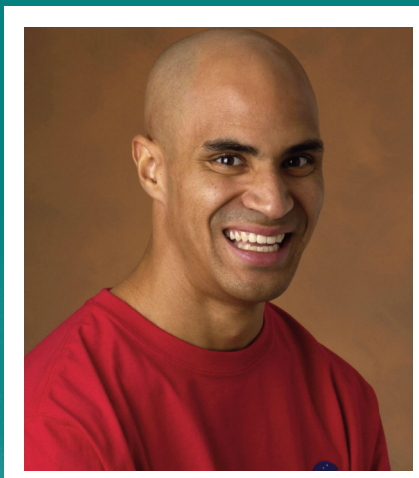

Courtesy NASA/JPL-Caltech

Keynote Speaker
Kobie Boykins, NASA Engineer

2014 NWO Symposium

Northwest Ohio Symposium on Science, Technology, Engineering, and Mathematics Teaching

Professional Development for preK-12 in-service and pre-service teachers, informal educators, and college faculty.

Saturday, November 1, 2014

8:30 am - 4:00 pm

Olscamp Hall
Bowling Green State University

www.nwocenter.org/nwoSymposium

This program is presented in association with National Geographic Live, a mission program of speakers and events that brings the National Geographic experience to communities worldwide.

Sponsored in part by

with support from

Welcome

We are pleased to welcome you to the Northwest Ohio Symposium on Science, Technology, Engineering, and Mathematics (STEM) Teaching. This event offers a valuable opportunity for educators to share and learn from one another in our common effort to advance (STEM) education for people of all ages.

Last year over 350 people attended this event, including in-service and pre-service teachers, higher education faculty, and business and community partners participating in more than 50 sessions.

This year, we are offering over 70 informative and engaging sessions, and are thrilled to have as our keynote speaker NASA Engineer Kobie Boykins (more on Kobie on pg. 4).

We hope you find the 2014 Northwest Ohio Symposium on STEM Teaching to be a beneficial experience, especially those of you here for the first time. With your help, we will continue to make this symposium the premier STEM professional development opportunity for educators in northwest Ohio.

Thank you for joining us!

NWO
Northwest Ohio Center for Excellence in STEM Education

COSMOS
Center Of excellence in Science and Mathematics education: Opportunities for Success

BGSU

SCIENCE TECHNOLOGY ENGINEERING MATHEMATICS
Northwest Ohio Symposium on Science, Technology, Engineering, and Mathematics Teaching

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Let's get trending!
Include #NWOsymposium
on all of your posts!

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8:30 – 9:45 AM . . . . . Welcome and Keynote Address

10:00 – 10:50 AM . . . . . Block A

11:00 – 11:50 AM . . . . . Block B

11:50 AM – 12:40 PM . . . Lunch

12:50 – 1:40 PM . . . . . Block C

1:50 – 2:40 PM . . . . . Block D

2:50 – 3:40 PM . . . . . Block E

Vendor Area Open from 8:00 AM – 12:40 PM in 101 Olscamp Hall

NWO Symposium Evaluation

Please complete an evaluation sheet for each session you attend. (The sheets are in the manila envelope you received at registration.) Everyone who returns a completed set of evaluation sheets at the end of the day will be entered in a raffle for a $25 Amazon.com gift card!

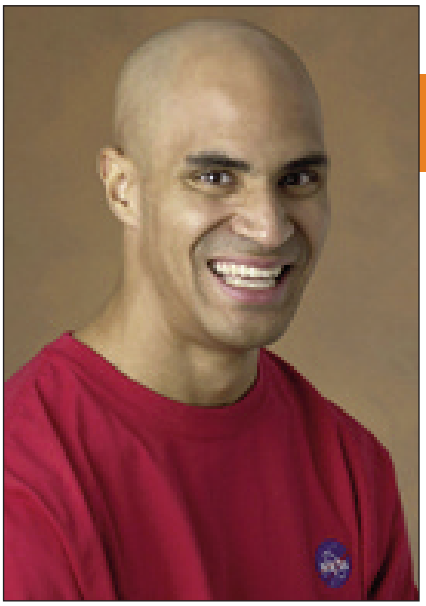
Also, please complete the online evaluation for the 2014 Symposium. All who complete the survey will be entered into a drawing for a $25 Amazon.com gift card.

The online evaluation can be found at:
tinyurl.com/NWOSymposium

A contact hours certificate can be requested at the completion of the evaluation survey. The certificate will be emailed to you approximately 2 weeks after the event.

4

Keynote Presentation



Courtesy NASA/JPL-Caltech

Kobie Boykins, NASA Engineer

Exploring the Red Planet: Engineering, Innovation, and Perseverance

Few events in the last decade of space exploration have captured the world's imagination like NASA's ongoing Mars Exploration Program. In 2004, the successful deployment of the Mars Exploration Rovers, Spirit and Opportunity, launched a new era of scientific investigation of our nearest planetary neighbor. For Kobie Boykins, a mechanical engineer at NASA's Jet Propulsion Laboratory, the rovers' success was also a personal triumph: he helped design and build the solar arrays that enabled the rovers to keep going long after their planned 90-day life (indeed Opportunity is still roaming Mars today and sending back images, more than nine years later).

Now, Boykins is also intimately involved with our latest venture to Mars, as supervisor of the mobility and remote sensing mast teams for the Mars Science Laboratory, better known as Curiosity. Curiosity landed on Mars in August 2012 and has already made headlines with evidence that conditions on Mars, including the presence of water, once could have supported life. For work on this and other compelling projects, Boykins last year received a NASA Exceptional Service Medal, one of the highest honors given to NASA employees and contractors.

Boykins' boundless enthusiasm for unraveling the mysteries of outer space, and Mars in particular, is infectious. In this keynote presentation, Boykins will share his passion for space exploration by recounting the design and construction of the rovers and the story of their successful missions. He will also describe how he overcame the challenges and failures that inevitably arose during the development of the Mars Rovers.

Boykins hails from a family of educators, and has a real passion for STEM education. He was a featured scientist for Dr. Robert Ballard's JASON project educating youth in STEM, and has spent many hours talking and working with students. Kobie will discuss how engineering and exploration can help teachers infuse excitement and innovation into their teaching, while showing students how to persevere through difficulty and failure.

NATIONAL GEOGRAPHIC LIVE!

This program is presented in association with National Geographic Live, a mission program of speakers and events that brings the National Geographic experience to communities worldwide.

Session Overview

Welcome & Keynote: 8:30-9:45 AM	Keynote Address: Kobie Boykins, NASA Engineer (Olscamp Hall: Room 101)									
Room #	**OLSC 115**	**OLSC 106**	**OLSC 117**	**OLSC 119**	**OLSC 120**	**OLSC 121**	**OLSC 219**	**OLSC 225**	**OLSC 227**	**OLSC 229**
Block A: 10:00-10:50 AM	Engineering A1	A2 Integrating Technology	A3 Science	Integrating Technology A4	Inquiry in the College Classroom A5	Integrating Technology A6	STEM in the Community A7	A8 Science	Science A9	Science A10
Block B: 11:00-11:50 AM	Engineering B1	B2	B3	Integrating Technology B4	Science B5	Inquiry in the College Classroom B6	STEM in the Community B7	B8	Putting Creativity to Work: B9	Science B10
Lunch: 11:50 AM - 12:40 PM										
Block C: 12:50-1:40 PM		Integrating Technology C1	Putting Creativity to Work: C2	Integrating Technology C3	Putting Creativity to Work: C4	Inquiry in the College Classroom C5	STEM in the Community C6		Engineering C8	STEM in the Community C9
Block D: 1:50-2:40 PM		Integrating Technology D1		Integrating Technology D2	Science D3	Putting Creativity to Work: D4	STEM in the Community D5	Engineering D6		Mathematics D8
Block E: 2:50-3:40 PM		Integrating Technology E1			Science E2	Science E3		Engineering E4	Engineering E5	

Welcome & Keynote: 8:30-9:45 AM	Keynote Address: Kobie Boykins, NASA Engineer (Olscamp Hall: Room 101)									
Room #	**BA 100**	**BA 101**	**BA 102**	**BA 103**	**BA 104**	**BA 106**	**BA 115**	**BA 117**	**BA 1000**	**BA 1002**
Block A: 10:00-10:50 AM	Putting Creativity to Work: A11	A12 Putting Creativity to Work:		Putting Creativity to Work: A13	Putting Creativity to Work: A14		Engineering A15	A16 Mathematics	Mathematics A17	
Block B: 11:00-11:50 AM	Mathematics B11	B12	Mathematics B13	Science B14	Mathematics B15	Putting Creativity to Work: B17	Engineering B19	B16	Science B20	
Lunch: 11:50 AM - 12:40 PM										
Block C: 12:50-1:40 PM	Mathematics C10	C11 Science	Mathematics C12		Mathematics C13	Mathematics C14	C15 Science	STEM in the Community C16	C17 STEM in the Community	C18 Mathematics
Block D: 1:50-2:40 PM	Mathematics D9	D11	Mathematics D10	D12 Science	Mathematics D13	Mathematics D14	D15	Mathematics D16	D17	D18
Block E: 2:50-3:40 PM	Mathematics E7	Science E8	Mathematics E9	E12	Mathematics E10	Mathematics E11		Mathematics E13		

OLSC = Olscamp Hall ***BA = Business Administration Building***

2014 NWO Symposium Strands

Teaching and Learning in ENGINEERING
A rapidly growing population and ever more complex systems of human interaction demand innovation and perseverance to solve the important social, economic, health, and environmental problems we face everyday. Engineering is key to solving these problems, and more emphasis is currently being placed on integrating engineering concepts into the classroom. Sessions in this strand will focus on deepening your engineering knowledge and/or exploring interesting and effective ways to teach engineering.

Teaching and Learning in SCIENCE
There is no doubt that science is central to our lives. Never before has our world been so complex and science knowledge so critical to making sense of it all. It is paramount, therefore, that our students have a solid science education. Sessions in this strand will focus on deepening your science knowledge and/or exploring interesting and effective ways to teach science.

Teaching and Learning in MATHEMATICS
In today's world, we are bombarded with data that must be absorbed, sorted, organized, and used to make decisions. Mathematics teaches ways of thinking that are vital to work and civic life, and it is essential that mathematics education imparts these patterns of thought. Sessions in this strand will focus on deepening your mathematics knowledge and/or exploring interesting and effective ways to teach mathematics.

STEM in the Community: Thinking Outside the Classroom
Making STEM relevant for students is critical in improving their motivation and learning. Showing students the applications of STEM outside the classroom is a great way to get them engaged. Sessions in this strand will demonstrate ways that community resources and informal or non-traditional education settings can be used to supplement and support your STEM teaching efforts.

Integrating Technology in the Classroom
Technology is ubiquitous, touching almost every part of our lives, our communities, and our homes. Technology in education can engage and challenge students with new and interactive methods, and can allow teachers to reach their students in new and ever more effective ways. Sessions in this strand will demonstrate how to effectively use technology in STEM teaching.

Putting Creativity to Work: Teaching STEM With Innovation
Creativity and innovation might aptly be described as the drivers of educational growth and success. New and innovative approaches to STEM teaching and learning result in deeper and more meaningful STEM learning for students. Sessions in this strand will explore some innovative and creative ways to teach STEM.

Inquiry in the College Classroom: Enhancing the Undergraduate Experience
Inquiry-based teaching practices and active learning strategies are often difficult to implement in the high-enrollment courses that make up much of the early undergraduate experience. These difficulties, however, are not insurmountable. Sessions in this strand will demonstrate how inquiry can effectively be implemented in undergraduate STEM courses, especially those that are high-enrollment.

Block A: 10:00 - 10:50 AM

A1 A Conversation with NASA Engineer Kobie Boykins

During this session you'll have the opportunity to discuss important issues about engineering and education with NASA engineer Kobie Boykins. Kobie will share more about his own experiences as an engineer with NASA, and facilitate a discussion among attendees about the why and how engineering should be integrated in your classroom.

Presented by: Kobie Boykins, NASA

Grade Levels: PreK-College ***Room:*** OLSC 115

Strand: Teaching and Learning in ENGINEERING

A2/B2 The Tech-Toolbox: Building for Student Success! (Double Session from 10:00 - 11:50 AM)

Create a digital toolbox that contains some of the best technologies, puts educational resources at your fingertips and is an effective way to enhance both teaching and learning.

Presented by: Susan Finelli, Baldwin Wallace University

Grade Levels: PreK-College ***Room:*** OLSC 106

Strand: Integrating Technology in the Classroom

A3/B3 Not a Drop to Drink?! (Double Session from 10:00 - 11:50 AM)

A timely lesson for our community. Using an Enviroscape 3D model, students will learn about watersheds and human impact on our waterways, both locally and globally. This engaging, hands on program will increase student's understanding of how their own everyday activities affect the earth. Students will also learn about sources of pollution, erosion, weathering, sedimentation and best management practices to prevent or mitigate them.

Presented by: Kim Kaseman, Toledo Botancial Garden
Diane Thurber, Toledo Botanical Garden
Katie Mantel, Toledo Botanical Garden

Grade Levels: 3 - 8 ***Room:*** OLSC 117

Strand: Teaching and Learning in SCIENCE

A4 Tech Tools for Online Testing

To take Ohio's new online assessments, students must be proficient in a variety of technology skills, from simple dragging and dropping to using an online protractor. Attend this session to learn how you can use free INFOhio resources and other free sites to help your students practice the skills needed for Next Generation Assessments. Your students and teachers will be online assessment ready!

Presented by: Brandi Young, INFOhio

Grade Levels: PreK - 12 ***Room:*** OLSC 119

Strand: Integrating Technology in the Classroom

Block A: 10:00 – 10:50 AM continued

A5 Uncovering College Students' Ideas in Science (Limited to 20 Participants)

This presentation will highlight how formative assessment probes can be used in university classrooms to uncover misconceptions that students bring to their learning experiences.

Presented by: Emilio Duran, BGSU

Grade Level: College ***Room:*** OLSC 120

Strand: Inquiry in the College Classroom: Enhancing the Undergraduate Experience

A6 Molecules in Motion: Creating engaging, scientifically accurate molecular dynamics computer simulations with your students using Molecular Workbench

Molecular Workbench (MW) is a free and easy to use, on-line molecular dynamics (MD) simulation tool, embedded in a rich curricular authoring framework. It provides teachers with integrated tools to engage students to build accurate simulations to learn how atoms and molecules behave and give rise to macroscopic phenomena like melting, evaporation, diffusion, and osmosis. With MW, instructors can deploy rich activities that students can download, run, and modify on their own computers. Student creations can be uploaded for sharing and evaluation.

Presented by: Neocles Leontis, BGSU
David Erickson, BGSU
Andrew Torelli, BGSU

Grade Levels: 5 - 8, 9 - 12, College ***Room:*** OLSC 121

Strand: Integrating Technology in the Classroom

A7 Mars, STEM, Archaeology And You! Activities across the curriculum to enhance your classroom

Cross curricular activities focusing on magnetism, spectroscopy, STEM challenges, and investigating archaeological digs. Participants leave with ideas and outlines for as many activities as we can pack into the session.

Presented by: Brian Soash, Maumee Valley Country Day

Grade Levels: 5 - 8, 9 - 12 ***Room:*** OLSC 219

Strand: STEM in the Community: Thinking Outside the Classroom

A8/B8 Preparing Students for Success on the Science Next Generation Assessments

(Double Session from 10:00 - 11:50 AM)

Use the recently released full length science practice tests, test specification documents, and a large number of online simulation sites to identify, modify, and create assessment tasks that align to the cognitive demand levels of Ohio's Science Standards.

Presented by: Michelle Shafer, Maumee City Schools

Grade Levels: 5 - 8, 9 - 12 ***Room:*** OLSC 225

Strand: Teaching and Learning in SCIENCE

Block A: 10:00 – 10:50 AM continued

A9 Teaching a Seasonal Science Unit Aligned to the Ohio Early Learning and Development Standards

This presentation will demonstrate how to plan a complex interdisciplinary science unit focused on seasonal science that meets many of the Ohio ELDS simultaneously. A complex unit can span many domains at one time, making teaching more efficient and more meaningful.

Presented by: Christine Knaggs, Lourdes University
Melissa Romero, Lourdes University

Grade Levels: PreK - 4 ***Room:*** OLSC 227

Strand: Teaching and Learning in SCIENCE

A10 Making Standards-Based Grading Work for You

A crash course in the reasoning behind standards-based grading and practical suggestions to help you deploy it in your classroom.

Presented by: Lauren Stewart, Gibsonburg Middle/High School
Tom Stewart, Gibsonburg Middle/High School

Grade Levels: 9 - 12 ***Room:*** OLSC 229

Strand: Teaching and Learning in SCIENCE

A11 Lights On! A PBL Approach toward Integration of STEM and Current Events

This presentation showcases the problem-based learning (PBL) activity designed to integrate STEM disciplines and social studies in a local STEM high school. By assuming a role of independent consultants, the students in this PBL activity use mathematics and science to examine the ongoing phase-out of incandescent light bulbs and the potential impact of this change on the community. In addition to a detailed description of this PBL activity (to allow for easy implementation), we will also address the benefits of integration and PBL in STEM disciplines, especially in mathematics, as well as the challenges associated with its implementation.

Presented by: Sandra Wilder, Northeast Ohio Medical University

Grade Levels: 9 - 12 ***Room:*** BA 100

Strand: Putting Creativity to Work: Teaching STEM With Innovation

Block A: 10:00 – 10:50 AM continued

A12/ B12 GLOBE: It's Elementary! (Double Session from 10:00 - 11:50 AM)

GLOBE is an international, hands-on, and inquiry-based science and education program for grades PreK - 4. In this session, we will explore the five Elementary GLOBE Program units (Earth as a System, water, atmosphere, soils, and hummingbirds) through active engagement with the program and professional discussions regarding classroom implementation strategies and alignment to both national and state standards. All participants will receive the free Elementary GLOBE Curriculum. Roll up your sleeves and come ready to study our earth! Check out the program at **https://www.globe.gov/web/elementary-globe.**

Presented by: Jodi Haney, Xcite Learning

Grade Levels: PreK - 4 ***Room:*** BA 101

Strand: Putting Creativity to Work: Teaching STEM With Innovation

A13 Teaching Simple Machines, Force and Motion and a little Energy using LEGO®

This hands-on session will help you teach your students how to build, design, and test simple and powered machines while learning the necessary math, science, technology and engineering concepts. Even the least science oriented educators will feel comfortable teaching this way with that wonderful manipulative LEGO®. Teacher lesson plans, student workshops and how to address standards will be reviewed.

Presented by: Ivery Toussant, Jr., LEGO® Education

Grade Levels: K - 12 ***Room:*** BA 103

Strand: Putting Creativity to Work: Teaching STEM With Innovation

A14 FAST: Formative Assessment Strategies and Tips

This session will define formative assessment as participants take part in several hands-on activities. Attendees will leave with a "Formative Assessment Toolkit" that is filled with ideas that be utilized in the classroom.

Presented by: Gary Herman, Putnam County ESC

Grade Levels: 5 - 8, 9 - 12 ***Room:*** BA 104

Strand: Putting Creativity to Work: Teaching STEM With Innovation

A15 Tiger Team: When Things Go Wrong

The Tiger Team simulation is designed to engage students, grades 6 through 12, in the application of skills, concepts, and content taught in science, mathematics, and language arts. The simulation includes activities that provide a broader perspective of space exploration and the problems that may (and often do) arise. The "Tiger Team" seeks to find the solution to the oxygen emergency that faced the crew of Apollo 13. The students will devise solutions, test these solutions, modify and retest as needed, and instruct the capsule commander (facilitator) as to the implementation of the solution in the classroom or through the use of distance learning equipment.

Presented by: Reed Steele, Saturn V Education

Grade Levels: 5 - 8, 9 - 12 ***Room:*** BA 115

Strand: Teaching and Learning in ENGINEERING

Block A: 10:00 – 10:50 AM continued

A16/ B16 The Critical Sixth Sense... Number Sense (Double Session from 10:00 - 11:50 AM)

Number sense is one of the most crucial math skills to instill in young children. Join the session to discover multiple, hands-on activities for developing number sense in your students. Leave with an array of activities for teaching one-to-one correspondence, subitization, number bonds, and pattern recognition. Send your young learners on their way to a successful career in math!

Presented by: Amy Boros, Perrysburg Schools

Grade Levels: PreK - 4 ***Room:*** BA 117

Strand: Teaching and Learning in MATHEMATICS

A17 Math Teachers' Circles: A New Type of Professional Development

Math Teachers' Circles are taking place all over the country. There are already three in central and southern Ohio and two more will be starting in northwest Ohio. Join us to see what Math Teachers' Circles are all about, find out how you can get involved, and enjoy doing some math problems yourself.

Presented by: Debra Gallagher, BGSU
Diane Burtchin, Rossford Schools

Grade Levels: 5 - 8, 9 - 12, College ***Room:*** BA 1000

Strand: Teaching and Learning in MATHEMATICS

Block B: 11:00 - 11:50 AM

B1 A Conversation with NASA Engineer Kobie Boykins

During this session, you'll have the opportunity to discuss important issues about engineering and education with NASA engineer Kobie Boykins. Kobie will share more about his own experiences as an engineer with NASA, and facilitate a discussion among attendees about the why and how engineering should be integrated in your classroom.

Presented by: Kobie Boykins, NASA

Grade Levels: PreK - College ***Room:*** OLSC 115

Strand: Teaching and Learning in ENGINEERING

B4 A Little Bit of STEM Is All You Need - Integrating Science, Engineering, and Mathematics in the Technology classroom (Limited to 20 Participants)

Learn how to use STEM activities to teach technology. This presentation will feature proven examples of using hands-on activities to provide students with a taste of STEM learning. Given the task of teaching technology skills to high school students, this presenter developed a number of activities that use low-cost materials and supplies to challenge student thinking and provide experiences that build skills in the use of Microsoft Word, Excel, and more. The activities can be easily modified for students in lower-grade levels as well as for those in high school.

Presented by: Jay Bitner, Loudonville High School

Grade Levels: 5 - 8, 9 - 12 ***Room:*** OLSC 119

Strand: Integrating Technology in the Classroom

B5 Using Fossils to Engage Students in Science Learning

Fossils provide a fascinating window into Earth's ancient past and are a great way to excite kids about scientific discovery. We'll discuss hands-on activities using fossils that target general science skills and specific content standards in life and earth sciences. Every participant will receive lesson plans and resource guides.

Presented by: Peg Yacobucci, BGSU/Paleontological Society

Grade Levels: PreK - 4, 5 - 8 ***Room:*** OLSC 120

Strand: Teaching and Learning in SCIENCE

Block B: 11:00 – 11:50 AM continued

B6 "Metabolism Fun": Learning through gaming

Our bodies convert food into stored energy and building blocks for growth and repair of tissues. This on-line game (**see: http://www.metabolismfun.com/**) is designed to help students learn the principles of metabolism by playing. They make choices as to nutrients to "eat", how often to "breathe" and how to store and distribute nutrients to achieve challenges and score points. How do you store the most energy possible in the shortest time? How do you deliver energy to your muscles as rapidly as possible during emergencies? How do you keep your brain supplied with energy when there isn't enough food? How long can you stay alive during a famine when there is no food at all?

Presented by: Neocles Leontis, BGSU
Dominic Zirbel, Carnegie Mellon

Grade Levels: 9 - 12, College ***Room:*** OLSC 121

Strand: Inquiry in the College Classroom: Enhancing the Undergraduate Experience

B7 College Is Never Enough: Taking your career beyond the classroom

This session takes your education into the field to enhance your curriculum. Learn how to gain experiences with fellowships, and how to get involved with Project Archaeology, NASA's MAVEN Leadership Academy, and Siemens STEM Institute. Come and learn ways to grow as an educator, whether you're an undergrad or have been teaching for 20 years.

Presented by: Brian Soash, Maumee Valley Country Day

Grade Levels: 5 - 8, 9 - 12 ***Room:*** OLSC 219

Strand: STEM in the Community: Thinking Outside the Classroom

B9 Using a Science Journal in the Pre-K Classroom

Science journals can be used in the pre-K classroom! They are an effective way to teach a variety of inquiry skills, and also serve to document learning throughout the school year.

Presented by: Christine Knaggs, Lourdes University
Melissa Romero, Lourdes University

Grade Levels: PreK - 4 ***Room:*** OLSC 227

Strand: Putting Creativity to Work: Teaching STEM With Innovation

B10 Building Scientific Literacy (Limited to 20 Participants)

What is the scientific process? When students see data graphed, do they understand its meaning? What does order of magnitude mean to them? This session will explore resources to help build scientific literacy skills by answering these questions as well as to take a new look at science in the world around them.

Presented by: Cindy Molitor, Lourdes University

Grade Levels: 5 - 8, 9 - 12 ***Room:*** OLSC 229

Strand: Teaching and Learning in SCIENCE

Block B: 11:00 – 11:50 AM continued

B11 The Number Devil: A Mathematical Integration Adventure in High School

While recognizing the importance of seamless integration of mathematics and language arts comes easily to most teachers, the same cannot be said for the actual execution of lessons that effectively accomplish this task. We present a project-based learning activity implemented in Precalculus and Language Arts courses in a STEM high school that explored a somewhat different approach to blurring the lines between the two curricula. In this presentation we will provide a detailed description of this project, as well as the student learning outcomes in both mathematics and language arts. To ensure a rich portrayal of the project outcomes, we conclude the presentation with capturing examples of student work.

Presented by: Sandra Wilder, Northeast Ohio Medical University

Grade Levels: 9 - 12 ***Room:*** BA 100

Strand: Teaching and Learning in MATHEMATICS

B13 Writing and Simplifying Expressions

Participate in investigations and hands-on activities that provide an engaging and meaningful introduction to several basic concepts and the language of algebra.

Presented by: Oxana Grinevich, Lourdes University

Grade Levels: 5 - 8 ***Room:*** BA 102

Strand: Teaching and Learning in MATHEMATICS

B14 STEM in the Oil and Gas Industry

This session presents a brief overview of science in Ohio's Oil and Gas Industry. Learn about Ohio's unique geology and the science and technology related to hydraulic fracturing. Participants will use engineering design to create a pipeline, an oil derrick and a model oil well. Sponsored by the Ohio Oil and Gas Energy Education Program (OOGEEP).

Presented by: Jane Hunt, OOGEEP
Rhonda Reda, OOGEEP

Grade Levels: 5 - 8, 9 - 12 ***Room:*** BA 103

Strand: Teaching and Learning in SCIENCE

Block B: 11:00 – 11:50 AM continued

B15 How do I find enough TIME to teach all the math standards?

This quick, hands-on activity will allow you to prioritize your time more efficiently and teach math more effectively. Teachers will be surprised to find out that they can spend a week (or more) PER STANDARD in regards to their "major standards". Teachers will leave with a color-coded document to alleviate the stress from the recurring question "how do I get it all covered?" and will also gain an understanding of how their standards align vertically with other grade levels.

Presented by: Gary Herman, Putnam County ESC

Grade Levels: PreK - 4, 5 - 8, 9 - 12 ***Room:*** BA 104

Strand: Teaching and Learning in MATHEMATICS

B17 Toledo Zoo: Life Science Inquiry Experiences (Limited to 20 Participants)

The Zoo will guide you in how your classroom and Zoo visits can dive into inquiry learning. Great for an introduction to inquiry methods or for those with some experience. Meet some of our live animal inquiry all stars for a glimpse at what we can do for you.

Presented by: Josh Minor, Toledo Zoo
Jerran Orwig, Toledo Zoo

Grade Levels: PreK - 12 ***Room:*** BA 106

Strand: Putting Creativity to Work: Teaching STEM With Innovation

B19 Engineering is Elementary

Explore an inquiry-based STEM curriculum for elementary students. The engineering design is the foundation to teach elementary students through problem solving and critical thinking using literature and real-world scenarios.

Presented by: Debra Gallagher, BGSU

Grade Levels: PreK - 4, 5 - 8 ***Room:*** BA 115

Strand: Teaching and Learning in ENGINEERING

B20 Cruising with Sir Isaac: Using Newton Cars to Experiment with Motion

Cruising with Sir Isaac is a very fun, inquiry-based lesson that engages students (and teachers) while investigating the laws of motion. During this lesson, students use Newton Cars as described in NASA's Rocket Guide to design and conduct experiments for testing the effect that various factors have on the motion of a Newton Car. This lesson is very successful with middle school and high school physical science classes during a unit on dynamics as well as the nature of science. During this presentation, participants will experience first-hand how to bring this lesson to life in their classrooms.

Presented by: James Less, Lake High School

Grade Levels: 5 - 8, 9 - 12 ***Room:*** BA 1000

Strand: Teaching and Learning in SCIENCE

Block C: 12:50 - 1:40 PM

C1 Awesome FREE Resources for STEM

We'll explore the multiple free STEM resources available through Ohio's Pre-K Digital Library —INFOhio and from other online sites like PBS Learning Media and Ohio Resource Center. These resources include streaming and downloadable videos, ebooks, practice tests, tutorials, an online course for students to ramp up their research skills, and much, much more! Bring your own mobile device to follow along as we explore these resources together.

Presented by: Judith M. Tucker, NWOET

Grade Levels: PreK - 4, 5 - 8, 9 - 12 ***Room:*** OLSC 106

Strand: Integrating Technology in the Classroom

C2 Planting Seeds of Science in Growing Minds

This co-presentation by educators from Toledo Botanical Garden and Toledo GROWs will show teachers how to enliven earth and life science activities. From a drop of water to the pond and beyond; pollinators to seed, photosynthesis and plant classification; captivate your students!

During GROWs programs students dig, plant and bite their way through the science of growing and eating healthy foods. Participants will also learn how new and existing school gardens can receive material support, education, and advice to get growing. A free in-class ($50 value) visit will be raffled off to one lucky participant.

Presented by: Kim Kaseman, Toledo Botanical Garden
Christin Wilkins, Toledo GROWs (TBG outreach)
Diane Thurber, Toledo Botanical Garden

Grade Levels: PreK-12 ***Room:*** OLSC 117

Strand: Putting Creativity to Work: Teaching STEM With Innovation

C3 The Climate Walk - A Journey Using Nearpod

BYOD! Bring your own device to a session that will explore the local impacts of global climate change using Nearpod technology. Participants will witness the Climate Literacy Principles come to life in Ohio Sea Grant's "Climate Walk", and learn strategies to create a climate walk on their school campus or informal learning environment. Educators will also learn how the Nearpod app can turn classroom presentations into opportunities to gather essential formative assessment data! Download the free version of Nearpod from the app store to be ready for this valuable learning opportunity.

Presented by: Angela Greene, Ohio Sea Grant / Stone Laboratory
Sue Bixler, Ohio Sea Grant / Stone Laboratory

Grade Levels: 5 - 8, 9 - 12, College ***Room:*** OLSC 119

Strand: Integrating Technology in the Classroom

Block C: 12:50 – 1:40 PM continued

C4 "Everything Old Is New Again": Teaching General Chemistry Using the Flipped Classroom AND with the iPad

One way that we can reach millennial students is by changing the methods that we have used in the past to teach students. One method that has picked up some publicity in the past few years is the flipped classroom. In this talk, participants will learn about the flipped classroom, the trials and tribulations of employing the technique, and the lessons learned about employing this technique at the general chemistry level. It is through a combination of this, and using the iPad, that will make teaching general chemistry feel "new" again!

Presented by: Jim Zubricky, The University of Toledo

Grade Level: College ***Room:*** OLSC 120

Strand: Putting Creativity to Work: Teaching STEM With Innovation

C5 Engaging Students in First Year Chemistry at The University of Toledo

First year chemistry poses many challenges for students. These include large class size, reduced interaction with the professor, and an increase in number and variety of temptations from what they are used to in high school. In order to overcome these barriers, we have instituted a variety of activities to engage students and enhance their first year experience. In this presentation, we will talk about how we place students in the correct classes, and ways we engage them using clickers and demonstrations, along with other types of out of class learning support, which include online homework (both Mastering Chemistry and ALEKS), Peer Lead Team Learning, and Supplemental Instruction sessions that have lead to an enhanced undergraduate experience.

Presented by: Kristi Mock, The University of Toledo
Andy Jorgensen, The University of Toledo

Grade Levels: 9 - 12, College ***Room:*** Room: OLSC 121

Strand: Inquiry in the College Classroom: Enhancing the Undergraduate Experience

C6 CJ STEMM – A Unique K-12 STEM Education Community - In the Classroom and Beyond

The mission of the CJ STEMM initiative is to empower students to serve the world. Inside and, perhaps more significantly, outside the classroom, we offer opportunities for middle and high school students and families in our community to interact with and learn from practicing STEM professionals who serve the world and know how to apply the science, technology, engineering, math, and medical content that students learn in the classroom and are challenged to make sense of.

Presented by: Meg Draeger, CJ STEMM - Chaminade Julienne Catholic High School

Grade Levels: 5 - 8, 9 - 12 ***Room:*** Room: OLSC 219

Strand: STEM in the Community: Thinking Outside the Classroom

Block C: 12:50 – 1:40 PM continued

C8 How to integrate STEM concepts in a K-8 Building!

This workshop will provide attendees with ideas to bring computer coding and programming into the Elementary School with minimal cost. We will also explain how to integrate and apply Engineering Instruction through Lego Leagues and projects. We will also touch on the engineering pieces of the Common Core and how you can create centers or classroom discussions using the engineering process!

Presented by: Jack Hunter, Chase STEM Academy
Luke Mckinley, Lead STEM Teacher
Ashley Warnimont, Chase STEM Academy Science

Grade Levels: PreK - 4, 5 - 8 ***Room:*** OLSC 227

Strand: Teaching and Learning in ENGINEERING

C9 Connecting Students with Local Environmental Scientists and Environmental Engineers

More than 400 environmental professionals statewide have volunteered to make classroom career presentations and participate in school career day programs. Some can also provide career shadowing and field trip opportunities. Learn to access these career ambassadors through a new, cost-free online network created by a partnership between The Ohio State University School of Environment and Natural Resources, Ohio EPA, and the Environmental Education Council of Ohio. Additional resources and grant opportunities specific to environmental careers will be shared.

Presented by: Carolyn Watkins, Ohio Environmental Protection Agency

Grade Levels: 5 - 8, 9 - 12 ***Room:*** OLSC 229

Strand: STEM in the Community: Thinking Outside the Classroom

C10 Examining Model Curriculum in Mathematics: 1st Grade

The $(CO)^2$RES sessions are led by grade level teams of teachers who participated in the program. These teachers designed and implemented Common Core aligned mathematics lessons. Each session will target specific grade level content from the Common Core State Standards (CCSS) for grades K-12. Presenters will share their experiences of learning about the CCSS and challenges associated with teaching new standards.

Presented by: $(CO)^2$RES Teacher Participants

Grade Level: 1 ***Room:*** BA 100

Strand: Teaching and Learning in MATHEMATICS

C11/D11 Modeling Physical Science (Double Session from 12:50 - 2:40 PM) (Limited to 20 Participants)

Participants will be introduced to a pedagogy known as Modeling Instruction in the field of Physical Science.

Presented by: Gloria Gajewicz, Bowling Green High School
Laura Dietz, Bowling Green High School

Grade Levels: 9 - 12 ***Room:*** BA 101

Strand: Teaching and Learning in SCIENCE

Block C: 12:50 – 1:40 PM continued

C12 Examining Model Curriculum in Mathematics: 3rd Grade

The (CO)^{2}RES sessions are led by grade level teams of teachers who participated in the program. These teachers designed and implemented Common Core aligned mathematics lessons. Each session will target specific grade level content from the Common Core State Standards (CCSS) for grades K-12. Presenters will share their experiences of learning about the CCSS and challenges associated with teaching new standards.

Presented by: (CO)^{2}RES Teacher Participants

Grade Level: 3 ***Room:*** BA 102

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C13 Examining Model Curriculum in Mathematics: 6th Grade

The (CO)^{2}RES sessions are led by grade level teams of teachers who participated in the program. These teachers designed and implemented Common Core aligned mathematics lessons. Each session will target specific grade level content from the Common Core State Standards (CCSS) for grades K-12. Presenters will share their experiences of learning about the CCSS and challenges associated with teaching new standards.

Presented by: (CO)^{2}RES Teacher Participants

Grade Level: 6 ***Room:*** BA 104

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C14 Examining Model Curriculum in Mathematics: High School - Group A

The (CO)^{2}RES sessions are led by grade level teams of teachers who participated in the program. These teachers designed and implemented Common Core aligned mathematics lessons. Each session will target specific grade level content from the Common Core State Standards (CCSS) for grades K-12. Presenters will share their experiences of learning about the CCSS and challenges associated with teaching new standards.

Presented by: (CO)^{2}RES Teacher Participants

Grade Levels: 9 - 12 ***Room:*** BA 106

Strand: Teaching and Learning in MATHEMATICS

C15/D15 STEM Activities for a Sustainable Planet (Double Session from 12:50 - 2:40 PM)

Engage in interdisciplinary, hands-on activities that integrate STEM with social studies to address pressing global issues – population growth, climate change, biodiversity and more. Receive a CD-ROM of activities matched to state and national standards including Common Core and NGSS!

Presented by: Debra Gallagher, BGSU

Grade Levels: 5 - 8 ***Room:*** BA 115

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Block C: 12:50 – 1:40 PM continued

C16 Inquiry Education in the Metroparks

Think like an environmental scientist! Metroparks will show participants the many opportunities for students to engage in the scientific inquiry process at school and in the parks. Seining in the Maumee River, habitat surveys, or dip netting in a vernal pool are just some of the scientific activities students will use to solve inquiry questions. How can we help Lake Erie stay healthy? Why do some birds only live here part of the year? We will explore these driving questions, and will provide participants with inquiry resources and park programming information.

Presented by: Mike Mathis, Metroparks of the Toledo Area

Grade Levels: PreK - 12 ***Room:*** BA 117

Strand: STEM in the Community: Thinking Outside the Classroom

C17/D17 Exploring Rain Gardens and Water Quality through Science and Civics (Double Session from 12:50 - 2:40 PM)

The Rain Garden Initiative of Toledo-Lucas County promotes the use of Project WILD's Science and Civics curriculum to help middle and high school students explore important issues regarding water quality from the dual perspectives of science and social studies. This slightly condensed Science and Civics workshop will include the opportunity to sample activities from the Curriculum Guide and to take a copy of the 350-page Guide home.

Presented by: Marilyn DuFour, Toledo Division of Environmental Services
Jamie Kochensparger, Lucas Soil & Water Conservation District

Grade Levels: 5 - 8, 9 - 12 ***Room:*** BA 1000

Strand: STEM in the Community: Thinking Outside the Classroom

C18/D18 GrowNextGen.org: An Educational Website for Teaching Science (Double Session from 12:50 - 2:40 PM)

A roundtable with specialists discussing soybean varieties and potential threats to their growth. Participants will complete lessons found on **GrowNextGen.org** that challenge students to analyze insect populations in real world applications.

Presented by: Jane Hunt, Ohio Soybean Council
Heather Bryan, Ohio Soybean Council
Jacob Wenger, OARDC Wooster

Grade Levels: 5 - 8, 9 - 12 ***Room:*** BA 1002

Strand: Teaching and Learning in SCIENCE

Block D: 1:50 - 2:40 PM

D1 Technology in the Classroom: What Skills Do Employers Wish You Were Teaching?

Are the technology skills students develop in your class the skills that employers are looking for? Whatever your content area, you can develop activities that make your students more job-ready. This presentation will look at what technology tools local employers expect from entry-level job applicants, and how teachers can help their students develop marketable computer skills.

Presented by: Janet Engle, The University of Findlay

Grade Levels: 9 - 12 ***Room:*** OLSC 106

Strand: Integrating Technology in the Classroom

D2 Prepare your students for Next Generation Science Testing with Virtual Labs!

Ohio's Next Generation Assessments in Science extensively utilizes virtual lab simulations that require students to manipulate the simulation and analyze data for conclusions. Come to the session to learn more about the assessment (from an ODE team member) and how you can have your students practicing the necessary skills right away.

Presented by: Amy Boros, Perrysburg Schools

Grade Levels: 3 - 8 ***Room:*** OLSC 119

Strand: Integrating Technology in the Classroom

D3 Differentiated Instruction in Lesson Planning

Differentiated Instruction has many values to student learning. By including differentiated instruction in lesson planning students will be exposed to a variety of activities and objectives. The key is using curriculum that is inherently diversified therefore making differentiated instruction a natural part of teaching.

Presented by: Amy Biggs, Mount Vernon Nazarene University
Lynn Shoemaker, Mount Vernon Nazarene University
Jennifer Deeter, Mount Vernon Nazarene University

Grade Levels: 5 - 8 ***Room:*** OLSC 120

Strand: Teaching and Learning in SCIENCE

D4 The Garden Journal

Have you ever wanted to use science journals in a school garden? This presentation will provide you with ideas of how journals can be used in outdoor spaces.

Presented by: Christine Knaggs, Lourdes University

Grade Levels: PreK - 4, 5 - 8 ***Room:*** OLSC 121

Strand: Putting Creativity to Work: Teaching STEM With Innovation

Block D: 1:50 – 2:40 PM continued

D5 The University of Toledo American Chemical Society Presents: STEMM Summer Camp

This session exposes educators to a different way of reaching out to local high school students, and helps students gain an understanding on where STEMM knowledge can lead them. Use summer camp curricula and concepts to focus on teaching students how to balance a STEMM education with everyday life, and apply the information taught in a classroom to an industrial or laboratory setting.

Presented by: Christina Onyskiw, The University of Toledo American Chemical Society
Edith Kippenhan, The University of Toledo American Chemical Society

Grade Levels: 9 - 12, College ***Room:*** OLSC 219

Strand: STEM in the Community: Thinking Outside the Classroom

D6 The Modernization of Engineering Education: A Videogame Approach

(Presentation session is split between two presenters)

Studies have found that students will attain information at a higher rate when it is presented through an interactive medium. This presentation will detail three different methods of implementing videogames into engineering education.

Presented by: Tyler Bernardy, Ohio Northern University

STEM Integration & The Design Project: Engineering's Missing Link?

This presentation will explore the design project as a way to integrate the STEM fields, and to bring engineering into the K-12 environment.

Presented by: John Hartman, Ohio Northern University

Grade Levels: 9 - 12 ***Room:*** OLSC 225

Strand: Teaching and Learning in ENGINEERING

D8 Comparing the differences between computational fluency with cognitive processing in two sections of 8th grade Algebra

When assigned to teach two sections of Algebra to 8th graders, the lead presenter was told the two sections were formed based on results of standardized assessment. On opening day the students were given two assessments: one to determine computational fluency and one to determine cognitive processing speed. The results and their impacts on teaching, learning, and behavior will be discussed.

Presented by: Richard Oldrieve, Hebrew Academy of Cleveland
Cynthia Bertelsen, BGSU

Grade Levels: 5 - 8, 9 - 12 ***Room:*** OLSC 229

Strand: Teaching and Learning in MATHEMATICS

Block D: 1:50 – 2:40 PM continued

D9 Examining Model Curriculum in Mathematics: 2nd Grade

The (CO)^{2}RES sessions are led by grade level teams of teachers who participated in the program. These teachers designed and implemented Common Core aligned mathematics lessons. Each session will target specific grade level content from the Common Core State Standards (CCSS) for grades K-12. Presenters will share their experiences of learning about the CCSS and challenges associated with teaching new standards.

Presented by: (CO)^{2}RES Teacher Participants

Grade Level: 2 ***Room:*** BA 100

Strand: Teaching and Learning in MATHEMATICS

D10 Examining Model Curriculum in Mathematics: 4th Grade

The (CO)^{2}RES sessions are led by grade level teams of teachers who participated in the program. These teachers designed and implemented Common Core aligned mathematics lessons. Each session will target specific grade level content from the Common Core State Standards (CCSS) for grades K-12. Presenters will share their experiences of learning about the CCSS and challenges associated with teaching new standards.

Presented by: (CO)^{2}RES Teacher Participants

Grade Level: 4 ***Room:*** BA 102

Strand: Teaching and Learning in MATHEMATICS

D12/ E12 Utilizing "Project WET" and "Healthy Water, Healthy People" in the Development of Ohio's Water Conservation Education Program. (Double Session from 1:50 - 3:40 PM)

The Great Lakes-St. Lawrence River Basin Water Resources Compact requires the development of a program for water conservation. Project WET - Ohio provides information and education concerning the importance and value of water conservation and promotes voluntary water conservation practices. An important component of Ohio's program is outreach, both into the community and the classroom. Participants will be provided the latest updates on Ohio's program, use at least one activity from the new 2.0 Guide and learn about getting involved with the Ohio program.

Presented by: Dennis Clement, Ohio EPA, OEE

Grade Levels: PreK - 12 ***Room:*** BA 103

Strand: Teaching and Learning in SCIENCE

Block D: 1:50 – 2:40 PM continued

D13 Examining Model Curriculum in Mathematics: 8th Grade

The (CO)^{2}RES sessions are led by grade level teams of teachers who participated in the program. These teachers designed and implemented Common Core aligned mathematics lessons. Each session will target specific grade level content from the Common Core State Standards (CCSS) for grades K-12. Presenters will share their experiences of learning about the CCSS and challenges associated with teaching new standards.

Presented by: (CO)^{2}RES Teacher Participants

Grade Level: 8 ***Room:*** BA 104

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D14 Examining Model Curriculum in Mathematics: High School - Group B

The (CO)^{2}RES sessions are led by grade level teams of teachers who participated in the program. These teachers designed and implemented Common Core aligned mathematics lessons. Each session will target specific grade level content from the Common Core State Standards (CCSS) for grades K-12. Presenters will share their experiences of learning about the CCSS and challenges associated with teaching new standards.

Presented by: (CO)^{2}RES Teacher Participants

Grade Levels: 9 - 12 ***Room:*** BA 106

Strand: Teaching and Learning in MATHEMATICS

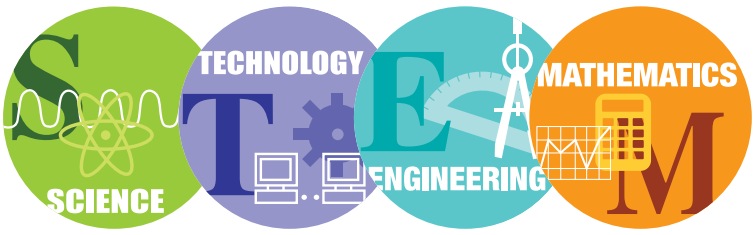
D16 Making the "Dreaded" Story Problems more understandable

Since most students fear the words "Story Problems". I will show how to make them less frightening by using the substitution method for solving simple story problems. Most students are using that method without knowing that they are using it. I will also go over the different types of mixture problems and distance problems for which we use charts.

Presented by: Beryl Stemen, Owens Community College

Grade Levels: 5 - 8, 9 - 12, College ***Room:*** BA 117

Strand: Teaching and Learning in MATHEMATICS



Northwest Ohio Symposium on Science, Technology, Engineering, and Mathematics Teaching

Block E: 2:50 - 3:40 PM

E1 Technology Brings Science AND Scientists to Online Students

Ohio Virtual Academy leverages technology to bring the world of science to students across Ohio. Virtual field trips, guest speakers, and hands-on outings make science come alive!

Presented by: Roger Gluckin, Ohio Virtual Academy

Grade Levels: 5 - 8, 9 - 12 ***Room:*** OLSC 106

Strand: Integrating Technology in the Classroom

E2 Literacy in Support of Science: A Closer Look at Cross-Curricular Instructional Practice

There is growing frustration among some elementary classroom teachers about the enormous amount of time they are required to teach reading; while others struggle to find sufficient time to conduct inquiry-based science investigations. This presentation discusses the literacy-science teaching practices of one teacher as she engaged her students in studying variation and relatedness in living organisms. More specifically, this presentation shares detailed moment-by-moment examples of one lesson showing how the learning of fourth graders can be increased when the teacher embeds various literacy skills as part of a science lesson.

Presented by: Andrea Milner, Adrian College
Vanessa Morrison, Adrian College

Grade Levels: 5 - 8 ***Room:*** OLSC 120

Strand: Teaching and Learning in SCIENCE

E3 Problem-Based Learning in a Garden

Problem-based learning strategies can work wonderfully in the outdoors, where students can tackle and solve a variety of real-world problems! This presentation will show how PBL can be used in a school garden.

Presented by: Christine Knaggs, Lourdes University

Grade Levels: PreK - 4, 5 - 8 ***Room:*** OLSC 121

Strand: Teaching and Learning in SCIENCE

E4 The Investigation of Pre-Engineering Programs on Retention Rates

(Presentation session is split between two presenters)

The presentation will investigate, explore, and provide a summary comparing the retention rates of students who have and have not taken these programs.

Presented by: Brandon Lambert, Ohio Northern University

Evaluation of a STEM Outreach Program: Measuring Student Perceptions of Engineering

This presentation will feature the preliminary results of a pilot study geared to begin measuring student perceptions of engineering after a STEM outreach program by Ohio Northern engineering students. Suggestions based on this pilot study can provide insight for improvements to the model of this type of outreach in order to properly introduce students to the engineering profession.

Presented by: David Reeping, Ohio Northern University

Grade Levels: 9 - 12, College ***Room:*** OLSC 225

Strand: Teaching and Learning in ENGINEERING

Block E: 2:50 – 3:40 PM continued

E5 Is Project Lead the Way Worth It (Presentation session is split between two presenters)

This presentation will discuss if a school district should look into incorporating the Project Lead the Way curriculum in their classrooms.

Presented by: Graham Fennell, Ohio Northern University

Project Based Learning: Developing a STEM Pathway for High School Students

There are many different programs that work to cover every aspect of STEM into one curriculum, but some fall short in integrating them into a solidified curriculum. This presentation compares these programs and proposes a potential solution that integrates Science, Technology, Engineering and Mathematics into one integrated curricular pathway.

Presented by: Tyler Hertenstein, Ohio Northern University

Grade Levels: 9 - 12 ***Room:*** OLSC 227

Strand: Teaching and Learning in ENGINEERING

E7 Examining Model Curriculum in Mathematics: 5th Grade

The (CO)^{2}RES sessions are led by grade level teams of teachers who participated in the program. These teachers designed and implemented Common Core aligned mathematics lessons. Each session will target specific grade level content from the Common Core State Standards (CCSS) for grades K-12. Presenters will share their experiences of learning about the CCSS and challenges associated with teaching new standards.

Presented by: (CO)^{2}RES Teacher Participants

Grade Level: 5 ***Room:*** BA 100

Strand: Teaching and Learning in MATHEMATICS

E8 Growing Ohio: A Science-Based Approach to Feeding the World

How will we feed 9 billion people? What methods and technologies are in use that will help us to successfully grow enough food? How can you use these topics in your science classroom to meet the Ohio Science standards? Come to see interactive methods to teach these ideas!

Presented by: Heather Bryan, Ohio Corn Marketing Program
Jane Hunt, Ohio Corn Marketing Program

Grade Levels: 5 - 8, 9 - 12 ***Room:*** BA 101

Strand: Teaching and Learning in SCIENCE

Block E: 2:50 – 3:40 PM continued

E9 The Perfect Way to Teach

Of course there is no perfect way to teach. But a retired curmudgeon will discuss some of the ideas making the rounds including the inverted classroom, Kahn Academy, Inquiry Based Learning (IBL), Teaching Through Problem Solving (TtPS), and others. In the end, I will make a pitch for keeping an actual classroom teacher.

Presented by: Raymond Heitger, BGSU

Grade Levels: 9 - 12, College ***Room:*** BA 102

Strand: Teaching and Learning in MATHEMATICS

E10 Examining Model Curriculum in Mathematics: 7th Grade

The $(CO)^2$RES sessions are led by grade level teams of teachers who participated in the program. These teachers designed and implemented Common Core aligned mathematics lessons. Each session will target specific grade level content from the Common Core State Standards (CCSS) for grades K-12. Presenters will share their experiences of learning about the CCSS and challenges associated with teaching new standards.

Presented by: $(CO)^2$RES Teacher Participants

Grade Level: 7 ***Room:*** BA 104

Strand: Teaching and Learning in MATHEMATICS

E11 Examining Model Curriculum in Mathematics: Special Education - Grades 5-12

The $(CO)^2$RES sessions are led by grade level teams of teachers who participated in the program. These teachers designed and implemented Common Core aligned mathematics lessons. Each session will target specific grade level content from the Common Core State Standards (CCSS) for grades K-12. Presenters will share their experiences of learning about the CCSS and challenges associated with teaching new standards.

Presented by: $(CO)^2$RES Teacher Participants

Grade Levels: 5 - 12 ***Room:*** BA 106

Strand: Teaching and Learning in MATHEMATICS

E13 Activities for students' active learning in undergraduate or high-school mathematics

In this talk I'll demonstrate some activities that help students learn abstract mathematical concepts, such as conditional probability, set cardinality, and sequences. These concepts do not require any equations or high-level mathematics and can be introduced even on a junior-high school level.

Presented by: Daria Filippova, BGSU

Grade Levels: 9 - 12, College ***Room:*** BA 117

Strand: Teaching and Learning in MATHEMATICS

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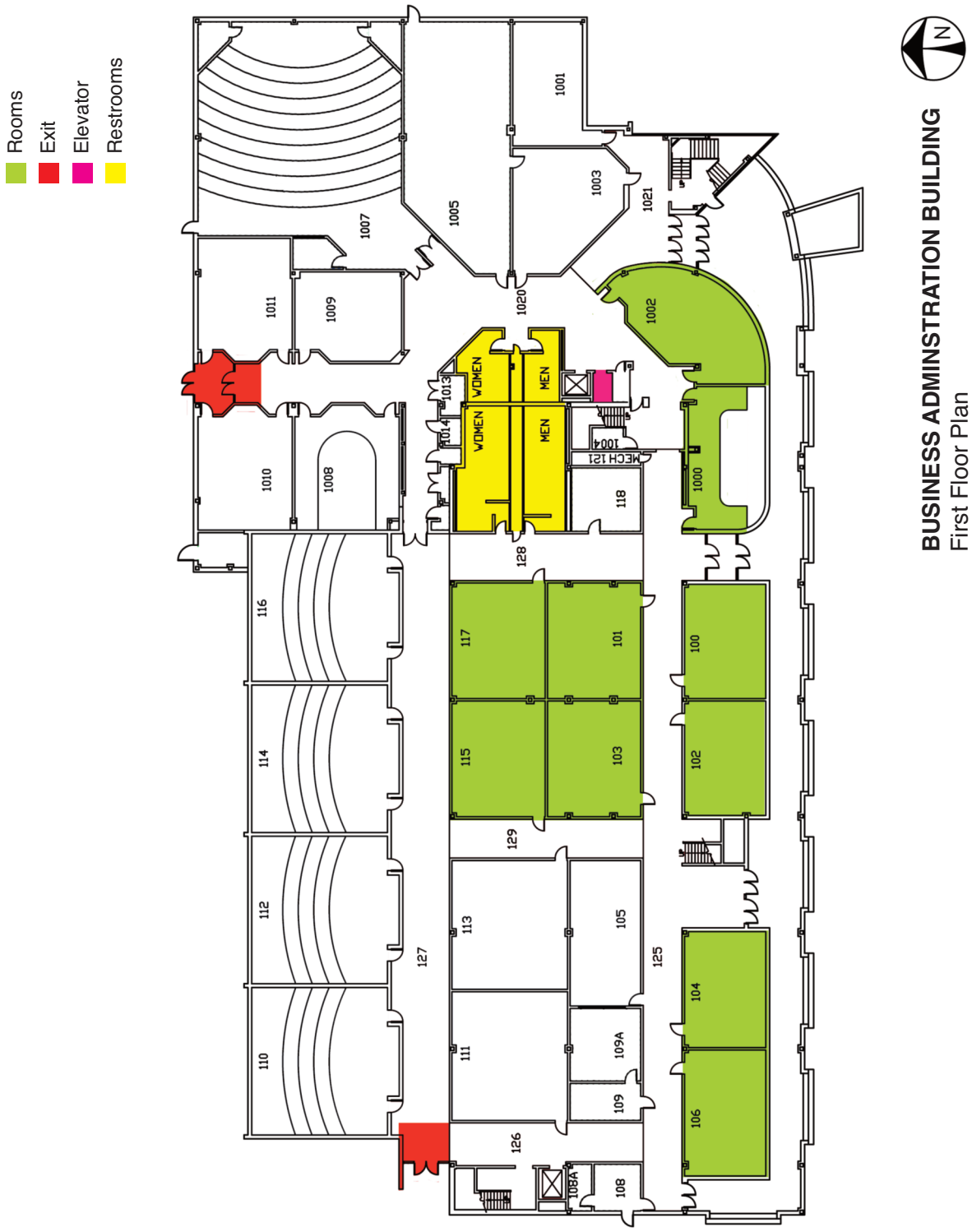
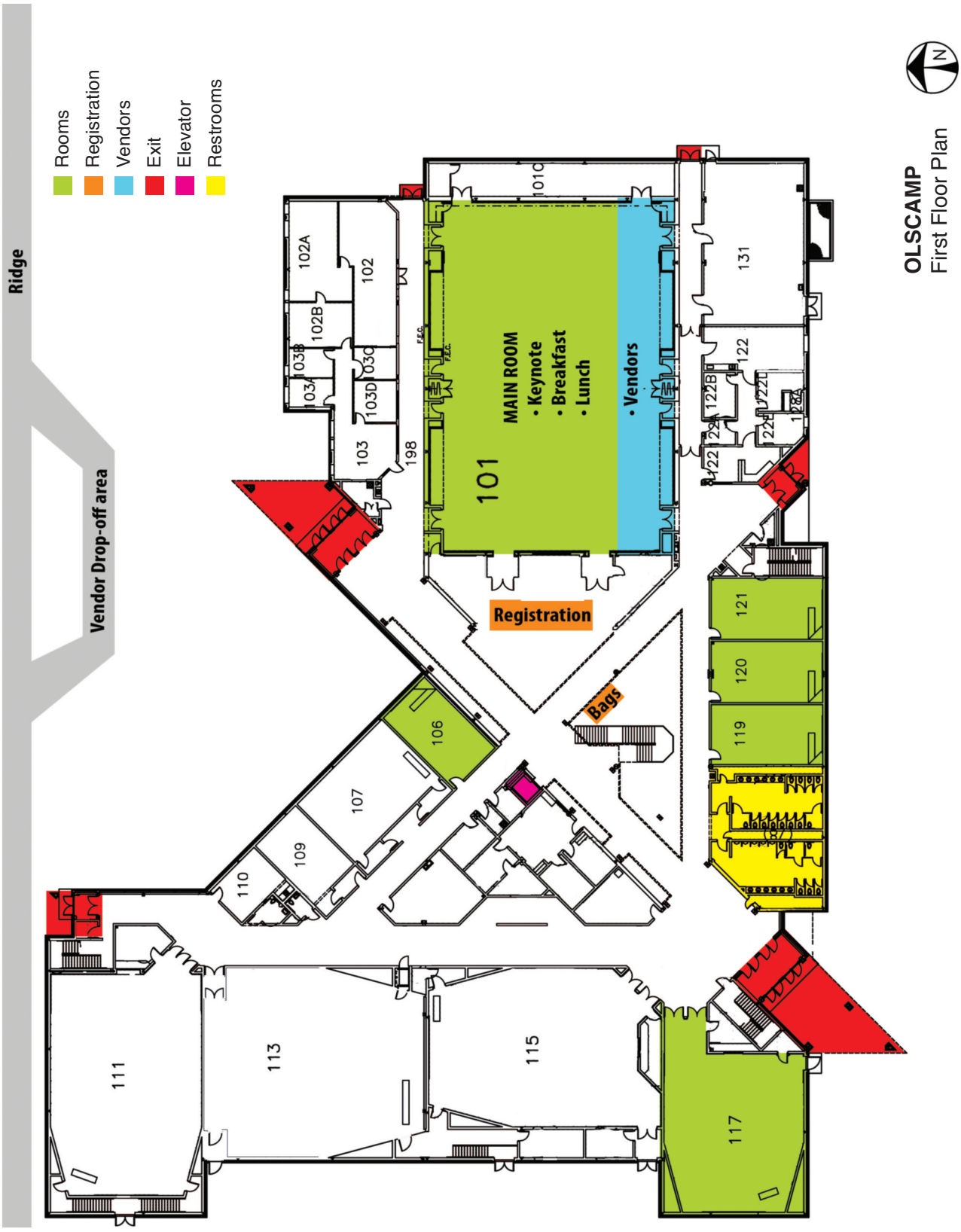
Business Administration Building Map



Olscamp Hall Map - first floor



Olscamp Hall Map - second floor

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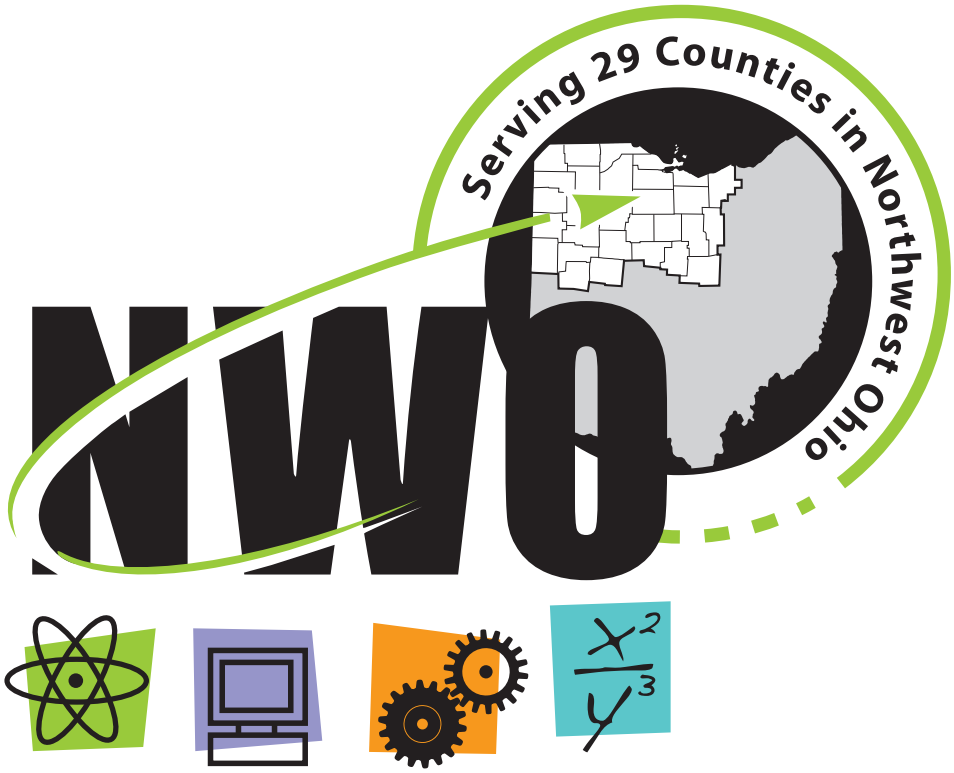

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