**California State University, Fresno**

**Science and Mathematics Education Center**



**Western Regional Noyce Conference**

**2017**

**Double Tree Hotel**

2233 Ventura Street, Fresno, Ca 93721

**February 17 - 19, 2017**

**Full Program**

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| **FRIDAY**  |
| **EdReady: Assessing and Advancing College Readiness for Math**EdReady™ lets you assess your readiness for college math, see study options, and get a personalized study path to fill in knowledge gaps." EdReady is geared for middle school to college levels. Come learn about this exciting program! |
| ***Presenter***: Gary Lopez, Founder and CEO of the Monterey Institute for Technology and Education***Moderator****:* Joan Bissell, Director of Teacher Education and Public School Programs, *California State University*  | ***EdReady Workshop***Friday 4:00 - 5:00 PM*Venue - A2* |
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| **Expanding the Boundaries of STEM Project-Based Learning with 3D Printers**This session will provide guidance to pre- and in-service teachers about how to use 3D printers and 3D modeling programs to open up new possibilities for STEM project-based learning. |
| Myunghwan Shin, Assistant Professor*California State University, Fresno* | ***Technology Session***Friday 4:00 - 6:00 PM*Venue - D* |
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| **Noyce Leadership Meeting with NSF Program Officer**NSF STEM Education Funding Opportunities and Programs  |
| Dr. Sandra Richardson, NSF-DUE Program Director | ***Project Management and Development (for PI/staff)***Friday 5:00 - 6:00 PM*Venue - D1* |
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| **AAAS Noyce “Voices in the Field” Video Preview****Lightning Round****Dinner Buffet** |
| Friday 6:00 - 8:00 PM*Venue- Salon B/C* |
| **SATURDAY** |
| **Welcome Remarks**Welcome remarks for this year’s Western Regional Noyce Conference will be presented along with breakfast.  |
| David Andrews, WRNI Principal Investigator: *CSU Fresno*Joan Bissell, Director, Teacher Education and Public School Programs; Office of the Chancellor: *California State University* | Saturday 8:00 - 8:30 AM*Venue - Salon B/C* |
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| **Curiosity, Invention, and the Hero’s Journey: A Structure for Empowering Student Creation in the Sciences**Using examples from the classroom, research, literature and film, this session will explore curiosity as a omnipresent motivational force in our world. Simple STEM resources and instructional strategies used to spark curiosity will be modeled, case studies will be analyzed, and personal stories will be shared. An emphasis will be made on tangible low-cost tools that can help inspire inquiry and invention and students of all ages. |
| Ramsey Musallam, STEM Instructor*Sonoma Academy* | ***Keynote I***Saturday 8:30 - 9:20 AM*Venue - Salon B/C* |
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| **A Glimpse of a Teacher Preparation Program: Preparing Hispanic Bilingual Pre-service Teachers to be Secondary Mathematics Educators and Leaders in the Field**While TAMIU mainly serves southern Texas, our institution faces many challenges shared by other regional colleges and universities. In the presentation, our student Noyce Scholars and I will discuss promising approaches to address these challenges, including Noyce seminars, undergraduate research, faculty exchanges, supplemental instruction, and analysis of Noyce Scholar retention data. |
| Paula A. Arias (Noyce Scholar)Ramiro Castillo (Noyce Scholar)Runchang Lin (Noyce faculty staff)Sandra A. Duarte (Noyce Scholar)Nadia A. Huerta (Noyce Scholar)Francisco Salazar (Noyce Scholar)*Texas A&M International University* | ***Excellence in Math Teaching and/or Implementing Common Core***Saturday 9:30 - 10:30 AM*Venue - Sierra* |
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| **Teachers’ Understanding of Experimental Practices and Implications for the NGSS**NGSS have indicated teaching authentic scientific practices plays a critical role in developing science literate students. Research assessing teacher’s understanding reveals that educators maintain naïve views. A review of literature explores a variety of approaches aimed at improving teacher’s understanding |
| Ryan Umar Dermot Donnelly*California State University Fresno* | ***Excellence in Science Teaching and/or Implementing NGSS*** Saturday 9:30 -10:30 AM*Venue - A1* |
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| **Using a Chatroom to Build Community in SWARMS**SWARMS (Noyce Track1/Phase 1) showcases the use of an online chatroom (using an open-source forum software called Vanilla) to build community between past, present, and future Noyce participants and cohorts. |
| Andrea BurrowsCrystal SeeleyKatie GuffeyKyle Morgensen*University of Wyoming* | ***Project Management and Development (for PI/staff)***Saturday 9:30-10:30 AM*Venue - Tioga* |
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| **Transforming STEM to STEAM**An interactive workshop showing teachers the why and how of integrating the arts into science classroom instruction. |
| Chrissy Cross*Stephen F. Austin State University* | ***Excellence in Science Teaching and/or Implementing NGSS***Saturday 9:30 AM - 12:00 PM *Venue- Sequoia* |
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| **Grant Proposal Writing for STEM Teachers** Successful grant proposals use key principles that you will learn and apply during this session. Come explore funding opportunities, choose one, and begin your proposal – don’t forget your laptop! |
| Deidre Sessoms*Sacramento State* | ***Teacher Leadership*** Saturday 9:30 AM - 12:00 PM*Venue- D1* |
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| **How to Prepare a Professional Development Workshop for Your School or District**As you progress on your teacher leadership pathway, you may be asked to provide professional development for your peers. This session will focus on how to develop an effective PD and how to successfully share your expertise with colleague in your school, district, or across the country. |
| Donna RossCrystal Howe*San Diego State* | ***Teacher Leadership***Saturday 9:30 AM - 12:00 PM*Venue - D3* |
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| **Student Voice in Mathematics!**Why should teachers do all the work when students have the knowledge?! Student ownership is a crucial component for solving mathematics. We will take apart math problems, have meaningful math collaboration, and create engaging ways to captivate our students. It is time to let our students guide their learning! |
| Callie Laflam*Fresno Unified School District* | ***Excellence in Math Teaching and/or Implementing Common Core***Saturday 9:30 AM - 12:00 PM*Venue – D2* |
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| **Using Desmos to Enhance Student Learning**If you haven't used Desmos before or would like to know some other features in Desmos then this is the class for you! |
| Shannon Erickson*Boise State University* | ***Use of Technology in the Classroom***Saturday 10:45 -11:45 AM*Venue - A2* |
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| **Using the Fold-and-Cut Theorem to Engage Students in Mathematics**Did you know that you can fold paper so that ANY shape with straight edges can be cut out with a single straight cut? In this session, participants will engage in an exciting hands-on activity and discover this amazing result. |
| Elsa Medina Amelie Schinck-Mikel Maria Ramirez, (Noyce Scholar)Hayley Cushing, (Noyce Scholar)*Cal Poly State University* | ***Excellence in Math Teaching and/or Implementing Common Core*** Saturday 10:45 - 11:45 AM*Venue - A1* |
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| ***Our Plastic Planet: Math and Science Working Together to Explore the Problem***The quantity of plastic pollution in our oceans is explored while looking at implementing the Learning Assistants Become Teachers Model into secondary schools whereby middle/high school students ponder becoming teachers. |
| David EricksonMargie Dennison, (Noyce Scholar) Annie Gustafson, (Noyce Scholar)*University of Montana* | ***Excellence in Science Teaching and/or******Implementing NGSS*** Saturday 10:45 - 11:45 AM*Venue- Salon B/C* |
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| **AAAS Premier Video Showcase: “*Voices in the Field”***The American Association for the Advancement of Science will be showcasing a premier video entitled “*Voices in the Field”* during lunch which will begin at 12:00 PM. |
| Dr. Quincy Brown, Program Director STEM Education ResearchAAAS: American Association for the Advancement of Science | Saturday 12:20 PM - 1:20 PM*Venue- Salon B/C* |
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| **Implementing the 5E Lesson Plan in STEM Classrooms**Explore the 5E lesson plan cycle, a constructivist approach to learning that is very effective in STEM classrooms. In this session, a 5E lesson plan will be implemented and analyzed. |
| Paige EvansDonna Stokes Leah McAlister*University of Houston* | ***Excellence in Science Teaching and/or Implementing NGSS*** Saturday 1:30 - 2:30 PM*Venue - A2* |
| **Come Investigate with Me in My Math World**Learn how to engage your students in higher level thinking through the use of activities and technology. How living the topic will enhance your teaching. |
| Diana Herrington*California State University, Fresno* | ***Excellence in Math Teaching and/or Implementing Common Core***Saturday 1:30 - 2:30 PM*Venue - D1* |
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| **Becoming a Teacher-Researcher and a Teacher-Leader**Learn more about the STAR Program, which provides paid summer research internships at national labs to Noyce Scholars, and lessons learned by STAR alumni as they have assumed leadership roles within their communities. |
| John Keller*Cal Poly San Luis Obispo* | ***Teacher Leadership*** Saturday 1:30 - 2:30 PM*Venue - Sequoia* |
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| **Tech it to the Limit: Math Apps You Need to Know About** We will show participants useful math tools and apps, such as Doceri, Desmos, and Quizizz, to help students become more engaged and understand difficult concepts easily. |
| Stephen ChenLi Chang*Cal State Fullerton* | ***Use of Technology in the Classroom*** Saturday 1:30- 2:30 PM*Venue - A1* |
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| **Leveraging STEM Internships to Prepare Noyce Scholars for Teaching**This presentation will highlight the second-year results of a five-year Noyce project that provided college students with summer internships to work as teaching assistants at five sites |
| Ramesh SivanpillaiMarina LazicJacqueline LeonardSaman AryanaAnne Even*University of Wyoming* | ***Project Management and Development (for PI/staff)***Saturday 1:30-2:30 PM*Venue - D2* |
| **Engaging Students in Science – Getting Them in Class and Focused!**In this workshop, you will see and experience a variety of strategies, demonstrations and routines that will help you to engage students in high school science classrooms from the moment they walk into class until the moment they leave. You will be participating in whole group discussions, sharing best practices, and leaving with lots of ideas to implement into your classroom immediately!​ |
| Eric Lewis*San Francisco State* | ***Excellence in Science Teaching and/ or Implementing NGSS***Saturday 1:30 – 2:30 PM*Venue – D3* |
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| **Using Student Work in Common Core Mathematics** The Common Core State Standards for Mathematics is built upon learning progressions for how students are likely to learn a particular concept. This presentation is built to help teachers examine and use student work as part of the Common Core learning progressions. |
| Jenna Tague*California State University, Fresno* | ***Excellence in Math Teaching and/or Implementing Common Core*** Saturday 2:45 – 3:45 PM*Venue – D1* |
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| **An Argument Worth Having**Argumentation is central to NGSS, yet is not common practice. Participants will gain insights into implementing argumentation in their classrooms. |
| Susan JohnsonLevi MillerSierra GordonRaymond TsangMokhles SalamaFranziska Shelton*University of California, Santa Barbara* | ***Excellence in Science Teaching and/or Implementing NGSS*** Saturday 2:45 - 3:45 PM*Venue- A1* |
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| **Blended Learning: Using Online Forums to Develop Conversations Outside of the Classroom**Online discussions allow students to Share ideas and express themselves outside of the classroom. Learn to develop engaging forums to reach students via LMS platforms and Social networks |
| Joaquin Alvarado*Santa Ana Unified School District* | ***Technology in Learning***Saturday 2:45 – 3:45 PM*Venue – D2* |
| **State of Mind: Integration of Growth Mindset Strategies in STEM Education Classrooms**This session will introduce STEM Educators to instructional strategies that empower students and foster a culture of growth-mindset. Particularly, the integration of growth-mindset strategies in high-need classrooms will be discussed. |
| Leah McAlister-Shields Paige Evans Donna Stokes*University of Houston* | ***Teaching and Learning in High Needs Classrooms*** Saturday 2:45 -3:45 PM*Venue- Sequoia* |
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| **Multiple Measures of Effectiveness in Teacher Preparation: A Comparison of Noyce and Non-Noyce Math and Science Preservice Teachers**This comparison study illustrates significant differences between science and math Noyce scholars and non Noyce credential candidates. Results vary by content area, PACT scores, gender and other demographic characteristics. |
| Jenna PorterDeidre Sessoms*Sacramento State*  | ***Project Management and Development (for PI/staff)***Saturday 2:45 -3:45 PM*Venue – D3* |
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| **How do Learning Gains Compare Across Subgroups Within a PET-HS Classroom?**The Physics and Everyday Thinking High School (PET-HS) curriculum engages students in science practices of generating and defending claims using evidence and argumentation as a means of developing and formalizing physics principles. This study focuses on how students from groups that are often underrepresented or under perform in traditional physics classes, respond to the PET-HS curriculum. Students in two PET-HS classes in two different schools were given the same short quiz before and after developing ideas about positive and negative velocity. These concepts were also tested using similar questions during the semester final exam. This method was replicated for three additional topics throughout the 2016-17 school year including energy transfers, Newton’s second law, and gravitational acceleration. Initial findings show that students from target subgroups (female, SPED, ELL) show no significant difference in learning gains from students from majority groups. Inferences regarding the role of the PET-HS curriculum in allowing access to physics for a wide range of students with varying backgrounds and abilities will be discussed.  |
| Nicole SchrodeTaylor Marino (Noyce Scholar)*University of Colorado – Boulder* | ***Teaching and Learning in High Need Classrooms***Saturday 2:45 - 3:45 PM*Venue - Tioga* |
| **Teacher Social-Emotional Status and Student Behavior** The importance of teacher social-emotional status (SES) and it’s impact on student behavior and learning will be explored along with ways for teachers (pre-service and current) to address their SES |
| William Garnett*CSU, Fresno: Kremen School of Education and Human Development* | ***Teaching and Learning in High Needs Classrooms*** Saturday 3:55 - 5:00 PM*Venue – A1* |
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| **Differentiating Instruction to Provide Access and Promote Achievement: One Math Teacher’s Journey**Our classrooms are filled with students with a wide range of backgrounds, proficiencies and motivation. This session offers practical low-prep/high-impact assessment and instructional strategies for addressing the entire learning continuum. |
| Debbie Knecht *Colorado State University – Pueblo* | ***Teaching and Learning in High Needs Classrooms***Saturday 3:55 – 5:00 PM*Venue – D2* |
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| **From Cookbook to Inquiry in STEM Classrooms**STEM classrooms often depend on structured lessons with direct guidelines leaving little room for exploration. Learn how to transform “cookbook” style lessons into inquiry based lessons for promoting student learning. |
| Donna StokesPaige EvansLeah McAlister-Shields*University of Houston* | ***Excellence in Science Teaching and/or Implementing NGSS*** Saturday 3:55 - 5:00 PM*Venue - Sequoia* |
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| **Future Western Region Noyce Initiatives** Discussion and planning meeting. |
| John Keller *Cal Poly San Luis Obispo*Donna Ross *San Diego State*Larry Horvath *San Francisco State* | ***Project Management and Development (for PI/staff)***Saturday 3:55 – 5:00 PM*Venue – Sierra* |
| **NAUTeach Secondary Math & Science Teacher Preparation Program**Results of program retention efforts and teacher retention through our New Teacher Induction program will be shared and discussed. Attendees are encouraged to share retention efforts and ideas. |
| Sharon Cardenas*Northern Arizona University* | ***Excellence in Math Teaching and/or Implementing Common Core***Saturday 3:55 – 5:00 PM*Venue – D3* |
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| **Grass Roots Teacher Leadership: The Story of Family STEM Nights**Developing teacher leadership capacity is essential for the roll out the Next Generation Science Standards.Family STEM Nights emerged from our regional efforts as area teachers explored routes to engage their communities. These STEM-themed events link local STEM focused professionals and pre-professionals (like high school and college students) with K-12 students and their families. Starting with the great idea of ONE teacher-leader, in five years Family STEM nights spread to 8+ school districts on the Central Coast. This session will highlight this program and help participants develop the tools and know how to plan their own Family STEM night. |
| Seth Bush*Cal Poly San Luis Obispo* | ***Teacher Leadership***Saturday 3:55 - 5:00 PM*Venue - A2* |
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| **SUNDAY** |
| **AAAS Noyce Teacher Video Showcase****WRNC Announcements****Breakfast** |
| Sunday 7:30 - 8:30 AM*Venue - Salon B/C* |
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| **Re-Envisioning STEM Education: Transcending Boundaries to Realize the Vision of Inclusion, Diversity and Equity in STEM Fields**The goal of this talk is to present a framework for STEM education that will transform the ways in which we conceptualize the aims and goals of STEM education which have implications for curriculum,instruction and pedagogy across all STEM disciplines. The presenter will discuss how current STEM educational practices are grounded in view of STEM learning that ultimately undermines our collective goals of creating a more inclusive and diverse STEM pipeline and workforce. Further, the presenter provides an alternative view of STEM education and transformative instructional strategies that can support and realize true equity, inclusion and diversity in STEM. |
| Dr. Roni Ellington, Associate Professor*Morgan State University* | ***Keynote II***Sunday 8:30 - 9:20 AM*Venue - Salon B/C* |
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| **Finding the Low-Hanging Fruit in NGSS Implementation** In the absence of an adopted curriculum, teachers may be confused about aligning NGSS with classroom teaching. We will look at accessible strategies for making meaningful connections to topics. |
| Fred Nelson*California State University, Fresno* | ***Excellence in Science Teaching and/or Implementing NGSS*** Sunday 9:30-10:30 AM*Venue- D3* |
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| **Creating a "Need to Know" in the Mathematics Classroom**Discover how teachers can break away from the way we were taught math and create a classroom environment where students want to explore mathematics |
| Mary-Betty Stevenson*University of California, Davis* | ***Excellence in Math Teaching and/or Implementing Common Core***Sunday 9:30 - 10:30 AM*Venue - Sequoia* |
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| **Measuring Mentoring in the Noyce Scholarship**With the NSF Noyce Grant, mentoring between scholarship recipients and project personnel is pivotal to the program’s success. This session will examine the difficulties of measuring mentoring relationships. |
| Chrissy Cross*Stephen F. Austin State University* | ***Project Management and Development (for PI/staff)***Sunday 9:30 - 10:30 AM*Venue - Tioga* |
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| **Continuous Formative Assessment (CFA) in the STEM Classroom Using Cloud-Based Collaborative Resources**Assessment in the STEM classroom has traditionally been a summative process taking place following a number of class lectures. This type of assessment uncovers deficiencies in student learning weeks after the student’s understanding is initially breached. This makes it difficult for the student to catch up. More frequent assessment of student learning has its advantages in providing the student with timely feedback on progress and in informing the teacher what adjustments to the teaching should be made. Such frequent assessments are termed formative and have been practiced in a great variety of ways.Continuous Formative Assessment (CFA) employs cloud-based collaborative document technology to instantly collect responses from multiple students, groups, and class sections. In this workshop, participants will learn how to collect response data from large sets of students across groups or classes and analyze them quickly and accurately. Participants will gain experience using CFA strategies to enhance student engagement and monitor student understanding during synchronous online or in-person instruction. As instructors analyze student responses, instruction adjustments can be made to meet immediate student needs. This workshop introduces specific instructional strategies that may be employed to increase the accountability and involvement of students in face-to-face, blended and online settings. Preliminary data suggests that the CFA methodology promotes engagement, accountability, and understanding through formative assessment for both students and instructors. |
| Norman Herr*California State University, Northridge* | ***Use of Technology in the Classroom*** Sunday 9:30 AM - 12:00 PM*Venue - D3* |
| **Planning to Teach Evidence-Based Argumentation in Science**Participants will design, using our planning tools, a data and language-rich learning sequence of 3-5 lessons, culminating in the construction of an evidence-based explanation of a real-world phenomenon. |
| Kevin Carr Stacia WilsonMaggie Mae Skyler*Pacific University* | ***Excellence in Science Teaching and/or Implementing NGSS*** Sunday 9:30 AM - 12:00 PM*Venue - A1* |
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| **Getting Students Engaged with the NGSS Science and Engineering Practices**Engage in the "Snapshots in Time" activity! Participants have the opportunity to use the NGSS SEPs to develop and critique a model that explains a series of past events. |
| Larry Horvath *San Francisco State University* | ***Excellence in Science Teaching and/or Implementing NGSS***Sunday 9:30 AM -12:00 PM*Venue - D2* |
| **STEM-Rich Making Projects for the Next Generation Science Classrooms**Experience STEM & MAKING activities and learn how the Community Science Workshops’ successful program model and curriculum creates NGSS aligned STEM learning environments accessible to all kids. |
| Jerry D. ValadezFred NelsonAna G. Lopez *California State University, Fresno* | ***Teaching and Learning in High Needs Classrooms***Sunday 9:30 AM - 12:00 PM*Venue - D1* |
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| **Professional Noticing of Students’ Mathematical Thinking**Participants will explore a framework for examining students' mathematical ideas and considering next steps on the basis of those ideas. |
| Lisa Lamb*San Diego State University* | ***Excellence in Math Teaching and/or Implementing Common Core***Sunday 10:45 - 11:45*Venue - A2* |
| **Rubric Development and Application: Phenomena Based Assessment Items Aligned With NGSS**A look at rubric development and application in assessing student responses to phenomena based questions aligned with the Next Generation Science Standards. |
| Anthony HindeDermot Donnelly*California State University, Fresno* | ***Excellence in Science Teaching and/or Implementing NGSS***Sunday 10:45 - 11:45 AM*Venue - Sequoia* |
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| **Project Evaluation**Noyce project leaders project evaluation. |
| Sanlyn Buxner, Program Evaluator Western Regional Noyce Initiative(WRNI) | ***Project Management and Development (for PI/staff)***Sunday 10:45 – 11:45 AM*Venue – D1* |
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| **Closing Remarks**Sunday 12:00 AM – 12:20 PM *Venue - Salon B/C* |
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**Acknowledgements**



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Many thanks to the project staff and volunteers who worked diligently to ensure the success of this year’s conference.

**Project Staff:**

David Andrews – PI

Jaime Arvizu – Program Coordinator

John Keller – Co PI

Donna Ross – Co PI

Lawrence Horvath – Co PI

Sanlyn Buxner – Program Evaluator

Fred Nelson – Program Associate

Lillian Senn – AmeriCorps VISTA

Miranda Lopez – AmeriCorps VISTA

Jennifer Espinoza – Clerical Assistant

Joseph Hickman – Clerical Assistant

We would also like to thank all of the Keynote speakers and facilitators that were able to present at this year’s annual Western Regional Noyce conference.

A special thank you to ***AAAS*** and Dr. Quincy Brown for the premier video showcase “*Voices in the Field”.*