Connections between Internal and External Engagement for Achieving Broader Impacts Goals

- **Presenter:** Clara Chaisson and Sarah Garlick, *Hubbard Brook Research Foundation*

Impact Multipliers: Fostering and Facilitating Community Engagement through Strategic Investments

- **Presenter:** Joe Miller, *University of Texas Corpus Christi*

Sharing a Passion for STEM with Deserving Young Audiences

- **Presenter:** Mitch Aiken, *Caltech*

3:45–5:15 p.m. **Lightning Talks**  
Palm Room

Networking, Collaborating, Integrating: Strengthening Our Collective Impacts through Better Connectivity at a Global Scale

- **Presenter:** Jim Woodell, PhD, *Consultant USA*

Herding Cats and Leading Horses to Water

- **Presenter:** Esther De Smet, *Ghent University, Belgium*

The Australian Research Impact Agenda: Capacity Building for Assessment and Funding

- **Presenter:** Tamika Heiden, *Knowledge Translation Australia*

Supporting Knowledge Mobilization at York University

- **Presenter:** Krista Jensen, Michael Johnny, and David Phipps, *York University, Canada*

5:15–6:15 p.m. **Dinner**  
Sonoran Ballroom

6:15–8:00 p.m. **Taste of Tucson**  
Sonoran Rooftop Terrace
### Wednesday, May 1st

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<td>7:00–9:00 a.m.</td>
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<td>7:00–8:00 a.m.</td>
<td><strong>Breakfast</strong></td>
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<td>8:15–9:45 a.m.</td>
<td><strong>Panel</strong></td>
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<td>9:45–11:15 a.m.</td>
<td><strong>Poster Session</strong></td>
<td>Sonoran Rooftop Terrace</td>
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<td>11:15 a.m.–12:15 p.m.</td>
<td><strong>Regular Session I</strong></td>
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**Panel: Water Ways: Connecting Research to Community**

- **Sponsored by University of Arizona STEM Learning Center and Northern Arizona University**
- **Broader Impacts Practitioner:** Betsy Wilkening, Coordinator for Arizona Project WET, Water Resources Research Center, Cooperative Extension, University of Arizona
- **Community Partner:** Dr. L. Rene Corrales, Middle School Mathematics and Science Instructor, Santa Cruz Catholic School and Pedagogical Content Knowledge Instructor, UA South
- **Researcher:** Dr. Benjamin Ruddell, Associate Professor in the School of Informatics, Computing, and Cyber Systems at Northern Arizona University, the President of Ruddell Environmental consulting, and the Director of the FEWSION project.
- **Community Partner:** Sean Ryan, Professional Development Coordinator, Center for Science Teaching and Learning at Northern Arizona University
- **Panelist:** Obiageli Sneed, Ed.D., Senior Instructional Designer, Arizona State University - Future H2O
- **Panel Moderator:** Dr. Kevin Bonine, Director, Education and Outreach, Biosphere 2; Director, Outreach Initiatives, College of Science, University of Arizona

**Regular Session I**

- **Gameful STEM Learning: A University Community Partnership**
  - **Presenters:** Corey Knox and Dante Lauretta, University of Arizona, Planetary Sciences and Karin Marborough, Boys and Girls Clubs of Tucson
- **Personability, Scalability, and Modularity: A Research Center’s Strategy to Leverage Resources for Maximum Exposure to STEAM**
  - **Presenters:** Christopher Parsons, NSF/NASA Center for Chemical Evolution
Broadening our Broader Impacts: Building Infrastructure for Creative Outreach through Informal Science Institutions

**Presenters:** Kalie Sacco, Lawrence Hall of Science, University of California Berkeley; James Bell, Center for Advancement of Informal Science Education; and Kari Roberts, National High Magnetic Field Laboratory.

Ocotillo Room

Demystifying Assessment and Evaluation: Creating a Roadmap that Connects Project Goals to Project Activities and Outcomes

**Presenters:** Michelle Higgins and Sara Kobilka, University of Arizona STEM Learning Center.

Palm Room

12:30–1:45 p.m. **Lunch and Keynote**

Sonoran Ballroom

Now, These Are My People! Community Engagement Professionals and the Work of Broader Impacts

**Dr. Lina Distilio,** Associate Vice Chancellor for Community Engagement, University of Pittsburgh

2:00-3:00 p.m. **Regular Session II**

“**You Never Know What’s Out There Unless You Have the Courage to Explore**” Summer Research Bridge Program for All

**Presenters:** Emily Vercoe and Lisa Abeyta, Wyoming NSF EPSCoR.

Canyon Room

Greater than the Sum of Its Parts: Institutional Partnerships to Increase Broader Impacts Capacity

**Presenters:** Eve Klein and Dennis Schatz, Institute for Learning Innovation; Michelle Kortenaar, Sciencenter; Julie Risien, Oregon State University; and Ann McMahon, University of Washington-Bothell.

Cholla Room

Achieving Broader Impacts at Two-year Hispanic Serving Institutions through Strategic STEM Planning and Faculty Professional Development

**Presenters:** Cynthia Pickering, Caroline VanIngen-Dunn, Anna Tanguma-Gallegos, and Anita Grierson, Arizona State University/Science Foundation Arizona Center for STEM.

Ocotillo Room

STEM Extension: Strong Connections Aiding Students with Disabilities in STEM

**Presenters:** Timothy Gould and Jessica Kim-Schmid, Penn State, Eberly College of Science, Office of Science Outreach.

Palm Room

4:00–5:00 p.m. **Travel Time to Biosphere 2**

5:00–8:00 p.m. **Dinner, Activities, and Panel**

Biosphere 2

Thursday, May 2nd

7:00–9:00 a.m. **Registration**

Sonoran Ballroom Lobby

7:00–8:00 a.m. **Breakfast**

Sonoran Ballroom

8:00–9:30 a.m. **Workshop Session II**

Interactive Workshop: Strategic Curriculum Design to Empower Graduate Students and Leveraging University of Wyoming’s Models to Training Next-Generation Broader Impacts Practitioners

**Presenters:** Bethann Merkle, Wyoming Science Communication Initiative and Wyoming Migration Initiative, University of Wyoming.

Canyon Room
Practice- and Research-Informed Strategies to Cultivate an Inclusive STEM Ecosystem

- **Presenters:** Susan Meabh Kelly, science + education collaboratory; Connie Walker, National Optical Astronomy Observatory; and Janet Warburton, Arctic Research Consortium of the United States.

Linking and Leveraging: An Agile Approach to Building Connectedness and Achieving Impact

- **Presenters:** Rena Cotsones, PhD, Northern Illinois University and Jim Woodell, PhD, Consultant US.

Assessing and Building Institutional Capacity for Public Engagement and Broader Impacts

- **Presenters:** Emily Therese Cloyd, American Association for the Advancement of Science.

9:45–10:45 a.m. **Keynote**

- Dr. Suzi Iacono, Head of Office of Integrative Activities (OIA), National Science Foundation

11:00 a.m.–12:00 noon **Regular Session III**

4-H LIFE: Incorporating STEM Education in a Materials Restricted Setting for Children of Incarcerated Parents

- **Presenters:** Lynna Lawson, University of Missouri 4-H Center for Youth Development.

Nurturing Nature: Connecting STEM Research, Education and Social Justice to Broaden Participation in STEM

- **Presenters:** Lenora Crabtree and Adam Reitzel, University of North Carolina Charlotte.

Unveiling Impact Identities: From Concept to Engagement of Researchers and Universities

- **Presenters:** Julie Risien, Oregon State University Center for Research on Lifelong STEM Learning; Kevin Niemi, University of Wisconsin; Ann McMahon, University of Washington-Bothell; and Travis Tangen, Wisconsin Institutes of Discovery.

STEM Challenges as Broader Impacts Programs

- **Presenters:** Matt Johnson, Kathleen Hill, Amber Cesare, and Gabe Knowles, Penn State University.

12:00 noon–2:00 p.m. **Lunch and Topic Tables**

2:00–3:00 p.m. **Regular Session IV**

Building Inclusive Environments: Three Key Practices and One Lesson Learned from an Upward Bound Watershed Science Summer Course for Underserved Youth

- **Presenters:** Sara Olsen and Natasha Wingerter, University of Idaho and Kirsten LaPaglia, STEM Access Upward Bound, University of Idaho.

Connecting New BI Professionals with Best Practices and Each Other

- **Presenters:** Maiken Bruhis, Stanford University.

Connecting Across Campus, STEM and Educational Research Partnerships

- **Presenters:** Diane Rover, Erin Doran, and Megan Heitmann, Iowa State University.

GETBIO: The Gateway for Education, Training, Broader Impacts and Outreach

- **Presenters:** Michael D. Gonzales, Carol Lushbough, Etienne Gnimpieba, and Bill J. Conn, University of South Dakota; and Ann Stapleton, University of North Carolina Wilmington.

5:00 p.m. **Closing Dinner and Awards Ceremony**

7:00 p.m. **Trivia Night**

- Sponsored by March for Science Southern Arizona
The 2019 Summit theme was “Exploring Broader Impacts Through Connectedness.” The Summit Planning Committee developed strands for presenters to choose from, with the intention of providing well-rounded content for all NABI members. Strands included five broad categories through which connectedness and broader impacts were explored:

1. **Connecting Education Research and BI to Project and Program Goals.**
   Example topics included programs that connect theory to practice, utilize best practices, and support knowledge transfer; connecting to audiences through outreach (traditional, one-way relationships) and engagement (two-way relationships); and connecting with educational research in BI.

2. **Connections that Provide Inclusive and Equitable Access to STEM.**
   Example topics included connections to STEM within rural or urban environments, on-ramping into STEM pathways and connections between STEM pathways, and digital access; connections to role models, mentors, and careers; connections that build inclusive environments and a sense of belonging; connections to informal education settings; and connections that broaden participation for underrepresented populations in STEM, including first-generation students, students from low-income backgrounds, learners with disabilities, and LGBTQ+ learners.
3. **Connectedness Through Intentional, Strategic Design**
   Examples of topics included connections through deliberate communication plans; internal and external institutional/organizational/educational collaborations; programs and projects that incorporate “systems thinking;” program scaling, building capacity, and supporting sustainability; mapping STEM pathways, pipelines, and ecosystems; and connections between BI professionals and project PIs.

4. **Connecting Assessment and Evaluation to Partners, Projects, and Program Goals**
   Examples of topics included processes that connect to best practices in assessment and evaluation, connections to partners whose scholarship complements the assessment and evaluation plan, and using assessment and evaluation to produce evidence of BI project impact.

5. **Other**
   This category included other creative ideas which might not necessarily fit within any of the four core strands but are relevant to BI practitioners.

**POSTER SESSION**
The poster session allowed for participants to share program successes and tell their own BI stories. Most people who attended found the session useful in some degree. This also allowed for additional time to network among peers.

**THURSDAY LUNCH: TOPIC TABLES**
On Thursday, Summit attendees were given the opportunity to self-select their interest areas or networking opportunities through a “Topics Table” themed lunch. During Summit registration, attendees were invited to list any topics they would like to discuss with like-minded attendees. A parking lot was also provided during the first two days of the Summit to allow for just-in-time topics. Examples of topics included: Summit 2020, Broadening Participation, Starting a BI Office, ARIS regional chapters, and the ARIS steering committee hosted tables focused on the transition from NABI to ARIS and ARIS training initiative feedback.

**ARIS AWARDS CEREMONY**
On Friday evening, the Summit was capped off with an awards ceremony honoring the 2019 ARIS Broader Impacts Champions: Neal Lane, Shirley Malcom, Dahlia Sokolov, Wanda E. Ward, and special awardees Suzi Iacono and Karen Cone.
EVALUATION

DEMOGRAPHICS

73 individuals responded to the optional demographic information.

- 83.6% identified as female;
- 8.6% identified as Hispanic/Latino;
- 2.9% identified as Asian;
- 89.9% identified as White;
- 2.9% identified as Black or African American
- 2.9% identified as American Indian or Alaskan Native

EVALUATION THEMES

After the summit, participants were invited by email to complete an online evaluation. Eight-five participants completed the online evaluation (47% response rate). Survey respondents reported they attended the summit to learn about BI at other institutions and BI best practices (with many participants mentioning they plan to bring ideas and information back to their own institutions) and to network with other BI professionals.

Key findings (presented in Figures 1 and 2) include:

- 95% of respondents reported the content of the summit was useful for the work they do in BI.
- 95% of respondents agreed or strongly agreed the summit enhanced their professional development, and 91% agreed or strongly agreed the content will enhance their own (or their institution’s) capacity to engage in high-quality BI activities or BI research
- Respondents reported network growth and strengthening of network connections: 86% reported the summit increased the size of their professional network, and 79% reported the summit strengthened connections with those already in their network
- 82% of respondents would likely attend another Summit in the future.
- 79% have been working on BI for more than 3 years with 18% indicating that they have been working on BI for 10 years or more.
Evidence of the importance of community-building and networking, 90% of participants listed the breaks and networking as very or moderately useful. The majority of participants also reported the following special sessions were very or moderately useful: the NABI update presented in the opening keynote (79%), the keynote by Dr. Lina Dostillio (76%) and the poster session (73%). When asked which sessions were most meaningful to them, participants mentioned Broader Impacts 101, Lightning Talks, Biosphere, Social Justice to Broaden Participation, and STEM Ambassadors. Attendees also appreciated the talks from Dr. Suzi Iacono and Dr. Julie Risien and discussions around Impact Identities. Several participants mentioned appreciating concrete examples and take-aways, emphasizing the value of practical information and resources. Nearly 50% of respondents said that they did not attend the last session of the Summit, the Closing Dinner and Awards.
In open comments, several participants expressed their satisfaction with the conference and the ability to learn from and meet others in the field. Recommendations included more information networking opportunities and breaks, improved food options, modifications to the format of the Lightning Talks, and separate tracks for experienced professionals and those who are new to BI.

SOCIAL MEDIA PRESENCE
A key component to the Summit 2019 social media presence was the professional video hired to provide content during and after the event. While on-site, they captured more than 31 hours of coverage, from keynotes to panels to individual interviews. We posted full keynotes and panels as well as created compilations of the Summit. These videos have been instrumental to telling our stories to get new members/attendees and educate a wider audience about broader impacts.

In just 50 days from when we launched our social media account to June 18, here are our highlights on YouTube and Twitter.
FUTURE DIRECTIONS

The next Broader Impacts Summit will be hosted by the Duke University and will take place in Durham, NC, April 28-30, 2020.

2019 SUMMIT PLANNING COMMITTEE

Kevin Niemi  
University of Wisconsin, Madison

Megan Heitmann  
Iowa State University

Michelle Higgins  
University of Arizona, 2019 Co-Chair

Sara Kobilka  
University of Arizona, 2019 Co-Chair

Sara Chavarria  
University of Arizona, 2019 Co-Chair

Kimberly Sierra-Cajas  
University of Arizona

Joelle Clark  
Northern Arizona University

Sunanda Vittal  
Arizona State University

Tirupalavanam Ganesh  
Arizona State University

Stacy Esposito  
Arizona State University

Tara Morley  
Arizona State University

Kevin Bonine  
University of Arizona

Jessica Kim-Schmid  
Penn State University

Michael Gonzales  
University of New Mexico

Michael Thompson  
Independent Contractor

Stacey Forsyth  
University of Colorado Boulder

Suzi Taylor  
Montana State University

Diana Elder  
Northern Arizona University

Jen Fields  
University of Arizona

Matt Johnson  
Penn State University
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<td>Arabidopsis Biological Resource Center, OSU</td>
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<td>Association of American Universities</td>
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*denotes EPSCoR state