

The 7th Annual WPU Educational Technology Conference

Are You Ready to Invent?: STEM + ARTS = STEAM!



Friday, November 18th, 2016

8:30 AM - 3:55 PM

William Paterson University
1600 Valley Road, Wayne, NJ 07470

This year's conference will deepen your understanding of new directions in teaching science and mathematics by integrating engineering, technology, and the arts. The conference will feature a keynote speaker and breakout sessions with hands-on activities and discussions. It will also help you design lessons with the STEAM approach in K-12 classrooms, targeting all types of learners.

Program Chairs: Dr. Heejung An & Dr. Pei-Lin Weng

8:30 am – 9:00 am: Registration, Breakfast

9:00 am – 10:30 am: Concurrent Session I

- **The Maker Movement in an Elementary School Library**
By Jaime Allen, Marlboro Township School District
 This workshop will explore the key foundations of a MakerSpace in an elementary school setting and the intricate role of the school librarian through collaboration with colleagues. Participants will have the opportunity to tinker with tech and low-tech materials, learn about engaging picture books related to the movement, and other resources to start the movement in their schools. Lesson plan ideas will be shared as well.
- **Graphing on Coordinate Planes and Perspective Drawing**
By Celeste Banks, William Paterson University
 In this lesson, students learn how to create a 1-point perspective drawing based on their knowledge of graphing points on a coordinate plane. This lesson effectively highlights the similarities in perspective drawing as it relates to certain mathematical concepts.
- **Making STEAM accessible to students with disabilities**
By Dr. Pei-Lin Weng, William Paterson University
 Traditional STEAM materials are not appropriate or accessible to students with disabilities, especially those with visual impairments or print disabilities. Due to a lack of active STEAM learning experiences, these populations have been consistently underrepresented in

STEAM fields. In this session, we will introduce research-based technologies, such as ReadHear, Talking LabQuest, and 3D printing, that provide independence and equality for these populations in learning STEAM. You will have a hands-on experience using the ReadHear software, a MathSpeak-based technology to support students with visual impairments or print disability in using real-world mathematics textbooks.

- **Online tools and hands-on activities for climate change education**

By Dr. Deepti Singh, Lamont-Doherty Earth Observatory, Columbia University

Incorporating climate change education into the curriculum is critical to prepare future leaders for its consequences. This workshop will provide information about activities that can be used to educate students about the scientific, political and social aspects of climate change. We will discuss web-based interactive tools to visualize climate change information from the past, present and future, including its impacts, across the world. We will learn fun, hands-on activities that can aid teaching about climate change science and clean energy (such as solar and wind) technologies. We will also introduce activities that simulate decision-making during international climate negotiations.

10:30 am – 10:40 am: Break

10:40 am – 10:45 am: Introductory Remarks

Dr. Candace Burns, Dean, College of Education, William Paterson University

10:45 am – 12:00 pm: Keynote Address

By Dr. Stefania (Stefanie) Macaluso

The Power of STEAM: Dr. Macaluso will be discussing what STEAM is and looks like in schools, and ways to address student creativity in STEM fields by infusing the arts. Separately she will also provide strategies to guide implementation of Next Generation Science Standards for teachers to ensure that national standards are being met. In being slightly more unconventional to common key note addresses, Dr. Macaluso will make the event interactive to demonstrate STEAM in action. Thus, teachers will better be able to grasp the foundations of STEAM as it may be applied in the classroom and be given an introduction to the key theories that are currently molding STEAM curriculum.



Dr. Stefania Macaluso is a postdoctoral fellow at Teachers College, Columbia University, and a senior professional development science coach at the Institute of Student Achievement. She holds a Master's degree in the Supervision of Science Teaching, Biology, and Bioinformatics, and a doctoral degree from Columbia University. Aside from serving as a researcher, she has also taught numerous college biology courses spanning from human anatomy to biochemistry, has led various professional development sessions, and facilitated multiple workshops on science curriculum writing, STEM/STEAM, and science literacy. Her research interests are in teacher identity development and culturally relevant pedagogy in science education.

12:00 pm – 12:45 pm: Lunch

12:45 pm – 2:15 pm: Concurrent Session II

- **Graphing on Coordinate Planes and Perspective Drawing**
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 In this lesson, students learn how to create a 1-point perspective drawing based on their knowledge of graphing points on a coordinate plane. This lesson effectively highlights the similarities in perspective drawing as it relates to certain mathematical concepts.
- **Incorporating the Maker Movement into Mathematics Classes**
By Stephen Slater, Keyport School District
 During this workshop, we will discuss and define the "Maker Movement". We will brainstorm ideas for creating portable, budget friendly maker kits, and how to design mathematics lessons that incorporate making.
- **From Paint to Pixels and Back: Integrating Art and Technology**
By Janette Selino, New Roberto Clemente Community Middle School & Dina Scacchetti, William Paterson University
 William Paterson University's Geraldine R. Dodge Foundation grant has expanded the case for the importance of art to student engagement and achievement in Science, Technology, Engineering, Arts, and Math (STEAM). This workshop will share successful efforts to use art-related applications and programs that provide students with 21st century skills and content. Attendees will leave this workshop with classroom ready materials.
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2:15 pm – 2:25 pm: Break

2:25 pm – 3:55 pm: Concurrent Session III

- **Incorporating the Maker Movement into Mathematics Classes**
By Stephen Slater, Keyport School District
 During this workshop we will discuss and define the "Maker Movement". We will brainstorm ideas for creating portable, budget friendly maker kits, and how to design mathematics lessons that incorporate making.

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- **Using Robotics to Strengthen Elementary and Middle School Students' Problem Solving Skills and Metacognition in STEAM Education**
By Dr. Heejung An, William Paterson University

This workshop introduces Lego WeDo robotics as a way to support learners' engagement and development of metacognitive knowledge in STEAM education, leading to the development of scientific skills to solve problems. Participants will work collaboratively to build robots and program specific tasks that the robots can carry out. Participating teachers will have the opportunity to participate in hands-on learning activities that can be brought back to their classrooms.

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- Participants will receive **7.5 Professional Development Hours**
 - **Fee:** \$95
 - **Contact information:** Alma Diaz, diaz6@wpunj.edu
 - **Registration:** <https://wpconnect.wpunj.edu/continuing-education/programs/7th-Annual-Educational-Technology-Conference-111816/33937/>

