

# WKU REACH 2018

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Research Experience and Creative Heights

48th Annual  
Student Research Conference

Saturday, March 24, 2018  
Downing Student Union

Western Kentucky University  
Bowling Green, KY





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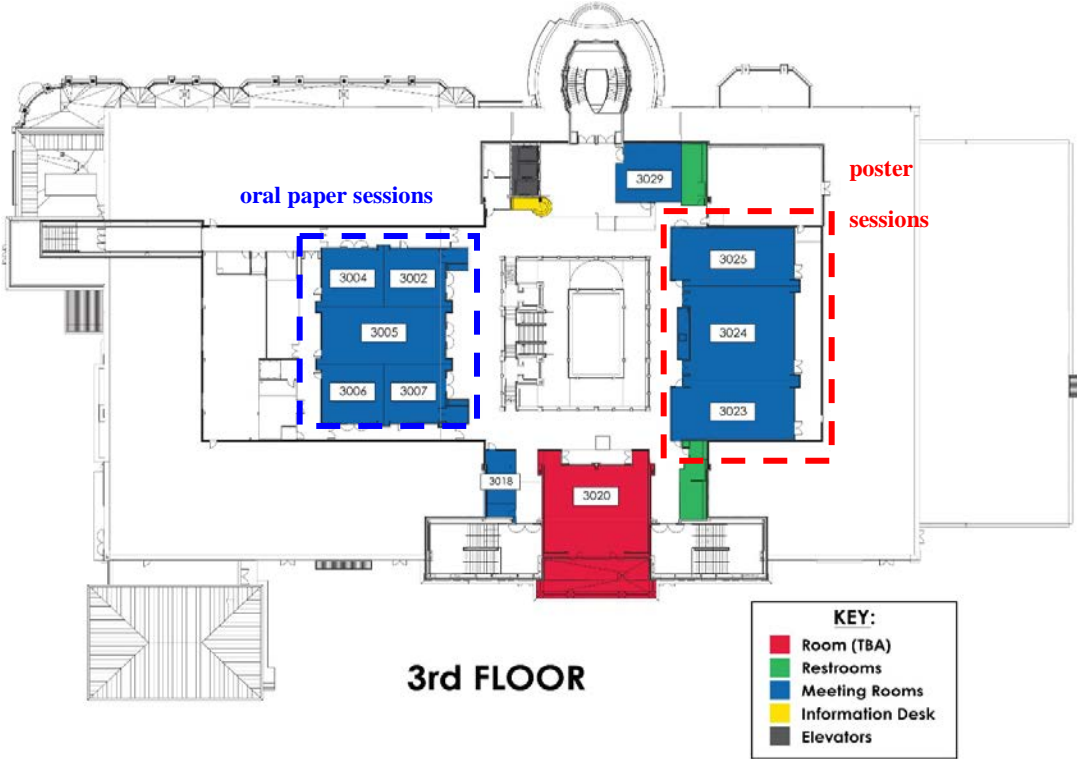
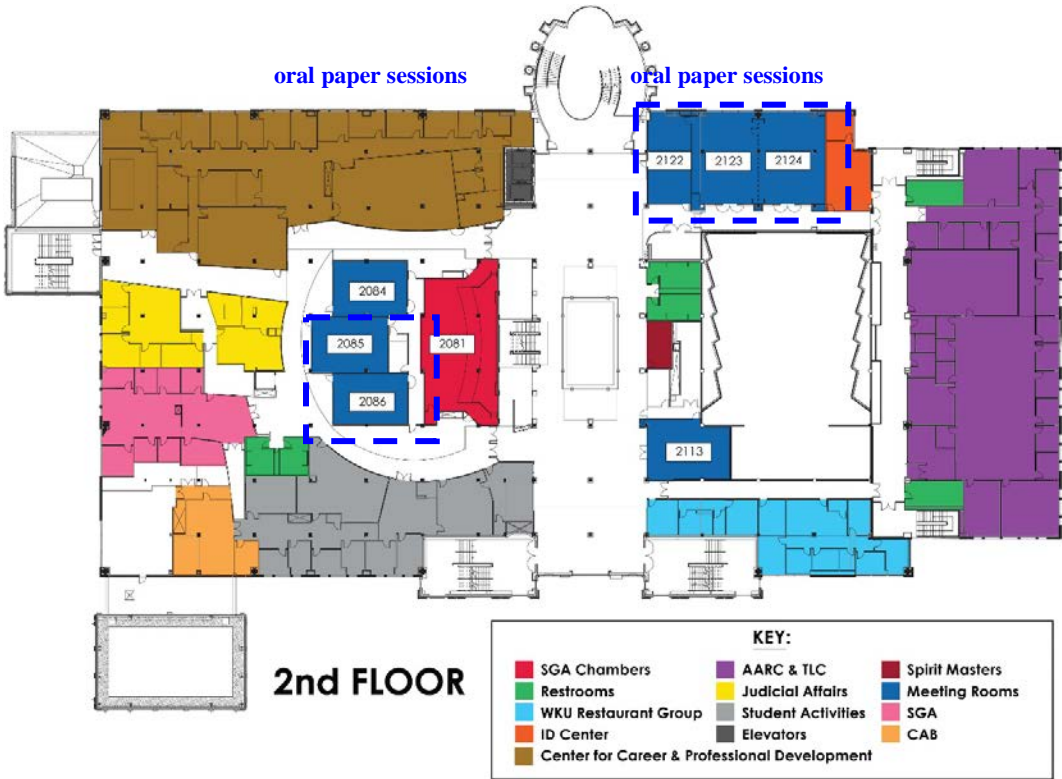
### Session Details

|                                       |    |
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| Concurrent Morning Sessions .....     | 12 |
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# CONFERENCE SCHEDULE

|                     |  |
|---------------------|--|
| 7:30 am – 2:30 pm   | <b>Student and Judge Registration</b><br>DSU 3 <sup>rd</sup> Floor Lobby<br><i>ongoing throughout the day</i><br><i>register at least 30 minutes before session</i>  |
| 8:15 am – 9:45 am   | <b>Concurrent Morning Sessions</b> <i>pages 12-18</i><br><br>Sessions 1-7 Oral Papers   Presentations   Performances<br>Rooms 2085, 2086, 2122, 2123, 2124, 3002, 3005<br><br>Sessions 8-18 Posters<br>Room 3024           |
| 9:45 am – 10:00 am  | <b>Morning Break</b>   |
| 10:00 am – 11:30 am | <b>Conference Keynote Lecture</b><br><br>Dr. Kendra Cherry-Allen<br>“Neuroplasticity: Mapping a Path from Undergraduate to<br>Postdoctoral Clinical Research”<br>Room 3020   |
| 11:30 am – 1:00 pm  | <b>Lunch Break--</b> <i>Presenters and judges receive free lunch ticket for<br/>Fresh Food Company with name badge</i>   |
| 1:00 pm – 2:30 pm   | <b>Concurrent Afternoon Sessions I</b> <i>pages 19-24</i><br><br>Sessions 19-25 Oral Papers   Presentations   Performances<br>Rooms 2085, 2086, 2122, 2123, 2124, 3002, FAC 319<br><br>Sessions 26-36 Posters<br>Room 3024 |
| 2:30pm – 2:45pm     | <b>Afternoon Break</b>   |
| 2:45pm – 4:15 pm    | <b>Concurrent Afternoon Sessions II</b> <i>pages 25-30</i><br><br>Sessions 37-41 Oral Papers   Presentations<br>Rooms 2085, 2086, 2122, 2123, 2124<br><br>Sessions 42-52 Posters<br>Room 3024                              |

# DOWNING STUDENT UNION FLOOR PLANS



## KEYNOTE LECTURE



**Dr. Kendra Cherry-Allen**  
***Neuroplasticity: Mapping a Path from***  
***Undergraduate to Postdoctoral Clinical Research***  
**10:00am – 11:30 am**  
**Downing Student Union 3020**

### Abstract

We now know that the adult brain is incredibly flexible or “plastic.” Under the right conditions it can readily adapt, reorganize, and re-map its structure and function. My investigations of this exciting phenomenon have not only guided my path from undergraduate research to postdoctoral fellowship but have helped me to become more adaptable myself. Join me as I share what I have learned from the brain – and what you can too!

### Biography

Dr. Cherry-Allen is a Washington State native and attended the University of Washington in Seattle where she graduated from the honors program with a B.S. in biology/physiology. She then earned her doctorate of physical therapy (DPT) and her Ph.D. in Movement Science from Washington University School of Medicine in St. Louis. She is currently a postdoctoral research fellow in the Human Brain Physiology and Stimulation Laboratory in the Department of Physical Medicine and Rehabilitation at Johns Hopkins University. Her research investigates the mechanisms that underlie motor learning, and she is interested in developing interventions that promote motor learning in people recovering from neurological injury.

## **CONFERENCE INTRODUCTION**

The WKU Student Research Conference showcases scholarly activities of graduate and undergraduate students of diverse disciplines from across the main and regional campuses. An annual tradition since 1970, the conference has provided opportunities for thousands of students to present papers, performances, posters, exhibits, and displays on their research and creative endeavors.

Scholarly activity is original and creative work that is shared with colleagues and the general public. Research is a form of scholarly activity that involves the discovery of new knowledge. Other forms of scholarship include the development of new technologies, methods, materials or uses; the integration of knowledge that leads to new understanding; and artistry that creates new insights and interpretations.\* As demonstrated by the Student Research Conference, students significantly enrich their academic experiences at WKU by engaging in scholarly activity.

## **HISTORY OF CONFERENCE**

WKU has a rich history of undergraduate research and creative activity. Between 1970 and 2002, the WKU Chapter of Sigma Xi organized and funded the WKU Student Research Conference. Sigma Xi is a national research honor society of scientists and engineers that recognizes scientific achievement. The society is a diverse organization of members and chapters dedicated to companionship in science and engineering and advancement of knowledge through research, teaching, and service. For the next three years, the conference was jointly sponsored and organized by Sigma Xi and the University Honors Program. In 2006, WKU hosted a weekend-long celebration of student scholarship that included the Potter College Undergraduate Conference on Friday and the annual WKU Student Research Conference on Saturday, the latter again sponsored by Sigma Xi and the University Honors Program. The following year, a special committee composed of representatives of each college, the University Honors Program, and Sigma Xi organized a single conference. In 2006-2007 Sigma Xi and the Office of the Provost provided financial support for the conference.

In 2008 Provost Barbara Burch created the Student Research Council, a university-wide committee charged with promoting student scholarly activity on campus and organizing the annual student conference. Since that year, the Student Research Council has organized the annual Student Research Conference, with financial support provided by the WKU Chapter of Sigma Xi, the Office of the Provost, the Office of Research and Creative Activity, and other university units. With support from the Office of the Provost and the Office of Research, in 2012 the Student Research Council developed a weeklong celebration of student scholarship called REACH (Research Experiences and Creative Heights) Week. This year REACH is coordinated by the Office of Research and Creative Activity and spans the entire spring semester, highlighting student and faculty scholarship at events hosted by various WKU colleges and units. The 48<sup>th</sup> Annual Student Research Conference is a major university-wide event of REACH.

\* Weiser, C. J. (1996, March 7) The Value System of a University: Rethinking Scholarship. Retrieved 30 November 2010 at [www.adec.edu/clemson/papers/weiser.html](http://www.adec.edu/clemson/papers/weiser.html).

## CONFERENCE HIGHLIGHTS

The 48<sup>th</sup> Annual WKU Student Research Conference showcases 284 research and creative projects. There are 178 posters and exhibits, 90 oral papers, 13 performances, and three videos. A total of 355 students are presenters and co-presenters at the conference, including 279 undergraduate students, 74 master's students, and two doctoral students. An index of presenters is provided at the end of this program. In addition, 99 graduate and undergraduate students are listed as co-authors on the papers and posters presented this year.

The interdisciplinary nature of the conference is evident in the broad range of subject areas covered in the presentations. Student participants represent diverse disciplines from 38 schools, departments, programs, and institutes in all colleges.

|                                      |                                 |
|--------------------------------------|---------------------------------|
| Agriculture                          | Kinesiology, Recreation & Sport |
| Art                                  | Leadership Studies              |
| Biochemistry                         | Marketing and Sales             |
| Biology                              | Mathematics                     |
| Chemistry                            | Modern Languages                |
| Communication                        | Music                           |
| Communication Sciences and Disorders | Nursing                         |
| Diversity & Community Studies        | Philosophy & Religion           |
| Economics                            | Physical Therapy                |
| Engineering and Applied Sciences     | Physics & Astronomy             |
| English                              | Political Science               |
| Environment, Health & Safety         | Popular Culture Studies         |
| Folk Studies & Anthropology          | Psychological Sciences          |
| Gender & Women's Studies             | Psychology                      |
| Geography & Geology                  | Public Health                   |
| Health Sciences                      | Social Work                     |
| History                              | Sociology                       |
| Interdisciplinary Studies            | Teacher Education               |
| Journalism & Broadcasting            | Theatre & Dance                 |

## CONFERENCE ORGANIZATION AND SESSION WINNERS

The research and creative projects presented at the conference are organized into graduate and undergraduate sessions with five-to-six students in each session. Students are grouped into sessions by the subject areas of their projects: natural sciences, social sciences and education, health and human services, arts and humanities, business, and interdisciplinary studies.

WKU faculty, professional staff, retired faculty and staff, and WKU alumni, as well as members of the community at large, evaluate student presentations at the conference. The judges select one winner from each of the sessions listed in this program. Session winners will be announced



on the Student Research Council website at [www.wku.edu/studentresearch](http://www.wku.edu/studentresearch) by Monday, March 26. Winners will receive award certificates via their mentors, and all students will receive judges' feedback via their mentors after the conference.

## ACKNOWLEDGEMENTS

On behalf of the entire campus community, the WKU Student Research Council extends appreciation and congratulations to the hundreds of students participating in the conference. We applaud your talent, creativity, dedication, and commitment to making the most of your educational experience at WKU. Your passion for learning and academic excellence, as well as your motivation to overcome challenges, not only distinguishes you from your peers but also serves as an inspiration to others. We are proud of your accomplishments, and you should be too.

WKU faculty and staff who have supervised the students on their research and creative projects are referred to as "mentors" and are identified parenthetically in the detailed session listings on pages 12-30. A total of 131 faculty and staff served as mentors on the projects presented at this year's conference. We commend the mentors for their support of student scholarly activities and for their assistance in preparing students for the conference.

Listed below are the WKU faculty, staff, retired faculty and staff, WKU alumni, and local community members who are serving as judges at this year's conference. We greatly appreciate the assistance of the judges and thank them for volunteering. Many are veteran judges who have supported the conference for years or decades.

|                   |                      |                        |
|-------------------|----------------------|------------------------|
| Shahnaz Aly       | Ali Oguz Er          | Rodney A. Hounshell II |
| Darlene Applegate | Tim Evans            | Sandra Hughes          |
| Les Archer        | Ann K. Ferrell       | Jooyeon Hwang          |
| Scott Arnett      | Kayla Fugate         | Nezam Iraniparast      |
| Melanie Autin     | Jim Fulkerson        | Kumi Ishii             |
| Mark Berry        | Simon P. Funge       | Trish Lindsey Jagers   |
| Brent Bjorkman    | Marilyn Gardner      | Pamela Jarboe          |
| Lauren Bland      | Elizabeth Gish       | Jonathan Jeffrey       |
| Dana Burr Bradley | S. Ellen Godbey      | Jennifer Joe           |
| Jenn Brinkley     | John Gottfried       | Pat Kambesis           |
| Wei Chen          | Thomas Jai Gross     | John Kasumba           |
| Manu Chidurala    | Dominique Gumirakiza | Donna Kasznel          |
| Ismail Civelek    | Sanju Gupta          | Molly Kerby            |
| Amanda Clark      | Bashar Haddad        | John Houryieh          |
| Dan Clark         | Lance W. Hahn        | Jae Kim                |
| Eric Conte        | Jen Hanley           | Soyeon Kim             |
| Brian Coutts      | Whitney Harper       | Moon-Soo Kim           |
| Yongming Deng     | Anne Heintzman       | Rodney King            |
| Xiuhua Ding       | Gail Hiles           | Cheryl Kirby-Stokes    |
| Sarah J. Edwards  | Jean-Luc Houle       | Elisabeth Knight       |

|                   |                   |                     |
|-------------------|-------------------|---------------------|
| George Kontos     | Ozkan Ozer        | Trini Stickle       |
| Alison Langdon    | Anthony Paganelli | Antonia Szymanski   |
| Sharon Leone      | Darnez Pope       | Rostern Tembo       |
| John Loughrin     | Melanie Richter   | Samantha G. Thomas  |
| Meghen McKinley   | Claire Rinehart   | Natalie Tyree       |
| Andy Mienaltowski | Amelia Rollings   | Markus Antonius von |
| Sara Moody        | Naomi Rowland     | Steinfort           |
| Yaser Mowafi      | Muhammad Sajjad   | Huanjing Wang       |
| Matthew Nee       | Mark Schafer      | JC Watkins          |
| Christina Noel    | Rich Shumate      | Carol Watwood       |
| Stephen Norris    | Marian Smith      | Adam R. West        |
| Leslie North      | Michael Smith     | Aaron Wichman       |
| Sarah Ochs        | Eric Steinfelds   | Blairanne Williams  |
| Mahtab Orooji     | Edwin D. Stevens  | Lee Winchester      |

Funding for the 48<sup>th</sup> Annual WKU Student Research Conference and other REACH activities was provided by the Office of the Provost and Vice President for Academic Affairs and the Office of Research and Creative Activity.

The WKU Graduate School provides grants to graduate students to support scholarship that promotes inquiry and contributions to knowledge. A number of the graduate students presenting today were assisted by funding from the Graduate School.

A variety of funding opportunities are available to assist students with their research. In 2012 the Office of the Provost and Vice President for Academic Affairs and the Office of Research and Creative Activity initiated an internal funding program for undergraduate students called Faculty-Undergraduate Student Engagement (FUSE) grants. FUSE grants are designed to support students' intellectual development by fostering active engagement in the areas of research, creative and scholarly activities, and/or artistic performances. Nearly 600 undergraduate students have received FUSE grants since the inception of the FUSE grant, many of whom are among the conference participants this year.

Ryanne Gregory from the Office of Research and Creative Activity provided countless hours of logistical planning and expertise that were crucial to coordinating the conference.

Amy Bingham DeCesare, Bryan Lemon, Clinton Lewis, Tommy Newton, Bob Skipper, and the WKU Office of Public Affairs staff provided vital assistance with electronic advertising, press releases, photography, conference artwork design, and a *View from the Hill* video segment. We appreciate the support of Will Hoagland at the *College Heights Herald*.

Diana Keeling provided expert database support to the Student Research Council.

WKU faculty members Rodney King, Enakshi Roy, Leila Watkins, and Leyla Zhuhadar organized and presented informative professional development workshops for students in advance of the conference.

The Downing Student Union staff at WKU provided logistical support for the conference. WKU Dining prepared lunch in the Fresh Food Company, and WKU Catering provided refreshment support in our judges' deliberation room.

The WKU Student Research Council organizes the conference. Membership is composed of a representative from each of the following units: academic colleges, Student Government Association (SGA), Sigma Xi, University Libraries, University Senate, Honors College, Gatton Academy, and the Graduate School. Members are Simran Banga, Ryan Boone, Cheryl Davis, Uma Doraiswamy, Scott Gordon, Ryanne Gregory, Xiaoxia "Silvie" Huang, April Murphy, Morteza Nurcheshmeh, Enakshi Roy, Brigid Stakelum, Derick B. Strode, Rachel Tinius, and Leila Watkins (council chair). For more information about the Council, visit [www.wku.edu/studentresearch](http://www.wku.edu/studentresearch). The Council sincerely appreciates the students, faculty, staff, and community members who contributed to the great success of this interdisciplinary conference, as well as the friends and family members who attended the event.

### **Explanation of Session Listings**

The program includes details for each session in the following order: presenter, co-presenters (as applicable), co-authors (as applicable), the session title, and the mentor for a project. Each WKU student was permitted to serve as the primary presenter on one presentation at the conference. Up to three co-presenters and up to six co-authors could also be listed. A sample is shown below to illustrate the form.

#### **Sample**

**Presenter Last Name, First Name; Co-presenter 1 Last Name, First Name; Co-author Last Name, First Name; "Title of a Great Presentation" (Mentor First Name Last Name)**

## CONCURRENT MORNING SESSIONS I

**8:15 – 9:45 am**

### **Session 1: Room 3002, Graduate Papers, Natural Sciences**

**Judges: Sanju Gupta, Nezam Iraniparast**

- 8:15 Ballentine, Michael** “Imidazolium Ionic Liquids as Multifunctional Solvents, Ligands, And Reducing Agents for Noble Metal Deposition onto Well-defined Heterostructures, And the Effect of Synthetic History on Catalytic Performance” (Lawrence Hill)
- 8:30 Osborne, Cesalea** “Hydrogeology of the Hidden River Groundwater Basin, Horse Cave, Hart County, Kentucky” (David Keeling)
- 8:45 Ha, Dat Thinh** “The Fluorescence Quenching Ability of Graphene Oxide as A Platform for Pathogenic Double-stranded DNA Sensing Utilizing Engineered Zinc Finger Protein” (Moon-Soo Kim)
- 9:00 Corneal, Kevin** “BRCA1 and Its Analog in Arabidopsis Thaliana” (Chandra Emani)
- 9:15 Patel, Dharmesh** “Investigation of Ligand Effects on Photo-generated Compound II Models, And Their Kinetic Studies on Reactivity towards Organic Substrates” (Rui Zhang)

### **Session 2: Room 2085, Graduate Papers, Natural Sciences**

**Judges: Huanjing Wang, John Houryieh**

- 8:15 Campbell, Jennifer** “Arabidopsis as a Plant Model for Cystic Fibrosis” (Chandrakanth Emani)
- 8:30 Bowden, Shelby** “Evidence for East African Orogenic Transpression and Extension in Neoproterozoic Basement Rocks, Northwestern Ethiopian Plateau.” (Nahid Gani)
- 8:45 Berlanga, Jesus** “Kinetic Modeling of Relevant Atmospheric Sulfur and Nitrogen Containing Compounds to Understand Particle Formation” (Matthew Nee)
- 9:00 Hernandez, Fernando** “Using Groundwater Hydrogeochemical Evolution and Tracing to Understand Speleogenesis in Sistema Huautla in Oaxaca, Mexico” (Jason Polk)
- 9:15 Von Hagen, Lynn** “New Methods Utilized to Deter Elephant from Crop Raiding in the Kasigau Wildlife Corridor, Kenya” (Bruce Schulte)
- 9:30 Pitts, Bailey; Maples, Jill; Blankenship, Maire; Hoover, Donald; Olenick, Alyssa; Tinius, Rachel** “The Influence of Sodium Intake on Blood Pressure during Late Pregnancy” (Rachel Tinius)

### **Session 3: Room 2086, Undergraduate Papers and Performances, Arts and Humanities**

**Judges: Jen Hanley, Amanda Clark, Brent Bjorkman**

- 8:15 Manning, Katherine** “Brigham Young and the Utah War, 1857” (Alexander Olson)
- 8:30 Parrish, Deborah; Houle, Jean-Luc; Bayarsaikhan, Jamsranjav; Fuka, Matthew** “Health and Chronology of the Xiongnu on the Periphery of the First Steppe Empire of Inner Asia.” (Jean-Luc Houle)
- 8:45 Taylor, Logan** “Slurs & In-Group Uses” (Benjamin Lennertz)

**9:00 Spalding, Sarah** “Holding the Rock: The Native American Occupation of Alcatraz Island, 1969-1971” (Patricia Minter)

**9:15 Couch, Bennett** “Scream for the Camera: Found Footage Films as the New Format of Epistolary Horror Novels” (Timothy Evans)

**9:30 Stovenour, Reagan** “A Cabaret featuring Reagan Stovenour” (Amelia Rollings)

#### **Session 4: Room 2122, Undergraduate Papers, Natural Sciences**

**Judges: Naomi Rowland, Bashar Haddad**

**8:15 Brumley, Jacob; Lienesch, Philip** “Use of Dead Mussel Shells by Madtom Catfish” (Philip Lienesch)

**8:30 Alexander, Audrey; North, Leslie** “Techniques in Carbon Footprinting: Achieving a Carbon Neutral Conference” (Leslie North)

**8:45 Williams, Abigail; Kambesis, Patricia; Wulff, Andrew** “Investigation of Cave Valley Cave, NV” (Andrew Wulff)

**9:00 Lamb, Ryan** “Using Surface Enhanced Raman Spectroscopy to Examine Light-driven Reactions” (Matthew Nee)

**9:15 Schulz, Michael** “The Influence of Topography and Land-use/land Cover on the Development of a Tornadoic Thunderstorm along the Mississippi River” (Joshua Durkee)

**9:30 Habib, Awais; Parsons, Ivy; Bogdanovic, Kristian; Phung, Tin** “Optimizing Marking of Sheet Metals” (Morteza Nurcheshmeh)

#### **Session 5: Room 2123, Undergraduate Papers, Natural Sciences**

**Judges: Sarah J. Edwards, Dan Clark**

**8:15 Evans, JC** “Remote Sensing Analysis of Hurricane Harvey.” (Joshua Durkee)

**8:30 Kash, Benjamin** “Synthesis and Catalytic Studies of Metalloporphyrin Complexes As Biomimetic Models For Cytochrome P450 Enzymes.” (Rui Zhang)

**8:45 Dillingham, Megan; Kitchens, Cydne** “Potential for the Green Alga *Chlamydomonas Reinhardtii* to Produce Biofuel through Lignin Degradation” (Sigrid Jacobshagen)

**9:00 Wasilewski, Brandon** “February 28, 2017 Ottawa/Naplate Tornado: A Satellite and Radar-Based Case Study” (Joshua Durkee)

**9:15 Reece, Christopher** “A Case Study of the Historic March 4-5, 2015 Winter Storm in Kentucky” (Joshua Durkee)

**9:30 Stratton, Tabatha; Gill, Jennifer** “Effect of Different Riding Terrains on Hoof Wall Performance in the Barefoot and Booted Horse” (Jennifer Gill)

#### **Session 6: Room 2124, Undergraduate Papers, Social Sciences and Education**

**Judges: Aaron Wichman, Andy Mienaltowski, Mark Berry**

**8:15 Knight, Lucas** “Opinions on Free Trade Policies in Taiwan” (Timothy Rich)

**8:30 Cox, Delson** “How do the Characters of Persona 5 Reflect Gender Expectations in Gaming Culture?” (Nicolette Bruner)

**8:45 Carter, Tyneshia** “‘Lifting As We Climb’: Pre-womanism In Black Women's Activism During The Nineteenth Century” (Dorothea Browder)

**9:00 Angelle, Sarah** “A Comparison of Problem-based Versus Project-based Instruction: Why Should We Be Promoting These Instructional Practices in Stem?” (Lisa Duffin)

**9:15 Hatcher, Alexa** “Critical Service Learning At WKU Glasgow Regional Campus: A Path for Marginalized Students to Stay In School and Combat Social Inequality?” (Nicole Breazeale)

**Session 7: Room 3005, Undergraduate Performances, Arts and Humanities  
Organized Symposium: “No Strings Attached”**

**Judges: Jonathan Jeffrey, Pamela Jarboe, Gail Hiles**

**8:15 Bagwell, Brittany; Moscoe, Carrie; Morfin-Gandara, Hasum** “Hansel and Gretel... Gone Wrong” (Liza Kelly)

**8:30 Gill, Emilie; Cary, Megan** “Breath and Life: Fundamentals of Puppet Performance” (Liza Kelly)

**8:45 Tuggle, Samuel** “The Diversity of Puppetry across Cultures” (Liza Kelly)

**9:00 Johnson, David** “The Shadows of the Present” (Liza Kelly)

**9:15 Dowell, Libby; Chambers, Jazmin; Miller-Reeves, Mac** “A Mother's Loved and Lost” (Liza Kelly)

**Session 8: Room 3024, Graduate Posters, Health and Human Services**

**Judges: Jooyeon Hwang, Scott Arnett**

- 1. Dhaduk, Parshad** “An Association between Systemic Health and Oral Health: Measuring an Impact of Periodontitis on Diabetes.” (Michelle Reece)
- 2. Quiambao, Kailey; Young, Sonia; Wallmann, Harvey** “Study Protocol: The Effects of Whole Body Vibration on The Limits of Stability In 18-29 year old Individuals with A Sub-Acute Ankle Injury” (Sonia Young)
- 3. Edens, Kolbi; Schafer, Mark; Crandall, Jason; Lyons, Scott; Vondy, Robert; Olenick, Alyssa; Blankenship, Lydia** “Impact of Utilizing Sit-stand Workstations For 10 Weeks in University Staff Members” (Mark Schafer)
- 4. Gadde, Divya; Taylor, Ritchie; Golla, Vijay; Ding, Xiuhua** “Assessment of ergonomics among Indian dental practitioners” (Vijay Golla)
- 5. Yoho, Kristin; Tinius, Rachel; Pitts, Bailey; Blankenship, Maire; Furgal, Karen; Tadakaluru, Apoorva; Maples, Jill** “Changes in resting metabolic rate and respiratory quotient from pregnancy to postpartum” (Rachel Tinius)
- 6. Patel, Ankitkumar; Watkins, Cecilia; Gretchen, Macy; Hwang, Jooyeon; Golla, Vijay; Gilber, Weylin** “Assessment of Fire Smoke and Occupational Air Contaminant Exposure among Career and Volunteer Firefighters: A Mixed-methods Approach” (Ritchie Taylor)

**Session 9: Room 3024, Graduate Posters, Social Sciences and Education**

**Judges: Adam R. West, Xiaoxia “Silvie” Huang**

- 7. Luna, Catherine; Luecke, Kyle; Lawrence, Keely** “Aging and the Use of Context in Predictive Learning” (Sharon Mutter)

8. **French, Carrie;** Mauch, Jordan; Forgione, Brandi; Wininger, Steven “The Impact of Exercising at A Self-selected Intensity on Concurrent Academic Task Performance.” (Steven Wininger)
9. **Ramsey, Haley;** Wichman, Aaron “Right-Wing Authoritarianism: Ambivalent Attitudes toward Counterterrorism Policies” (Aaron Wichman)
10. **Ridner, Hannah** “The Effects of Waiting Periods on Mass Shootings: A Spatial Analysis” (Pavel Vasiliev)
11. **Penner, Matthew;** Wichman, Aaron “Threat Perception from Outgroups” (Aaron Wichman)
12. **Mathews, Rilee** “The Effects of Age, Goal Motivation, and Mind Wandering on Pupil Dilation” (Matthew Shake)

**Session 10: Room 3024, Undergraduate Posters, Health and Human Services**  
**Judges: Simon P. Funge, Marian Smith, Marilyn Gardner**

13. **Kilgore, Baylee** “Parent-implemented Adapted Dialogic Reading for Preschoolers with Autism” (Janice Smith)
14. **Jackson, Andrew;** Morris, Cody; Winchester, Lee; Tomes, Ariel; Neal, Wesley; Wilcoxon, Damon; Arnett, Scott “Effect of a Simulated Tactical Occupation Stressor on Reaction Time.” (Cody Morris)
15. **Sedlak, Caleb** “Using Engineered Zinc Finger Proteins to Detect Pathogen-specific DNA” (Moon-Soo Kim)
16. **Dolan, Angela;** Swierkosz, Michael; Bell, Michael; Story, Katharine “The Influence of Sport-specific Experience and Skill on Rates of Injury in Taekwondo Athletes” (Cody Morris)
17. **Rose, Chaney** “Increasing Breast Milk Supply” (Deanna Hanson)

**Session 11: Room 3024, Undergraduate Posters, Health and Human Services**  
**Judges: Lee Winchester, Mark Schafer, Ismail Civelek**

18. **Jones, Haley** “RAPS-Measuring Problem Solving in Children with and without Autism” (Janice Smith)
19. **Greene, Anna;** Smith, Janice. “Cross-cultural Comparison of French Dialectal Variations and Potential Impact on Business Communication” (Janice Smith)
20. **Mertens, Kimberly;** Downey, Emily; Michaud, Zachary “The Effect of Music Tempo on Exercise Performance and Perceived Enjoyment” (Cody Morris)
21. **Alvis, Madison; Garrard, Tiana; Hughes, Abigail; Hunt, Laura;** Morris, Cody; Koester, Megan; Yocum, India; Tinius, Rachel “Evaluating the Factors Influencing the Retention of Educational Material on Exercise During Pregnancy” (Rachel Tinius)
22. **Adkins, Callie** “Effectiveness of Western Kentucky University's Child Welfare Certification Program” (Whitney Harper)
23. **Pennington, Susan** “How Policy Affects Workplace Health: A Comparison of Workplace Health Policies between Kentucky & Colorado” (Cecilia Watkins)

**Session 12: Room 3024, Undergraduate Posters, Arts and Humanities and Interdisciplinary**  
**Judges: Meghan McKinley, Markus Antonius von Steinfort**

24. **Darling, Anna** “Violin Education in Moshi, Tanzania” (Ching-Yi Lin)
25. **Howlett, Josiah; Rollings, Amelia.** “The Short-term Effects of Alcohol, Coffee, Milk, and Water on Acoustical and Perceptual Measures of the Singing Voice.” (Amelia Rollings)
26. **Biechele-Speziale, Dana** “Chinese and American Environmental Policies And Implementation: An Analysis” (Ke Peng)
27. **White, Nicole** “Spaces for Healthy Living” (Shahnaz Aly)
28. **Aromiwura, Afolabi** “Promoting the Arts: Germantown School of Arts and Design” (Shahnaz Aly)

**Session 13: Room 3024, Undergraduate Posters, Interdisciplinary**  
**Judges: Dana Burr Bradley, Jean-Luc Houle, John Gottfried**

29. **Lyle, Adam** “Rejuvenating A Community” (Shahnaz Aly)
30. **Bulut, Rajna** “The Lost River Society: A Study on Social Architecture” (Shahnaz Aly)
31. **Malone, James; Jenkins, Trevor; Khan, Muhammad** “Eclipse Innovative Heat Exchanger” (Robert Choate)
32. **Langford, Ryan** “Seas Hall” (Neal Downing)
33. **Alzubaidi, Abdulrahman; Alharbi, Yazeed; Alotaibi, Musab; Almansour, Saud** “Rainwater Drainage System in Jeddah City” (Taha Alyousef)
34. **Sandefur, Sydney** “Berea Community Center for All” (Shahnaz Aly)

**Session 14: Room 3024, Undergraduate Posters, Natural Sciences**  
**Judges: Eric Conte, John Loughrin, Shahnaz Aly**

35. **Jackson, Colleen; Williams, Blairanne; Duke, Brooke.** “Cytotoxicity of novel platinum compounds in models on mammalian cancer” (Blairanne Williams)
36. **Henson, Alex; Evans, Brendan; Gupta, Sanju** “Large-area Graphene Membranes and Mesoporous Deionization Electrodes for Water Desalination.” (Sanju Gupta)
37. **Brown, Franklin** “The Cruise” (Neal Downing)
38. **Banaszak, Alexander; Gupta, Sanju** “Graphene-mediated Surface Enhanced Raman Spectroscopy and Detection of Biomolecules” (Sanju Gupta)
39. **Almazroa, Abdulaziz** “The Bowling Green Museum of Arabic Culture” (Neal Downing)
40. **Warlick, Corinne; Hinkley, Branden; Sims, Hunter; Jaconette, Conrad; Hill, Lawrence.** “Synthesis and Polymerization of Ascorbic Acid Monomer” (Lawrence Hill)

**Session 15: Room 3024, Undergraduate Posters, Natural Sciences**  
**Judges: Claire Rinehart, Cheryl Kirby-Stokes**

41. **Holliday, Joe** “Twisted” (Neal Downing)
42. **Sewalls, Harper** “Computer Simulation of Conformations of Large Dynamic Proteins” (Sarah Edwards)



- 43. **Cooper, Lauren;** Kholikov, Khomidkhodzha; Ilhom, Saidjafarzoda; Thomas, Zachary; Smith, Skyler; Er, Ali. “The Effects Of Photo-activated Graphene Quantum Dots on Bacterial Deactivation” (Ali Er)
- 44. **Kessler, Austin** “Suburban Living in an Urban Setting” (Shahnaz Aly)
- 45. **Austin, Haley** “Landscape Genetics of *Ambystoma opacum* in Mammoth Cave National Park” (Jarrett Johnson)
- 46. **Ruggles, Joshua; Alghamdi, Osama; Bradley, Michael;** Carter, Trason “Design of a Portable Faraday Disc Experiment” (Walter Collett)

**Session 16: Room 3024, Undergraduate Posters, Natural Sciences**

**Judges: Melanie Richter, Matthew Nee**

- 47. **Alotaibi, Faisal** “Alziz Library” (Neal Downing)
- 48. **Mager, Leah** “Building a Safe Haven” (Shahnaz Aly)
- 49. **Loomis, Devon;** Harper, Seth; Dobrokhotov, Vladimir; Banga, Simran “Metal Oxide Semiconductors and Their Application for Spoiled Meat Detection” (Vladimir Dobrokhotov)
- 50. **Stewart, Alexander; Shapiro, Hannah;** Rinehart, Claire; King, Rodney “Discovery and Comparison of Bacteriophages Kalnoky and Hankaysha” (Naomi Rowland)
- 51. **Greer, Casey;** Griffin, Melissa; Schargorodski, Megan; O’Connell, Charles “Case Study and Future Uses of Frozen Soil Observations” (Melissa Griffin)

**Session 17: Room 3024, Undergraduate Posters, Natural Sciences**

**Judges: Rodney King, Blairanne Williams, Ozkan Ozer**

- 52. **Tisdale, McKenzie** “Naples Florida Science Museum” (Neal Downing)
- 53. **Scott, Rhiannon** “A Study of Disturbed Geomorphic Features on the Northeast Coast of the Yucatan Peninsula, Mexico” (Patricia Kambesis)
- 54. **Sanford, Dylan; Ottman, Claire; Roberts, Duvall;** Thomas, Zachary; Saidjafarzoda, Ilhom; Khomidkhodzha, Kholikov; Li, Peizhen; San, Omar; Karaka, Haluk. “Scalable Patterning Using Laser-induced Shock Waves.” (Ali Er)
- 55. **Harper, Seth;** Loomis, Devon; Dobrokhotov, Vladimir; Banga, Simran; Novikov, Ivan “Comparison of Bacterial Count and Sensor Response Using Metal Oxide Sensors” (Vladimir Dobrokhotov)
- 56. **Lamkin, Robert** “Major League Gaming HQ” (Neal Downing)
- 57. **Johnson, Kathleen;** Couch, Melanie; Kasumba, John; Couch, Brandon; Loughrin, John; Parekh, Rohan; Conte, Eric “Extraction and Quantitation of Tetracyclines Antibiotics in Anaerobic Cattle Wastes Using ddPCR” (Eric Conte)

**Session 18: Room 3024, Undergraduate Posters, Social Sciences and Education**

**Judges: Kumi Ishii, Rodney A. Hounshell II, Tim Evans**

- 58. **Childers, William** “Language in 360: Developing Environment in Virtual Reality to Assist in Second Language Acquisition.” (Ashley Stinnett)
- 59. **Matney, Sarah** “A Systematic Review of Current Beas Investigating Math Skill Interventions.” (Ryan Farmer)

- 60. Brown, Tomo** “Fostering Peace and Leadership: A Project For The Black Mamba Anti-poaching Unit.” (Anthony Paquin)
- 61. King, Shelby; Rinne, Allison** “Age Differences in Peripheral Emotion Detection: Converging Psychophysical and Electrophysiological Evidence,” (Andrew Mienaltowski)
- 62. Barriere, Kaitlyn;** Ferguson, Ava; Brausch, Amy “Trauma Symptoms, Resilience, and Nonsuicidal Self-Injury and Suicide in Women with Negative Sexual Experiences.” (Amy Brausch)

## **BREAK**

**9:45 – 9:55 am**

## **CONFERENCE KEYNOTE**

**10:00 – 11:30 am**

Dr. Kendra Cherry-Allen

“Neuroplasticity: Mapping a Path from Undergraduate  
to Postdoctoral Clinical Research”

Room 3020

## **LUNCH BREAK**

**11:30 am – 1:00 pm**

## CONCURRENT AFTERNOON SESSIONS I

1:00 – 2:30 pm

### Session 19: Room 3002, Graduate Papers, Arts and Humanities

Judges: S. Ellen Godbey, Amelia Rollings, Elizabeth Gish

- 1:00 Pallante, Megan** “This Seems Like the Set Up for Something; The Use of Quoted Speech and Metacommunication in The Storytelling of Zeda K.” (Ann Ferrell)
- 1:15 Bowers, Delainey** “Tick-tack, Flutter-mill, And Rozum: Gordon Wilson's Linguistic Atlas of The Mammoth Cave Region” (Ann Ferrell)
- 1:30 Miller, Eleanor** “The Bears Ears National Monument Controversy: Native Claims, Land Use, and the Potential Role of Folklorists in Shaping the Debate” (Tim Frandy)
- 1:45 Crume, Allie** “The Impact of an Individual: James Madison and the Framing of the Constitution” (Marco Dumančić)
- 2:00 Chapman, Joe** “Machete Lore in Jamaica” (Ann Ferrell)
- 2:15 Antonič, Maja** “Female Soldiers and Activists: Anti-fascist Front of Women in World War II Yugoslavia” (Marco Dumančić)

### Session 20: Room 2085, Graduate Papers, Natural Sciences

Judges: John Kasumba, Leslie North

- 1:00 Liu, Haiyan; Lee, Ngo Fung; Zhang, Rui** “Synthesis and Kinetic Studies of High-valent Metal-oxo Generated by Photochemical and Chemical Methods” (Rui Zhang)
- 1:15 Ranburger, Davis; Lee, Ngo Fung;** “Photochemical and Catalytic Study of Manganese Corrole Complexes as Biomimetic Catalysts” (Rui Zhang)
- 1:30 Ilhom, Saidjafarzoda; Kholikov, Khomidkhodzha; Thomas, Zachary; Roberts, Duvall; Er, Ali; Li, Peizhen; Karaca, Haluk** “Generation of Recoverable Patterns on Niti Alloy by Pulsed Laser Irradiation” (Ali Er)
- 1:45 Kholikov, Khomidkhodzha; Ilhom, Saidjafarzoda; Thomas, Zachary; Smith, Skyler; Cooper, Lauren; Er, Ali** “Photodeactivation of Pathogenic Bacteria Using Graphene Quantum Dots Synthesized by Nanosecond Laser Pulses” (Ali Er)
- 2:00 Jones, Konnor; Nee, Matthew** “Temperature and Electric Field Dependence of Asymmetric Stretching of Nitrate Ion” (Matthew Nee)

### Session 21: Room 2086, Graduate Papers, Social Sciences and Education

Judges: Thomas Jai Gross, Brian Coutts, Lance W. Hahn

- 1:00 Sahlman, Jon; Brown, Laura** “Things White People Say: Mechanisms of Moral Disengagement within Interracial Communication” (Laura Brown)
- 1:15 Carver-Dickens, Krystal** “From Education to Incarceration: A Study of School Process Affecting Disproportionate Minority Contact within Hardin County's Juvenile Justice System” (Holli Drummond)
- 1:30 Graham, James; North, Leslie** “Using Mobile Eye-tracking To Inform the Development of Mass Tourism in Iceland towards the Principles of Ecotourism” (Leslie North)

**1:45 Lever, Katie** “Can the Love of The Game Become Unbearable? Examining Stress and Burnout in College Athletes” (Jieyoung Kong)

**2:00 Baugh, James** “Under banking And Its Implications for Household Finances” (Lauren McClain)

**Session 22: Room 2122, Undergraduate Papers, Arts and Humanities**

**Judges: Rich Shumate, Trish Lindsey Jagers, Sandra Hughes**

**1:00 Holden, Anne;** "The Influence of Mary on Modern Catholic Women’s Expression of Sexuality" (Elizabeth Gish)

**1:15 Hooker, Christine;** "Why the One Child Policy Was Unnecessary" (Timothy Rich)

**1:30 Gaines, Miriam;** "How Dance and Marketing Brought A Community Together" (Amanda Clark)

**1:45 Anvar, Lydia;** "A Kingly Trichotomy: Spiritual Favor, Deeds, and Lineage in *Beowulf* and *The Lord of the Rings*" (Gillian Knoll)

**2:00 Simpson, Hannah;** “Ethics of Dissent: Russell Moore and the Evangelical Population’s Support of Donald Trump” (Anthony Harkins)

**Session 23: Room 2123, Undergraduate Papers, Interdisciplinary**

**Judges: Jim Fulkerson, Anthony Paganelli**

**1:00 Fox, Jason;** "Networks of Sustainability within the Iceland Whale Watching Industry: Communication, Environmental Impact, and Economic Growth" (Leslie North)

**1:15 Earley, Danielle;** "The Antagonist of the Sino-children" (Timothy Rich)

**1:30 Brown, Trevor; Staggs, Chandler; Whitesel, Colin; Thomas, Jamie;** "BioCloud – Developing a Software-as-a-Service Cloud for Bioinformatics" (Michael Galloway)

**1:45 Reed, Natalie;** "A Computerized Solution to the Fold-and-cut Problem" (Uta Ziegler)

**2:00 Brown, Sarah;** “The Good, the Bad, and the Big Mouth” (Kristi Branham)

**2:15 Kanthawar, Arjun; Krishna, Nikhil;** "Accurately Modeling the Healing Process of Chronic Wounds" (Richard Schugart)

**Session 24: Room 2124, Undergraduate Papers, Natural Sciences**

**Judges: Edwin D. Stevens, Samantha G. Thomas**

**1:00 Cecil, Wendy;** "A Study of Mercury in Bald Eagle Feathers and Quills" (Cathleen Webb)

**1:15 Garrison, Jessica;** "Clay Mineral Analysis Using X-ray Diffraction" (Andrew Wulff)

**1:30 Davis, Andrew;** "Testing the Accuracy of a Density-Dependent Leslie Matrix Model" (Bruce Kessler)

**1:45 Hulse, Madeline; Ganesh, Ukmuni;** "Reinforcement Learning for Optimizing Dots and Boxes Strategy" (Uta Ziegler)

**2:00 Hounshell, Conner;** “Assessing the Extent of Biomass Fuel Consumption in Kasigau, Kenya and Its Relation to Household Air Pollution Exposure and Hypertension” (Nancy Rice)

**2:15 Irihamye, Elvin;** Cecil, Wendy; Chumbler, Jackson; Nofsinger, Leah; "Analyzing the Efficiency of Reforestation Efforts In Regaining Carbon Storage In A Costa Rican Cloud Forest" (Martin Stone)

**Session 25: Fine Arts Center (FAC) 319, Undergraduate Papers and Performances, Arts and Humanities**

**Judges: Ann K. Ferrell, Alison Langdon**

**1:00 Moscoe, Carrie;** "The Girl's Song: Brahms and Female Characters in His Leier" (Liza Kelly)

**1:15 Jones, Ryan;** "From Bach to Basie. A Singin' Affair" (Wayne Pope)

**1:30 Comstock, Lilly;** "Gaga: A New Approach to Movement" (Meghen McKinley)

**1:45 McCarthy, Hannah; Thompson, Jena;** "Women on the Floor: A Study of Feminism in Modern Dance History" (Amanda Clark)

**2:00 Bunch, Garrett;** "Physiological and Emotional Responses to Musical Auditory Stimuli and Its Relation to Lyric" (Ted Hovet)

**2:15 Iyer, Shyama;** "An Indian Exploration of Musical Theatre" (Julie Barber)

**Session 26: Room 3024, Graduate Posters, Interdisciplinary**

**Judges: Yaser Mowafi, Melanie Autin**

- 1. Doshi, Akash** "Association between sleep problem and moderate physical activity" (Colin Farrell)
- 2. Joshi, Gunjan;** Farrell, Colin; Hunt, Matthew; "Socioeconomic Disparities & Dental Health in Kentucky" (Colin Farrell)
- 3. Coffell, Jared;** Arnett, Scott "What Are the Effects of Cluster Sets During the Deadlift Exercise?" (Scott Arnett)
- 4. Tadakaluru, Apoorva;** Tinius, Rachel; Yoho, Kristin; Pitts, Bailey; Blankenship, Maire; Furgal, Karen; Maples, Jill "The Metabolic Responses to A High-fat Meal and Exercise among Postpartum Women." (Jill Maples)
- 5. McElroy, Kate** "Civic Nationalism in Scotland and Catalonia" (Tim Frandy)
- 6. Twidwell, Robert;** Teeters, Jenni; Hahn, Lance "Linguistic Attributes of a Text Message-based Intervention" (Lance Hahn)

**Session 27: Room 3024, Graduate Posters, Natural Sciences**

**Judges: Rostern Tembo, Ali Oguz Er**

- 7. Diaz, Gerardo** "A Case Study of Wintertime Meteorological Forcings and their Effects on Surface Pollution Levels in the Cache Valley" (Rezaul Mahmood)
- 8. Meek, Romney;** Evans, Brandan; Henson, Alex; Gupta, Sanju "Graphene-carbon Nanotube Aerogel as Organic Thermoelectrochemical Energy Harvesters: Hydrothermal Synthesis, Structural Characterization and Properties" (Sanju Gupta)
- 9. Quiroga, Allison;** Polk, Jason; Kaiser, Rachel "Characterization of Carbon Flux in Icelandic Glacier-fed Rivers" (Jason Polk)
- 10. Laslie, Kathryn;** Hamilton, Emily; Huskey, Steve; Smith, Michael "Behavioral Contexts for Production of and Responses to Vibration Signals in The Veiled Chameleon (*Chamaeleo calyptratus*)" (Michael Smith)
- 11. Appala, Keerthi;** Conte, Eric; Kasumba, John; Agga, Getahun E; Loughrin, John H "Quantification of Tylosin and Tylosin Antibiotic Resistance Genes in Cattle Waste." (Eric Conte)

**Session 28: Room 3024, Undergraduate Posters, Health and Human Services**

**Judges: Darnez Pope, Jae Kim, Whitney Harper**

12. **Cowles, Melissa;** "Potential Impact of the New Medicaid Waiver on the Homeless Population" (Grace Lartey)
13. **Glascoek, Allison;** Smith, Tanner; Smith, Janice; "The Jarvis-ecological Approach to Analyzing Adolescent Language Samples" (Janice Smith)
14. **Jenks, Julianna;** Maples, Jill "Urinary Incompetence Among Postpartum Women" (Rachel Tinius)
15. **Neal, Wesley;** Morris, Cody; Winchester, Lee; Jackson, Justin; Tomes, Ariel; Wilcoxon, Damon; Arnett, Scott; "Effect of A Simulated Tactical Occupation Stressor On Perceived Exertion And Blood Lactate" (Cody Morris)
16. **Brewer, Kia; Helton, Kimberly;** "Under Pressure: The Effect of Crisis Volunteering on Continued Community Engagement" (Gayle Mallinger)

**Session 29: Room 3024, Undergraduate Posters, Interdisciplinary**

**Judges: Sara Moody, Kayla Fugate**

17. **Parker, Allyson;** "An Educational Opportunity" (Shahnaz Aly)
18. **Zhu, Brian;** "Parallelization of a Monte Carlo Tree Search Algorithm for the Game "Dots and Boxes"" (Uta Ziegler)
19. **Spencer, Colton;** "A Community Made Stronger" (Shahnaz Aly)
20. **Garcia, Ryanne;** "Importance of Infection Control Risk Assessment for Healthcare Based Construction" (Taha Alyousef)
21. **De Brito, Lucas;** "Citylights" (Shahnaz Aly)

**Session 30: Room 3024, Undergraduate Posters, Natural Sciences**

**Judges: Moon-Soo Kim, Yongming Deng**

22. **Evans, Brendan;** Meek, Romney; Henson, Alex; Gupta, Sanju "Multiple Roles of Surface Functionality of Graphene-family Nanomaterials on Electronic and Phononic Properties for Applied Electrochemistry" (Sanju Gupta)
23. **Sneed, Jubilee** "The Computer Aided Design of a Bullpup" (Shane Palmquist)
24. **Gabhart Austin** "A Perturbation Method for Determination of an Approximate Analytical Solution of a Nonlinear System of Ordinary Differential Equations" (Mikhail Khenner)
25. **Deller, Emily** "Sheltering the Homeless" (Shahnaz Aly)
26. **Bogges, Ryan** "Application of Metal Organic Framework in Dye Sensitized Solar Cells" (Bangbo Yan)
27. **Simpson, Olivia;** "Crystal Growth of Novel Metal-Organic Framework from polyoxoniobate clusters and ruthenium complexes" (Bangbo Yan)

**Session 31: Room 3024, Undergraduate Posters, Natural Sciences**

**Judges: Mahtab Orooji, Muhammad Sajjad**

28. **Brooks, Hannah;** Yan, Bangbo; "Carbon Dioxide Reduction Photocatalyzed By Metal-organic Framework Materials" (Bangbo Yan)
29. **King, Carson;** "Comparison of Coronal Dimming Behavior between Xrt and Aia Data" (Gordon Emslie)
30. **Wei, Summer;** "Morphological Systematics of *Leuctra Duplicata* (claassen) Species Group" (Scott Grubbs)
31. **Stamps, Emily;** "Post Oak Baptist Church" (Neal Downing)
32. **Comer, Kaitlyn;** "Museum Earth" (Neal Downing)
33. **Alenezi, Meshal;** "Islamic Center" (Neal Downing)

**Session 32: Room 3024, Undergraduate Posters, Natural Sciences**

**Judges: Stephen Norris, Michael Smith**

34. **Dosier, Caden; Springate, Madeline; Thompson, Alexa; Clements, Benjamin** "Forest Understory Biodiversity of Cloudbridge Nature Reserve" (Martin Stone)
35. **Larkin, Grant; Docekal, Gregory;** Silva, Philip; "Characterizing Temporal Changes and Growth of Agriculturally Produced Pm Particles" (Rezaul Mahmood)
36. **Salim, Hasan;** Fan, Joy; Srivastava, Ajay; "Assessing the Role of the Gene, *Pebbled*, In *D. Melanogaster* Asp Invasive Behavior" (Ajay Srivastava)
37. **Alrajhi, Sultan;** "Riyadh Premium Outlets" (Neal Downing)
38. **Chumbler, Isabel;** "Mercury Bioaccumulation in Bats from Mammoth Cave National Park" (Cathleen Webb)
39. **Martin, John;** "National Parks and Anthropogenic Induced Landslide" (Andrew Wulff)

**Session 33: Room 3024, Undergraduate Posters, Natural Sciences**

**Judges: Claire Rinehart, Cheryl Kirby-Stokes**

40. **Wilkerson, Phillip;** Champey, Patrick; Winebarger, Amy; Kobayashi, Ken; Savage, Sabrina; "Marshall Grazing Incidence X-ray Spectrometer (magixs) Slit-jaw Imaging System" (Gordon Emslie)
41. **Atici, Enes;** Srivastava, Ajay; "Hemocyte Development in *Drosophila Melanogaster* - Assessing the Role of Cathepsin L" (Ajay Srivastava)
42. **Pendleton, Kennedy;** "Uncovering the nature of the rapid optical variability observed in Blazars" (Michael Carini)
43. **Kwan, Henry;** "Searching For New Blazars" (Michael Carini)
44. **Sims, Hunter;** Warlick, Corinne; Jaconette, Conrad; Hill, Lawrence; "Synthesis and Characterization of a Benzylic Ether Boronic Ester Difunctional Initiator and Its Use in Oxidatively Degradable Polymers" (Lawrence Hill)
45. **Crowdus, Nathan;** Mahmood, Rezaul; "Elevation and Mesoscale Temperature Variations" (Rezaul Mahmood)

**Session 34: Room 3024, Undergraduate Posters, Social Sciences and Education**

**Judges: Darlene Applegate, Natalie Tyree, Sharon Leone**

- 46. Hornsby, William;** "Metric Invariance of the BIS/BAS Scale" (Andrew Mienaltowski)
- 47. Taylor, Morgan;** Andrew, Keith; Womble, Phillip; Andrew, Karla; "A Cyber Social Model for Analyzing Information Transmissions of Twitter Data Sets to Perform Threat Level Assessments" (Keith Andrew)
- 48. Woodrow, Kaitlin;** "The Classroom Connection of Sight Words and American Sign Language" (Susan Keeseey)
- 49. Blear, Sarah;** Farmer, Ryan; "The role of traditional bullying and cyberbullying victimization in predicting negative mental health outcomes in elementary schools" (Ryan Farmer)
- 50. Forgione, Brandi;** "Impact of Two Types of Multi-tasking on Self-selected Exercise Intensity" (Steven Wininger)

**Session 35: Room 3024, Undergraduate Posters, Social Sciences and Education,**

**Judge: Trini Stickle, Antonia Szymanski, Les Archer**

- 51. Froedge, Tom;** Lance Hahn, Leibman, Noemi; "Identifying Competitive and Collaborative Text with Machine Learning" (Lance Hahn)
- 52. Trejo, Kazandra; Williams, Gracen;** "Dream On: Predictors of attitudes toward Deferred Action for Childhood Arrivals" (Gayle Mallinger)
- 53. Shaikh, Waleed;** "Racing Facility" (Shahnaz Aly)
- 54. Ferguson, Ava** "The Mediating Role of Resilience in the Relationship between Sexual Trauma and Disordered Eating Behavior" (Amy Brausch)

**Session 36: Room 3024, Undergraduate Posters, Business**

**Judge: Soyeon Kim, George Kontos**

- 55. Ayres, Gaje; Richards, Jared; Alrasheedi, Sultan; Alrazhi, Rakan;** "Communication through the Project Coordinator" (Taha Alyousef)
- 56. Chiu, YukFong** "Maiden's Love Wedding Center" (Shahnaz Aly)
- 57. Seng, Amanda;** Warren, Jon; Upright, Paula; "Motivations to Spectate as Drivers of Social Media Engagement" (Joanna Melancon)
- 58. Snyder, Cierra; Vazquez, Abigail;** "Click, Buy, Lie or Die?" (Leyla Zhuhadar)



## CONCURRENT AFTERNOON SESSIONS II

**2:45 – 4:15 pm**

### **Session 37: Room 2124, Graduate Papers, Natural Sciences**

**Judges: Pat Kambesis, Eric Steinfelds**

- 2:45 Gearner, Olivia;** Philips, Keith “New Discoveries of Relationships in Spider Beetles and Related Families Using Molecular Phylogenetics” (Keith Philips)
- 3:00 Powers, Nathan;** Kapadia, Mayank; Srivastava, Ajay “Preliminary Characterization of a Basement Membrane-associated Protein in Drosophila” (Ajay Srivastava)
- 3:15 Aromiwura, Afolasayo;** Fields, Chrisopher; Srivastava, Ajay “Characterization of Two Basement Membrane Degradors in Drosophila Melanogaster” (Ajay Srivastava)
- 3:30 Khouryieh, Marlain;** Khouryieh, Hanna; Daday, Jerry “Consumers' Awareness, Knowledge, and Perception of Safety of Locally Grown Fresh Produce Sold at KY Farmers' Markets” (Hanna Khouriyeh)
- 3:45 Arthur, Michael;** Gani, M. Royhan “Chaotic Sedimentary Deposits in the Gulf of Mexico and Their Implications for Hydrocarbon Exploration and Seabed Stability” (M. Royhan Gani)

### **Session 38: Room 2085, Graduate Papers, Interdisciplinary**

**Judges: Molly Kerby, Anne Heintzman**

- 2:45 Covert, Marshall** “‘Turn in Your Bibles to...’: Examining Rhetorical Agency in Sermonic Discourse” (Helen Sterk)
- 3:00 Bailey, Heather** “Undying Coals: The Resilience of Cherokee Women” (Dorothea Browder)
- 3:15 Willenbrink, Elizabeth;** North, Leslie; Nguyet, Vu Thi Minh; Graham, James “Policy Communication and the Impact of Agriculture on Karst Landscapes: An Example from Phong Nha-Ke Bang National Park, Vietnam” (Leslie North)
- 3:30 Agaba, Peter** “Optimal Control Theory and Parameter Estimation of Parameters in A Differential Equation Model for Patients with Lupus” (Richard Schugart)
- 3:45 Meyers, Jon** “Oh Brother Where Art Thou Indefinite Articles? Teaching ESL through Screenwriting and Other Creative Writing Methods” (Alexander Poole)

### **Session 39: Room 2086, Undergraduate Papers, Natural Sciences**

**Judges: Samantha G. Thomas, Jim Fulkerson**

- 2:45 Baker, Alan** “Geothermobarometry of Winslow Point, Maine Schists” (Andrew Wulff)
- 3:00 Menix, Jacob;** Schoonover, Paige “Statistical Tests for Convergence of Some Random Walks to Perturbed Brownian Motion” (Richard Schugart)
- 3:15 Ellzey, Benjamin;** Fan, Xingang “Impacts of El Nino Southern Oscillation to Spring Tornado Outbreaks in the United States” (Xingang Fan)

- 3:30 Zieba, Daniela** “Analysis of Single Core vs. Parallel Software Algorithms on Multi-core RISC Processors” (Michael Galloway)
- 3:45 Hatter, Evan** “Remote Sensing Analysis of Multi-Vortex Tornado near Dodge City, Kansas on May 24, 2016” (Joshua Durkee)
- 4:00 Gaiko, Kathrine; Kim, Moon-Soo** “Developing TALE Proteins as A Sensor for Detecting Pathogens” (Moon-Soo Kim)

**Session 40: Room 2122, Undergraduate Papers, Interdisciplinary**  
**Judges: Elisabeth Knight, Enakshi Roy**

- 2:45 Sego, Christina** “Maternal Health Challenges in Eastern Tanzania: Antenatal, Delivery and Postnatal Care” (Alexander Olson)
- 3:00 Melcher, Natalie** “Best Platform for Indie Artists” (Dawn Hall)
- 3:15 Wine, Matthew** “Hurricane Matthew” (Joshua Durkee)
- 3:30 Scanlon, Kyla** “Effects of Terrorism on the US Stock Market: Evidence from High Frequency Data” (Alex Lebedinsky)
- 3:45 Dahmer, Loandria** “The Diplomatic Recognition of Taiwan as It Relates to Central America” (Timothy Rich)
- 4:00 Ziege, Nicole** “Upton Sinclair's the Jungle and the Channeling of Dissent from Workers to Consumers” (Anthony Harkins)

**Session 41: Room 2123, Undergraduate Papers, Interdisciplinary**  
**Judges: Sara Moody, Kayla Fugate**

- 2:45 Edwards, Trevor** “The Lunar Effect: A Study of Choreographic Storytelling and Dance on Film” (Meghen McKinley)
- 3:00 Phillips, Brandon** “Conventional Surveying Transformed by Drones” (Taha Alyousef)
- 3:15 Bryar, Michael; McMichael, Brandon; Ahluwalia, Vijay; Lindsey, Michael; Vernon, Caleb; Ray, Aaron** “High Rollers Automated Dice Rolling Machine” (Warren Campbell)
- 3:30 Graham, Anthony; Orooji, Fatemeh** “Amphibious House: A Novel Flood Mitigation Strategy” (Fatemeh Orooji)
- 3:45 Byrd, Lindsey** “A Synoptic Approach of the January 2016 Blizzard Using Satellite and Radar Imagery” (Joshua Durkee)

**Session 42: Room 3024, Graduate Posters, Health and Human Services**  
**Judges: Xiuhua Ding, Dana Burr Bradley**

1. **Stevens, Lauren; Neils-Strunjas, Jean; Falls, Dustin** “Bingocize: An Evidence-based Program to Improve the Quality of Life of Kentucky Certified Nursing Facility Residents” (Jason Crandall)
2. **Clark, Sydney** “Emergency and Disaster Management: Disability and Inclusion” (Marilyn Gardner)
3. **Kaur, Simrat** “Association of Body Mass Index and Insufficient Sleep: An Analysis of Brfss 2016” (Michelle Reece)

4. **Potluri, Aishwarya; Joshi, Gunjan; Sandala, Harini; Ezekekwa, Emmanuel;** Mkanta, William; Alamri, Abeer; Reece, Michelle “Mental Health and the Impact on Health and Health Services Among Refugees in the USA” (Michelle Reece)
5. **Patel, Krishna** “Comparative Study of Dental Caries, Malocclusion, and Treatment Needs Among Children with and Without Physical Disabilities in India” (Grace Lartey)

**Session 43: Room 3024, Undergraduate Posters, Health and Human Services**

**Judges: Lauren Bland, Carol Watwood**

6. **Marita, Madeline** “Testing the Correlation of Dialect Density and Social Interaction” (Janice Smith)
7. **Tomes, Ariel;** Morris, Cody; Winchester, Lee; Jackson, Justin; Neal, Wesley; Wilcoxon, Damon; Arnett, Scott “Effect of A Simulated Tactical Occupation Stressor on Immune System Markers of Physiological Stress and Inflammation” (Cody Morris)
8. **Rajendran, Nikitha;** Furgal, Karen; Esslinger, Keri; Tinius, Rachel “The Relationship between Maternal Physical Activity and Infant Motor Development” (Rachel Tinius)
9. **Feige, Emma; Colvin, Alexa;** Smith, Tanner; Smith, Janice; Greene, Anna; Peavler, Rachel “The Dixit Method of Language Sampling in Early Adolescents” (Janice Smith)
10. **Moore, Lindsey** “Understanding Social Workers' Ethical Responsibilities as Advocates for Immigrants” (Dana Sullivan)

**Session 44: Room 3024, Undergraduate Posters, Interdisciplinary**

**Judges: Jenn Brinkley, Donna Kasznel**

11. **Hernandez, Luis** “Research and Development in Sports” (Shahnaz Aly)
12. **Amshoff, Erica** “Home” (Shahnaz Aly)
13. **Hart, Kyler; Madsen, Augustus** “Telecom Segmentation's: Predicting Customer Gender Based on Network Behavioral Trends” (Leyla Zhuhadar)
14. **Taylor, James** “Predicting Which Telecom Customers Churn” (Leyla Zhuhadar)
15. **Clark, Trevor** “The Medical Center Children’s Hospital” (Neal Downing)

**Session 45: Room 3024, Undergraduate Posters, Natural Sciences**

**Judges: Yongming Deng, Amelia Rollings**

16. **Almutairi, Thamer** “Al-Ula Museum” (Shahnaz Aly)
17. **Lindsey, Chloe** “Synthesis of an Analog of the Anticancer Drug Carboplatin” (Kevin Williams)
18. **Vaughan, Jessica;** Banga, Simran “Antibiotic Resistance of Bacteria Isolated from Soils” (Simran Banga)
19. **Ng, Chunlam** “Flow” (Shahnaz Aly)
20. **Kaiser, Rachel;** Polk, Jason; Shelley, Adam; Powell, Matt “Assessing Stormwater Impacts and Hydrogeological Influences on Water Quality in an Urban Landscape” (Jason Polk)
21. **McFarland, Kattie; Jackson, Carter** “Adaptive Reuse: Is it Really Necessary?” (Shahnaz Aly)

**Session 46: Room 3024, Undergraduate Posters, Natural Sciences**

**Judges: Muhammad Sajjad, Sarah J. Edwards**

22. **Nahari, Essa** “Sport and Fitness Center” (Neal Downing)
23. **Padgett, Christopher**; Griffin, Melissa; Mahmood, Rezaul “A Synoptic Analysis of the June 27 - July 9, 2012, Ohio Valley Heat Wave and an Investigation of the Effect on Public Health in Kentucky” (Melissa Griffin)
24. **Hornback, Skyler**; Stevens, Edwin “Experimental Electron Distributions of the Antiestrogenic Drug Tamoxifen” (Edwin Stevens)
25. **Thomas, Zachary**; Seyitliyev, Dovletgeldi; Kholikov, Khomidkhodzha; Grant, Byron “Laser-induced Hydrogen Generation from Coal” (Ali Er)
26. **Carroll, Caleb** “Plum Springs Community Facility Center” (Shahnaz Aly)

**Session 47: Room 3024, Undergraduate Posters, Natural Sciences**

**Judges: Dan Clark, Rodney King**

27. **Carter, Trason**; Saidjafarzodaa, Ilhom; Kholikov, Khomidkhodzha; Thomas, Zachary; Cooper, Lauren; Er, Ali “A Multi- and Few-layer Graphene Growth on Si(100) By Pulsed Laser Deposition” (Ali Er)
28. **Almutairi, Ibrahim** “Al-aaqer Race Track” (Neal Downing)
29. **Buzzard, Lydia**; Ballentine, Drake; Garcia, Marco; Hill, Lawrence “Synthesis of Functionalized Ionic Liquids for Nanoparticle Shape Control in Catalytic Reactions” (Lawrence Hill)
30. **Schnittker, Anna** “Spatial Analysis of Karst Geology on Isla De Mona” (Patricia Kambesis)
31. **Cook, Margaret** “Influence of Arsenic on Lanthanide Bioaccumulation in *Nephrolepis Exaltata* and Related Effects” (Yan Cao)
32. **Marquardt, JJ**; Rodgers, Jared; Freeman, Callie “Survey of Dung Beetle Diversity in High Elevation Forests of the Talamanca Range, Costa Rica” (Keith Philips)

**Session 48: Room 3024, Undergraduate Posters, Natural Sciences**

**Judges: Stephen Norris, Claire Rinehart**

33. **Gondal, Anas; Hendrickson, Evan**; Ronkainin, Millicent; King, Rodney; Rinehart, Claire “Discovery and Genomic Analysis of Mycobacteriophages Chotabhai and Barabhai” (Naomi Rowland)
34. **Lamb, Emma; Uhls, Isabella**; King, Rodney; Rinehart, Claire “A Comparison of the Newly Discovered Bacteriophages Lilizi and Henry Jackson” (Naomi Rowland)
35. **Brown, Ethan** “Isolation of Viruses Infecting Free Living Amoeba from Water” (Simran Banga)
36. **Ward, Zoe** “Validating K2 Blazar Variability with Contemporaneous Ground-based Observations” (Michael Carini)
37. **Seymour, William** “Hydrogen-powered Scooter” (Anne Heintzman)
38. **Mitchell, Logan** “An Analysis of Urban Heat Islands in Kentucky” (Rezaul Mahmood)

**Session 49: Room 3024, Undergraduate Posters, Natural Sciences**

**Judges: Sarah Ochs, Manu Chidurala**

39. **Alkadhim, Mohammed** “American Museum” (Neal Downing)
40. **Garcia, Marco**; Hill, Lawrence; Ballentine, Michael; Buzzard, Lydia “Synthesis of Pt/co Alloyed Nanoparticles in Ionic Liquids” (Lawrence Hill)
41. **Strunjas, Anna; Patterson, Connor** “Discovering and Comparing Bacteriophages Struki and Doctordiddles” (Claire Rinehart)
42. **Pullum, Keelee**; Ashley, Noah “Effect of Acute Sleep Fragmentation upon Morphology and Density of Astrocytes in Hippocampal and Hypothalamic Tissue” (Noah Ashley)
43. **Bridges, Katy**; Bell, Andrew “Reinforced Concrete Beams with High Strength Rebar” (Shane Palmquist)
44. **Couch, Brandon**; Kasumba, John; Loughrin, John; Conte, Eric “Extraction and Quantitation of Tetracyclines Antibiotics in Anaerobic Swine Wastes Using Spe, Hplc-ms, And Hplc-pda” (Eric Conte)

**Session 50: Room 3024, Undergraduate Posters, Social Sciences and Education**

**Judges: Jennifer Joe, Christina Noel, Wei Chen**

45. **Whitaker, James**; Hahn, Lance “Selecting Synonyms Computationally” (Lance Hahn)
46. **Trader, Elizabeth**; Paquin, Anthony; Zhao, Qin “Decreasing Stigma against Depression in Chinese International Students” (Anthony Paquin)
47. **Frint, Hunter** “Analyzing Biological Anthropology in Journalism: Evolutionary Content in Scientific and Nonscientific Media Outlets” (Darlene Applegate)
48. **Weyman, Kaitlyn** “An Analysis of Age and Language Interaction: Bilingualism Does Not Effect Normal Age-related Cognitive Decline” (Matthew Shake)
49. **Moore, Emma**; French, Carrie; Wininger, Steven “Impact of Performing Academic Tasks on Self-selected Exercise Intensity” (Steven Wininger)

**Session 51: Room 3024, Undergraduate Posters, Natural Sciences**

**Judges: Melanie Richter, Simran Banga**

50. **Sairajeev, Sasha; Al Khayyat, Sarah**; Rinehart, Claire; King, Rodney “The Discovery and Genomic Comparison of Two Novel Bacteriophages Cardisan and Kahve” (Naomi Rowland)
51. **Starkey, Luke** “Lombardi Inn & Titledown Tavern” (Neal Downing)
52. **Stekardis, Julia; Ringo, Wyatt**; Rowland, Naomi; Rinehart, Claire; King, Rodney “A Comparison of Bacteriophages Fresapreciosa and Rainyjennifer with Similar Phenotypes” (Naomi Rowland)
53. **Conte, Maxwell** “Molecular dynamics modeling of atmospheric sulfur dioxide-water interactions at the interface” (Matthew Nee)
54. **Steward, Kayla**; Nee, Matthew “Buoyant Photocatalyst to Degrade Organic Compounds” (Matthew Nee)
55. **Knerr, Reinhard; Hoffman, Georgia**; Rinehart, Claire; Rowland, Naomi; Staples, Amanda “A Comparative Analysis of Two Novel Phages Childish and Klaus” (Claire Rinehart)

**Session 52: Room 3024, Undergraduate Posters, Business**  
**Judges: Dominique Gumirakiza, JC Watkins**

- 56. Goins, Graham; Weddle, Ryan** “Predicting Median Home Prices” (Leyla Zhuhadar)
- 57. McClearn, Parker** “Dax30 Price Clustering” (Leyla Zhuhadar)
- 58. Smith, Nick; Dalton, Destin; Fallata, Mohammed** “Construction Labor Shortage”  
(Taha Alyousef)
- 59. Gaiko, Steven** “Smart Phone App Development and Implementation” (Huanjing Wang)

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