



102nd ANNUAL MEETING

University of Louisville




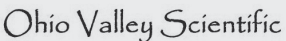





Louisville, Kentucky

November 4-5, 2016



KAS - 102 Years Serving Kentucky

Sponsors

Platinum Level	ASRC Michelin Sullivan University School of Pharmacy	 
Gold Level	Clariant	
Friday Afternoon Break Sponsor	Ohio Valley Scientific	
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Exhibitors

- ASRC Michelin
- KBRIN (Kentucky Biomedical Research Infrastructure Network)
- Kentucky Science Speakers Bureau
- Kentucky State University
- Morehead State University Space Science Center
- Murray State University Jones School of Science Engineering and Technology
- Sullivan University College of Pharmacy
- University of Kentucky Integrated Biomedical Sciences
- University of Louisville School of Interdisciplinary and Graduate Studies
- University of Louisville Integrated programs in Biomedical Sciences
- University of Louisville School of Dentistry
- Western Kentucky University Ogden College

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**Faculty, Staff, and Students at these institutions
can join KAS at no cost:**

Alice Lloyd College
Bellarmine University
Berea College
Brescia University
Campbellsville University
Centre College
Eastern Kentucky University
Georgetown College
Kentucky Community and Technical College System (KCTCS)
Kentucky State University
Midway University
Morehead State University
Murray State University
Northern Kentucky University
Spalding University
Thomas More College
Transylvania University
University of Kentucky
University of Louisville
University of Pikeville
Western Kentucky University

2016 Member Institutions & Businesses

Asbury University
Lindsey Wilson College
Kentucky Wesleyan College
University of the Cumberlands
Kentucky Science Center
Wood Hudson Cancer Research Laboratory
Lumins Associates

WELCOME TO UNIVERSITY OF LOUISVILLE



Greetings and welcome to the University of Louisville, host of the 102nd annual meeting of the Kentucky Academy of Science. There are many exciting activities, field trips and learning opportunities planned for you this weekend. Perhaps you are here to discuss physics, chemistry, mathematics, astronomy or engineering. You may be here as part of the joint meeting with the Geological Society of Kentucky. Whatever your field, you will no doubt enjoy the weekend.

Out of our student body of 22,000, some 8,100 are enrolled in the traditional Science, Technology, Engineering and Mathematics (STEM) fields. Our students and researchers in these fields are collaborating in ways that are truly making a difference. In 2014, UofL engineers in the J.B. Speed School of Engineering's Rapid Prototyping Center produced a 3D model of a child's heart that helped surgeons save the life of a 14-month-old boy. This year, bioengineering students designed a "robo hand" for a 6-year-old born without fingers in his right hand, then used 3D printing technology to create several prosthetics for the boy. As part of our 21st Century University Initiative, UofL recently announced millions in funding for projects in Big Data Analysis in Medicine and Metagenomics and Health.

In the field of ecology and environmental science, classes begin next fall in UofL's new Bachelor of Arts in Sustainability degree. Our Master of Interdisciplinary Studies: Concentration in Sustainability degree program began just this year. Our Conn Center for Renewable Energy Research at the Speed School researches homegrown energy sources to help reduce energy consumption and our country's dependence on foreign oil. The center is even housed in a solar-powered, energy efficient building that serves as a living laboratory.

On our Health Sciences Campus, our newly renovated School of Medicine instructional building features state-of-the-art technology that allows students to work more effectively in small groups and better communicate with instructors.

On the Belknap Campus, we recently broke ground on the construction of the Belknap Academic Building, an \$80 million, 150,000-square-foot facility that will feature classrooms, laboratories, common spaces and faculty offices.

Again, welcome to the University of Louisville. I wish you the greatest success in all your endeavors.

*Dr. Neville Pinto, Acting President
University of Louisville*

KENTUCKY ACADEMY OF SCIENCE

102nd Annual Meeting
November 4 - 5, 2016
University of Louisville

GOVERNING BOARD EXECUTIVE COMMITTEE

President..... **Eric Jerde**, *Morehead State University*
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EX-OFFICIO MEMBERS

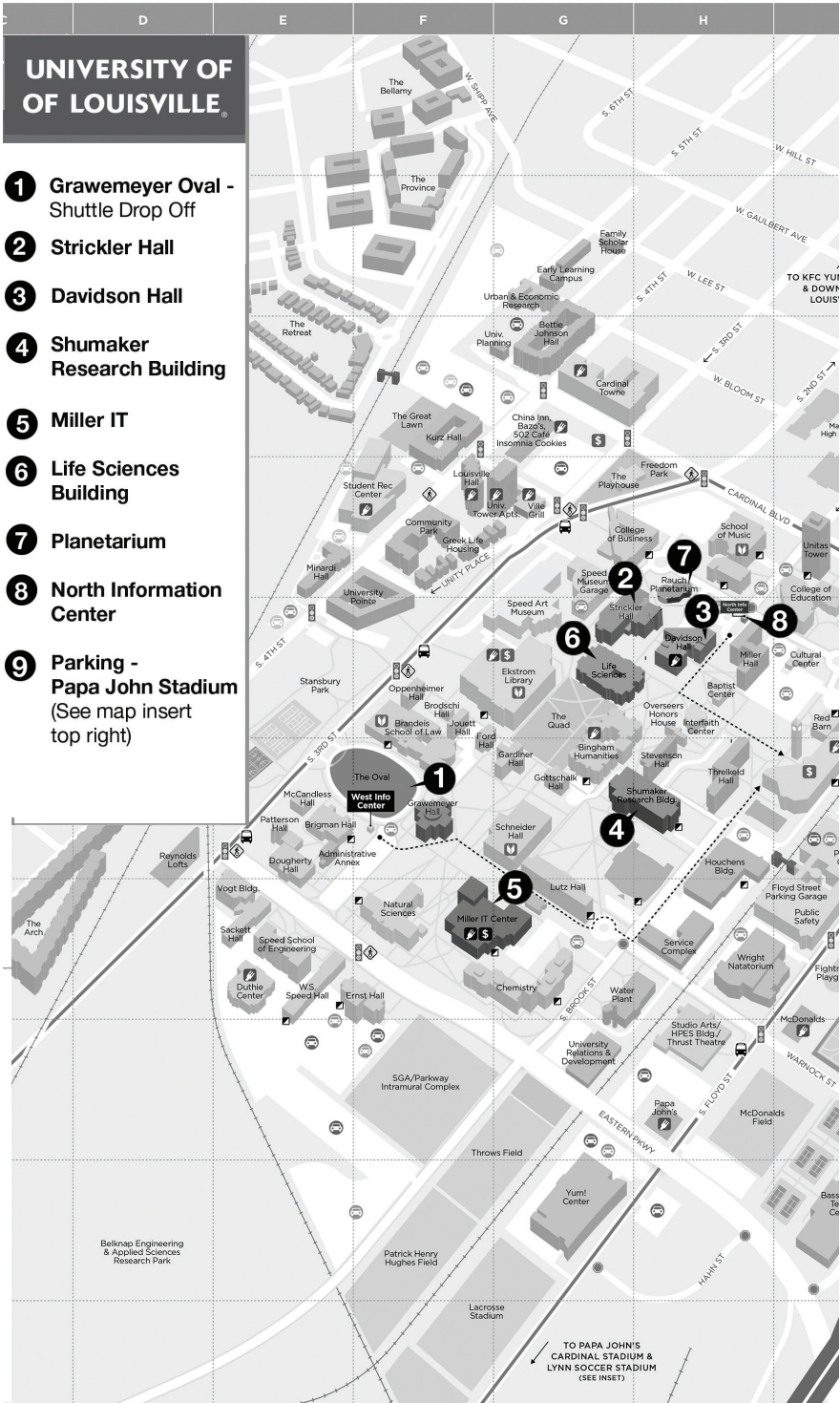
Executive Director **Amanda Fuller**, *Kentucky Academy of Science*
Program Coordinator **Melony Stambaugh**, *KCTCS*
Editor, JOURNAL..... **Jerzy Jaromczyk**, *University of Kentucky*
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Editor, Website..... **Claire Rinehart**, *Western Kentucky University*
AAAS/NAAS Representative **Nancy Martin**, *University of Louisville*

DIVISION REPRESENTATIVES AND AT-LARGE MEMBERS

2017 - Biological Sciences **Michael Fultz**, *Morehead State University*
2019 - Biological Sciences **Maggie Whitson**, *Northern Kentucky University*
2018 - Physical Sciences **Richard Gelderman**, *Western Kentucky University*
2017 - Physical Sciences **R. Douglas Chatham**, *Morehead State University*
2018 - Social & Behavioral Sciences..... **Kerrie McDaniel**, *Western Kentucky University*
2017- Social & Behavioral Sciences) **Gregory Corso**, *Morehead State University*
2017 - At - Large..... **Mary Janssen**, *KCTCS*
2019 - At - Large..... **Vacant**

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UNIVERSITY OF LOUISVILLE

- 1** Grawemeyer Oval - Shuttle Drop Off
- 2** Strickler Hall
- 3** Davidson Hall
- 4** Shumaker Research Building
- 5** Miller IT
- 6** Life Sciences Building
- 7** Planetarium
- 8** North Information Center
- 9** Parking - Papa John Stadium (See map insert top right)

TO PAPA JOHN'S CARDINAL STADIUM & LYNN SOCCER STADIUM (SEE INSERT)



PARKING AND SHUTTLES

U of L is offering KAS **free** parking near Papa John's Stadium. From there, a **free** shuttle will be provided to the Grawemeyer oval **1**, or it is about a 25 - 30 minute walk north on Floyd Street.

SHUTTLE SCHEDULE:

Friday: 2 shuttles circulating 10 AM - 6 PM

Saturday Morning: 2 shuttles circulating 7 AM - 11 AM;

Saturday Afternoon: 1 shuttle circulating 11 AM - 8 PM

CARPOOLS:

Carpools may drop off passengers at Grawemeyer Oval **1** or North Information Center **8**. Limited metered hourly parking is available in Floyd Street or Speed Museum parking garages.

2016 Local Arrangements Committee University of Louisville

Holly Hogue, U of L College of Arts & Sciences

Shira Rabin, U of L Biology Department

Paul Himes, U of L Biology Department

Roberta Challener, Bellarmine University

STAY CONNECTED WITH KAS



Wi-Fi Network: Visitors can connect to “ULvisitor” by selecting it from the list of available networks. Open your web browser and you will need to enter your email address and agree to the terms of use.



Facebook : Follow the Kentucky Academy of Science



Tweet about the 2016 annual meeting at #KAS2016

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1862

WELCOME AND KEYNOTE

Friday, November 4, 2016
11:45 am - 1:00 pm, Strickler Auditorium

Welcome

Dr. Eric Jerde, KAS President
Morehead State University

Dr. Kimberly Kempf-Leonard, Dean of the College of
Arts & Sciences, University of Louisville

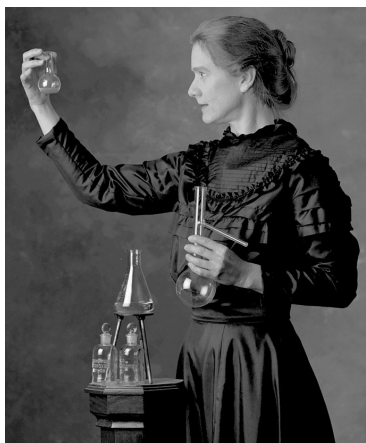
Presiding

Dr. Darrin Smith, KAS President-Elect
Eastern Kentucky University

Keynote Presenter

Susan Marie Frontczak

“A Visit with Marie Curie”



Likely the most famous woman scientist, Madame Marie Curie (née Maria Skłodowska) — changed the world in which we live through her discovery of radium and radioactivity. Through collaboration with the medical community the Curies discovered and established the first successful radiation treatments of cancer. Simply through her own passion and perseverance, Marie Curie opened the doors of science to women world wide.

This program **honors a preeminent woman of science**: Madame Curie was the first European woman to earn a doctorate in the sciences; the first woman to receive a Nobel Prize (for the discovery of radioactivity); the first woman to teach at the Sorbonne; and the first person to receive

a second Nobel Prize (a feat not to be repeated for another 50 years). Audiences witness the origins of scientific discoveries we now take for granted. They re-live the remarkable collaboration between husband and wife, Pierre and Marie, companion scientists.

Continued, page 8

This program **honors the ethic of scientific altruism**. Einstein said Marie Curie was “the only person to be uncorrupted by fame.” In today’s age of patents and litigation, the audience learns that the Curies declined to patent their methods, refused to bend their discoveries toward personal financial gain. Marie insisted that to profit from the discovery of radium would be “contrary to the scientific spirit.”

This program **honors the wife and mother**, who felt more daunted by the chemistry of the kitchen than of the laboratory. As a single mother, Marie raised her two daughters from ages 16 months and 8 years, after the tragic death of her husband, Pierre. And it **honors Manya’s Polish heritage** — much neglected not only now, but in her own life, to her own dismay. This program brings to light many of Marie’s lesser-known contributions, both social and scientific — and the obstacles she faced along the way.

Marie Curie was, in turn, nervous and shy in public, obsessive about measurement, in denial of the dangers of working with radioactive materials, proud and possessive of her discoveries, yet generous to the extreme with the products of her work. Within her lifetime she saw the curative effects of radiation on cancer. Late in life she came to admit the dangers of working with radioactive materials. She died before the new understanding of the atom — initiated by her discoveries — produced the atomic bomb. Whether looking at Marie within her historical context or through the lens of a new millennium, this is a life that challenges our assumptions about what one person can achieve and the responsibilities of science.


KAS is grateful to the University of Louisville Theatre Department for loaning props for this production.



ULSD: Careers in Dentistry and Research



Dentistry Degree
Dental Hygiene Degree
6 Dental Residency Programs
Graduate programs



UNIVERSITY OF LOUISVILLE
SCHOOL OF DENTISTRY



Oral Biology Graduate Program



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graph TD
    A[Oral Biology Graduate Program] --> B(MSOB)
    A --> C(DMD/PhD)
    A --> D(Summer Research)
    A --> E(DMD/MS)
    A --> F(PhD)
    A --> G(MS-Dentistry)
    
```

Louisville.edu/Dentistry

[Facebook/ULSDobio](https://www.facebook.com/ULSDobio)

Louisville.edu/Dentistry/degrees

SYMPOSIUM

Friday, Nov 4, 2016, 7:00-8:00pm
Kentucky Science Center, 4th floor Riverview Room

Introduction and Presiding
Dr. Darrin Smith, KAS President-Elect
Eastern Kentucky University

“Science and Suds”

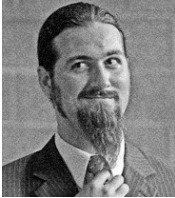
Speakers will share some of the secrets and challenges of beer-brewing, while we enjoy drafts of “Universal Solvent,” brewed for KAS by Against the Grain brewery.

Panelists will include:



Jerry Gnagy

(Owner, Master Brewer, Against the Grain)



Adam Watson

(Owner, CFO, Brewer, Against the Grain)



Scott Hand

(Master Brewer, Monnik Beer Co.)



Mark Phipps

(Technical Director, Alltech Lexington Brewing and Distilling Co.)



Gary Spedding

(Operating Owner, Brewing & Distilling Analytical Services)

JERRY GNAGY - Against the Grain

Hatched from a silicon-based stone on the planet Phaart in the faraway Jurquad Nebula, Jerry Gnagy made his way to our Earth in the wake of the Great Intergalactic Snot Rocket of '64. Like some sort of demented Kal-El, he was raised by aliens and discovered at an early age that he was not quite like the other kids. He has no super powers per se, but he is highly skilled in the use of profanity and solenoid valves, particularly in conjunction with one another.

He probably doesn't like you, but you shouldn't take that personally. His deep space travels ruined the part of Jerry's brain that lets him like people. If you happen to see him lurking about, just give him the traditional salutation of his people: "Byonr Srool!"

ADAM WATSON - Against the Grain

Adam (Watson) has always been here. You may not have seen him, but he was here. After watching the birth of the Universe, he decided to gain an education in theatre, mathematics, physics, and law. Uninterested in sticking with any of those as professions, he went back to his roots and learned magic. As a natural offshoot of the mystic arts, he learned beer, which is very interesting. If you find yourself feeling a little better every time you walk in to AtG, it is probably because of the protective spell being cast over the area. Don't worry, it's complimentary.

In his free time, Adam listens to epic fantasy metal and plays a variety of tabletop RPGs. He occasionally foments revolution, drank his first beer when the world was young, and may or may not be moderately skilled in the art of poi. He is also really good at NBA Jams.

MARK PHIPPS - Alltech Lexington Brewing & Distilling Co

Garry Spedding With a Ph.D in Biochemistry from England, and following on from postdoctoral positions in Canada and the US, Gary Spedding implemented the laboratory sections and then taught the Biochemistry curriculum in the Chemistry Dept. at Butler University in Indianapolis for 7 years. He then joined the Seibel Institute of Technology in Chicago (the oldest Brewing School in the US) in 1999 as Laboratory Director and then, following a shake-out in the industry, joined Alltech Inc., in KY in 2000 in a similar capacity and adding spirits testing to his experience. In 2002-3 he started the independent business: Brewing & Distilling Analytical Services, LLC (BDAS, LLC) in order to take better care of brewing and distilling clients and their analytical needs. Such services were growing scarce and increasingly unreliable at the time. The BDAS, LLC laboratory now offers full and unbiased analytical services (including a Sensory panel) to brewers, distillers and enologists. The business has grown to employ four scientists on a full time basis and has occasional interns on board and involved in various capacities including doing research. Spedding has judged at most of the GABF (annual) and World Beer Cup (biannual) events over the past 16 years and has written several papers, book chapters, and given lectures on many aspects of brewing and distilling science. He has taught at the American Brewers Guild in VT and, more recently, presented some guest lectures in Fermentation Sciences at Eastern Kentucky University.

GARRY SPEDDING - Brewing & Distilling Analytical Services

With a Ph.D in Biochemistry from England, and following on from postdoctoral positions in Canada and the US, Gary Spedding implemented the laboratory sections and then taught the Biochemistry curriculum in the Chemistry Dept. at Butler University in Indianapolis for 7 years. He then joined the Seibel Institute of Technology in Chicago (the oldest Brewing School in the US) in 1999 as Laboratory Director and then, following a shake-out in the industry, joined Alltech Inc., in KY in 2000 in a similar capacity and adding spirits testing to his experience. In 2002-3 he started the independent business: Brewing & Distilling Analytical Services, LLC (BDAS, LLC) in order to take better care of brewing and distilling clients and their analytical needs. Such services were growing scarce and increasingly unreliable at the time. The BDAS, LLC laboratory now offers full and unbiased analytical services (including a Sensory panel) to brewers, distillers and enologists. The business has grown to employ four scientists on a full time basis and has occasional interns on board and involved in various capacities including doing research. Spedding has judged at most of the GABF (annual) and World Beer Cup (biannual) events over the past 16 years and has written several papers, book chapters, and given lectures on many aspects of brewing and distilling science. He has taught at the American Brewers Guild in VT and, more recently, presented some guest lectures in Fermentation Sciences at Eastern Kentucky University.

SCOTT HAND - Monnik Beer Co.

Scott Hand started homebrewing in 1992 and eventually became president of the Lexington based Brewers of Central Kentucky homebrewing club.

Participating in the Beer Judge Certification Program, Scott is a BJCP-certified beer judge and has earned the rank of National.

Sensory trained by Dr. Gary Spedding, Scott spent several years doing sensory panel work for Brewing and Distilling Analytical Services (BDAS). He worked as a Brewer for Alltech from 2010 to 2015.

In 2015, Scott Hand became Head Brewer for Monnik Beer Co.

PROGRAM SUMMARY**FRIDAY, NOVEMBER 4**

8:00 am - 10:00 am	KAS Board meeting (open to all KAS members) <i>Life Science 133</i>
9:00 am - 4:00 pm	KBRIN NIH R15 Grant Writing Workshop <i>U of L Health Sciences Campus, Clinical Translational Research Building (CTR), Room 123</i>
9:00 am - 11:00 am	KY Organization of Field Stations meeting ... <i>Rauch Planetarium classroom</i>
10:00 am	Section Officers & judges meeting <i>Shumaker 139</i>
10:15 am	Registration open <i>Shumaker Lobby</i>
11:00 am	Poster Check In <i>Shumaker 139</i>
11:00 am -12:00 pm	Lunch on your own
11:45 am- 1:00 pm	Welcome and Keynote Presentation: A Visit with Marie Curie <i>Strickler 101</i>
1:00 pm - 3:00 pm	Kentucky Community & Technical College System (KCTCS) Meetings <i>Davidson 103</i> KCTCS Breakouts <i>Davidson 207 and 209B</i>

FRIDAY AFTERNOON - ORAL PRESENTATIONS

(Practice Rooms *Davidson 101 and Davidson 209A*

1:00 pm - 4:00 pm	Chemistry Analytical / Physical <i>Davidson Hall, Room 111</i>
1:00 pm - 4:15 pm	Engineering <i>Davidson Hall, Room 108</i>
1:00 pm - 4:00 pm	Geography <i>Davidson Hall, Room 107</i>
2:45 pm - 5:00 pm	Geology <i>Davidson Hall, Room 104</i>
1:00 pm - 4:00 pm	Mathematics <i>Davidson Hall, Room 109</i>
1:15 pm - 2:30 pm	Psychology <i>Davidson Hall, Room 110</i>
1:00 pm - 3:00 pm	KCTCS <i>Davidson Hall, Room 103</i>

FRIDAY AFTERNOON - POSTER SESSIONS

Shumaker 2nd & 3rd floors and Miller IT Center

1:00 pm - 2:00 pm	Agricultural Sciences <i>Bigelow Hall, Miller IT Center</i>
1:00 pm - 5:00pm	Cellular & Molecular Biology <i>Bigelow Hall, Miller IT Center</i>
1:00 pm - 5:00 pm	Ecology & Environmental Sciences <i>Bigelow Hall, Miller IT Center</i>
4:00 pm - 5:00 pm	Geography <i>Shumaker Research Building 2nd Floor</i>
1:00 pm - 2:00 pm	Geology <i>Shumaker Research Building 2nd Floor</i>
1:00 pm - 3:00 pm	Microbiology <i>Bigelow Hall, Miller IT Center</i>
3:00 pm - 4:00 pm	Physics & Astronomy <i>Shumaker Research Building 2nd Floor</i>
1:00 pm - 5:00 pm	Physiology & Biochemistry <i>Bigelow Hall, Miller IT Center</i>
2:30 pm	Afternoon Break <i>Shumaker and Davidson</i>

5:00 pm - 6:00 pm	KAS Committee Meetings Grants & Awards - <i>Davidson 101</i> Public engagement (<i>Richard Gelderman, Chair</i>). <i>Davidson 103</i> Science Education & Advocacy (<i>Kerrie McDaniel, chair</i>) <i>Davidson 104</i> Membership <i>Davidson 207</i> Internal Communications (<i>Doug Chatham, Chair</i>) <i>Davidson 107</i>
6:00 pm - 9:00 pm	Night at the Museum, Kentucky Science Center 727 W. Main St. Admission is included in your KAS meeting registration
7:00 pm – 8:00 pm	Symposium at the Kentucky Science Center “Science & Suds” featuring “Universal Solvent”, our own KAS Beer brewed by Against the Grain Brewery

SATURDAY, NOVEMBER 5

7:30 am	Registration opens <i>Shumaker 139</i>
8:00 am - 9:00 am	Coffee & bagels <i>Shumaker 139</i>
9:00 am - 4:00 pm	Exhibitors and Career fair <i>Shumaker Lobby</i>

SATURDAY MORNING - ORAL PRESENTATIONS

(Practice Rooms <i>Strickler 208 and 208A</i>
8:30 am - 12:00 pm	Agricultural Sciences <i>Davidson Hall, Room 111</i>
9:45 am - 11:30 am	Anthropology/Sociology <i>Strickler Hall, Room 209</i>
9:00 am - 10:30 am	Botany <i>Davidson Hall, Room 104</i>
8:00 am - 11:30 am	Cellular & Molecular Biology <i>Davidson Hall, Room 110</i>
9:00 am - 12:00 pm	Chemistry – Organic & Inorganic <i>Davidson Hall, Room 101</i>
8:00 am - 12:00 pm	Ecology & Environmental Science .. <i>Davidson Hall, Room 109</i>
9:00 am - 12:00 pm	Health Sciences <i>Davidson Hall, Room 103</i>
8:00 am - 11:30 am	Physics & Astronomy <i>Davidson Hall, Room 108</i>
9:00 am - 10:15 pm	Physiology & Biochemistry <i>Davidson Hall, Room 107</i>
10:45 am - 12:00 pm	Science Education <i>Strickler Hall, Room 102</i>
9:30 am - 5:00 pm	Geological Society of Kentucky field trip to Clifty Falls. Meet at Clifty Falls Parking Lot to consolidate vehicles. (details, page 17)

SATURDAY MORNING – POSTER SESSIONS

Shumaker 2nd & 3rd floors and Miller IT Center

11:00 am - 12:00 pm	Botany..... <i>Bigelow Hall, Miller IT Center</i>
11:00 am - 12:00 pm	Computer & Information Sciences <i>Shumaker Research Building 2nd Floor</i>
10:00 am - 11:00 am	Mathematics..... <i>Shumaker Research Building 2nd Floor</i>
10:00 am - 12:00 pm	Psychology <i>Bigelow Hall, Miller IT Center</i>
9:00 am - 10:00 pm	Science Education <i>Bigelow Hall, Miller IT Center</i>
9:00 am - 11:00 am	Zoology <i>Bigelow Hall, Miller IT Center</i>
10:30 am	Morning break <i>Shumaker and Davidson</i>

11:00 am - 1:00 pm	Rare Physics & Astronomy Books Showing, Kain Rare Books <i>Gallery, Lower Level, Ekstrom Library East Wing</i>
12:00 pm - 1:00 pm	Past Presidents' Lunch <i>University Club</i>
12:00 pm - 1:00 pm	Lunch on your own <i>If you ordered a box lunch, please pick it up at Shumaker Hall.</i>

SATURDAY AFTERNOON - ORAL PRESENTATIONS

1:00 pm - 4:45 pm	Agricultural Sciences <i>Davidson Hall , Room 111</i>
1:00 pm - 3:15 pm	Cellular & Molecular Biology <i>Davidson Hall, Room 110</i>
1:00 pm - 4:00 pm	Computer & Information Sciences <i>Davidson Hall, Room 101</i>
1:00 pm - 1:45 pm	Ecology & Environmental Science <i>Davidson Hall, Room 109</i>
1:00 pm - 4:15 pm	Microbiology <i>Davidson Hall, Room 107</i>
1:00 pm - 2:15 pm	Physics & Astronomy..... <i>Davidson Hall, Room 108</i>
1:00 pm - 3:45 pm	Science Education <i>Strickler Hall, Room 102</i>
1:00 pm - 2:15 pm	Zoology <i>Davidson Hall, Room 104</i>

SATURDAY AFTERNOON – POSTER SESSIONS

Shumaker 2nd & 3rd floors and Miller IT Center

1:00 pm - 2:00 pm	Anthropology/Sociology <i>Bigelow Hall, Miller IT Center</i>
1:00 pm - 2:00 pm	Chemistry Analytical & Physical <i>Shumaker Research Building 3rd Floor</i>
1:00 pm - 3:00 pm	Chemistry Organic & Inorganic <i>Shumaker Research Building 3rd Floor</i>
1:00 pm - 2:00 pm	Engineering <i>Shumaker Research Building 2nd Floor</i>
1:00 pm - 2:00 pm	Health Sciences <i>Bigelow Hall, Miller IT Center</i>
2:30 pm	Afternoon Break..... <i>Shumaker and Davidson</i>
3:00 pm	Poster Removal <i>Shumaker and Miller IT Center</i>
4:00 pm	KAS Annual Business Meeting <i>Davidson 109</i>
5:00 pm - 7:00 pm	Reception, Closing remarks and Awards..... <i>Miller IT Center</i>

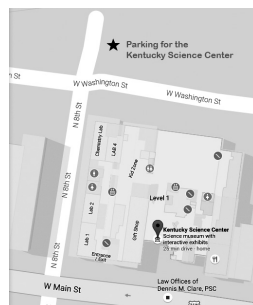


Night at the Museum

NIGHT AT THE MUSEUM - From 6-9pm

Enjoy our own reception & cash bar on the 4th floor of the Science Center, and enjoy three floors of exhibits at the Kentucky Science Center! This event is included in your KAS Annual Meeting registration.

Parking is available behind the Science Center at 8th & Washington Sts, or parking meters are free after 6pm.



Field Trips and Outings

First Friday Hop, 5-11 pm on Market, Main & Fourth Streets.

Free Trolley to popular galleries and restaurants, and destinations including the Kentucky Science Center and the Galt House. Map & details at <http://www.firstfridayhop.com/>

Ky Association of Physics Teachers Workshop – Saturday 2:45 pm

Do you teach a physics class at the high school or undergraduate level where you're expected to teach rotation? Does the idea of teaching rotational motion make you nervous? As teachers we all know how difficult it can be for students to learn rotational motion. The participants in this workshop will take on the role of physics students as the instructor leads the participants through a series of modeling activities/labs that can be used to teach rotational motion. This will be a hands-on workshop so come prepared to work in the lab, collect/analyze data, and engage in scientific argumentation with your peers. The participants will leave the workshop with activities/labs, student handouts, and instructional notes that they can immediately implement into their classrooms to enrich their **curriculum**. Also as part of the workshop there will be a make and take where the participants will construct a key piece of equipment needed to implement the activities/labs into their classroom.

Rare Physics and Astronomy Books at Ekstrom Library.

A special appointment is being arranged to view some of the William Marshall Bullitt Collection of scientific works (Details on page 18), which contains original copies of--

- On the Revolutions of Copernicus
- Dialogue Concerning the Two Chief Worlds Systems of Galileo
- Newton's Principia
- Newton's Optics
- Bernoulli's Hydrodynamics

Geological Society of Kentucky - (GSK) is holding a joint meeting this year with KAS. Participants can attend Geology presentations on Friday, and a field trip on Saturday at Clifty Falls State Park (Madison, IN).

Details: <http://www.uky.edu/OtherOrgs/GSK/> (Details on page 17)

Youth Science Summit - The Kentucky Science Center is holding this event across the river in Jeffersonville, IN for middle and high school students. Thanks go out to KAS members who are helping out as Speed Mentors or volunteers during the day! <http://kysciencecenter.org/youth-science-summit-clark-county-in/>

Continued

Gheens Planetarium, Adults \$8, Kids \$6.

Friday November 4:

8 PM: Black Holes: The Other Side of Infinity

9 PM: Laser Vinyl, laser music show

10 PM: Oasis in Space

11 PM: Laser U-2, laser music show

Saturday November 5:

1 PM: Perfect Little Planet (targets early- to mid-elementary schoolers)

2 PM: Laser iPop, laser music show

3 PM: Moles: What is Out There (targets pre-schoolers)

Legacy of Light - Nov 3, 4, 5 @ 7:30 pm, Sat Nov 5 @2pm. A luminous exploration of women scientists intertwined with the expanding definition of motherhood. Presented by Looking for Lilith Theatre Company. *The Henry Clay Theatre, 604 S 3rd St.* \$20 / \$15 - Students/Seniors. <http://lookingforlilith.org/2016-2017/legacyoflight/>

Speed Art Museum on campus is free on Sundays. On Friday & Saturday enjoy the \$8 group rate admission (instead of \$12) for the general museum, and \$6 member rate (instead of \$8) for the special exhibition *Out of the Box: The Rise of Sneaker Culture*. The discount will be for attendees and families. Show your badge to get the discount. Friday & Saturday 10-5.

Attention Presenters: Publish your research in the Journal of the Kentucky Academy of Science

Spring Issue

- Published typically in May/June
- Submit by March 1
- Decision by May 1

Fall Issue

- Published typically in November/December
- Submit by September 1
- Decision by November 1

The authors may submit at any time. Instructions how to prepare a manuscript for the Journal of the Kentucky Academy of Science and how to submit it can be found at <http://kyacademyofscience.net/publishing-in-the-journal/>

Geological Society of Kentucky Field Trip: Saturday, November 5, 2016, 9:30 a.m.

<http://www.uky.edu/OtherOrgs/GSK/>

(Eight Professional Development Hours awarded)

- 9:30 a.m.: Meet at the Clifty Falls State Park, Clifty Inn & the Falls Restaurant. We will consolidate vehicles and hand out guidebooks. (If you arrive late, look at attached map for the fossil collecting site or call Richard at 859-230-1670.)
- Morning: Upper Ordovician fossil collecting along U.S. 421 north of Madison, Indiana. Fossil ID on site. Bring collecting bags. (See map.)
- Drive back to Madison, Indiana, and have a deli-style lunch along the Ohio River at Riverfront Park. (Access to the bridge pedway is nearby.)
- After lunch, drive back for more fossil collecting.
- 3 p.m.: Leave for Clifty Falls State Park to view and discuss the geology of Clifty Falls.
- Drive and park at the Clifty Inn parking lot and head out to the patio to view and discuss the regional Pleistocene geology and the Lexington Peneplain.
- End of field trip; a room will be available if you want to freshen up before the banquet in the Hoffman Room.
- A block of rooms is reserved at the Clifty Inn if you do not want to drive back after the banquet. Room rate, 2 queen beds, non-smoking: \$134.99; call 877-563-4371 and give code 1105GS.
- Camping available at Clifty Falls State Park, Madison, Indiana. GSK evening banquet and business meeting in the Hoffman Room
- Buffet items might be prime rib, chicken, soup, assorted vegetables, desserts, and fountain drinks** (typical state park fare).
- **Cash bar only after buffet: wine, beer, and soft drinks.
- Guest speaker will be Dr. Bill Haneberg (Bill), new director and state geologist of the 13th Kentucky Geological Survey.

Rare Mathematics and Astronomy Books

The William Marshall Bullitt Collection of Rare Mathematics and Astronomy includes over three hundred volumes by sixty mathematicians and astronomers including Gauss, Kepler, Galileo, and Descartes. The collection, given after Mr. Bullitt's death by his wife Nora Iasigi Bullitt, has been part of the University of Louisville's rare books collection since 1957.

To help welcome KAPT/KAS to campus, University of Louisville's Archives and Special Collections will exhibit a selection of books from the collection from 11 am to 1 pm Saturday Nov 5 in the Kain Rare Books Gallery, Lower Level, Ekstrom Library East Wing.

Among works on display will be first edition of Copernicus' *De Revolutionibus* (1543) and the exceptionally rare first statement of the Copernican system, *Narratio Prima* (1540). Other choice volumes will include the first edition of Newton's *Philosophiæ naturalis principia mathematica* (1687) and his *Opticks* (1704) as well as Galileo's *Dialogo...* (1632) and autographed offprints of Albert Einstein's journal articles.

Professors Christopher Grancy (Physics, KCTCS) and Delinda Buie (Rare Books, U of L) will be on hand to discuss the books.

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**OK, you've presented
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The *Kentucky Journal of Undergraduate Scholarship* (KJUS) is an online journal that will publish original research and creative works by undergraduate students currently enrolled at post-secondary educational institutions in Kentucky.

The topics vary by discipline, and will be categorized into one of several domains, including Life Sciences, Engineering, Social Sciences, Humanities, Creative Writing, Performance Arts, and MORE!

**Please visit the website at
<http://encompass.eku.edu/kjus/>**

**For more information and questions, please contact the Executive Editor, Dr. Jonathan Gore
(Jonathan.Gore@eku.edu)**

ORAL PRESENTATIONS

AGRICULTURAL SCIENCES

Thomas Kingery, Chair
Western Kentucky University

Jean Gumirakiza, Secretary
Western Kentucky University

SATURDAY, NOVEMBER 5, 2016
DAVIDSON 111

- 8:30 am **Comparison of two commercial lures for spotted wing *Drosophila*, *Drosophila suzukii*, in blackberries.**¹ Sathya Govindasamy, Karen L. Friley, Kirk W. Pomper, John D. Sedlacek, E. Kyle Slusher, Mamata Bashyal, Jeremiah D. Lowe, Sheri B. Crabtree - Kentucky State University
- 8:45 am **The dietary arginine requirement of Largemouth bass (*Micropterus salmoides*).**¹ Maya Jackson, Brittany M. Woodward, Waldemar Rossi, Vikas Kumar - Kentucky State University
- 9:00 am **Increasing the sustainability of large mouth bass aquaculture.**¹ Jarod Jones, Richard R. Hulefeld, Waldemar Rossi, James H. Tidwell, Vikas Kumar - Kentucky State University
- 9:15 am **Evaluation Of Ultra-Violet Sterilization To Reduce Potential Human Pathogens In Aquaponic Systems.**¹ George J. Pate, Janelle V. Hager, Fred Gonzales, Shawn D. Coyle, Leigh Anne Bright, James H. Tidwell - Kentucky State University
- 9:30 am **Effects of varying levels of brewer's grains and amino acid supplementation on growth performance of Nile tilapia (*Oreochromis niloticus*).**¹ Zackary Perry, Shawn Coyle, Waldemar Rossi, Eugene Blair, Vikas Kumar, James Tidwell - Kentucky State University
- 9:45 am **Development of a feed with improved soybean meal for commercial production of Pacific white shrimp (*Litopenaeus vannamei*).**² Rick Hulefeld, Vikas Kumar, Waldemar Rossi, James H. Tidwell - Kentucky State University
- 10:00 am **Economics of a small-scale, low-investment hydroponics system for limited-resource farmers.**² Donald Jackson, Siddhartha Dasgupta, Richard C. Bryant, Dakota Raab - Kentucky State University
- 10:15 am **Optimizing Hemp Production through Cultivar Selection and Soil Management Practices.**² Rose Johnson, Kirk W. Pomper, George Antonius - Kentucky State University, Steven Borst, Chelsea Jacobson - Alltech Crop Science, Jeremiah Lowe, Sheri Crabtree, Shawn Lucas - Kentucky State University
- 10:30 am **Break**

- 10:45 am **Fruit Set with Self and Cross Pollination in two Pawpaw varieties ‘Sunflower’ and ‘Susquehanna’ in Kentucky.**² Srijana Thapa Magar, Kirk W. Pomper, Jeremiah D. Lowe, Sheri B. Crabtree - Kentucky State University
- 11:00 am **Economic Feasibility of Australian Red Claw Crayfish (*Cherax quadricarinatus*) for Soft-Shell Production.**² Dakota Raab, Siddhartha Dasgupta, Richard Bryant, Richard Hulefeld - Kentucky State University
- 11:15 am **Identification and quantification of parasitic Hymenoptera in native perennial and pasture border rows in central Kentucky.**² E. Kyle Slusher, John D. Sedlacek, Karen L. Friley, Mamata Bashyal - Kentucky State University
- 11:30 am **Section Meeting and Election of officers**
- 12:00 pm **Break for Lunch**
- 1:00 pm **A comparison of biofloc, clear-water, and hybrid aquaculture systems for intensive shrimp (*Litopenaeus vannamei*) nursery production.**² Thomas W. Tierney, Andrew J. Ray - Kentucky State University
- 1:15 pm **Yield Performance of Prime-Ark 45 and Black Magic, Two Thorny Primocane-fruited Blackberry Selections from the University of Arkansas.**² Jacob R. Vincent, Kirk W. Pomper, Jeremiah D. Lowe, Sheri B. Crabtree - Kentucky State University, John Clark - University of Arkansas
- 1:30 pm **Evaluation of Black Soldier Fly *Hermetia illucens* larvae as a fish meal replacement in practical diets for largemouth bass *Micropterus salmoides*.**²Chelsea Walling, Vikas Kumar, Waldemar Rossi, Leigh Anne Bright, James Tidwell - Kentucky State University
- 1:45 pm **Optimizing the dietary lysine requirement in Largemouth bass, *Micropterus salmoides*.**² Brittany M. Woodward, Waldemar Rossi, Vikas Kumar - Kentucky State University
- 2:00 pm **Examination of the honey consumption among Hungarian consumers on the basis of the Shepherd model.** Agnes Urbanne Treutz - Murray State University, Zsafia Treutz - Szent Istvan University, Hungary
- 2:15 pm **Do Soil Amendments Enhance Glucosinolates in Arugula and Mustard Leaves?** George Antonious - Kentucky State University
- 2:30 pm **Break**
- 2:45 pm **Assessing Chilling Conditions by Sites and Years for Perennial Fruit Production in Kentucky.** Dr. Elmer Gray, Sai Pavan Adigarla, Sravani V. R. Seeti, Xiao Xue - Western Kentucky University

- 3:00 pm **Perception Towards Beef Industry and Willingness to Pay for Beef Products among Millennials in Kentucky.** Dominique Gumirakiza, S. Green - Western Kentucky University
- 3:15 pm **A comparison analysis of farm financial positions between farmers who use the guidelines and those who do not.** Mary Catherine Kamer, Dominique Gumirakiza - Western Kentucky University
- 3:30 pm **Socioeconomic, physiological aspects of food choices, and community strategies to increase access to fresh produce.** Mary Catherine Kamer, Dominique Gumirakiza - Western Kentucky University
- 3:45 pm **Effects of biofertilization on industrial hemp biomass and grain yield.** Shawn T. Lucas, George Antonious - Kentucky State University, Steven Borst, Chelsea Jacobson - Alltech Crop Science, Jeremiah Lowe, Sheri Crabtree, Rose Johnson, Kirk W. Pomper - Kentucky State University
- 4:00 pm **Integration of aquaculture and water reuse at a water resource recovery facility in London, KY.** Ken Semmens - Kentucky State University
- 4:15 pm **Impact of Soil Amendments on Yield of Field-Grown Tomato.** Eric T. Turley, George F. Antonious - Kentucky State University

ANTHROPOLOGY AND SOCIOLOGY

Benjamin Freed, Chair
Eastern Kentucky University

SATURDAY, NOVEMBER 5, 2016
STRICKLER 209

- 9:45 am **To care or not to care? Paternal and alloparental care in free-ranging male Coquerel's sifaka (*Propithecus coquereli*).**¹ Lindsey M. Meador - Northern Kentucky University
- 10:00 am **Male Bias in Chimpanzee Research Systematically Underestimates Female Sociality.** Monica L. Wakefield, Lindsey M. Meador - Northern Kentucky University, Alexana J. Hickmott - University of Oregon, Kyleb D. Wild - University of California San Diego, Sylvia J. Amsler - University of Arkansas at Little Rock
- 10:15 am **Variation in Crowned Lemur Social Structure in a Northern Malagasy Gallery Forest.** Benjamin Z. Freed, Katherine O. Arthur -
- 10:30 am **Break**
- 10:45 am **Past and Present Use of Plants in Fijian Culture: An Ethnoarchaeological Approach.** Kendra Hein, Sharyn Jones - Northern Kentucky University

- 11:00 am **Lack of knowledge about Asian Carp among Kentucky consumers.** Changzheng Wang, Kentucky State University
- 11:15 am **Environmental changes and human adaptations at the Pleistocene–Holocene transition (15,000–10,000 years ago) in the Turkana Basin, East Africa.** Amanuel Beyin - University of Louisville
- 11:30 am **Section Meeting & Election of officers**

BOTANY

Benjamin Adams, Chair
University of Louisville

Brad Ruhfel, Secretary
Eastern Kentucky University

SATURDAY, NOVEMBER 5, 2016

DAVIDSON 104

- 9:00 am **Fine-scale monitoring of the federally endangered running buffalo clover (*Trifolium stoloniferum* Muhl. ex A. Eaton, Fabaceae) in restoration populations in Madison County, Kentucky.**¹ Faith Goff, Claire Kelley, Jennifer Koslow - Eastern Kentucky University
- 9:15 am **Vascular flora inventory of the Eagle Lake watershed, Morehead, KY.**¹ Breanna Knicely, Allen C. Risk - Morehead State University
- 9:30 am **Seed Dormancy in *Calycanthus floridus* (Carolina allspice): Does Time of Dispersal Affect Dormancy Break and Germination?**¹ Aaron Morgan, Sean Nilan, Christopher Adams - Berea College
- 9:45 am **Seed Germination Ecology of the Rare Yellow Gentian (*Gentiana flavida*) in Madison County, Kentucky: A Population in Peril?**¹ Sean Nilan, Aaron Morgan, Christopher Adams - Berea College
- 10:00 am **Plastid phylogenomics of the aquatic angiosperm family Podostemaceae.** Brad R. Ruhfel - Eastern Kentucky University, Claudia P. Bove - Museu Nacional, Universidade Federal do Rio de Janeiro, C. Thomas Philbrick - Western Connecticut State University
- 10:15 am **Digitizing Collections Information at the John W. Thieret Herbarium: The Process, the Progress, and the Educational Opportunities.** Whitson, Maggie - Northern Kentucky University
- 10:30 am **Section Meeting & Election of Officers**

CELLULAR AND MOLECULAR BIOLOGY

Robert Wyatt, Chair
Western Kentucky University

Emily Shifley, Secretary
Northern Kentucky University

SATURDAY, NOVEMBER 5, 2016
DAVIDSON 110

- 8:00 am **Finding a Link Between Circadian Rhythms and the Immune System of Captive Zebra Finches(*Taeniopygia guttata*).**¹ Amber Bishop Amber Bishop - Western Kentucky University
- 8:15 am **The role of KDM1A in Ovarian Cancer.**¹ Jodi DeJohn - Georgetown College, Asghar Ali, Gerrit Bouma - Colorado State University
- 8:30 am **Effect of Transportation Stress on Whole Blood Gene Expression of Cytokines in Horses.**¹ Mary T. Eastham - Asbury University, Amanda A. Adams - University of Kentucky, Bobby R. Baldrige - Asbury University
- 8:45 am **Examining the Potential Oncogenic Function of Septins and their Interaction with Chmp1A Tumor Suppressor in Pancreatic Cancer Cells.**¹ Valerie Eversole - University of Pikeville, Zachariah Slattery - Kentucky College of Osteopathic Medicine, Danielle Upton - University of Pikeville, Maiyon Park - Kentucky College of Osteopathic Medicine
- 9:00 am **Cell Proliferation in Subtypes of Gastric Cancers as a Prognostic Indicator of Patient Survival.**¹ Molly Frydl, Michelle Robillard, Mariah Dooley, Denise Lucas, James A. Deddens, Larry Douglass, Julia H. Carter - Wood Hudson Cancer Research Laboratory
- 9:15 am **PAM-1 and autophagy pathways intersect to regulate gametogenesis in *Caenorhabditis elegans*.**¹ Ashley Munie, Andrew Cude, Chris Trzepakz, PhD - Murray State University
- 9:30 am **Altering expression of JAK/STAT pathway components in air sac primordia of *Drosophila melanogaster*.**¹ Nathan Powers, Ajay Srivastava - Western Kentucky University
- 9:45 am **Characterization of a Novel Delivery System of Cyclic Dinucleotides for Efficient Innate Immune Activation.**¹ Seth Reasoner - Berea College, Daniel Shae, John Wilson, Manuel Ascano - Vanderbilt University School of Medicine
- 10:00 am **Cell Proliferation in Bladder Cancers Arising in Smokers vs. Non-smokers.**¹ Michelle Robillard, Molly Frydl, Mariah Dooley, Denise Lucas, James A. Deddens, Larry E. Douglass, Julia H. Carter - Wood Hudson Cancer Research Laboratory

- 10:15 am **Investigation of the Effects of Nicotine on Urinary Bladder Cancer Cell Lines.**¹ Taylor Schnebelt, Kyle Damen, Maria Rechlin, Avery Henderson, Laura Felix, Julia H. Carter, Bonnie L. Richmond - Wood Hudson Cancer Research Laboratory
- 10:30 am **Break**
- 10:45 am **The role of TAp63 in epidermal wound healing.**¹ Zachary Setters - Berea College, Taylor Wallace, Dennis Roop - University of Colorado Denver Anschutz Medical Campus
- 11:00 am **The FGF pathway is important for proper neural crest cell migration into the *Xenopus* pharynx.**¹ Terri VanDyke - Northern Kentucky University
- 11:15 am **The Expression of PD-L1 in the Hair Follicle.**¹ Jacquie Zimmerman - Berea College, Dr. Bradley Kubick, Dr. Dennis Roop - University of Denver Anschutz Medical Campus
- Lunch Break
- 1:00 pm **Retinoic Acid signaling acts in developing salivary gland epithelial cells to negatively regulate *Krt5*.**² Timur Abashev, Melissa Metzler, Lisa Sandell - University of Louisville
- 1:15 pm **Identifying unique small secreted proteins in divergent species of the fungal pathogen complex *Microbotryum violaceum*.**² William Beckerson - University of Louisville
- 1:30 pm **Identification of Fermentation Microbial Bio-Contaminants By Molecular Beacons.**² Maddison Couch, Christian Paumi, Jamie Fredericks - Eastern Kentucky University
- 1:45 pm **Posttranslational modification by SUMOylation may both directly and indirectly regulate Glis3-mediated insulin gene expression.**² Tyler Hoard - Murray State University
- 2:00 pm **Characterizing host target proteins for a biotrophic fungal plant pathogen.**² Swathi Kuppireddy - University of Louisville
- 2:15 pm **Pt-Mal-LHRH, a newly synthesized compound attenuating breast cancer tumor growth and metastasis by targeting overexpression of the LHRH receptor.**² Joseph Rollins, Lindsay Calderon, Margaret Ndinguri - Eastern Kentucky University
- 2:30 pm **Break**
- 2:45 pm **Examining the role of PTEN gene of *Ustilago maydis* in pathogenicity and spore germination.**² Lalu Vijayakrishnapillai - University of Louisville
- 3:00 pm **Transcriptional Regulation by the High Affinity Ammonium Transporter, *Ump2*, in *Ustilago maydis*.**² Margaret Wallen, Jinny Paul, Madison Furnish, Kirsten Richardson, Allison Dentinger, Michael Perlin - University of Louisville

- 3:15 pm **Mapping of *ppal* suppressor mutant rescuing sugar sensitivity in Arabidopsis.** Parul Singh, Mark P. Running - University of Louisville
- 3:30 pm **Section Meeting and Election of Officers**

CHEMISTRY: ANALYTICAL / PHYSICAL

Matthew Nee, Chair
Western Kentucky University

FRIDAY, NOVEMBER 4, 2016

DAVIDSON 111

- 1:00 pm **Effect of pH on the Oxidative Stability of Fish Oil-in-water Emulsions Stabilized by Whey Protein-Xanthan-Locust Bean Complexes.**¹ Kristen Griffin, Mara Krempel, Hanna Khouryieh, Kevin Williams - Western Kentucky University
- 1:15 pm **Temperature and electric field dependence of asymmetric stretching of nitrate ion.**¹ Konnor Jones, Matthew Nee - Western Kentucky University
- 1:30 pm **Encapsulation of Nanoparticles during Polymer Micelle Formation: A Dissipative Particle Dynamics Study.**¹ Kyaw Hpone Myint - Berea College, Barbara Wyslouzil - The Ohio State University, Lisa Hall - The Ohio State University
- 1:45 pm **Electrochemical Fabrication Of Two Terminal Nanoscale Resistive Switches.**¹ Andrew Schlereth, Radhika Dasari - Eastern Kentucky University
- 2:00 pm **Kinetic Discrimination of Lipophilic Ions: Improvements on the Chemical and Physical Selectivity Enhancement of Asymmetric Cellulose Triacetate based Chloride Ion-Selective Electrodes.**¹ Simon Segal, Kebede Gemene - Northern Kentucky University
- 2:15 pm **Aqueous soft-stabilized gold nanoparticle clusters for *in-situ* reaction monitoring.**¹ Franklyn Wallace, Matthew Nee - Western Kentucky University
- 2:30 pm **Break**
- 2:45 pm **The Detection of Tetracycline Antibiotics in Agricultural Wastes Using Liquid Chromatography and Mass Spectrometry.**² Ali J. Abdulrheem, Eric Conte - Western Kentucky University, John Loughrin - United States Department of Agriculture
- 3:00 pm **Latent Fingerprint Enhancement on a Brass Metal Surface using Paint Electrodeposition.**² Reika Haskell, Dr. David Cunningham - Eastern Kentucky University

- 3:15 pm **Ultrafast Transient Absorption Spectroscopy Investigation of Photoinduced Dynamics in Donor-Acceptor Core-shell Nanostructures for Organic Photovoltaics.**² Jacob Strain - University of Louisville, Thulitha M. Abeywickrama, Hemali Rathnayake - Western Kentucky University, Jinjun Liu - University of Louisville
- 3:30 pm **Environmental Obesogens: An Emerging Concern.** Bommanna Loganathan - Murray State University
- 3:45 pm **Sewage Epidemiology - Opportunities and Challenges.** Bikram Subedi - Murray State University, Kurunthachalam Kannan - Wadsworth Center, New York State Department of Health, and Department of Environmental Health Sciences, School of Public Health, State University of New York at Albany, NY
- 4:00 pm **Section Meeting and Election of Officers**

CHEMISTRY: ORGANIC / INORGANIC

Judy Jenkins, Chair
Eastern Kentucky University

KC Russell, Secretary
Northern Kentucky University

SATURDAY, NOVEMBER 5, 2016

DAVIDSON 101

- 9:00 am **The synthesis of analogues of a naturally occurring diarylheptanoid.**¹ Maxwell S Boyle - Northern Kentucky University
- 9:15 am **s-Triazine containing Heterocalixarenes Synthesis.** ¹ Jason Loxterkamp - Northern Kentucky University
- 9:30 am **Palladium catalyzed direct heteroarylation of ketones: substrate scope investigation and unusual product discovery.**¹ Quynh Nguyen, Stefana Costan Andrew Quillen, Lili Ma - Northern Kentucky University
- 9:45 am **Synthesis and Characterization of Novel Tridentate- N-benzyl-2-(bis (2-aminomethyl) amino) acetamide Chelate for the [Re (CO) 3] + Core.**² Boniface Osei Amankona, Carrie A. Black, Margaret W. Ndinguri - Eastern Kentucky University
- 10:00 am **Platinum-NGR a peptide targeting conjugate of cisplatin: Drug design and synthesis for attenuation of breast cancer.**² Amber Crutcher, Margaret Ndinguri - Eastern Kentucky University
- 10:15 am **Homogeneous Ligand-Centered Electrocatalytic H₂ Evolution and Oxidation: Exploiting Redox Non-Innocence to Drive Catalysis.**² Andrew Z. Haddad, Brady D. Garabato, Pawel M. Kozlowski, Mark S. Mashuta, Robert M. Buchanan, Craig A. Grapperhaus - University of Louisville

- 10:30 am Break
- 10:45 am **Copper catalysed aerobic oxidation of benzylic alcohols in an imidazole containing N_4 ligand framework.**² Rahul Jain, Tony J. Gibson, Mark S. Mashuta, Robert M. Buchanan, Craig A. Grapperhaus - University of Louisville
- 11:00 am **Kinetic and Catalytic Studies of Oxidations by an Electron-Deficient Manganese(V)-Oxo Corrole.**² Haleh Jeddi, Rui Zhang - Western Kentucky University
- 11:15 am **Producing High-Valent Metal-Oxo Porphyrin by Visible Light Photolysis of Porphyrin Iron(III) Bromates and Bis-Porphyrin-Dimanganese(III)- μ -Oxo Complexes.**² Ka Wai Kwong, Rui Zhang - Western Kentucky University
- 11:30 am **Environmentally Friendly Synthesis Method for FeNi₃-PVP Hybrid Nanoparticles.**² Aubrey N. Penn, Thulitha M. Abeywickrama, Ananthakrishnan S. Jeevarathinam, Hemali P. Rathnayake - Western Kentucky University
- 11:45 am **Translation of Ligand-Centered HER Activity and Mechanism of a Rhenium-Thiolate from Solution to Modified Electrodes: A Combined Experimental and DFT Study.** Wuyu Zhang, Andrew Z. Haddad, Brady D. Garabato, Pawel M. Kozlowski, Robert M. Buchanan, Craig A. Grapperhaus - University of Louisville
- 2:30 pm **The Section Meeting** for Chemistry: Organic / Inorganic is scheduled for 2:30pm in Shumaker 229

COMPUTER AND INFORMATION SCIENCES

Jerzy Jaromczyk, Chair
University of Kentucky

Muzaffar Ali, Secretary
Bellarmine University

SATURDAY, NOVEMBER 5, 2016

DAVIDSON HALL 101

- 1:00 pm **Cardio-Pulmonary Resuscitation (CPR) Scene Retrieval from Medical Simulation Videos.**² Anju Panicker Madhusoodhanan Sathik - University of Louisville
- 1:15 pm **Design of a 2D Game Engine in C++**¹ Tyler Paulley - Bellarmine University
- 1:30 pm **The Development and Analysis of a Botnet.**¹ Devin Rataiczak - Bellarmine University
- 1:45 pm **Analysis of Penetration Testing from a Kali Linux Environment**¹ Aaron Andries - Bellarmine University

- 2:00 pm **Performance Studies of Parallel Computations Using Beowulf Clusters with Different CPU Speed, Linux OS, and MPI Middleware.**¹ Jorden Matty, Mark Pilcher, Zachary Eckert, Christopher Steitz, Dr. Akhtar Mahmood - Bellarmine University
- 2:45 pm **Computer Science Development of Ground Station Software for the CXBN-2 satellite.**² Seth Pritchett, Daniel Kineman, Daniel Kamrath, Dylan Wilson, Marc Beck - Murray State University
- 3:00 pm **Sensing Semantics.**¹ Jacob Pawlak, Ryan Shah - University of Kentucky
- 3:15 pm **Real-Time Server Overloaded Monitoring Algorithm.**² Jongouk Choi - Kentucky State University
- 3:30 pm **Using AGI to Create a Recursively Self- Improving Program.**¹ Jesse Myers - Bellarmine University
- 3:45 pm **How to scroll in a matrix with million of cells to view bioinformatics data.**¹ Nathaniel Serpico - University of Kentucky, Bailey Phan - University of Kentucky
- 4:00 pm **Section Meeting & Election of Officers**

ECOLOGY AND ENVIRONMENTAL SCIENCE

Ben Brammell, Chair
Asbury University

Maheteme Gebremedhin, Secretary
Kentucky State University

SATURDAY, NOVEMBER 5, 2016

DAVIDSON 109

- 8:00 am **Adhesive performance of tropical canopy ants varies with substrate temperature.**¹ Katie Arstingstall, Alyssa Stark, Steve Yanoviak - University of Louisville
- 8:15 am **Swimming Mechanisms of Temperate Forest Ants (*Camponotus pennsylvanicus* and *Formica subsericea*).**¹ Noah D. Gripshover, Evan M. Gora, Stephen P. Yanoviak - University of Louisville
- 8:30 am **Ant tarsal adhesion varies with leaf trichome density.**¹ Keegan C. Thompson, Alyssa Y. Stark, Stephen P. Yanoviak - University of Louisville
- 8:45 am **Change in temporal activity of tricolored, *Perimyotis subflavus*, and evening bat, *Nycticeius humeralis*, species before and after white-nose syndrome in Land Between the Lakes.**¹ Christina Walker, Macy Kailing, Terry Derting - Murray State University
- 9:00 am **Trees as islands: arboreal ants and connectivity in the canopy.**² Benjamin Adams, Stephen Yanoviak - University of Louisville

- 9:15 am **The effects of substrate pH on growth and survival of recently metamorphosed marbled salamanders (*Ambystoma opacum*).**² Kenneth J. Anderson, Jarrett R. Johnson - Western Kentucky University
- 9:30 am **Effects of Size and Size Structure on Top-Down Control by an Omnivore.**² Donald J. Benkendorf , Howard H. Whiteman - Murray State University
- 9:45 am **Effectiveness of Boat Electrofishing Settings Within a Large Mesotrophic Reservoir.**² Bradley Hartman, Timothy Spier - Murray State University
- 10:00 am **Abiotic Factors Contribute To Functional Diversity of Soil Bacteria In Dunes of Lake Michigan.**² Andrea Howes, Sarah Emery, Matthew Reid - University of Louisville
- 10:15 am **Intraspecific Differences in *Panicum virgatum* Association with Arbuscular Mycorrhizal Fungi.**² Erin Kinnetz , Sarah Emery - University of Louisville
- 10:30 am **Break**
- 10:45 am **Evaluation of Potential Pathogenic Bacteria in Spices from Local Stores in Kentucky.**² Anitha Kisanga, Avinash M. Tope, Shreya Patel - Kentucky State University
- 11:00 am **Plant community responses to the removal of invasive shrub honeysuckle (*Lonicera maackii*) in an urban woodland differ by stratum and duration of shrub occupancy**² Elihu H. Levine, Dr. Margaret M. Carreiro - University of Louisville
- 11:15 am **Assessment of Invasive Species in Forest Areas.**² Oguz Sariyildiz, Jeremy Sandifer, Buddhi Gyawali - Kentucky State University
- 11:30 am **Chemical characterization of odor plumes around nests of the tropical ant *Azteca trigona*.**² Rachel Wells, Christopher Frost, Stephen P. Yanoviak - University of Louisville
- 12:00 pm **Break for Lunch**
- 1:00 pm **Righting behavior of the sea urchin *Lytechinus variegatus* in the field: the importance of size, substrate type and covering material.** Challener, Roberta - Bellarmine University, McClintock, James - University of Alabama at Birmingham
- 1:15 pm **Comparison of wetland assessment scores to indicators of disturbance in Kentucky as part of an intensification of EPA's National Wetland Condition Assessment.** Elizabeth M Malloy, David R. Brown, Stephen C. Richter - Eastern Kentucky University, Barbara J. Scott - KY Division of Water
- 1:30 pm **Steps to minimize fungicide (and pesticide) exposure to honey bee colonies.** Jay A. Yoder , Blake W. Nelson, Andre L. Lorenz - Wittenberg University
- 1:45 pm **Section Meeting and Election of Officers**

ENGINEERING

Aaron Daley, Chair
Brown & Kubican, PSC

FRIDAY, NOVEMBER 4, 2016
DAVIDSON HALL 108

- 1:00 pm **Nonlinear Ultrasonic Measurements Based On Contact Pulse Through Methods and Cross-Correlation Filtering Techniques.** Andrew Yee, Dylan Stewart, Gheorghe Bunget - Murray State University
- 1:15 pm **Sustained Release of Dasatanib as Ocular Therapeutic Agent for Prevention of Proliferative Vitreoretinopathy.**² Rayeanne Balgemann, Rajat Chauhan, Hidetaka Noma, Kevin McDonald, Henry J Kaplan, Tamiya Shigeo, Martin O'Toole - University of Louisville
- 1:30 pm **Algorithmic Classification Based on Astronaut Sensorimotor Performance Before and After Spaceflight.**² Robert Stallard, Karla Conn Welch - University of Louisville
- 1:45 pm **Queue Stability Analysis in Network Coded Wireless Multicast.**² Nadieh Moghadam, Hongxiang Li - University of Louisville
- 2:00 pm **Attitude determination system testing and qualification for morehead state university's cosmic x-ray nanosatellite.**¹ Polina Zhirkina , Jose Garcis, Yevgeniy Beloborodov, Kevin Brown - Morehead State University
- 2:15 pm **Smart Brief Monitoring System for Assisted Living.**² Mohammad Mohebbi , Florian Luairé, Douglas Jackson, John Naber - University of Louisville
- 2:30 pm **Break**
- 2:45 pm **Delta Robot Applications for Training.**¹ Michael Tyler Edlin, Jorge Ortega Moody, Adolfo Enrique Cano Samudio, Kaleb Toller - Morehead State University
- 3:00 pm **Applications of Industrial Robots in The Classroom.**¹ Kaleb Toller, Jorge Ortega-Moody, Adolfo Enrique Samudio Cano, Michael Tyler Edlin - Morehead State University
- 3:15 pm **Virtual Scenarios for training in automation.**¹ Adolfo Enrique Samudio Cano, Jorge Alberto Ortega Moody, Michael Tyler Edlin, Kaleb Toller - Morehead State University
- 3:30 pm **Wavelet Analysis - A new significance for Detection of Fatigue Damage Precursors based on Nonlinear Ultrasonics.** Gheorghe Bunget , Dylan Stewart, Andrew Yee - Murray State University

- 3:45 pm **CAD in Industry.**¹ Patric Bracco, Ni Wang - Eastern Kentucky University
- 4:00 pm **New Approach of Wavelet Analysis for Nonlinear Ultrasonic Measurements and Fatigue Assessment of Jet Engine Components.**¹ Dylan Stewart , Andrew Yee, Gheorghe Bunget - Murray State University
- 4:15 pm **Section Meeting and Election of Officer**

GEOGRAPHY

John Metz, Chair
Northern Kentucky University

Demetrio Zourarakis, Secretary
Kentucky Division of Geographic
Information

FRIDAY, NOVEMBER 4, 2016

DAVIDSON HALL 107

- 1:00 pm **Hmong People Finding a Sense of Place in a Multicultural Landscape.**¹ Colleen Wooten - University of Louisville
- 1:15 pm **Distribution and Clustering of Sustainable Agriculture Practices in Kentucky.**² Bijesh Mishra, Buddhi Gyawali - Kentucky State University
- 1:30 pm **Using the Land You Have To Be A Successful Small Farmer.**² Cynthia Rice, Buddhi Gyawali, Jeremy Sandifer - Kentucky State University
- 1:45 pm **Synoptic Conditions and Equivalent Temperature Variations in Kentucky.**² Dolly Na-Yemeh, Rezaul Mahmood - Western Kentucky University
- 2:00 pm **Vegetation Mapping of Mammoth Cave National Park using Multi-date Landsat-8 Imagery and Lidar data.**² Hongli Yang, Robin Q. Zhang - Murray State University
- 2:15 pm **Potential for Groundwater Contamination Due to Oil Well Drilling in the Marcum Mill Karst Groundwater Basin, Metcalfe County, KY.** Garrett Seay - University of Louisville
- 2:30 pm **Break**
- 2:45 pm **The climate and energy budget of an urban forest, Iroquois Park, Louisville, Kentucky.** Keith R. Mountain - University of Louisville
- 3:00 pm **Thirty Years of Change at an Upper Elevation Village of West-Central Nepal.** John Metz - Northern Kentucky University
- 3:15 pm **Cross-Evaluating Tree Canopy Closure, Land Cover and LiDAR in a Kentucky Urban Area.** Demetrio P. Zourarakis - Kentucky Division of Geographic Information

- 3:30 pm **Modeling Climate Change Impacts on the Water Balance of the Red River Basin, Kentucky.** C. Andrew Day - University of Louisville
- 3:45 pm **Characterizing Population Change and Its Impacts on Land Cover Change in Louisville, Kentucky Since 1990.** Trung Tran - Northern Kentucky University
- 4:00 **Section Meeting and Election of Officers**

GEOLOGY

Ann Harris, Chair
University of Kentucky

David Dockstader, Secretary
Kentucky Community and Technical
College System

FRIDAY, NOVEMBER 4, 2016 DAVIDSON 104

- 2:45 pm **Limiting nutrient contaminants from agricultural non-point sources: Nutrient monitoring at ECU's Meadowbrook Farm, Madison County, Kentucky.** Walter S. Borowski, Jonathan M. Malzone - Eastern Kentucky University
- 3:00 pm **Dissolved phosphate concentrations in surface water and groundwater at ECU's Meadowbrook Farm, Madison County, Kentucky.**¹ Hunter R. Evans, Reid E. Buskirk, Walter S. Borowski, Jonathan M. Malzone - Eastern Kentucky University
- 3:15 pm **Dissolved nitrogen (nitrate and ammonium) in surface and groundwater at ECU Meadowbrook Farm, Madison County, Kentucky.**¹ Reid E. Buskirk, Hunter R. Evans, Walter S. Borowski, Jonathan M. Malzone - Eastern Kentucky University
- 3:30 pm **Watershed Analysis of Meadowbrook Farm: Implications for Nutrient Transport.**¹ Laura Kelley, Hunter Evans, Reid Buskirk, Jonathan Malzone, Walter Borowski - Eastern Kentucky University
- 3:45 pm **Comparing constructed versus natural wetlands in Daniel Boone National Forest with digital terrain analysis.**¹ Lee Minzenberger, Ethan Sweet - Eastern Kentucky University, Jonathan Malzone -
- 4:00 pm **Quantifying the Hydrologic Processes and Physical Parameters of Ridge-top Wetlands in The Daniel Boone National Forest.**¹ Addison Bell, Jonathan Malzone - Eastern Kentucky University
- 4:15 pm **Understanding Aquifer Depletion Dynamics Relative to Conservation and Restoration of Natural Ridge Top Wetlands.**¹ Ethan Sweet, Lee Minzenberger, Addison Bell, Jonathan Malzone - Eastern Kentucky University
- 4:30 pm **Geology of the Eastern Kentucky for non-Geologist.** Tilak Shrestha - Kentucky State University, Dr. Buddhi Gyawali - , Dr. Bishwa Acharya - , Mr. Jeremy Sandifer - Kentucky State University

- 4:45 pm **Acids that Efficiently Dissolve, Etch and React with Limestones.** Patrick J. Gooding - Kentucky Geological Survey, University of Kentucky, Malcolm X. Gooding - Morton Middle School
- 5:00 pm **Section Meeting and Election of Officers**

HEALTH SCIENCES

Joseph Mester, Chair
Northern Kentucky University

Bruce Branan, Secretary
Asbury University

SATURDAY, NOVEMBER 5, 2016
DAVIDSON 103

- 9:00 am **Analysis of neuromasts in *pkd2* mutant zebrafish.**¹ Hanna Abe - Berea College, Dr. Caroline Sussman - Mayo Clinic
- 9:15 am **Attempting to improve the health of Kentucky citizens through educating the youth with integrating school work and health content.**¹ LaShay Byrd - University of Kentucky
- 9:30 am **Effect of Toll-like Receptor Expression on the Immune Response of Human Macrophages.**¹ Rachael Cicci, Joseph Mester - Northern Kentucky University
- 9:45 am **Evaluation of Drug-Resistant Enterobacteriaceae on Produce from Small Farms in KY.**¹ Kenyatta Davis, Shreya Patel, Avinash Tope - Kentucky State University
- 10:00 am **The effects of extreme diets on developmental, survival and physiology using the fruit fly as a model.**¹ Jenni Ho, LaShay Byrd, Angel Ho, Suraj Rama - University of Kentucky, Gaaya Veeraragavan - St. George Medical College, Robin L. Cooper - University of Kentucky
- 10:15 am **Cellular Immune Activation Induced by Novel Vaccines for Hepatitis C Virus.**¹ Hailey Shanahan - Northern Kentucky University
- 10:30 am **Break**
- 10:45 am **Differential Dose Effects from Chronic Taurine Exposure in Adolescent C57BL/6J Mice**¹ Jamie Weimer, Lisa Massie, Yislain Villalona, Cecile Marczinski, Christine Perdan Curran - Northern Kentucky University
- 11:00 am **Untargeted polar metabolomics reveals differences in palmitoleic acid between transformed MDA-MB-231 breast cancer cells expressing varying levels of human arylamine N-acetyltransferase 1.**² Samantha M Carlisle, Patrick J Trainor, Xinmin Yin, Mark A Doll, Marcus W Stepp, J Christopher States, Xiang Zhang, David W Hein - University of Louisville

- 11:15 am **Methylation Status of the AGTR1/AT1 (Angiotensin II Receptor Type 1) Gene and Hypertension in East Africans.**² Jesse E. Nugent, Christopher McDaniel, Nancy A. Rice - Western Kentucky University
- 11:30 am **Dynamic changes in topologically related plasma metabolites following atherothrombotic and non-atherothrombotic myocardial infarction report metabolic consequences: A weighted network analysis.**² Patrick J. Trainor, Bradford G. Hill, Eric C. Rouchka, Samantha M. Carlisle, Shesh N. Rai, Aruni Bhatnagar, Andrew P. DeFilippis - University of Louisville
- 11:45 am **Section Meeting and Election of Officers**

MATHEMATICS

R. Douglas Chatham, Chair
Morehead State University

Andy Martin, Secretary
Kentucky State University

FRIDAY, NOVEMBER 4, 2016
DAVIDSON 109

- 1:00 pm **Density-Dependent Leslie Matrix Modeling For Logistic Populations With Steady-State Distribution Control.**¹ Andrew Davis, Dr. Bruce Kessler - Western Kentucky University
- 1:15 pm **Cluster Analysis of North American Locations Based on Plant Species.**¹ Sally Dufek, Parker Kain - Northern Kentucky University
- 1:30 pm **Mathematical Farm Management.**¹ Zackary Kiser - Morehead State University
- 1:45 pm **Inverse Preferential Attachment on Random Graphs.**¹ Kristen Knight - Morehead State University
- 2:00 pm **Warm-Ups and Bell-ringers.**¹ Derek McKenzie - Morehead State University
- 2:15 pm **Linear Programming in a Real Life Scenario.**¹ Paul Simon Jr. - Kentucky State University
- 2:30 pm **Break**
- 2:45 pm **Constrained Domination in Graphs.** Jeffrey Taylor - Morehead State University
- 3:00 pm **Partial differential equation model of the graphene edge epitaxial growth on copper.** Mikhail Khenner - Western Kentucky University
- 3:15 pm **The Traveling Salesman Problem.** Ibukun Amusan - Kentucky State University
- 3:30 pm **The Phi-bonacci Sequence.** Andy Martin - Kentucky State University
- 3:45 pm **On the placement of dragons.** Doug Chatham - Morehead State University
- 4:00 pm **Section Meeting and Election of Officers**

MICROBIOLOGY

Lingyu Huang, Chair
Kentucky State University

John Carmen, Secretary
Northern Kentucky University

SATURDAY, NOVEMBER 5, 2016

DAVIDSON HALL 107

- 1:00 pm ***Campylobacter jejuni* Risk Assessment of Waterfowl Impacted Recreational Beaches.**¹ Rhiannon Cecil - Kentucky State University, Dr. Gail Brion, Tricia Coakley - University of Kentucky
- 1:15 pm **Analysis of antibiotic resistance genes in clinical isolates of Group B *Streptococci*.**¹ Earl Hollon, Marcia M Pierce - Eastern Kentucky University
- 1:30 pm **Characterization of Centromeric Nucleotide Sequence from *Saccharomyces cerevisiae* strains.**¹ Collin Johnson, Erin D. Strome - Northern Kentucky University
- 1:45 pm **Growth requirements for incidence of chalkbrood in the honey bee.**¹ Andre L. Lorenz, Blake W. Nelson, Jay A. Yoder - Wittenberg University
- 2:00 pm **Bacterial Growth on Contact Lenses: Links Between Lens Care and Bacterial Formation Patterns.**¹ Keith C Prive - Northern Kentucky University
- 2:15 pm **Effects of probiotics *Pedococcus*, *Bacillus subtilis* and *Lactobacillus acidiphilus* on food safety indicators in aquaponic systems.**² Fred Gonzales, Janelle V. Hager, George J. Pate, Zackary W. Perry, James H. Tidwell - Kentucky State University
- 2:30 pm **Break**
- 2:45 pm **Knockout of the untranslated region of the *prfA* gene in order to down regulate the effects of the Cis- and Trans-acting riboswitches.**² Robert Jackson - KAS, Marcia M Pierce - Eastern Kentucky University
- 3:00 pm **Characterization of the Accessory Fimbrial Proteins of the *P. gingivalis* Mfa1 Fimbriae.**² Jae Y. Lee, Richard J. Lamont - University of Louisville
- 3:15 pm **The effects of spatial isolation and phylogenetic distance on pyocin inhibition in *Pseudomonas Aeruginosa*.**² Aubrey Mojesky, Jeff Bara - University of Louisville, Susi Remold - University of Louisville
- 3:30 pm **Effects of ethanol on *Porphyromonas gingivalis* in planktonic and biofilm monocultures.**² Nicholas A. Short, Richard J. Lamont, Paul W. Ewald - University of Louisville

- 3:45 pm **Genetic Analysis of antimicrobial resistance of pathogens responsible for bovine mastitis in Kentucky dairy farms.** Ryan Donkin, Erica Phillips - Unknown, Marcia M Pierce - Eastern Kentucky University
- 4:00 pm **Potential use of transglutaminase in restructuring deboned Asian carp meat.** Lingyu Huang, Cecil Butler, Changzheng Wang - Kentucky State University
- 4:15 pm **Section meeting and Election of Officers**

PHYSICS AND ASTRONOMY

Jon Gaffney, Chair
Eastern Kentucky University

Marilyn Akins, Secretary
Kentucky Community and Technical
College System

SATURDAY, NOVEMBER 5, 2016

DAVIDSON HALL 108

- 8:00 am **Polyoxometalates as Electroactive Molecular Spacers Anchored to Reduced Graphene Oxide for Enhanced Electrochemical Energy Storage.**¹ Bryce Aberg, Dr. Sanju Gupta - Western Kentucky University
- 8:15 am **The measurement of the radioactivity in outcrops of Ohio and Sunbury shale in Rowan County, KY.**¹ Joshua Allen, Ignacio Birriel - Morehead State University
- 8:30 am **Phase Segregation of Cadmium in Palladium-Gallium Alloys.**¹ Nathan Mark Dasenbrock-Gammon, Matthew O. Zacate - Northern Kentucky University
- 8:45 am **Study of Exoplanet Data from the Kepler Telescope.**¹ Stephen Denny, Russell Sexton, Akhtar Mahmood - Bellarmine University
- 9:00 am **Measurement of Night Sky Brightness: RGB Data for Selected Sites in Kentucky.**¹ Brittany Sexton - Morehead State University
- 9:15 am **Modeling Bacteria Swimming of Helical Flagella Near a Boundary.**¹ Isaac Vock - Centre College
- 9:30 am **Electrodeposition and electrochemical properties of graphene-cobalt oxide polymorph hybrids as pseudocapacitive electrodes.**² Sara Botero Carrizosa, Dr. Sanju Gupta - Western Kentucky University
- 9:45 am **Effect of Carbon Nanomaterials Embedded in a Cementitious Matrix.**² Clarissa A. Roe, Brittany Broder, Jason Wilson, Edward Kintzel, Keith Andrew - Western Kentucky University
- 10:00 am **Effect of Carbon Nanomaterials Embedded in a Cementitious Matrix.**² Clarissa A. Roe, Brittany Broder, Jason Wilson, Edward Kintzel, Keith Andrew - Western Kentucky University

- 10:15 am **Things Are Not As They “Seam.”** Ignacio Birriel, Tyler Keele - Morehead State University
- 10:30 am **Break**
- 10:45 am **“When Brightness Does not Fall off as $1/R^2$: Lambert’s Cosine Law with Model Train Lights”** Samuel Flatt, Dr. Jennifer Birriel, Dr. Ignacio Birriel - Morehead State University
- 11:00 am **Science Outreach Matchmaking: making sure experts are in the dark on 21 August 2017.** Richard Gelderman - Western Kentucky University
- 11:15 pm **Laser Pointer Excitation of Highlighter Inks: A Qualitative Spectroscopic Analysis.** Damon King, Jennifer Birriel - Morehead State University
- 11:30 **Break for Rare Books and Lunch**
- 1:00 pm **RX J2317-4422: A Narrow Line Seyfert 1 Galaxy in a Deep X-ray Flux State.** Dirk Grupe - Morehead State University
- 1:15 pm **2017 Solar Eclipse Classroom Lessons and Activities.** Kenny Lee - Warren Central High School
- 1:30 pm **Polarizability, perturbation theory and Podolsky’s other paper.** Ed Montgomery - Centre College
- 1:45 pm **XMM-Newton and Suzaku Observations of the Galactic Supernova Remnant Kesteven 69 (G21.8-0.6).** Thomas Pannuti - Morehead State University
- 2:00 pm **SiMPLE PHYSiCS.** Garrison Turner - Kentucky Community and Technical College System
- 2:15 pm **Section meeting and Election of Officers**

PHYSIOLOGY AND BIOCHEMISTRY

Patrick Mineo
Berea College

Michael Smith, Secretary
Western Kentucky University

SATURDAY, NOVEMBER 5, 2016

DAVIDSON 107

- 9:00 am **Stretch activated channels in proprioceptive organs of crab and crayfish are sensitive to gadolinium but not amiloride, ruthenium red or low pH.** ¹ Viresh Dayaram , Cole Malloy, Robin Cooper - University of Kentucky

- 9:15 am **Identifying anti-cancer and otoprotective synergisms between cisplatin and two novel curcuminoids.**¹ Denis Hodzic, Dave Monroe, Michael E. Smith - Western Kentucky University
- 9:30 am **Development of a highly efficient nicotine-metabolizing enzyme through computational design.**¹ Young Hwan Kim - Asbury University, Chang-Guo Zhan - University of Kentucky, Bruce Branan - Asbury University
- 9:45 am **Developing selective inhibitors of USP7 deubiquitinating enzyme.**¹ Tatiana Mikhailova - Berea College, Ilaria Lamberto, Xiaoxi Liu, Sara Buhrlage - Dana-Farber Cancer Institute, Harvard Medical School
- 10:00 am **Sodium and potassium levels in a hypertensive population of East Africans.**² Aiste Dobrovolskaite, Nancy A. Rice - Western Kentucky University
- 10:15 am **Section Meeting and Election of Officers**

PSYCHOLOGY

Mykol Hamilton, Chair
Centre College

Richard Osbaldiston, Secretary
Eastern Kentucky University

FRIDAY, NOVEMBER 4, 2016

DAVIDSON HALL 110

- 1:15 pm **Calculating the Cost of Control: Locus of Control and Learning Abstract Math in the Face of Stereotype Threat.**¹ Tiffany M. Estep, Wendy R. Williams - Berea College
- 1:30 pm **Decreased opioid activity during development alters reproductive behavior during adulthood.**¹ Megan Sherwood, Shawn Dripchak, Kaylyn Berg, Melissa Burns-Cusato, PhD - Centre College
- 1:45 pm **Efficacy of Neurofeedback Brain Games to Improve Visual Attention rn.**¹ Brett Vitkum, Emily Kidwell, Emmely Ovalle, Lola Fakunle, Amanda Iocono, KatieAnn Skogsberg - Centre College
- 2:00 pm **Which Widget Would You Want? The Effects of Complexity, Consciousness, and Expertise on Decision Making.**¹ Valerie Zehr, Wendy R. Williams - Berea College
- 2:15 pm **The Effect of Animal-Assisted Therapies on Mental Disorders: A Systematic Review.**² Melissa Napier, Kara Harrison, Richard Osbaldiston - Eastern Kentucky University

The Section Meeting for Psychology is scheduled for Saturday at 12:30 pm in Shumaker 229

SCIENCE EDUCATION

Shen Liu, Chair
Kentucky Community and Technical
College System

Karen Hlinka, Secretary
Kentucky Community and Technical
College System

SATURDAY, NOVEMBER 5, 2016

STRICKLER HALL 102

- 10:45 am **Course-based undergraduate research experience (CURE) with on line interactions for a neurobiology class in Iraq and in the USA: Alterations in synaptic transmission.**¹ Tori n. Hickey- University Of Kentucky, Zana R. Majeed - Dept Of Biology, Univ. of Salahaddin, Erbil, Iraq, Esther E. Dupont-Versteegden, Robin L. Cooper - University of Kentucky
- 11:00 am **Comparing Programmed Cell Death in Cultured Primary and Tumor Cells for Inquiry-based Learning Exercises.**¹ Alexandria Szalanczy, Shannon Murray, Spencer Overstreet, Amanda Vokoun, Stephen Asmus - Centre College
- 11:15 am **Helping Students Succeed in Anatomy and Physiology I: A Three-Year Study of a Peer Assisted Learning Program.**¹ Casey Tetidrick, Aubrey Melton, Chioma Amaechi, Willie Gosnell, Yunpeng Xia, Sarah Blank - Berea College
- 11:30 am **Experiential Education in Biology Lab 104.**² Melissa Michael, Linda Fuselier -University of Louisville
- 11:45 am **Perception of Science-Technology-Society (STS) topics among Uruguayan college students: Implications for high school curricular reform.** Wilson Gonzalez-Espada - Morehead State University, Rosina Perez, Marcos Sarasola - Catholic University of Uruguay
- 12:00 pm **Break for Lunch**
- 1:00 pm **Richard Saunders and the Very Strange Year.** Andy Martin - Kentucky State University
- 1:15 pm **An approach for teaching critical evaluation of data and inferences from student research projects.** Bill Staddon - Eastern Kentucky University
- 1:30 pm **Place-based Learning through Project-based Instruction: Teachers' Work in Progress.** Rebecca McNall Krall, Justin LeVaughn - University of Kentucky
- 1:45 pm **Validation of a mathematics diagnostic test to identify academically at-risk freshmen enrolled in a Uruguayan private university.** Wilson Gonzalez-Espada - Morehead State University, Eduardo Lacues, Gabriela Otheguy, Magdalena Pagano, Rosina Perez, Alejandra Pollio, Marcos Sarasola - Catholic University of Uruguay

- 2:00 pm **Building Cognitive Bridges in the STEM Classroom: An Action Research Project.** Karen Hlinka - Kentucky Community and Technical College System
- 2:15 pm **Experiences with course-based undergraduate research experience (CURE) to address authentic research questions for a neurophysiology laboratory class.** Robin L. Cooper, Viresh Dayaram, Cole Malloy, Rebecca McNall Krall - University of Kentucky
- 2:30 pm **Break**
- 2:45 pm **A Flipped Classroom Experience: Approach and Lessons Learned.** Shen Liu - Kentucky Community and Technical College System
- 3:00 pm **Your Microbial Neighbors: A Microbiology Curriculum Supplement for Middle and High School Students.** Shira Rabin, Jeffrey Bara, Susanna Remold - University of Louisville
- 3:15 pm **Implementation of a Project-Based Learning Approach in Uruguay's Middle Schools. Preliminary Findings.** Wilson Gonzalez-Espada - Morehead State University, Rosina Perez, Marcos Sarasola - Catholic University of Uruguay
- 3:30 pm **PECAAN, a Phage Evidence Collection And Annotation Network and it's use in the curriculum.** Claire Rinehart, Bobby Gaffney - , JL Wood, JR Smith - Western Kentucky University
- 3:45 pm **Section Meeting and Selection of Officers**

ZOOLOGY

David Eisenhour, Chair
Morehead State University

Roy Scudder-Davis, Secretary
Berea College

SATURDAY, NOVEMBER 5, 2016

DAVIDSON HALL 104

- 1:00 pm **Examination of species richness and diversity of mosquitoes on the campus of Berea College.**¹ Jillian Kendall, Robin Hauschner - Berea College, Kenneth Blank - Eastern Kentucky University, Sarah Blank - Berea College
- 1:15 pm **The influence of breeding experience on incubation constancy and duration in Carolina chickadees.**¹ Shelby Nemeč, Lindsey Walters - Northern Kentucky University
- 1:30 pm **Microscopic examination of potential mechanosensory structures for vibration detection in chameleons.**¹ Sanida Palavra, Michael E. Smith - Western Kentucky University

- 1:45 pm Human elephant conflict (HEC) in the Kasigau Wildlife Corridor, Kenya: A comparison of the efficacy of mitigation techniques. ² Von Hagen, RL, Schulte, BA - Western Kentucky University, Githiru, M - Wildlife Works, Mutwiwa, U - Jomo Kenyatta University, Kasaine, S - Wildlife Works, Amakobe, B - Wildlife Works
- 2:00 pm **Occupancy Modeling of Blackside Dace (*Chrosomus cumberlandensis*) and Cumberland Arrow Darters (*Etheostoma sagitta*) using conductivity as a covariate.** ² Brandon L. Yates., David J. Eisenhour - Morehead State University, Michael Compton - Kentucky State Nature Preserves Commission
- 2:15 pm **Section Meeting & Election of Officers**

POSTER PRESENTATIONS

Posters can be set up on Friday morning beginning at 11:00. Please check in at the Poster check in desk in Shumaker Research Building. Each presenter will be provided with a poster board and clips, and each poster board will be identified with a number that matches the presenter's poster number. There will be individuals available to help guide you to your place.

The posters should remain up for the duration of the meeting. Students who enter the Undergraduate Research Competition must be at their posters at their scheduled time Friday or Saturday to be judged.

Underlined authors are presenting.

AGRICULTURAL SCIENCES

Bigelow Hall, Miller IT Center
Poster Judging: Friday 1:00-2:00

Poster #	Title, Authors, Affiliations
1.	Exploring Recycled Waste in Tomato Production. ¹ <u>Lusekelo Nkuwi</u> , Eric Turley, George Antonious - Kentucky State University
2.	At-Risk Populations Due to Ammonia Pollution from Concentrated Animal Feeding Operations in Western Kentucky. <u>Austin Wardall</u> , Dr. Jun Yan, Dr. Rezaul Mahmood - Western Kentucky University
3.	Managing pests in stored wheat: Do organic methods work? ¹ <u>Helina Asrat</u> , Sean Clark - Berea College
4.	Effect of hive type on cell size and varroa mites, <i>Varroa destructor</i> (Anderson and Trueman), in honey bee (<i>Apis mellifera</i>L.) colonies. ¹ <u>Kassandra H. Carter</u> , Sean Clark - Berea College
5.	DNA content of Australian <i>Dendrocoryne Dendrobium</i> species and hybrids. <u>Hideka Kobayashi</u> - Kentucky State University
6.	Effects of Natural and Agricultural Land Management Practices on Soil Quality Indicators. ¹ <u>Mary Derting</u> , Iin Handayani, Alyx Shultz - Murray State University

7. **What consumers want: comparing fruit and vegetable preferences of farmers' market and non-farmers' market patrons in Kentucky.**¹
Alyxandria Chaivre, Siddhartha Dasgupta, Richard C. Bryant - Kentucky State University
8. **Polyculture of Pacific white shrimp, *Litopenaeus vannamei*, and juvenile tilapia, *Oreochromis niloticus*, in indoor biofloc aquaculture systems.** Nathan Kring, Andrew Ray - Kentucky State University
9. **Yield and Space Utilization of a Grafted Tomato and Potato Plant.**¹
Mary Anne Fox, Martin Stone - Western Kentucky University
10. **The Fourth International Pawpaw Conference: Kentucky State University Research and Outreach Event.** Sheri B. Crabtree, Kirk W. Pomper, Jeremiah D. Lowe, Blair Hess - Kentucky State University
11. **Alternative Approach to Maximize Largemouth Bass Production by early Nutritional Programming.** Amit Kumar Yadav, Waldemar Rossi, Vikas Kumar - Kentucky State University
12. **Yield Characteristics of Floricane Fruiting Blackberries from the University of Arkansas Blackberry Breeding Program.** Jeremiah D. Lowe, Kirk W. Pomper, Sheri B. Crabtree - Kentucky State University, John R Clark - University of Arkansas, John G. Strang - University of Kentucky
13. **Consumer Preference of Ornamental Sunflowers Grown in Kentucky as Cut Flowers.**¹ Megan Gearhart - Kentucky State University
14. **Efficacy of Mycorrhizae Fungi in Perennial Plants.** James Biddle, Martin Stone - Western Kentucky University, Jennifer Skornicka - Michigan State
15. **Locating Injured fish under UV light.** James Brown - Kentucky State University

ANTHROPOLOGY AND SOCIOLOGY

Bigelow Hall, Miller IT Center
Judging: Saturday 1:00-2:00

16. **An exploration of prehistoric Fijian ceramics on Vanua Levu, Fiji: Nukubalavu.** Ian Takaoka, Sharyn Jones - Northern Kentucky University
17. **The Successes and Limitations of a Microfinance Program in a Fijian Village: An Ethnographic Case Study.**¹ Eleanor Kremer, Sharyn Jones - Northern Kentucky University
18. **Harmony & Harvest at the 1839 Parker Academy.**¹ Sage Boyers, Liza Vance - Northern Kentucky University

19. **Mapping and 3D Modeling of Excavations Using UAVs.** Madison Cissell, Mitchell Grothaus, Timothy Hare - Morehead State University
20. **Mapping and 3D Modeling of a Terminal Postclassic Site in the Northern Yucatán.** Zebulon Hart, Rebekah Vermillion, Timothy Hare - Morehead State University
21. **Relationship between hot pepper consumption and other eating habits.** Changzheng Wang, Lingyu Huang, Cecil Butler - Kentucky State University
22. **Evaluation of the Berea Summer Food Service Program.**¹ Kyree Hobson, Simeon Huff - Berea College

BOTANY

Bigelow Hall, Miller IT Center
Judging: Saturday 11:00-12:00

23. **Identification of Lichens - A Comparison Between Old and New Techniques.**¹ Austin Adam, Dr. David Robinson - Bellarmine University
24. **On High Alert: Differential Fitness Costs Upon Continuous Exposure to the Priming Stimulus *Cis-3-Hexenal Acetate*.** Grace E Freundlich - University of Louisville, Chris J Frost - Faculty
25. **Expression analysis of metabolic and senescence genes in *Rosa hybrid* infected with Rose Rosette Virus.**¹ Preye Agbana, Millicent Akere, Allyson Bowlds, Brent Crawford, Tori Fugate, Brittany Mason, Jennifer Minton, Yasmani Ochoa, Deborah Ogulu, Hallie Popham, Jacob Adler - Brescia University

CELLULAR AND MOLECULAR BIOLOGY

Bigelow Hall, Miller IT Center
Judging: Friday 1:00-5:00

26. **Pharmacological identification of cholinergic receptor subtypes in modulation of *Drosophila melanogaster* sensory-motor circuitry.** Cole Malloy, Aya Omar, Eashwar Somasundaram, Robin L Cooper - University of Kentucky
27. **Activity-dependent modulation of somatosensory processing in *Drosophila melanogaster*: behavior, development, and sensory-motor circuit physiology.**¹ Eashwar Somasundaram, Aya Omar, Cole Malloy, Robin Cooper - University of Kentucky
28. **Generating Transgenic Zebrafish to Model human Retinitis Pigmentosa.** Allyson B. Bowlds - Brescia University, Dr. Hannah E. Henson, Dr. Ann C. Morris - University of Kentucky

¹Undergraduate Research Competition

29. **The SERF gene modulates SMA severity and SMN protein abundance in a *D. melanogaster* disease model.** Trevor Stantliff - Bellarmine University, Heather Feese - Kentucky Biomedical Research Infrastructure Network, Swagata Ghosh, Douglas Harrison, Brian C. Rymond - University of Kentucky
30. **Neurotoxicity of Zika Virus Protein C is Mediated by Nucleolar Stress.** Austin Parker - Kent State University, Dr. Lukasz Slomnicki, Dr. Donghoon Chung, Dr. Michal Hetman - University of Louisville
31. **Activity of Small Molecule Endoplasmic Reticulum Proteostasis Regulators.**¹ Jonah Rector - Berea College, Ryan Paxman, Lars Plate - The Scripps Research Institute
32. **JAK/Stat Signalling Affects Polar Cell Extension and the Micropyle Channel.** Michelle Giedt, Matthew Pitts - University of Kentucky, William Renzenbrink - Northern Kentucky University
33. **Expression of Discoidin Domain Receptor 2 in Human Embryonic Kidney Cells.**¹ Amber Follin - Berea College, Corina Borza, Ambra Pozzi - Vanderbilt University
34. **Parathyroid Hormone Regulation of Apical Membrane Expression of the Type II Sodium-Phosphate Cotransporter (NPT2a).** Morgan Uebelacker - Kentucky Wesleyan College, Andy Sims, Adrienne Bushau, Caryl Conklin, Kenneth Gagnon - University of Louisville, Amanda Sherwood - Post doc, Eleanor Lederer - PI
35. **Differential Regulation of Long non-coding RNAs in Gingival Epithelial Cells by *Porphyromonas gingivalis*.** Zackary Fitzsimonds, Maryta Sztukowska, Melissa Metzler, Douglas Darling, Eric Rouchka, Ted Kalbfleisch, Richard J. Lamont - University of Louisville
36. **Using optogenetics to assess neural influence on heart rate in *Drosophila melanogaster* larvae.**¹ Angela Mikos - Georgetown College, Cole Malloy, Aya Samadi, Christina Hermanns, Robin L. Cooper - University of Kentucky, Jacob Sifers - Alice Lloyd College
37. **Teratogen Toxicity in Organotypic Culture Models.**¹ Aaron Effoe - Berea College, Peter Alexander, Rocky Tuan
38. **Investigation of Genome Instability Due to Mutations in the SAM1, SAM2, and Checkpoint Genes in *Saccharomyces cerevisiae*.** Nichole Rachford, Tyler Stevens - Northern Kentucky University
39. **Multiple signaling pathways involved in patterning the *Xenopus* pharynx.**¹ Sarah Kunkler, Emily Shifley - Northern Kentucky University

40. **Investigation of Genome Instability Due to Mutations in the SAM1, SAM2, and Checkpoint Genes in *Saccharomyces cerevisiae*.**¹ Tyler Stevens, Nichole Rachford - Northern Kentucky University
41. **Intraepithelial cells in an NOD IL10^{-/-} ABo DQ8 mouse model of celiac disease.**¹ Hsuan Peng - Berea College, Eric Marietta, Shahryar Khaleghi-Rostamkolaei, Joseph Murray - Mayo Clinic
42. **Testing For Gene Mutation Impact on Loss Of Heterozygosity In A Yeast System.**¹ Kellyn Hoffert, Elizabeth Cheyenne Hensley, Erin Strome PhD - Northern Kentucky University
43. **Investigating abnormalities in eye morphogenesis resulting from Lhx5 loss of function.** Nikil Ravishankar - Western Kentucky University
44. **Pt-Mal-LHRH mediates breast cancer cell cytotoxicity through increased apoptosis.**¹ Kendall Collins, Lindsay Calderon, Margaret Ndinguri, Joseph Rollins - Eastern Kentucky University
45. **Functional assays of lampey germline-specific genes using human homologs in a zebrafish T-ALL model.** Jacob Drescher- Bellarmine University, Dr. Jeremiah Smith, Cody Saraceno - University of Kentucky
46. **Investigation of Arylamine N-Acetyltransferase 1 Knockout in MDA-MB-231 Cell Lines via Anoikis and Invasion Assays.**¹ Madison M. Furnish, Marcus W. Stepp, Mark A. Doll, Maggie Y. Chang, David W. Hein - University of Louisville
47. **Identifying Novel Genetic Regulators of Temporal Development in *Caenorhabditis elegans*.**¹ Parker Upchurch, Chris Trzepacz - Murray State University
48. **Development of therapeutics for sleep apnea targeting Kir2.4 potassium channels.**¹ Meghan E. Kramer - Berea College, Eric E. Figueroa, Sujay V. Kharade, Jerod S. Denton - Vanderbilt University Medical Center
49. **Effect of Ziram and methylmercury on ubiquitin activating enzyme E1 and microtubules in human neurons and mouse neuro2A cells.** Monica Moran, Iyana Gray, Kathleen Dennis, William Valentine, Aaron Bowman, Diana Neely - Vanderbilt University
50. **Isolation and identification of suppressors of the slow growth phenotype of *trm734* deletion strains in fission yeast.**¹ Jennifer Brooks, Michael P. Guy - Northern Kentucky University
51. **Mutations in *pam-1* contribute to neurodegeneration in touch neurons of *Caenorhabditis elegans*.**¹ Brittani Hawkins, Chris Trzepacz - Murray State University

52. **Analysis of Cathepsin-L in Hemocyte Development and Wound Healing.** Enes Atici, Dr. Ajay Srivastava - Western Kentucky University
53. **Survey of Mycobacteriophages in Louisville Kentucky.**¹ Kelly Coburn - Spalding University
54. **The use of budding and fission yeast to study the roles of eukaryotic tRNA modifications.** Maggie E Thomas, Thomas Vornheder, Shelby Russell, Kathleen McElheney, Michael P. Guy - Northern Kentucky University
55. **Circulating Plasma MicroRNAs in Colorectal Neoplasia: A New Role in Assessing Response to Therapy.**¹ Jane Carter, Kayla Feagins, Uri Netz, Vanessa States, M. Robert Eichenberger, Susan Galandiuk - University of Louisville
56. **Identifying essential viral genes through genomic engineering.** Olivia Urso, Amber Carroll, Rodney King - Western Kentucky University
57. **Pathogen-Specific DNA Detection Using Engineered DNA-Binding Proteins.**¹ Shaumik Alam, Dr. Moon-Soo Kim - Western Kentucky University, Audrey Brown - University of Virginia, Dr. Minsub Chung - Hongik University in Seoul, Korea
58. **Survey of Microbacteriophages in Louisville Kentucky.** Alyssa Logan - Spalding University, Kelly Coburn, Keith Miller, Zia Murphy

CHEMISTRY: ANALYTICAL / PHYSICAL

Shumaker Research Building 3rd Floor

Judging: Saturday 1:00-2:00

59. **Kinetic Modeling of the Atmospheric Oxidation Pathways of Dimethyl Disulfide and Dimethyl Sulfide.** Jesus Berlanga, Matthew J. Nee - Western Kentucky University
60. **Ion mobility spectrometry as a technique for screening pesticides.**¹ Ana Gabriela Mira, Lauren Moskowicz, Leonard Demoranville - Centre College
61. **Quantifying Diffusion of a Model Analyte Set via Capillary Electrophoresis.**¹ Corbin Arrasmith, Ariel Porter, Cassidy Brown, Charlisa Daniels - Northern Kentucky University, Rodrigo Pozo - Universidad de San Francisco
62. **Investigating the Role of Magnesium Stearate in Tablet Formulations.** Job K. Limo - Berea College

CHEMISTRY: ORGANIC / INORGANIC**Shumaker Research Building 3rd Floor****Judging: Saturday 1:00-3:00**

63. **Drug-DNA interaction studies of acridones.** Kuntebommanahalli N. Thimmiah*, T. Padma, Mark Montgomery, James L. Sylvester, Ashish Pagare, Paul Grisham, P. Adris, Ray Cox, M. S. Veeranna, Darrell Barnes, Sarah Mattox Holt,- Northwest Mississippi Community College, DeSoto Center, Southaven Campus, Mississippi and Mayur C. Yergeri, NWMSCC and Department of Pharmaceutical Chemistry, SVKM's Dr. Bhanuben Nanavati College of Pharmacy, Vile Parle (W), Mumbai-400056, India.
64. **Synthesis and Characterization of the Zoro Protien.**¹ Selena Ledesma-Alonso - Berea College, Caleb Gibson, Eric Tague, Shawn Campagna - University of Tennessee, Knoxville
65. **Engineering Novel Substrates for the Neuropeptidase Neurolysin.**¹ Michael B. James, Kateryna O. Nabukhotna, Matthew J. Saderholm - Berea College
66. **Synthetic Strategies for Organometallic Polymeric Systems: Improved Building Block Preparation and Optimization.**¹ Jason Callihan, Keith A. Walters - Northern Kentucky University
67. **Engineering Novel Substrates for the Neuropeptidase Neurolysin.** Kateryna Nabukhotna, Michael James, Matthew Saderholm - Berea College
68. **Thermal, Mechanical and Conductive Properties of 1,2,3-Triazolium Poly(Ionic Liquid) Polyester Networks.**¹ Anh Nguyen, Taylor C. Rhoades, Kevin M. Miller - Murray State University
69. **Photochemical Generation and Kinetic Studies of Manganese(V)-Oxo Corroles.** Ngo Fung Lee, Ka Wai Kwong, Davis Ranburger , Rui Zhang - Western Kentucky University
70. **Synthesis of Copper Vanadate as Battery Material.** Taylor Young, Bangbo Yan - Western Kentucky University
71. **Selective Reduction and Functionalization of Graphene Oxide using Thiols.**¹ Michael Mellon - Kentucky State University, Prof. Emily Pentzer, Dr. Al de Leon - Case Western Reserve University
72. **Using carboxylate ligand sterics to systematically control Cu doping in ZnS nanocrystals.**¹ Kylie N. Heupel, Haley M. Sizemore, Judith L. Jenkins - Eastern Kentucky University

73. **The TIM Consortium: Summer Research Opportunities in Chemistry for KCTCS Students.** KC Russell - Northern Kentucky University
74. **Heteroaryl isoflavoone compounds as aromatase inhibitors: synthesis and molecular modeling.** Andrew Quillen, Matthew Neiser - Northern Kentucky University
75. **Synthesis and Optimization of Caffeic Acid Phenethyl Ester Derivatives Through Microwave Irradiation.**¹ Hannah Istre, Ben Heppler, Sandra Onate - Northern Kentucky University
76. **Phenylethynyl Oxacalixarenes.**¹ John Johnson, Chelsea Soward, Bethany Pertzsch, Daiana Diac, Reyes Castellon, Donna Odhiambo, KC Russell - Northern Kentucky University
77. **Mixed Valence Layered Vanadate Electrode for Rechargeable Batteries.** Tom H Froedge, Bangbo Yan - Western Kentucky University, Huajun Zhou - University of Arkansas at Fayetteville
78. **Syntheses, Structures, and Electrochemical Studies of N,N'-bis(alkylthiocarbamate)butane-2,3-diimine Cu(II) Complexes as Pendant Alkoxy Derivatives of Cu(ATSM).** Nicholas S. Vishnosky, Mark S. Mashuta, Robert M. Buchanan, Craig A. Grapperhaus - University of Louisville
79. **Synthesis, Structures, and Luminescent Properties of Lanthanide Niobates.** Mark Carrender, Dr. Bangbo Yan - Western Kentucky University
80. **Porous Metal-Organic Frameworks and Their Electrochemical Properties.** Mamatha Polapally, Dr. Bangbo Yan - Western Kentucky University
81. **Progress Towards the Total Synthesis of Microcyclamides MZ568 and MZ6021.** Richard McLane, Lucas Edelen, Reagan Powers, Amber Onorato - Northern Kentucky University
82. **Kinetic studies of organic reductants with manganese (IV)-oxo porphyrins possessing electron-withdrawing substituents.** Charles Winchester - Western Kentucky University
83. **Cation exchange to controllably dope ZnS nanocrystals with Pb ions for solar fuel generation.**¹ Dakota Perkins, Allison L. Durr, Judith L. Jenkins - Eastern Kentucky University
84. **Impact of Polymer and Surfactant on Absorption of Poorly Water-Soluble Drug.** Griseofulvin Sean Gillette - Berea College

COMPUTER AND INFORMATION SCIENCES

Shumaker Research Building 2nd Floor

Judging: Saturday 11:00-12:00

85. **Automated Initiation of Fibrillatory Excitation in Monodomain Simulations.**¹ Eura Shin - University of Kentucky, Emanuel Poremba, Olaf Dössel, Axel Loewe - Karlsruhe Institute of Technology
86. **Parallel Computing with a Raspberry-Pi (RPi) Cluster Using Open MPI.**¹ Zachary Eckert, Shawn Frazier, Dr. Akhtar Mahmood - Bellarmine University
87. **Improving Procedural Generation through a Rhythm-Based Approach and Repetition Minimization.**¹ Carson Blevins - Bellarmine University
88. **NFL Predictions Using Neural Networks.**¹ Rilee Knight - Bellarmine University
89. **#Chatbot: Social Media and the use of Subculture as a Means of Personifying Chatterbots.**¹ Kelecukwu Adiele - Bellarmine University
90. **Concurrent Programming Locking Strategies.** Sara Rekowski - Bellarmine University
91. **Website development to enhance study techniques in sciences.** Rachel Boone - Morehead State University
92. **Teaching a computer English using natural language processing.** William Burriss - Morehead State University
93. **Bioinformatics on Mobile Devices Effect On Health.** Eugene Smith - Morehead State University
94. **Feasibility of Data Analytics and Cloud Computing.** Chancellor Wells - Bellarmine University
95. **Polymorphic Malware Detection.** Cory Coleman - Bellarmine University

ECOLOGY AND ENVIRONMENTAL SCIENCE

Bigelow Hall, Miller IT Center

Judging: Friday 1:00-5:00

96. **Climate Change and the Effect of Temperature on the Release of *Proterometra macrostoma* (Trematoda: Digenea) Cercariae from their Snail Intermediate Host, *Elimia semicarinata* (Gastropoda: Pleuroceridae).**¹ Olivia Slater, Nina Meneses, Robin Hauschner, Favour Akabogu, Aubrey Melton, Casey Tetidrick, Sarah Blank, Ron Rosen - Berea College

97. **Artificial nest box use by American Kestrels (*Falco sparverius*) along roadsides in Wyandot County, Ohio.**¹ Megan Rude, Sydney Hartbarger, Richard Phillips - Wittenberg University
98. **A novel bee keeping technique for maintaining probiotic fungi and healthy bees.** Andre L. Lorenz , Blake W. Nelson, Jay A. Yoder - Wittenberg University
99. **Breeding Activity of *Pseudacris feriarum* (The Upland Chorus Frog) in Daviess County, KY.** Jacob Becraft, Emmalee Speer - Kentucky Wesleyan College, Dr. Shannon Finerty
100. **Analysis of population structure in a California Newt (*Taricha torosa*) metapopulation.**¹ Jessica J Vincent - Western Kentucky University
101. **Pollinator Survey of Transylvania University: Urban Bees on Campus.**¹ Mary Wallace, Joshua Adkins - Transylvania University
102. **Bird feeder and bird seed selections in local populations of birds near a riparian zone.** John Delfino - Midway University, Andrea Ward
103. **Transcriptomic Response to Immune Challenge in Zebra Finch (*Taeniopygia guttata*) using RNA-seq.** Cassandra S. Scalf- Western Kentucky University
104. **Invertebrate Prey Selection by Speckled Dace, *Rhinichthys osculus*: Potential Impacts on Omnivorous Trophic Cascades.**¹ Abby Glass, Donald J. Benkendorf, Howard H. Whiteman - Murray State University
105. **The influence of plant community on greenhouse gas fluxes in a restored wetland.** Louise Hosburgh - Northern Kentucky University
106. **Effects of garlic mustard on soil properties in forest ecosystems across the eastern US.** Marie Bezold - Northern Kentucky University
107. **Spatial and temporal assessment of *Ophidiomyces ophiodiicola* in Kentucky.** Jennifer M. McKenzie, Steven J. Price, Andrea N. Drayer - University of Kentucky, Leo J. Fleckenstein - Kentucky State University, Jeffery M. Lorch - U.S. Geological Survey
108. **Amphibian communities at natural and constructed ridge-top wetlands in the Daniel Boone National Forest.** Rachel B. Fedders, Stephen C. Richter - Eastern Kentucky University
109. **The role of leg length in courtship and aggressive copulation in the wolf spider, *Schizocosa saltatrix*.**¹ Bryson Dahlberg, Dr. Laura Sullivan - Beckers - Murray State University

110. **Use of eDNA to detect salmonids and amphibian species in high elevation habitats in the Sierra Nevada in Sequoia-Kings Canyon National Park, CA.**¹ Christopher C. Pauley, Ronald B. Sams, Cierla V. McGuire, Malinda A. Stull, Ben F. Brammell - Asbury University, Michael C. McGrann - William Jessup University
111. **Determining the potential for urban conservation strategies in residential yards in Jefferson County, KY.** Katie Arstingstall, Margaret Carreiro - University of Louisville
112. **Detecting Honeysuckle Under Canopy in Forest Areas.**¹ D'Andre Garrison - Kentucky State University
113. ***Microcystis* and toxin production. Does Morpho-species make a difference?**¹ Brianne Dunn - Northern Kentucky University
114. **Residence time as a driver of abundance, activity and resource-use in complex microbial communities.**¹ Jaylen Beatty, Sarah R. Bray - Transylvania University, Nathan Wisnoski, Jay T. Lennon - Indiana University
115. **The Effects of a Resuscitation Promoting Factor (Rpf) on Bacterial Activity and Plant Biomass.** Peyton Thomas, Sarah R. Bray - Transylvania University, Venus Kuo, B.K. Lehmkuhl, Jay T. Lennon - Indiana University
116. **Assessing the effects of Amur honeysuckle (*Lonicera maackii* (Rupr.) Herder (Caprifoliaceae)) control on native plant communities 11 years after removal.**¹ Matthew Graven, Richard L. Boyce - Northern Kentucky University
117. **Sequencing cytochrome b from tissue and swab collected DNA in salamander species from central Kentucky.** Ashton Bain, Robert Washburn, Ben F. Brammell, Malinda A. Stull - Asbury University
118. **Remote Sensing of NDVI to Locate Damage Extent of the Southern Pine Beetle in the Daniel Boone National Forest.**¹ Ian Ries - Kentucky State University
119. **Factors Influencing Colonization of Woody Debris by Saproxylic Insects.** Riley Kneale, Evan Gora, Stephen P. Yanoviak - University of Louisville
120. **Statistical Analysis of Sea Surface Temperature Anomalies from 1950 to 2010.**¹ Brandon Preece - Kentucky State University

121. **Freshwater invertebrate diversity in a central Kentucky intermittent stream.**¹ Cara Barnett, Margaret Finn, Mark Galatowitsch - Centre College
122. **Arboreal ants of temperate forests and urban greenspaces.** Daniella C. Prince, Benjamin Adams, Chloe Lash, Stephen P. Yanoviak - University of Louisville
123. **Bryophyte establishment and assemblage composition from urban forest soil sporebanks.**¹ Andrew R. Bailey, Linda Fuselier - University of Louisville
124. **Laboratory study of glyphosate degradation in Berea College forest soils.**¹ Carlos Andres Berejnoi Bejarano, Han Chann Makara - Berea College
125. **Season fluctuations in salamander eDNA in central Kentucky streams.**¹ Ronald B. Sams, Cierla V. McGuire, Andrew W. Nesselroade, Malinda A. Stull, Ben F. Brammell - Asbury University
126. **Laboratory study of glyphosate degradation in Berea College forest soils.**¹ Tomas Flores, Chris James, Carlos Andres, Berejnoi Bejarano, Priscila E. Garcia, Savannah B. Osborne, Paul C. Smithson - Berea College
127. **Land use history, soil characterization and invasive species in the Berea College forest.**¹ Priscila E. Garcia, Savannah B. Osborne, Carlos Andres, Berejnoi Bejarano, Tomas M. Flores, Chann Makara Han, Christopher James, Paul C. Smithson - Berea College
128. **Feasibility of fluorescent elastomer tags to mark aquatic macroinvertebrates.**¹ Margaret Finn, Cara Barnett, Mark Galatowitsch - Centre College
129. **Degradation of glyphosate in Berea College forest soils.**¹ Chann Makara Han, Carlos Andres, Berejnoi Bejarano - Berea College

ENGINEERING

Shumaker Research Building 2nd Floor
Judging: Saturday 1:00-2:00

130. **Implementing Semi-Autonomous Robotics on a Hexapod Platform.**¹ Brooke Kennedy, Stephen Brown, Akhtar Mahmood - Bellarmine University
131. **Nanostructured Membranes for Water Applications.**¹ Jonathan Murphy - Kentucky State University, Sebastian Hernandez, Dibakar Bhattacharyya - University of Kentucky
132. **The Systematic Feasibility Study on Photovoltaics in Eastern Kentucky including Morehead, KY.**¹ Adam Stanley, Sanghyun Lee - Morehead State University

133. **Developing a 3-D printed solar vehicle with Computational Fluid Dynamics (CFD) simulator** Chase Schell. Sanghyun Lee - Morehead State University

GEOGRAPHY

Shumaker Research Building 2nd Floor

Judging: Friday 4:00-5:00

134. **Permaculture Practices To Help Beginning/Small Farmers Become Successful.** Cynthia Rice, Buddhi Gyawali, Jeremy Sandifer - Kentucky State University
135. **Using Rural Sites to Determine Urban Heat Island of Louisville, Kentucky.**¹ William Lyvers, Jeremy Sandifer, Buddhi Gyawali - Kentucky State University
136. **Urban Heat Island Effect and Spatial Distribution of African American and White Populations in Jefferson County, Kentucky.**¹ Kelsey Voit - University of Louisville
137. **Updating Madison County Kentucky's GIS Road Files for the Enhanced Next Generation 911 System.**¹ J.X. Dobson, P.L. Fannin, J.N. Mehs, S.E. Tyring, D.S. Walker - Eastern Kentucky University

GEOLOGY

Shumaker Research Building 2nd Floor

Judging: Friday 1:00-2:00

138. **Integration of Lidar and Imagery to Delineate Water Bodies for Change Detection.**¹ Ashley Casselberry, Haluk Cetin - Murray State University

HEALTH SCIENCES

Bigelow Hall, Miller IT Center

Judging: Saturday 1:00-2:00

139. **Rhythms in the Gut Microbiome of the House Sparrow.** Ethan Poweleit - Northern Kentucky University, Vincent Cassone, Jiffin Paulose - University of Kentucky
140. **Role for Protein Carbamylation in Biomarkers of Erythropoiesis.** William J. Crider - Eastern Kentucky University, William Risinger, Daniel W. Wilkey, Ming Li, Michael L. Merchant - University of Louisville
141. **Continued Longitudinal Studies of Family Size and Its Relationship to the Human Sex Ratio.** Sai Pavan Adigarla, Dr. Elmer Gray - Western Kentucky University

142. **Complications Associated with Maternal Obesity: A Review of 2014 Kentucky Birth Certificate Data.** Anusha Bitra, Sai Pavan Adigarla, Dr. Elmer Gray - Western Kentucky University
143. **Anacardic Acid Inhibits Cell Growth and Synergizes with Chemotherapeutics by the Activation of Chmp1A – ATM – p53 Signaling Pathway in Pancreatic Cancer Cells.**¹ Danielle Upton, Valerie Eversole, Derek Perkins - University of Pikeville, Melodie Blackmon, Scott Craver, Maiyon Park - KYCOM - UPIKE
144. **Systematic review of Photo based questionnaires to identify the social and health care needs of PLWHA in Tanzania.** Sai Pavan Adigarla, Dr. William Mkanta, Dr. Elmer Gray - Western Kentucky University
145. **Improving Long-Term Outcomes in Retinoblastoma Survivors.**¹ Marah Zeidan - Berea College, Kristin Carson, Debra Friedman - Vanderbilt University
146. **Healthy Lifestyle Impact on Breast Cancer-Specific and All-Cause Mortality.**¹ Adaline E. Heitz, Stephanie D. Boone, PhD, MPH, Delvon T. Mattingly, B.S., Richard N. Baumgartner, PhD, Kathy B. Baumgartner, PhD - University of Louisville
147. **A Correlative Study of Epidemiological Mortality and Morbidity Rates between Appalachian and non-Appalachian Counties within Kentucky.**¹ Nicholas Vossenber, Lindsay Calderon - Eastern Kentucky University, Kentucky Department for Public Health
148. **Automatic Quantification of Muscle and Fat in the Thigh from MRI Scans.** Zaria Elery - Northern Kentucky University, Ahmed M. Shalaby - University of Louisville
149. **Examining potential environmental and genetic factors associated with chronic kidney disease of unknown etiology in rural farmers of Sri Lanka.**¹ Harsh Patel, Elisha Okyere, Dr. Joseph Mester, Dr. David Thompson - Northern Kentucky University
150. **The behavioral and cognitive effects of chronic taurine exposure in C57BL/6J mice: a dose-response study.**¹ Yislain Villalona, Lisa Massie, Jamie Weimer, Christine Perdan Curran - Northern Kentucky University

MATHEMATICS

Shumaker Research Building, 2nd Floor

Judging: Saturday 10:00-11:00

151. **Pascal's Triangle and Fractals.** Ryan Caudill - Morehead State University
152. **Comparing two unrooted phylogenetic X-trees.**¹ Bhavesh Ramkorun - Berea College
153. **Quasigeometric Distribution in Baseball.**¹ Connor Owens - Morehead State University

MICROBIOLOGY

Bigelow Hall, Miller IT Center

Judging: Friday 1:00-3:00

154. **Program: KY Biomedical Research Infrastructure Network (KBRIN) - 2016 – University of Louisville Project: *Filifactor alocis*, a newly appreciated oral pathogen, modulates neutrophil respiratory burst response.** Diakanamua N Tutonda - Berea College
155. **Isolation and analysis of field collected *Mycobacterium smegmatis* bacteriophages Princess Harper, CelerMors, and Tapioca.**¹ Ryan Anderson, Joshua Frommeyer, Janelle Hare - Morehead State University
156. **Sebastian the SEA-Phage: Road to Discovery.**¹ Kassidy R. Cyrus, Janelle Hare - Morehead State University
157. **Isolation, Classification and Analysis of Citius and Of Ultron.**¹ Emma Rose, Jordan Carrington, Janelle Hare - Morehead State University
158. **Identification and characterization of an *Escherichia coli* bacteriophage mutant capable of growing on a nonpermissive host.**¹ Millicent Ronkainen, Rodney A. King - Western Kentucky University
159. **Discovery, Purification, Isolation, and Analysis of Mycobacteriophages Kalb97, Stanley, and Eurydice.**¹ Allison Wright, Becky Cook, Kasey Baldrige, Janelle Hare - Morehead State University
160. **Isolation and characterization of plasmid DNA from non-pathogenic commensal gut *E. coli*.**¹ Monica Powell, Hope Thoms, Dawn J. Anderson - Berea College
161. **Isolation and characterization of antibiotic-resistant *Staphylococcus* in the Berea College community – a pilot study.**¹ Tyler Culver, Jeremy Wilde, Dawn J. Anderson - Berea College
162. **Quantification of heavy metal resistant bacteria adjacent to a wastewater treatment plant.**¹ Shelby Blanton, William Staddon - Eastern Kentucky University
163. **A Survey of Air Microbial Content in a Campus Setting.** Aneasa Jakes, Anjelique Kyle, Vaughan Caine, Alexander Lai - Kentucky State University
164. **Investigating the Existence of a Tradeoff between Production of Antimicrobial Toxins and Antibiotic Resistance in Cystic Fibrosis and non-Cystic Fibrosis *Pseudomonas aeruginosa* Strains.** Andrew W. Diddle, Dr. Jeff Bara, Dr. Susanna Remold - University of Louisville

165. **Stress-Induced Filamentation of *Acinetobacter baylyi*.** Toni Carter, Dr. Janelle Hare - Morehead State University
166. **Analysis of the Anti-Inflammatory Properties of Cat's Claw Through the Effects on Immune Receptor Expression.**¹ Daniel Powers, Rachael Cicci, Dr. Joseph Mester - Northern Kentucky University
167. **Production of hydrogen peroxide as a virulence factor by *Mycoplasma mycoides* subspecies *capri*.**¹ Zackery W. Newton, Rachel E. Pritchard - Kentucky Wesleyan College, Mitchell F. Balish - Miami University
168. **Quality characteristics of pawpaw fruits pretreated with water at different temperatures or acidic electrolyzed water.** Lingyu Huang, Cheri Crabtree, Jeremy Lowe, Kirk Pomper, Cecil Butler, Changzheng Wang - Kentucky State University
169. **UmuDAb in *Acinetobacter* Functions as a LexA-Like Repressor.**¹ Megan A. Peterson, Travis A. Witkowski, Alison N. Grice, DeAnna B. Stinnett, Whitney K. Wells, Janelle Hare - Morehead State University

PHYSICS AND ASTRONOMY

Shumaker Research Building 2nd Floor
Judging: Friday 3:00-4:00

170. **Graphene quantum dots electrochemistry and development of sensitive electrochemical biosensor.** T. Smith, A. Banaszak and Sanju Gupta (Professional) | Tyler Smith, Alex Banazak, Sanju Gupta - Western Kentucky University
171. **Molecular sensitivity and selectivity of metal nanoparticles decorated graphene as 'smart' surface-enhanced Raman scattering (SERS) platforms.**¹ Alexander Banaszak, Tyler Smith, Sanju Gupta - Western Kentucky University
172. **Thermo-Magnetic Properties of High Entropy Alloys.**¹ Tanner Thompson, Robert Barnes, Nathanael Bodine, Dr. Troy Messina - Berea College
173. **Thermo-Magnetic Properties of High-Entropy Alloys (HEAs).** Robert Barnes, Nathaniel Bodine, Tanner Thompson, Troy Messina - Berea College
174. **Fabrication of MEMS Microrobots.**¹ Dustin Watts - Berea College, Dan Popa - University of Louisville
175. **Imaging the March 9th, 2016 total solar eclipse.**¹ Honor Hare, Robert Bosh, Patricia Thompson, Richard Gelderman - Western Kentucky University

176. **A Compilation of Hydrogen α Structure of Planetary Nebulae.** Patricia Thompson, Ting-Hui Lee - Western Kentucky University, Richard Shaw, Letizia Stanghellini - National Optical Astronomy Observatory
177. **An Analysis of a Chandra Observation of the Galactic Supernova Remnant G353.6-0.7.** Daniel Rush, Thomas Pannuti - Morehead State University

PHYSIOLOGY AND BIOCHEMISTRY

Bigelow Hall, Miller IT Center
Judging: Friday 1:00-5:00

178. **Homeostatic synaptic regulation at neuromuscular junctions: Altered activity selectivity in pre- and post-synaptic cells.** Jacob Higgins, Christina Hermanns, Robin Cooper, PhD - University of Kentucky
179. **Optogenetic expression and activation of rhodopsins in *glutamic acid decarboxylase (GAD)* containing skeletal and cardiac muscle.**¹ Jacob Sifers - Alice Lloyd College, Cole Malloy, Angie Mikos, Aya Omar, Robin L. Cooper - University of Kentucky, Aya Samadi - Sayre School
180. **Targeting of cancer cells and cancer stem cells in ovarian cancer.** Lindsey Meyer - Bellarmine University, Seema Parte, Sham Kakar - University of Louisville
181. **The Bioluminescent Detection of HIV Persistency.**¹ Boubacar Cherif - Berea College, Angeliki Moutsopoulos, Emre Dikici, Sapna Deo - University of Miami
182. **Effects of Aging on Pheromone Response Pathways in *Saccharomyces cerevisiae*.**¹ Joanna Campbell - Centre College, Ranga Rajan - University of North Carolina at Chapel Hill, Henrik G. Dohlman - University of North Carolina at Chapel Hill
183. **Optogenetic and pharmacological alteration in the GABAergic system within *Drosophila melanogaster* affects development, feeding behavior and locomotion.**¹ Kaylee Hall, Dlovan D. Mahmood, Nadera Dabbain, Robin L. Cooper - University of Kentucky, Justin Graff - University of Cincinnati, Zana R. Majeed - Univ. of Sulaimani, Sulaimani, Iraq
184. **Determination of the Expression of a Gene Therapy Agent In the Retina of WT and P23H KI Mice.** Jacob Nanney - Kentucky Wesleyan College, Dr. Gobinda Pangeni, Dr. Maureen McCall - University of Louisville
185. **Development of a Cell Culture System for the Investigation of the Effects of Microgravity on Cytoskeletal Remodeling and Contraction of A7r5 Smooth Muscle Cells.**¹ Danielle Gibson, Mark William Casto, Michael E. Fultz - Morehead State University

186. **Visualizing spatiotemporal gene expression of the Sonic Hedgehog (Shh) Gene during axolotl limb development and limb regeneration.**¹ Rebekah Ponder - Berea College, Dr. Ashley Seifert, Dr. Jennifer Simkim, Sruthi Purushothaman - University of Kentucky
187. **The stability of environmental temperatures influences thermal plasticity in the Eastern newt (*Notophthalmus viridescens*).**¹ Wesley Saintilnord, Rafael Mendoza, Patrick Mineo - Berea College
188. **Cataract and Lens Organ Culture.** Aliza Williams. - Centre College, Douglas Borchman - University of Louisville
189. **Development of a sensitive assay to detect 2'-O-methylation in tRNA.**¹ Justen B. Mamaril, Michael P. Guy - Northern Kentucky University
190. **Functional role of the cytoplasmic tail of α 3 β 1 integrin in migration and adhesion to LM-511.**¹ Christinia Patel - Berea College, Olga Viquez, Roy Zent - Vanderbilt University
191. **Impact of SRCR domains in the functionality and localization of lysyl oxidase-like 2 in diabetic nephropathy.**¹ Marco Santos - Berea College, Abner Pena, Catalina Kretschmar, Alberto Lopez, Roberto Vanacore - Vanderbilt University
192. **Involvement of Amygdala in METH-induced Behavior: Differential modulation by D1 and D2.**¹ Rachel Hudson, Wesley White - Morehead State University, Ilsun M. White
193. **The Application of GLO1 CRISPR CAS-9 Knockout Cells for the Study of Neuropathy.**¹ James McCarthey - Berea College, Jim Galligan, James Wepy, CC Lutz, Lawrence Marnett - Vanderbilt University
194. **Serum adiponectin and vascular adiponectin receptors during maturation in the rat.**¹ Elizabeth Hart, Christina Seibert, Joseph Steffen - University of Louisville
195. **Evaluating sex differences and the effect of perinatal testosterone in the VPA mouse model of autism.**¹ Tasneem Karim, Elizabeth Gordon, Emily Bryan, M. Dylan Collins, Samuel Dugan, Kristen Hamilton, Oghenemine Obrik-Uloho, Cynthia Corbitt - University of Louisville
196. **Probing the biosynthesis of Actinomycin Y5 by investigating Z-family homologs.**¹ Aubree Zimmer - Berea College, Matthew McErlean, Dr. Steven Van Lanen - University of Kentucky
197. **Effects of a Cavity-Filling Mutation in the Enzyme Choline Acetyltransferase.** Jyotica Batra - Kentucky State University, Corbin D. Ester, Yiyang Cai, Jianhang Jia, David W. Rodgers - University of Kentucky

198. **Utilizing zinc finger proteins and beads for detection of pathogen-specific DNA sequence.**¹ Barnabas Kim, Moon-Soo Kim - Western Kentucky University, Dohyun Kim - Myungji University

PSYCHOLOGY

Bigelow Hall, Miller IT Center
Judging: Saturday 10:00-12:00

199. **Nicotine may produce an acute-withdrawal related longer-term reduction in activity through a dopaminergic pathway in rats.**¹ Samuel L. Case, Terra E. Riggs, Brandi C. Carey, Ilsun M. White, Wesley White - Neuroscience, Psychology Department, College of Science, Morehead State University
200. **The Relationship between Self-Construal and Parenting Practices.**¹ Michaela Herbig - Eastern Kentucky University
201. **Learning from Gesture: Do Catchments Enhance Learning?** Tiffany Estep - Berea College, Sarah A. Brown, Andrea Marquardt Donovan, Martha W. Alibali - University of Wisconsin-Madison
202. **Older adults and animal-assisted therapy: Many complex problems, one effective solution.** Kara Harrison, Melissa Napier, Tanner Muehler, Katelin Mullikin, Cassie Studler, Richard Osbaldiston - Eastern Kentucky University
203. **Alcohol Consumption in College Students and the Use of Social Media.**¹ Caitlin Turner, Clare Mearns, Emily Baltes-Thompson, Cecile Marczynski - Northern Kentucky University
204. **Acute Effects of Alcohol mixed with Energy Drinks versus Alcohol Alone on Balance and Aggression.** Cecile A. Marczynski, Caitlin Turner, Emily C. Baltes Thompson, and Clare Mearns, Northern Kentucky University
205. **The effect of attentional shift on visual short-term memory.** Derek McClellan, Richard Osbaldiston - Eastern Kentucky University
206. **A method for assessing the capacity of amphetamine to produce an acute-withdrawal related negative state in rats.**¹ Brianna K. Ward - Neuroscience, Psychology Department, College of Science, Morehead State University, Samuel L. Case, Tesla M. Henderson, Ilsun M. White, Wesley White - Morehead State University

207. **Rated Complexity and Latency.** Zoe Becerra. Gregory M. Corso - Morehead State University
208. **Effects of foreign language learning on cross-cultural openness.**¹ Rachel Winger, Janet B. Dean - Asbury University
209. **Undergraduate Behavioral Neuroscience: Updating and Formulating Laboratory Procedures.**¹ Alicia Bedolla, Evelyne Rivera, Morgan Ketchersid, Tenzin Desel, Katherine Snyder - Berea College

SCIENCE EDUCATION

Bigelow Hall, Miller IT Center
Judging: Saturday 9:00-10:00

210. **Alternative Energy Lab Projects in the Introductory Undergraduate Physics Curriculum.**¹ Douglas J. Kelly, Joseph Erskine, Dr. Akhtar Mahmood - Bellarmine University
211. **Examination of the Effectiveness of a Peer-Assisted Learning (PAL) Program Implemented in Anatomy and Physiology II.**¹ Aubrey Melton, Casey Tetidrick, Chioma Amaechi, Willie Gosnell, Gladys Kamau, Yunpeng Xia, Sarah Blank - Berea College

ZOOLOGY

Bigelow Hall, Miller IT Center
Judging: Saturday 9:00-11:00

212. **Seasonal Changes in Maturation of Adult *Cotylaspis insignis* (Trematoda: Aspidogastridae) Recovered from the Fat Mucket, *Lampsilis radiata luteola* (Bivalvia: Unionidae).**¹ Robin Hauschner, Favour Akabogu, Nina Meneses, Olivia Slater, Kaitlyn Reasoner, Hsuan Peng, Lin Peng, Chi Peng - Berea College
213. **Out-of-water survival by quiescence in a crayfish-associated worm.**¹ Blake W. Nelson, Andre L. Lorenz, Jay A. Yoder - Wittenberg University
214. **The Effect of Caffeine on Tardigrade Metabolism (*Hypsibius* sp.).**¹ Carly Winn, Roberta Challener - Bellarmine University
215. **Male-female pairing in green salamanders, *Aneides aeneus*.** Paul V. Cupp, Jr. - Eastern Kentucky University
216. **Diversity in Pigmentation Patterns in Developing *Betta splendens*.** Rachel Ferrill, Rachel Johnson, Benjamin Lyvers, Alexis Carey, Belinda Sly - Transylvania University

217. **Phenotypic plasticity of mating calls of the field cricket *Gryllus rubens* (Orthoptera: Gryllinae).** Nicholas Norman, Jacob Pease, Katherine Murphy, Oliver M. Beckers - Murray State University
218. **The relationship between parasitic blow fly abundance and blood hemoglobin concentration in nestling Carolina chickadees.**¹ Spyncer Mones, Lindsey Walters - Northern Kentucky University
219. **Songscape analysis of the breeding phenology in amphibians in wetlands with and without invasive plant species.**¹ Valerie K. Rice, Richard D. Durtsche - Northern Kentucky University
220. **Preliminary findings on macroinvertebrate measurements using digital imaging.** Rachel Prokopius, Richard D. Durtsche - Northern Kentucky University
221. **Initial survey and genetic characterization of a local small mammal population.**¹ Tyler Harley, Avery Henderson, Dr. Zachary Taylor - Thomas More College
222. **The Papilionoidea (true butterflies) of Rowan County, a biodiversity meta-analysis.**¹ Rachel A. Brown, Sean T. O'Keefe - Morehead State University
223. **Changes to the fish species diversity of the Middle Fork of Drake's Creek over 40 years.** Jacob Brumley, Dr. Phillip Lienesch - Western Kentucky University

Past Presidents of the Kentucky Academy of Science

1914-1915	Joseph H. Kastle	1965-1966	John M. Carpenter
1915-1916	N.F. Smith	1966-1967	Robert M. Boyer
1916-1917	A.M. Miller	1967-1968	Paul G. Sears
1917-1918	R.C. Ballard	1968-1969	Orville Richardson
1918-1919	J.E. Barton	1969-1970	Lloyd Alexander
1919-1920	Paul P. Boyd	1970-1971	Karl Hussung
1920-1921	W.H. Coolidge	1971-1972	Louis Krumholz
1921-1922	George D. Smith	1972-1973	Marvin W. Russell
1922-1923	Lucien Becker	1973-1974	Donald Batch
1923-1924	W.R. Jillson	1974-1975	Ellis V. Brown
1924-1925	Cloyd M. McAllister	1975-1976	Frederick M. Brown
1925-1926	Austin R. Middleton	1976-1977	Charles Payne
1926-1927	W.G. Burroughs	1977-1978	Charles Kupchella
1927-1928	W.D. Valleau	1978-1979	Sanford Jones
1928-1929	G.D. Bucker	1979-1980	Rudolph Prins
1929-1930	Frank L. Rainey	1980-1981	John Philley
1930-1931	V.F. Payne	1981-1982	Ted M. George
1931-1932	Anna A. Schnieb	1982-1983	J.G. Rodriguez
1932-1933	George Roberts	1983-1984	Gary Bogges
1933-1934	John S. Bangson	1984-1985	Joe Winstead
1934-1935	Alfred M. Peter	1985-1986	Charles V. Covell
1935-1936	J.S. McHargue	1986-1987	Larry Giesmann
1936-1937	Robert T. Hinton	1988	William P. Hettinger, Jr.
1937-1938	L.Y. Lancaster	1989	Richard N. Hannan
1938-1939	W.R. Allen	1990	Debra K. Pearce
1939-1940	A.W. Homberger	1991	W. Blaine Early, III
1940-1941	Charles Hire	1992	Douglas L. Dahlman
1941-1942	G.B. Pennebaker	1993	Charles N. Boehms
1942-1943	J.T. Skinner	1994	Larry P. Elliott
1943-1944	L.A. Brown	1995	Robert O. Creek
1944-1945	L.A. Brown	1996	William S. Bryant
1945-1946	P.J. Kolachov	1997	Marcus McEllistrem
1946-1947	Ward Sumter	1998	Patricia K. Doolin
1947-1948	Alfred Brauer	1999	Gordon K. Weddle
1948-1949	Morris Scherago	2000	Blaine R. Ferrell
1949-1950	W.E. Blackburn	2001	Ron Rosen
1950-1951	E.P. Penrod	2002	Jerry Warner
1951-1952	Harvey B. Lovell	2003	Robert Barney
1952-1953	Thomas Herndon	2004	Robert Kingsolver
1953-1954	C.B. Hamann	2005	Bruce Mattingly
1954-1955	R.H. Weaver	2006	Miriam Kannan
1955-1956	J.G. Black	2007	Nigel Cooper
1956-1957	A.M. Wolfson	2008	John Mateja
1957-1958	William M. Clay	2009	Robin Cooper
1958-1959	William B. Owsley	2010	Nancy Martin
1959-1960	Pete Panzera	2011	Barbara Ramey
1960-1961	H.H. LaFuze	2012	Dawn Anderson
1961-1962	Charles Whittle	2013	Cheryl Davis
1962-1963	Lyle Dawson	2014	K.C. Russell
1963-1964	R.A. Chapman	2015	David White
1964-1965	C.B. Hamann	2016	Eric Jerde

Past Meeting Locations of the Kentucky Academy of Science

1914-15	State College (presently University of Kentucky)	1970	Georgetown College
1916-28	University of Kentucky	1971	Eastern Kentucky University
1929	Berea College	1972	Morehead State University
1930	Centre College	1973	Transylvania University
1931	Transylvania University	1974	Centre College
1932	Eastern Kentucky State Teachers College	1975	University of Louisville
1933	University of Kentucky	1976	University of Kentucky
1934	Berea College	1977	Western Kentucky University
1936	University of Kentucky	1978	Eastern Kentucky University
1936	Western Kentucky State College	1979	Northern Kentucky University
1937	University of Louisville	1980	Transylvania University
1938	Morehead State Teachers College	1981	Murray State University
1939	Murray State Teachers College	1982	Ashland Oil Inc, Ashland
1940	University of Kentucky	1983	University of Louisville
1941	Eastern Kentucky State Teachers College	1984	Kentucky State University
1942	University of Kentucky	1985	Morehead State University
1943	University of Louisville	1986	Lexington, Kentucky (with SSMA)
1944	University of Kentucky	1987	Western Kentucky University
1945	No Annual Meeting	1988	Eastern Kentucky University
1946	University of Louisville	1989	University of Kentucky
1947	Western Kentucky State College	1990	Northern Kentucky University
1948	University of Kentucky	1991	Owensboro, Kentucky
1949	Cumberland Falls State Park	1992	Ashland Community College
1949	Eastern Kentucky State College	1993	Georgetown College
1950	University of Louisville	1994	Paducah Community College
1951	University of Kentucky	1995	Western Kentucky University (Joint meeting with the Tennessee Academy of Science)
1952	Georgetown College	1996	Kentucky State University
1953	Ashland & University of Kentucky	1997	Morehead State University
1954	Berea College & University of Louisville	1998	Jefferson Community College, S.W.
1955	Cumberland Falls State Park & Kentucky State College	1999	Eastern Kentucky University
1956	Kentucky Dam Village	2000	University of Kentucky
1956	Eastern Kentucky State College	2001	Middle Tennessee State (Joint meeting with the Tennessee Academy of Science)
1957	Western Kentucky State College, Mammoth Cave National Park & Berea College	2002	Northern Kentucky University
1958	Natural Bridge State Park & University of Kentucky	2003	Western Kentucky University
1959	Lake Cumberland State Park & & Western Kentucky State College	2004	Murray State University
1960	Murray State College & University of Louisville	2005	Eastern Kentucky University
1961	Morehead State College & University of Louisville	2006	Morehead State University
1962	Eastern Kentucky State College	2007	University of Louisville
1963	University of Kentucky	2008	University of Kentucky
1964	Morehead State College	2009	Northern Kentucky University
1965	University of Kentucky	2010	Western Kentucky University
1966	Kentucky Wesleyan College	2011	Murray State University
1967	University of Louisville	2012	Eastern Kentucky University
1968	Western Kentucky University	2013	Morehead State University
1969	Murray State University	2014	Lexington, Kentucky
		2015	Northern Kentucky University
		2016	University of Louisville

Next KAS Annual Meeting

The 103rd Annual Meeting of the
Kentucky Academy of Science

will be hosted by



Tentative Date: November 3-4, 2017

