86th Annual Pacific Northwest Section
ASEE Conference
"Teaching for Inclusion: Diversity in the
Classroom and Beyond"
April 6 – 8, 2017
Seattle University

Lodging:	Hotel Reservation Link:	Conference Registration:
Silver Cloud Broadway Hotel	ASEEPNW	ASEE PNW Conference Registration
1100 Broadway	**or call 206.325.1400**	
Seattle, WA 98122	**codeword: ASEEPNW**	

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Conference Committee:		
Agnieszka Miguel (Seattle University)	Sean St. Clair (Oregon Institute of Tech.)	Carolyn Labun (Univ. of British Columbia)
Shiny Abraham (Seattle University)	Eric Davishahl (Whatcom Community College)	Krishna Pakala (Boise State University)
Rich Bankhead (Seattle University)	Marilyn Dyrud (Oregon Inst. of Tech.)	Mehmet Vurkaç (Seattle University)
Janet Callahan (Boise State University)	David Hurwitz (Oregon State University)	

Conference Schedule:

Thursday, April 6, 2017	
Student Center 160 - Fr. LeRoux Conference Center, Seattle University	
4:00 PM	Registration
5:00 PM	Reception
6:00 PM – 8:00 PM	Dinner and Keynote Presentation: "Creating a digitally equitable smart city", *Michael Mattmiller, Chief Technology Officer at City of Seattle*

Creating a digitally equitable smart city
Michael Mattmiller, Chief Technology Officer at City of Seattle

Seattle is committed to becoming a safe, affordable, vibrant, interconnected, and innovative city for all. From the use of sensors to efficiently inform City services to the creation of analytics tools and self-service applications, the effective use of technology is critical to achieving this vision. Yet not every member of Seattle's community has the same access to technology and the internet, or trust in how their government uses the data collected by new technologies. In this keynote we will explore how diversity and digital equity help the City of Seattle deliver powerful technology solutions to the City and public it serves.

In his role Chief Technology Officer for the City of Seattle, Michael Mattmiller champions efforts to connect people with their government, increase the productivity of the City workforce through technology, and increase digital equity across the city.

In 2016 Michael led the creation of the City's consolidated technology department, which brought together more than 650 professionals and provided the scale necessary to deliver powerful technology solutions for the City and public it serves. In addition, Michael led the creation of a City-wide privacy program to build public trust in how their municipal government collects and uses their personal information, and a broadband program that has increased availability of fiber-to-the-home gigabit broadband service throughout the city.

Prior to his role at the City, Michael served as a senior strategist at Microsoft and as a consultant to the federal government at PricewaterhouseCoopers. A Dublin, Ohio native, Michael received a B.B.A. and M.S. in Information Systems Development at The George Washington University.

Friday, April 7, 2017
Student Center 160 - Fr. LeRoux Conference Center, Seattle University

7:30 AM	Registration
8:00 AM	Breakfast
8:10 AM	Welcome from *Dr. Agnieszka Miguel, Chair, ASEE PNW Section*
8:20 AM	Welcome from *Dr. Michael Quinn, Dean, College of Science and Engineering, Seattle University*
8:30 AM	Keynote Presentation: "Change is Coming…Change with Inclusive Excellence", *Dr. Janet Callahan, Boise State University*

Change is Coming…Change with Inclusive Excellence
Dr. Janet Callahan, Boise State University

Change is a delicate thing. Most of us have habits in how we teach – formed from our experiences when we learned, forged from our experiences teaching, forged sometimes in defense, and forged sometimes with the benefit of faculty development opportunities. While all of us aim to teach with excellence, we are impaired by our individuality, which affected our own learning, and our teaching. In this talk, we will focus on change – how to begin it, how to nurture it, how to embrace it. How change can lead to inclusive excellence. This talk will also brief the proposed changes to the Engineering Accreditation Criteria 3 and 5 (Outcomes and Curriculum).

Janet Callahan, Ph.D., P.E. is Chair and Professor of the Micron School of Materials Science and Engineering at Boise State University. One of four founding members of the B.S. program, established in 2004, the program has now grown to include 18 program faculty and 4 joint faculty. Between 1992 and 2004, Dr. Callahan was an assistant and associate professor at Georgia Tech, where she explored crystalline and amorphous metal nanoparticle formation in amorphous oxides. Dr. Callahan has authored over 100 peer-reviewed articles and patents focused on nanomaterials, surface modification and education/college retention. In 2015, Dr. Callahan was appointed the to the Engineering Accreditation Commission of ABET; she has served as program evaluator for approximately 15 different programs since 2005.

9:00 AM - 10:00 AM	ASEE PNW Section Business Meeting (open to all attendees)

Friday, April 7, 2017
10:15 AM – 11:15 AM

Session 1A (Student Center 130)	Session 1B (Student Center 210)	Session 1C (Student Center 160)
Innovative Teaching I **Moderator: *Krishna Pakala,*** ***Boise State University***	**Teaching Professional Skills** **Moderator: *Rich Bankhead,*** ***Seattle University***	**Workshop** **10:15 AM - 12:15 PM**
Knowledge Surveys in Engineering Statics *Eric Davishahl* *Whatcom Community College*	Cooperative Teaching as an Effective Training Mechanism for Future Instructors *Nikita Taparia, Jonathan Realmuto, Saniel Dong Lim, Gador Canton, & Jim Borgford-Parnell, University of Washington*	Workshop: Using Systematic Literature Reviews to Enhance Graduate Student Learning Workshop: Using Systematic Literature Reviews to Enhance Graduate Student Learning Systematic literature review (SLR) is a skill assumed to be in the arsenal of all graduate students pursuing thesis options at MS or PhD level. Our initial survey of graduate students shows that they have very little experience in performing SLR. Discussions with other faculty confirm that a more formal training in SLR is needed. Experience with other soft-skills, such as technical writing, suggests that it is very important to provide a specific disciplinary context. Therefore, to learn SLR it would be best to incorporate it in various courses. In this workshop we will discuss why ISLR is a useful educational tool and how to do it in the context of a specific problem in a specific course.
Tracking student conceptual understanding of dynamics concepts across contexts: A Plan for research *Floraliza Bornasal and Jill Walsh* *Saint Martin's University*	Implementation and Assessment of New Techniques in Technical Writing *Hani Saad, Eastern Washington State University*	
Fishing Rod Design Analysis: From Term Paper to Research Project *B. Dalman, J. D. Castro-Gutierrez, & R. A. Budiman, University of Calgary*	Why Ethics? *Marilyn A. Dyrud, Oregon Institute of Technology*	Branimir Pejcinovic Portland State University *Branimir Pejcinovic* *Portland State University*

Friday, April 7, 2017
11:30 AM – 12:30 PM

Session 2A (Student Center 130)	Session 2B (Student Center 210)	Session 1C (Student Center 160) - cont.
Outreach and K12 Education **Moderator: *Sean St. Clair,*** ***Oregon Institute of Tech.***	**Assessment I** **Moderator: *David Hurwitz,*** ***Oregon State University***	**Workshop** **10:15 AM - 12:15 PM**
The Nature of Engineering for K12 Education *Brian Hartman, Walla Walla University*	Open Engineering Problems - It's about Time! *J. R. Zaworski, T. C. Kennedy, R. J. Zaworski* *Oregon State University*	Workshop: Using Systematic Literature Reviews to Enhance Graduate Student Learning
Middle School Students Understanding of Engineering Empathy *Henriette de Rozario Burns, Washington State University, Vancouver*	Open-Source Online Homework in Engineering Courses *Eric Davishahl, Whatcom Community College*	*Branimir Pejcinovic* *Portland State University*
Toy Adaptation in Undergraduate Education and Outreach - An Initial Examination into Participant Experience and Perceptions *Molly Mollica, University of Washington*	Using Competency Grading in a Statics and Mechanics of Materials Course *Kirsten Davis & R. Casey Cline* *Boise State University*	

Friday, April 7, 2017
12:30 PM – 2:15 PM
Student Center 160 - Fr. LeRoux Conference Center, Seattle University

12:30 PM	Lunch
12:45 PM	ASEE PNW Awards
1:00 PM - 2:00 PM	Keynote Presentation: "Short-circuiting the mind: Student success and faculty preconceptions", *Dr. David Green, Seattle University*

Short-circuiting the mind: Student success and faculty preconceptions
Dr. David Green. Seattle University

Which students do we expect to shine in our classes and which to struggle? We all harbor suspicions about these stellar or not-so-stellar students, but rarely do we dare to air our thoughts. In this keynote, we'll explore the results of a study that compared faculty members' preconceptions with data from over a thousand of their own undergraduates. So is it true, for instance, that students with sports scholarships do less well than non-athletes, or that white students are more likely to excel? Does it make a difference if students sit at the back of the class, if they regularly attend religious services, or if they speak English at home? Preconceptions may put us at risk of missing key evidence; more importantly, they may prevent us from noticing students in real need of our support and encouragement. Together, we'll reflect on how we might dig into the recesses in our minds, become more conscious of our own preconceptions, strive for a more just educational environment.

David A Green is Director of the Center for Faculty Development and affiliated faculty in International Studies at Seattle University, WA. Before becoming a faculty developer, David was chair of Languages and International Business at Birmingham City University (UK) and has taught at the graduate and undergraduate level in foreign language, literature, cross-cultural management, communication, and higher education. He publishes on academic identity and faculty perceptions of both student characteristics and the field of higher education pedagogy. From 2011 to 2014, David was co-editor of the International Journal for Academic Development and co-author (with Celia Popovic) of Understanding Undergraduates: Challenging Our Preconceptions of Student Success, published in the USA and UK by Routledge (2012).

Friday, April 7, 2017
2:30 PM – 3:30 PM

Session 3A (Pigott 309)	Session 3B (Pigott 308)	Session 3C (Pigott 208)
Assessment II **Moderator: *David Hurwitz,*** ***Oregon State University***	**Diversity and Inclusion** **Moderator: *Eric Davishahl,*** ***Whatcom Community College***	**Workshop** **2:30 PM - 4:30 PM**
Improved student performance in computer programming by constructing more visual assessment *Shanon Reckinger & Bryce Hughes, Montana State University*	Exploring the Interplay of Diversity and Ethics in an Introductory Bioengineering Course *Celina Gunnarrson, Camille Birch, Dianne Hendricks, University of Washington*	Workshop: Contributing to and Using A New Open Website for Engineering Problems Engineering educators' imagination and creativity represent a source of exercises and problems far larger than those available in any given textbook. An open website has been developed to allow contributions of problems for engineering mechanics and free use of those problems by anyone that is interested. The goals for this workshop are to familiarize participants with the existing site, train them on its use, and then elicit their feedback. It will consist of two parts: (1) an organized program on using the website in its current configuration and (2) a discussion/ brainstorming period to review the ideas of the existing site, come up with possible improvements, and collect creative ideas, constructive comments, and approaches to implementation to improve this collaborative, open resource. *Joseph R. Zaworski* *Oregon State University*
An Assessment Tool for Tracking Design Skills from the Freshman to Senior Year *John Crepeau, Dan Cordon, Michael Maughan, & Steven Beyerlein, University of Idaho*	Design for an Inclusive Learning Environment at Boeing Structures Engineering University *Antonio Rufin, Boeing Structures University and Patricia Henderson*	
Switching to Rubric-based Assessment Jeff Newcomer, Nikki Larson, & Derek Yip-Hoi, Western Washington University	Co-Curriculum for Diversity of Aspiration, and Enhanced Problem-Solving *Mehmet Vurkaç, Seattle University*	

Friday, April 7, 2017		
3:45 PM – 4:45 PM		
Session 4A (Pigott 309)	**Session 4B (Pigott 308)**	**Session 3C (Pigott 208) - cont.**
Recruitment and Retention **Moderator: *Marilyn Dyrud,*** ***Oregon Inst. of Technology***	**Innovative Teaching II** **Moderator: *Mehmet Vurkaç,*** ***Seattle University***	**Workshop** **2:30 PM - 4:30 PM**
Case Study: Why Students Chose Electrical and Computer Engineering Major? *Agnieszka Miguel & Shiny Abraham, Seattle University*	Sustainable Energy for Engineers and Non-Engineers Only *Douglas M. Logan & Fred Liebrand, Walla Walla University*	Workshop: Contributing to and Using A New Open Website for Engineering Problems *Joseph R. Zaworski* *Oregon State University*
Designing an Exploratory Freshman Course in Electrical Engineering: Some Experiences *B. Pejcinovic & M. Holtzman* *Portland State University*	Continuing Development of an Elective Lab Section for Electricity and Magnetism with Transmission Lines *Eve Klopf, Aaron Scher, Mohamed Alhosani, & John-Michael Denton, Oregon Institute of*	
Developing instructional methods and materials in an engineering graphics Course to Improve Spatial Recognition *Jill Walsh and Floraliza Bornasal, Saint Martin's University*	Enabling Undergraduate Research Collaboration with a Local Analytical Laboratory *John Bridge, Kaleb Demsey, & Bryce Denis, University of Washington*	

Friday, April 7, 2017
6:00 PM – 8:00 PM
Dinner at Rhein Haus, 912 12th Ave, Seattle, WA 98122, http://rheinhausseattle.com

Saturday, April 8, 2017
8:00 AM – 9:15 AM
Breakfast (Bannan Building 401 & 402)

Saturday, April 8, 2017	
9:15 AM – 10:15 AM	
Session 5A (Bannan 401)	**Session 5B (Piggot 207)**
Project Based Learning **Moderator: *Krishna Pakala,*** ***Boise State University***	**Workshop** **9:15 AM - 11:15 AM**
A Project-based 1st-Year Electrical and Computer Engineering Course: Sensor and Telemetry Systems for High-altitude Balloons *Jeremy Thomas, DigiPen Institute of Technology*	Getting Started with Cody Coursework: Hands-On with the Online Platform to Auto-Grade MATLAB Programming Assignments Participants will get started with an online auto-grading platform for MATLAB assignments named Cody Coursework. They will walk away knowing how to set up auto-graded MATLAB assignments by adopting existing problems from the Cody Coursework catalog, how to modify problems to better suit their assignment goals, and how to develop their own problems that can be automatically graded. **Please, pre-register at: https://goo.gl/forms/wrmpUyKjTEjtZYI02.** *Eric Davishahl* *Whatcom Community College*
A Project-Based 2nd Year Electrical and Computer Engineering Course: Embedded Systems Design *B. Lorena Villarreal, DigiPen Institute of Technology*	
Redesign of labs for better outcomes *Al Moser, Seattle University*	

Saturday, April 8, 2017	
10:30 AM – 11:30 AM	
Session 6A (Bannan 401)	**Session 5B (Piggot 207)**
Learning and Teaching Communities **Moderator: *Marilyn Dyrud,*** ***Oregon Institute of Technology***	**Workshop** **9:15 AM - 11:15 AM**
Learning in groups: Student characterizations of exemplary project group members *Jim Borgford-Parnell, David Schipf, & Ken Yasuhara, University of Washington*	
Learner perceptions of increase in digital fluency after participation in a Living Learning Community based Mobile Learning Community: A progress report *Devshikha Bose, Krishna Pakala, & Lana Grover, Boise State University*	Getting Started with Cody Coursework: Hands-On with the Online Platform to Auto-Grade MATLAB Programming Assignments *Eric Davishahl* *Whatcom Community College*
Integrating collaborative writing in an engineering class *Jong-Hoon Kim and Dave Kim, Washington State University, Vancouver*	

11:30 AM – 12:45 PM (Bannan 401)
Lunch and Roundtable Discussion