2018 SCHEDULE OF EVENTS

3:00   Check In Opens
3:15-3:50  Concurrent Sessions (pages 2 & 3)
4:00-4:35  Concurrent Sessions (pages 4 & 5)
4:35-5:00  Research Posters & Prairie STEM Fun
5:00-5:45  Dinner
5:45-6:15  STEM Ecosystem Panel – Union Pacific, Gallup, AIM
6:30-7:05  Concurrent Sessions (pages 8 & 9)
7:15-7:50  Concurrent Sessions (pages 10 & 11)
### 3:15-3:50 Concurrent Sessions

<table>
<thead>
<tr>
<th>Room</th>
<th>Session</th>
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| **Ballroom 2nd floor** | **Prairie STEM**  
*Alan Wang and Anna Sumner*  

Prairie STEM’s model combines the rigor and innovation of instructional leadership programs with authentic community partnerships and family engagement to transform regional economies through the talent development of all urban and rural students. This effort will cause for old paradigms to die. Transformational system-wide reforms will be needed which are driven by the needs of the future economy.

This session is repeated in session 4. Focus: programming and teamwork. |
| **Chancellor Room 2nd floor** | **Active Learning**  
*Ken Sigmon, Education Solutions Specialist, SBI Education*  

The presentation will explore the core components of Active Learning in a classroom environment and review the “Why” behind Active Learning’s impact in creating engaging, dynamic, high performance learning environments. |
| **Dodge A & B 3rd floor** | **OHDZA – STEM in Action**  
*Pam Eby and Julie Anderson*  

Through Citizen Science, kids and adults help make important discoveries. Come learn how students can take an epic journey with monarchs or leap and learn with frogs and toads! They can be a part of helping better understand the world around them. |
### Concurrent Sessions

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<thead>
<tr>
<th>Room</th>
<th>Session Title</th>
<th>Speaker(s)</th>
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<tbody>
<tr>
<td>Council Room</td>
<td><strong>Leading mathematically: A district-university partnership update</strong></td>
<td><em>Dr. Kelly Gomez Johnson</em></td>
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<tr>
<td>3rd floor</td>
<td>The mathematics reform environment not only challenges previous teaching and learning practices, philosophies, and classroom structures, but also the leadership responsibilities for those enacting change. This session will revisit a year-long university/district partnership examining elementary administrators’ professional development during a curriculum implementation year. Attendees will also hear how the initial partnership stemmed into future collaborations including graduate coursework for in-service teachers and a parallel partnership formation in western Nebraska.</td>
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<tr>
<td>Omaha Room</td>
<td><strong>Engaging First-Semester Freshmen in Authentic Science and Engineering Practices</strong></td>
<td><em>Derrick Nero, Assistant Professor of K-12 Engineering Education</em></td>
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<td>3rd floor</td>
<td>UNO general science course TED 2800 Science Methods and Design introduces undergraduate students to STEM (Science, Technology, Engineering, and Mathematics) concepts and their applications through all phases of near-space experiments on a high-altitude balloon platform. The course fosters 21st Century Learning through study and work in active, experiential learning environments. Near-space experiments include research question development, experiment hardware fabrication, experiment software integration, payload launch and recovery, data analysis, and formal experiment results reporting. The presentation will highlight the pedagogy, assessments, and efficacy of the course.</td>
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<tr>
<td>Gallery Room</td>
<td><strong>Can Virtual Reality be used to motivate High Ability Learners to learn Bricklayer on their own?</strong></td>
<td><em>Beth Maloney and Victor Winter</em></td>
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<td>3rd floor</td>
<td>Today's middle school students interact with technology at a fairly sophisticated level. This is especially pronounced for high ability learners (HAL) that have an explicitly stated interest in coding. Furthermore, instructional information available on the web, especially information in the form of YouTube videos has significantly impacted learning modalities. The result is a cultural mindset where digitally literate students increasingly look to the web for instruction on a broad range of topics. This talk explores the learning potential of this milieu. Specifically, is such an environment suitable for learning how to write Bricklayer code? Such code, when executed, produces a three dimensional Bricklayer artifact. Our learning experiment seeks to leverage the fact that Bricklayer artifacts can be embedded in virtual reality environments. A VR system, such as the HTC Vive, then provides a highly engaging mode of interaction with Bricklayer artifacts. The question is whether such a VR carrot will motivate middle school HAL students to take a more active role in learning how to code (i.e., construct Bricklayer artifacts) on their own.</td>
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<td>Jenkins Room</td>
<td><strong>Berika Shukakidze</strong></td>
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<td>3rd floor</td>
<td>Shukakidze is our hosted visitor from Georgian Soviet Socialist Republic and will share results from his current research.</td>
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### 4:00 – 4:35 Concurrent Sessions

| Ballroom 2nd floor | Prairie STEM  
*Alan Wang and Anna Sumner*  
Prairie STEM’s model combines the rigor and innovation of instructional leadership programs with authentic community partnerships and family engagement to transform regional economies through the talent development of all urban and rural students. This effort will cause for old paradigms to die. Transformational system-wide reforms will be needed which are driven by the needs of the future economy.  

This session is repeated in session 3. Focus: Thinking requires a process. Learn how to write a problem, ask questions, and navigate criteria and constraints. |
|-------------------|---|
| Chancellor Room 2nd floor | **Active Learning**  
*Ken Sigmon, Education Solutions Specialist, SBI Education*  
The presentation will explore the core components of Active Learning in a classroom environment and review the “Why” behind Active Learning’s impact in creating engaging, dynamic, high performance learning environments. |
| Dodge A & B 3rd floor | **OHDZA - Virtual Field Trips for STEM Education**  
*Peter Brunette*  
Technology has made it simple to connect with Zoos, Museums, National Parks and non-profits and bring unique STEM experiences directly into your classroom. Virtual Field Trips allow your students to participate in a live two-way connection with content providers on a variety of topics. In this session you will experience a connection to Omaha’s Henry Doorly Zoo & Aquarium, learn what it takes to connect with providers around the world, and find out how to secure funding. |
| Jenkins Room 3rd floor | **Building a Maker Mentality**  
*Greg Schwanke; ESU #3 Makerspace and Innovation Coordinator  
Robbie Jensen; ESU #3 Digital Learning Coordinator*  
During this hands on session, participants will explore how curriculum and the maker mentality combine forces at ESU #3’s new Makerspace and Innovation Lab (EMIL). With this new EMIL space, teachers and students are challenging the way they think of makerspaces in their schools. Come ready to think like an engineer and be challenged to see where making fits in your school! |
**4:00 – 4:35  Concurrent Sessions**

| Council Room 3rd floor | **BODYMODELS: Engaging Omaha's teachers and students in Biomechanics to explore STEM**  
**Dr. Amelia Lanier, COBRE Outreach Coordinator, Center for Research in Human Movement Variability, Department of Biomechanics** |
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<td>This presentation will review the collaborative effort of UNO Departments of Biomechanics and Teacher Education to use Biomechanics as an exciting new way to teach different STEM principles. We will discuss the goals of the project, implementation of professional development, and exciting new technologies used to explore biomechanics in elementary classrooms.</td>
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| Omaha Room 3rd floor | **Eureka STEM: Inspiring Young Women to Explore STEM Subjects**  
**Dr. Sheryl McGlamery, Professor of Science Education, Co-Director office of STEM** |
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<td>Eureka STEM Camp at UNO is a joint effort with Girls' Inc., our community partner, to offer a month long STEM camp for middle school girls. The goal of the Eureka STEM camp is to offer these middle school girls enrichment learning opportunities in STEM subjects. The girls selected to participate will attend the camp in cohort groups for two years. During this time at UNO they will study computer programming, engineering topics, biology, bio-mechanics, earth/ space science topics, and robotics. All the experiences are designed to maximize inquiry based learning and give girls a chance to see the applications of these subjects in STEM career fields. Our session will present an overview of the Eureka program and a summary of the research collected to evaluate the overall effectiveness of the Eureka experience.</td>
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| Gallery Room 3rd floor | **Agile, Like a Tech Startup**  
**Charlie Cuddy** |
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<td>Bricklayer is an educational ecosystem in which visual art provides the canvas for developing expressing computational and mathematical skills. One compelling aspect of visual art is that it provides ample opportunities for enhanced student engagement as well as personalized learning. This presentation describes a novel instructional approach, underway at Bryan High, that has given rise to a classroom environment in which students play an active role in developing computational and mathematical abilities as framed by a Bricklayer curriculum. An important aspect of the classroom culture is that students actively collaborate, share ideas, and assist one other. The introduction of project management tools into this setting has created a learning environment which teams give weekly peer reports on the progress and future plans for their (art) projects. The result can perhaps be best described as an agile classroom where student behavior more closely resembles that of employees at a tech startup than that of a traditional classroom.</td>
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ACADEMIC POSTER GALLERY
Ballroom, 2nd floor, 4:35 – 5:00 pm

An Exploration of Teacher Perceptions of Mental Health Indicators within the Construct of School Connectedness, Stephanie Dredge, Ed.D.

At the Intersection of Gender and Race: A Qualitative Study of the Lived Experiences of African American Female Elementary Principals, Andrea Haynes, Ed.D.

Local implementation of a Multi-Tier System of Support in Elementary School Settings, Terry Houlton, Ed.D.

Attendance Success! An Examination of Successful Students at the GOALS Center Wendy Kaiser, Quality Assurance Coordinator at the GOALS Center

Relationship Between Career and Technical Education Intensity and College and Career Readiness of School Seniors, Kelly Means, Ed.D.

Nebraska Educator Perceptions of the Quality of Instructional Feedback in a Secondary Science Classroom, Megan Myers, Ed.D.

Nebraska Assessment and Accountability, Melanie Olson, Ed.D.

Supporting Undergraduate Scholarly Experience
Jacquelyn D. Omelian, Ph.D. & Suzanne I. Sollars, Ph.D.

Hands-On Fun!
Ballroom, 2nd floor, 4:35 – 5:00 pm

Experience hands-on activities with Prairie STEM Ceen Bots and participate in actual Prairie STEM lessons at several grade levels and subjects.
BUFFET DINNER
Please enjoy the buffet dinner starting at 5:00 pm. Consider the following STEM topics:

- STEM starts with your interests.
  - What kinds of things do you enjoy doing?
- Shed the Noise.
  - What are some stereotypes about STEM and how can you challenge them?
- STEM is everywhere.
  - How can you explore the possibilities of STEM in your daily life?
- STEM can help people.
  - How do you want to make a difference in the world?
- Use what’s available to you.
  - How can your resources at school help you lead STEM for all subjects?

COMMUNITY PANEL
Following dinner, stay at your tables to engage with the STEM community panel, 5:45 – 6:15 pm

The Omaha STEM Ecosystem believes that the strength of our STEM Ecosystem directly relates to the diverse and fully engaged community of over 700 stakeholders. The STEM Ecosystem is transforming Omaha into a robust STEM community to grow our talent pipeline. We are doing that by leveraging those partners at both a local and national level in developing seamless pathways for students to career and beyond, as life-long learners.

The panel discussion includes reflections by several key partners and their role in the STEM Ecosystem.

- Jim Collison - Gallup
- Shonna Dorsey – Consultant
- Angela Athy – Union Pacific
- Neal Grandgenett - University of Nebraska at Omaha, facilitator

NOTES:
### 6:30 – 7:05 Concurrent Sessions

| Ballroom | Prairie STEM  
| Alan Wang and Anna Sumner  
| Prairie STEM’s model combines the rigor and innovation of instructional leadership programs with authentic community partnerships and family engagement to transform regional economies through the talent development of all urban and rural students. This effort will cause for old paradigms to die. Transformational system-wide reforms will be needed which are driven by the needs of the future economy.  
| This session is repeated in session 2. Focus: Thinking requires a process. Learn how to write a problem, ask questions, and navigate criteria and constraints.  |
| Chancellor Room | Math With An Architect Introduction  
| Matt Wegener, AIA, LEED AP at BVH Architecture  
| Architecture is often defined as the art and science of designing buildings and structures. For this introductory session, come and learn how math is applied to the practice of architecture, including discussions of the creative process and how middle school level math standards are used every day in building design. We will explore a variety of examples to help education professionals bring these real-world concepts into the classroom.  |
| Dodge A & B | OHDZA - Early Childhood Education - Planting the Seeds of Conservation  
| Michelle Rono – Early Childhood Coordinator  
| Brian Priesman – Early Childhood Teacher  
| From birth to school age, children’s early years serve as a foundation for development and growth, which are also influenced by their experiences. This session will discuss the critical skills young children gain when involved in an interactive environment.  
| • Participants will learn a variety of ways to incorporate conservation education into their daily routine.  
| • The facilitators will share personal strategies on how to teach conservation in developmentally appropriate strategies.  |
### 6:30 – 7:05 Concurrent Sessions

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| **Council Room** 3rd floor | **OPPD – Careers in Energy. Legacy I**  
*Michelle Homme, Supervisor- Legacy I*  
OPPD, like other local employers, has a strategy to meet its workforce needs of the future, which could include your students! From gaining awareness to paid internships to launching their careers in Omaha, OPPD implements unique and innovative programs. It begins with creating a greater awareness to the many STEM careers in the energy industry through classroom presentations, tours of the Plant and a day-long, hands-on immersion experiences called Careers in Energy. Legacy I3, a 9-month afterschool program for high school seniors, engages the students in character development, soft skills needed in the workplace, tours and interactions with employees that could lead to paid internships after high school graduation. Do you want to reduce the brain drain in Nebraska? Come and learn how you can partner with OPPD to introduce your students to careers in an industry that is needed by all to support their quality of life- electricity! |
| **Omaha Room** 3rd floor | **Metropolitan Community College Involving Students in High Altitude Ballooning (HAB)**  
*Dr. Kendra Sibbernsen, Co-Lead for NASA Nebraska High Altitude Ballooning Program*  
The talk would be about high altitude ballooning (HAB) in general and the progression of HAB use in education in the state of Nebraska including MCC, OPS, UNO, and UNL. |
| **Gallery Room** 3rd floor | **Developing Spatial Abilities - Bricklayer Style**  
*Victor Winter*  
Neuroscience has revealed that mathematical thinking involves the brain's visual pathways. Research into this phenomenon has established that visual and spatial abilities play an extremely important role when it comes to attaining advanced mathematical abilities. Furthermore, a growing body of research shows that individuals can improve their visual and spatial skills through interaction with block-based domains as well as engagement in the visual arts.  
This talk describes a variety of activities and web apps, developed by bricklayer.org, that involve visual and spatial reasoning. Come and exercise your brain's visual pathways - Bricklayer style. |
### 7:15 – 7:50 Concurrent Sessions

| Ballroom | Prairie STEM  
*Alan Wang and Anna Sumner*  
Prairie STEM’s model combines the rigor and innovation of instructional leadership programs with authentic community partnerships and family engagement to transform regional economies through the talent development of all urban and rural students. This effort will cause for old paradigms to die. Transformational system-wide reforms will be needed which are driven by the needs of the future economy.  
This session is also offered in session 1. Focus: programming and teamwork. |
| --- | --- |
| Chancellor Room | Math With An Architect Advanced  
*Matt Wegener, AIA, LEED AP at BVH Architecture*  
For this advanced session, we will be continuing the discussion of how math is applied to the everyday practice of architectural design. This time, we will expand the discussion to include more technical aspects of site and building design, from the development of building program to integration of building systems. We will explore a variety of examples to help education professionals bring these real-world concepts into the classroom. |
| Dodge A & B | OHDZA - Preparing for Future STEM Careers Through a Global Reach  
*Dr. Elizabeth Mulkerrin – Vice-President of Education*  
Discover how Omaha’s Henry Doorly Zoo and Aquarium is preparing students for STEM careers through global experiences. Learn how you can replicate OHDZA’s model to develop students’ STEM skills while making an impact in the community. |
| Jenkins Room | Importance of Learning Environments, A4LE Local chapter  
*Kevin Schluckebier AIA, ALEP, LEED-AP*  
This International Association focuses on bringing together all those impacting learning environments. Sharing and expanding best practices, research and collaboration. |
### Council Room 3rd floor

**Disasters and STEM**  
*Dee Dee Bennett, Ph.D.*

The Minority Scholars from Under-Represented Groups in Engineering and the Social Sciences (SURGE) Capacity in Disasters project will focus two grand challenges: the underrepresentation of STEM racial and ethnic minorities in hazards and disaster research and the disproportionate impacts of disasters on underserved racial and ethnic minorities. SURGE is a Design and Development Launch Pilot project for National Science Foundation (INCLUDES) Inclusion across the Nation of Communities of Learners of Underrepresented Discoverers in Engineering and Science initiative. This presentation will introduce the project, the NSF INCLUDES initiative and discuss our ongoing boots-on-the-ground mission in the US Virgin Islands following the 2017 hurricane season.

### Omaha Room 3rd floor

**Metropolitan Community College – High School Math Readiness Program**  
*Michael Flesch, Dean Math and Sciences*

Want to learn more about an innovative program for seniors who desire to attend college, but are struggling in math? Come learn about the High School Math Readiness Program offered through Metropolitan Community being piloted in OPS, Millard, Bellevue West, Ralston, Fort Calhoun, and Gretna. It allows high school seniors to take dual credit math classes in high school to become College Ready or to complete a college-level requirement during their senior year. It is geared to students desiring to enter two-year and four-year post-secondary schools.

### Gallery Room 3rd floor

**Inquiry-Based Learning Activities for Geometry Using Bricklayer**  
*Kate Sherwin*

Join us in this hands-on workshop to explore a customizable inquiry-based learning unit for geometry concepts that is aligned with Common Core Math Standards. This new approach uses Bricklayer, a free online platform designed to teach math and coding using art, to support students as they imagine, discover, and create to learn coordinate geometry.
Careers For The Future

January 23, 2019
5:30 pm – 8:00 pm
Henry Doorly Zoo & Aquarium

Individual Registration:
https://bit.ly/2qm0MLy

Group Registration:
Contact tamarawilliams@unomaha.edu

What skills are needed for the VR careers today and in the future? How do we prepare students for one of the leading new careers? Join your local school boards, superintendents, and peers at this informative presentation. Dr. Pamela Boyer, Associate Vice Chancellor for Clinical Simulation, iEXCEL/UNMC will speak on the topic of careers for the future; in particular, simulation and virtual reality. Networking, dinner, and presentation will be in the Grand Reef Room. Space is limited and registration is required.

Tonight’s Session Handouts

Tonight’s Event Evaluation

Next Year…. TIES 2019
November 2019
Topic: Mental Health and Schools

Topics in Education Symposium (TIES) is an annual event designed to spark innovation while inviting conversation among University faculty and PreK-12 educators and administrators about current educational topics. Are you interested in helping plan next year’s TIES event? Contact tamarawilliams@unomaha.edu

Thank you to the UNO College of Education, the Educational Leadership Department, Phi Delta Kappa chapter #0116, and the Omaha STEM Ecosystem. TIES is the result of collaborative support from many community partners. Thank you.

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