



STEM for ALL Conference

August 9, 2010

Hosted by Wheeling High School



Featuring *Dr. James McLurkin* *MIT Robotics Engineer*

Keynote Speaker 8:30 - 9:20 a.m.
in the Robert E. Sang Theater

Extreme Lesson Plans: Adventures in Technical Education

James McLurkin's teaching style can be summarized as follows: "What can I bring to class that will be so interesting that they won't even taste the science?"

This classic technique of bait-and-switch teaching can be especially helpful when introducing technical concepts in science and mathematics. The trick lies in finding the right demonstration, real world application, or story to motivate the theory.

This presentation pulls from McLurkin's lectures in physics, engineering, and computer science. The highlights of the presentation are on-stage demonstrations of BMX physics, a radio-controlled helicopter, and a small swarm of 15 robots. This presentation also has a mini-session of "Swarm School," to illustrate how complex concepts in distributed algorithms for multi-robot systems can be explained to high school students.

The Schedule

Registration

7 - 8:30 a.m.

Early Bird Session

7:30 - 8:20 a.m.

Keynote Speaker

8:30 - 9:20 a.m.

Session One

9:30 - 10:20 a.m.

Session Two

10:30 - 11:20 a.m.

Lunch at the Chicago Westin North Shore

11:45 - 1:30 p.m.

Session Three

2 - 3 p.m.

Registration Details

Cost - \$75

Includes attendance for all three session times, the keynote speaker, and lunch at the Chicago Westin North Shore.

\$1000 Scholarship

Each registered participant of the conference will be entered into a raffle to win the STEM scholarship for a student at his or her school.

Online Registration only

https://www.regonline.com/stem_conference

**See the other side of this flyer for
session titles and descriptions**



Session Offerings

Delivering STEM in a Comprehensive High School

Learn how a diverse, comprehensive school of 1,800 students has transformed itself into a STEM for ALL school with a mission to provide students of all ability levels access to the new economy. Skills related to STEM are purposely taught and reinforced such as problem solving, teamwork, scientific inquiry, technology and communication throughout the curriculum. Skills and content delivered have a broader context and facilitate the diagonal movement of students along a career program of study - occupational, technical, and professional. Walk away with ideas on how to expand student opportunities in career certifications, college partnerships, and technology training as an incentive to students and competitive advantage in preparing for and accessing post secondary opportunities.

*Presenter - Laz Lopez
Available - EB*

Facility Tour

Associate Principal of Operations, Brian Lichtenberger, will take participants on a tour of our building to highlight the recent renovations and technological improvements WHS has implemented to facilitate our STEM initiative. See our state-of-the-art advance manufacturing facility, our paperless classroom set-up, our integrated tech reading lab, health careers lab setting, athletic training

facility, and our digital photo lab! Meet at the registration table at the assigned session time.
*Presenter - Brian Lichtenberger
Available - EB, S3*

The Technology Driven Paperless Classroom

Create a more meaningful and fun learning environment by bridging the digital gap in your classroom. Participants will learn how to reach different types of learners through a variety of technology tools in the paperless classroom. Learn how to use open source software and create a Moodle page for students to access and submit assignments electronically. Students will also have the opportunity to see how some specific hardware such as interactive white boards, PDAs, safari montage, as well as open source and free software can foster active engagement, teamwork, effective communication, and organization.

*Presenter - Julie Levene
Available - EB, S2*

Designing a Master Schedule to Facilitate STEM for ALL

The Master schedule is the vehicle to enable all students to access electives and higher-level courses. This workshop will discuss the construction and use of a blended schedule-both traditional and block classes-used by Wheeling High School for 12 years.
Presenter -Dr. Holly

*Ravitz
Available - EB*

Connecting Humanities and a STEM Curriculum

STEM paired with Social Science and Humanities is a natural academic pathway to engage student learning. The use of analytical skills, ethical judgment and decision making skills, understanding cause and effect relationships, and drawing conclusions are all elements of instruction incorporated in Social Science and Humanities courses. Participants who attend this session will learn.

* Strategies to engage students to collaborate, problem solve, and think critically.

* How technology incorporated in the classroom engages students in meaningful learning using transponders and online discussion techniques.

• How these skills can be transferred into other academic disciplines.

*Presenter -Eileen Hart
Available - S1, S2*

Preparing the Average Student for an Early Career in the Medical Field

The NWCP, ISBE, and grant partners selected Wheeling High School to develop a health careers pathway accessible to all students. Participants in this session will learn about Wheeling High School's Health Careers Pathway and the rationale for its methodology.
*Presenter - Tim Meyer
Available - S1*

Hooking Kids on Engineering

This session will provide a glimpse into the foundational course that is within the Project Lead the Way program at Wheeling High School. Introduction to Engineering & Design (IED) provides opportunities for young high school students to experience the scope and rigor of engineering and engineering technology careers. This college level curriculum can challenge and inspire students to find relevance and applications for academics while exploring their creativity and problem solving skills.

*Presenter - Mike Geist
Available - S1*

Can We Build It?

The Civil Engineering and Architecture course within the Project Lead the Way program provides students will an overview of the fields of Civil Engineering and Architecture. Using state-of-the-art Autodesk software and equipment students will solve real world problems and apply knowledge to hands-on projects through a college level curriculum.

*Presenter - Jeff Bott
Available - S1*

Graduate from High School "Certified"

This session will provide you with a look at opportunities for students to receive Industry recognized certifications while still in high school. Learn about the training requirements, equipment and facility needs, and

curriculum. Certifications include the following: NIMS, CAN, NATEF, A+, CISCO, Sanitation License.

*Presenter -Kevin Muck
Available - S1*

Let's hit the accelerator! Moving kids up in math

Having students enter high school with significantly lower test scores than expected is a challenge! This session will take you through the identification process of the student, course of study at WHS, curriculum adjustments that have worked and pathways for diagonal movement.

*Presenter -Nancy Heintz
Available - S1, S2*

All means All: Special Education students and STEM

This workshop focuses on what has been done behind the scenes to prepare for the inclusion of students with disabilities into the STEM initiative. This overview will include how schedules have been re-aligned to allow students to access the elective courses, the process of building relationships with organizations specifically focused on STEM and students with disabilities, outreach efforts to the middle schools and the integration of STEM with transition planning.

*Presenter -Dr. Mary Furbush
Available - S1, S2*

Counseling for Career Pathways in STEM

This workshop will address how counseling services based on the

Session Availability Key

EB - Early Bird 7:30 - 8:20 a.m.

S1 - Session One 9:40 - 10:30 a.m.

S2 - Session Two 10:40 - 11:30 a.m.

S3 - Session Three 2 p.m. - 2:50 p.m.



ASCA national model incorporate the STEM focus to join the EPAS system and Wheel of Work with the Illinois Career Programming to help students to begin programs of study that address academic and career goals in high school and beyond. Reaching ALL Students through project based Advanced Biology Once students leave the level tracking of the core curriculum, they find themselves in elective science courses that contain spectrum of students ranging from skills level to AP level students. How can teachers scaffold laboratory experiences for students who have accommodations while maintaining a challenging experience for the students who excel academically? In this session, we will explore the modifications that can be made to an elective course to make it a challenging learning experience for all students.

Presenters - Joyce Brewer and Grace Alderson Available - S1, S3

Ethics and Communication in a Tech Driven World

What kinds of information should I share with others? What should I keep a secret? With whom should I share information? These questions are becoming more difficult to answer with advancements in technology and communication. Come to this session to learn activities to use in class to teach ethics our students need

to maneuver the new technology landscape. We'll talk professional communication versus personal communication. *Presenter - Karen Barrett Available - S1, S2*

21st Century ELL Classroom

See how technology can positively impact English Language Learners academic achievement. Participants who attend this session will learn:

- * Strategies for using technology in the classroom to differentiate instruction.

- * How to incorporate the technologies of MOODLE, transponders, and QUIA into instructional lesson plans.

- * The importance of technology in the classroom to facilitate direct instruction in the classroom.

- * How technology can engage student learning as well as allow for individual pacing

- to learn the skills of reading, writing, listening, and speaking.

Presenters - Paul Dzien and Flavio Spanavella Available - S1, S3

Becoming a better artist by learning concepts in math, science, and technology

Art is fundamentally cross disciplinary. Developments in art have occurred hand-in-hand with developments in math, science, and engineering. By learning mathematical concepts such as the Fibonacci series, scientific concepts such as the properties of light,

and computer science concepts such as units of digital storage, students can become better artists.

Presenters - Laura Piskiewicz and Rebecca Silver Available - S1, S2

Northwestern iLab Project

This presentation details Northwestern University's iLab Project, a online network that allows students to remotely use real experimental devices to perform real experiments via a web browser. Teacher representatives from Wheeling High School and researchers from Northwestern University will demonstrate iLab and how it was utilized in the classroom, share student and teacher perspectives on the program, and provide information on how to get involved with continuing and future iLab efforts.

Presenters - Mediha Abhat, Dan Weidner and Northwestern University Staff Available - S1

Through the eyes of our students: how science feels to male and female students and what this means for practice.

This session will present findings from a recent study (funded by the National Science Foundation) examining the subjective of male and female high school students in variety of science classrooms. The research seeks to understand how daily science learning activities feel for students in order to iden-

tify the kinds of science learning contexts that are most engaging for male and female students. I will be discussing some of the gender similarities and differences that are emerging from this research in terms of what this suggests for educational practice in science.

Presenter -Dr. Jennifer Schmidt Available - S1

I can think it, but can I build it?

The Computer Integrated Manufacturing (CIM) course within the Project Lead the Way program provides students with the opportunity to design for manufacture. See how students building Battlebots drives the curriculum through manufacturing, automation, and various CIM systems.

Presenter - Mike Geist Available - S2

The Student Experience – The WHS STEM team its Wind Turbine

Students from the Wheeling STEM team will discuss their interdisciplinary project and hold a question and answer session. In STEM team, students are actively working in the research, design, and fabrication of a wind turbine.

Presenters - Victor Gonzalez and WHS students Available - S1, S3

From Engineering Theory to BattleBots Competition

Wheeling High School has three BattleBot teams that each built a robot for competition

this year. Come to this session to hear from the coach and the students about applying engineering concepts to the BattleBot Arena. *Presenter - Marc Sears Available - S3*

The “E” in STEM

The Principals of Engineering (POE) course within the Project Lead the Way program offers an opportunity to work on real engineering problems. Learn how activities and problems in the curriculum can utilize advanced Science, Mathematics and Chemistry. See how topics in POE mirror course topics at the major engineering institutions.

Presenter - Mike Geist Available - S3

Summer STEM Camp for Kids

Grossology? Floats & Boats? Crave the Wave? A Bug's Life? Sportistics? Come find out about these and other interactive, hands-on Summer Camp classes for 1st through 8th graders. Learn about this great way to build capacity and introduce the younger generations or STEM concepts at an early age.

Presenter - Nancy Heintz Available - EB, S3

The TI Navigator Experience

The Texas Instruments Navigator network allows students' calculators to connect with one another in the classroom. Math comes alive as students transmit points, and equations in an inter-

active fashion. Students receive real time feedback and find classroom to be a dynamic learning environment. You will be able to experience this technology first hand to see up close applications and innovations from our math curriculum. (Algebra I, Algebra II, and Calculus)
Presenter - Brianna Rand Available - S2, S3

Gateway to Technology – Project Lead the Way's Middle School Experience
Project Lead the Way (PTLW) Gateway to Technology (GTT) program introduces and engages middle school students in the study and practice of engineering.

GTT teachers from Wheeling High School in addition to past GTT students will present on the curriculum and benefits of the GTT program, share student and teacher perspectives on the program, and provide information on what is necessary to implement GTT at your school.
Presenters - Marc Sears and Dan Weidner Available - S2, S3

From Paper to Reality: Students compete in Architectural Design
Students will use their knowledge gained from Civil Engineering and Architecture and other prior CAD classes to research and design a residential project. Students will create a working set of architectural building plans to enter into a district level design contest. The winning set of plans selected will then be built

by the district Practical Architecture Class.
Presenter - Jeff Bott Available - S3

Women in Green: Opportunities in Environmentally Responsible Occupations
This session will examine the programs and initiatives, which are in place to support the development and advancement of green jobs. Session leaders will describe the possibilities for women in green career opportunities and explore the unique role of women "greening" many existing careers. Examples of effective green programs and practices will be showcased.
Presenter - Aimee LaFollett Julian Available - S2

"STEM Equity Pipeline" Expanding options for women and girls in science, technology, engineering and math – The STEM Equity Pipeline Project is a collaborative effort between State Teams and an Extension Services Group of leading researchers and practitioners in gender equity and STEM education.
Presenter - Aimee LaFollett Julian Available - S1

Using Moodle in the Classroom
Come to this session to see examples of how teachers use Moodle to increase students' interactivity with class. Moodle offers easy online solutions for posting assignments and handouts, having discussions, assessing learning with quizzes and tests, and

more.
Presenter - Brian Hauck Available - EB, S3

Show me the money: Funding STEM Initiatives
Learn how to get the most out of your funding stream by cross-referencing allocations against categorical. Know your district wide entitlement grants so you can use them effectively for STEM initiatives at your school.
Presenter - Jeff Jerdee Available - S1, S2

PLTW Overview
District #214 offers the full spectrum of PLTW course from 6th – 12th grade and has been recognized as the light-house district for PLTW in Illinois. Learn about their unique implementation of these courses and walk away with ideas for your own school.
Presenter - Jeff Jerdee Available - EB

Increasing Access to Honors/AP through AVID
Providing challenge and support for underachieving students is more important than ever before. Advancement Via Individual Determination (AVID) has a 30-year track record of success in this area. Learn how to implement this research-based data-driven program in your school.
Presenter - Steve Kellner Available - S3

Facilitating a 1:1 Laptop Program
Is your district considering a 1:1 laptop program? Learn from experience. This pro-

gram will provide insight into one school district's effort and challenges in providing every student a laptop and its impact on the classroom.
Presenter - Kevin Kolcz Available - S1, S2

Successes and Pitfalls in STEM Inquiry and Research
Jacki Naughton from Niles North High School in District 219 will host a discussion of her first year STEM inquiry and research course. Jacki will share the structure and curriculum of the class as well as the successes and pitfalls associated with beginning this exciting STEM course.
Presenter - Jacki Naughton Available - S2

Building Effective Community/Community Partnerships
Have you every thought that having a partner in the community or in industry would assist you as you develop your school programs? Are you familiar with IGAs? Have you ever formed an advisory committee? This information and sharing session is your opportunity to learn about several ways to structure partnerships with other organizations and to discuss the benefits of doing so.
Presenter - Brian Lichtenberger Available - S2

Reaching ALL students through project based Advanced Biology
Once students leave the level tracking of the core curriculum, they

find themselves in elective science course that contain a spectrum of students ranging from skills level to AP level students. How can teachers scaffold laboratory experiences for students who have accommodations while maintaining a challenging experience for the students who excel academically? In this session, we will explore the modifications that can be made to an elective course to make it a challenging learning experience for all students.
Presenter - Kathy Konyar Available - S1, S2

Conference Wrap-up and local STEM Consortium planning meeting
Are you interested in helping Illinois in its STEM for ALL initiative through leadership in a new organization? In light of the significant momentum toward STEM as reflected in the federal Race To The Top initiative and plans by our state to support STEM leaning exchanges and programs of study, it is important to bring all stakeholders together to discuss and plan our rolls to provide opportunities for students of all ability levels. Come to this session to develop plans for continued professional development in Illinois' STEM for ALL initiative.
Presenter - Laz Lopez Available - S3

