

100th ANNUAL MEETING



**Lexington Convention Center
Lexington, Kentucky**

November 14-16, 2014

KAS - 100 Years Serving Kentucky

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KAS Authors' Table
KBRIN -Kentucky Biomedical Research Network
Kentucky Bridge to a Biomedical Doctorate for Appalachian Students
Kentucky Science & Technology Corporation
Kentucky Science Teachers Association
KSU Masters of Environmental Studies Program
KY Girls STEM Collaborative
KY State Nature Preserves Commission
Ky Organization of Field Stations
Ky Paleontological Society
Macmillan Science and Education

Microorganisms in the Bible
Morehead Space Science Center
Murray State College of Science, Engineering and Technology
Ohio Valley Scientific
Posters at the Capitol, Murray State
Sullivan University School of Pharmacy
UK Center for Applied Energy Research
UK Chemistry Dept
University of Kentucky College of Pharmacy
University of Louisville School of Interdisciplinary and Graduate Studies
Waters Corporation
WKU Ogden College of Science and Engineering

2014 Enhanced Affiliates

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

Alice Lloyd College

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Berea College

Brescia University

Campbellsville University

Centre College

Eastern Kentucky University

Georgetown College

Kentucky Community and Technical College System (KCTCS)

Kentucky State University

Midway College

Morehead State University

Murray State University

Northern Kentucky University

University of Pikeville

Spalding University

Transylvania University

University of Kentucky

University of Louisville

Western Kentucky University

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Lindsey Wilson College

Lumins Associates

University of the Cumberlands

Thomas More College

Wood Hudson Cancer Research Laboratory

WKU Crawford Hydrology Lab

WELCOME

TO THE CENTENNIAL MEETING OF THE KENTUCKY ACADEMY OF SCIENCE



It is a privilege to welcome you to the Centennial Celebration of the Kentucky Academy of Science. In honor of this special occasion we have the opportunity to reflect on the Academy's first century of service to scientific research, education, and public engagement. Our plenary talks are both retrospective and provide paths to future

from leaders in a number of scientific areas. Founded in May of 1914 with approximately 40 Kentucky scientists from a few fields the Academy has grown to a membership approaching 3000 and involving 19 disciplines. This year we have over 450 poster and oral presentations. Please take a moment and visit the History of KAS exhibit, where you will be able to view items from the Academy's past. Excerpts from "*History of the Kentucky Academy of Science over Its First 100 Years*," will be available to members through the KAS website and will appear in its entirety in the Centennial Edition of the Journal of the Kentucky Academy of Science, will be available through the KAS website.

Over the past year KAS has expanded its reach. The Academy has partnered with the Kentucky Science Center where we now have our official office and our members have been involved in a number of outreach activities sponsored by the Science Center. We have increased our interactions with the Kentucky Science and Technology Corporation in order to better serve academic, educational, and industrial science initiatives. We are increasingly using social media to expand our engagement with the scientific community. We will have a live streaming Twitter feed at this meeting. Post your comments and pictures during the meeting using #KAS100.

While KAS can be very proud of its accomplishments over the past century, as it moves past its 100th year it is an excellent time for the Academy to ask itself where it needs to be in the next 5-10 years and beyond. The KAS Board will use the events of this meeting as a springboard for those discussions. In the next year we will begin to create a strategic plan for KAS. With this in mind we would like everyone to stop by our Idea Station and tell us and tell us how you'd like to see the Academy promoting science and science education in Kentucky.

On behalf the entire KAS Governing Board, I hope you enjoy the meeting and share my enthusiasm when I think about the future of this great organization.

KC Russell
President, Kentucky Academy of Science

KENTUCKY ACADEMY OF SCIENCE

100th Annual Meeting
November 14-16, 2014
Lexington Convention Center
Lexington, Kentucky

GOVERNING BOARD Executive Committee

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Division Representatives and At-Large Members

Pamela Feldhoff (2015 - Biological Sciences).....	University of Louisville
Chris Adams (2016 - Biological Sciences).....	Berea College
Vacant - (2014 - Physical Sciences).....	
R. Douglas Chatham (2012 - Physical Sciences).....	Morehead State University
Judy Voelker (2014 - Social & Behavioral Sciences).....	Northern Kentucky University
David Butz (2012 - Social & Behavioral Sciences).....	Morehead State University
Mary Janssen (2016 - At - Large).....	KCTCS
KatieAnn Skogsberg (2015 - At - Large).....	Centre College
Melony Stambaugh (Program Coordinator).....	Northern Kentucky University
Claire Rinehart (Editor, Webpage).....	Western Kentucky University
Nancy Martin (AAAS/NAAS Representative).....	University of Louisville

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Centennial Planning Committee

KC Russell

David White, Program Chair

Melony Stambaugh, Program Coordinator

Cheryl Davis

David Butz

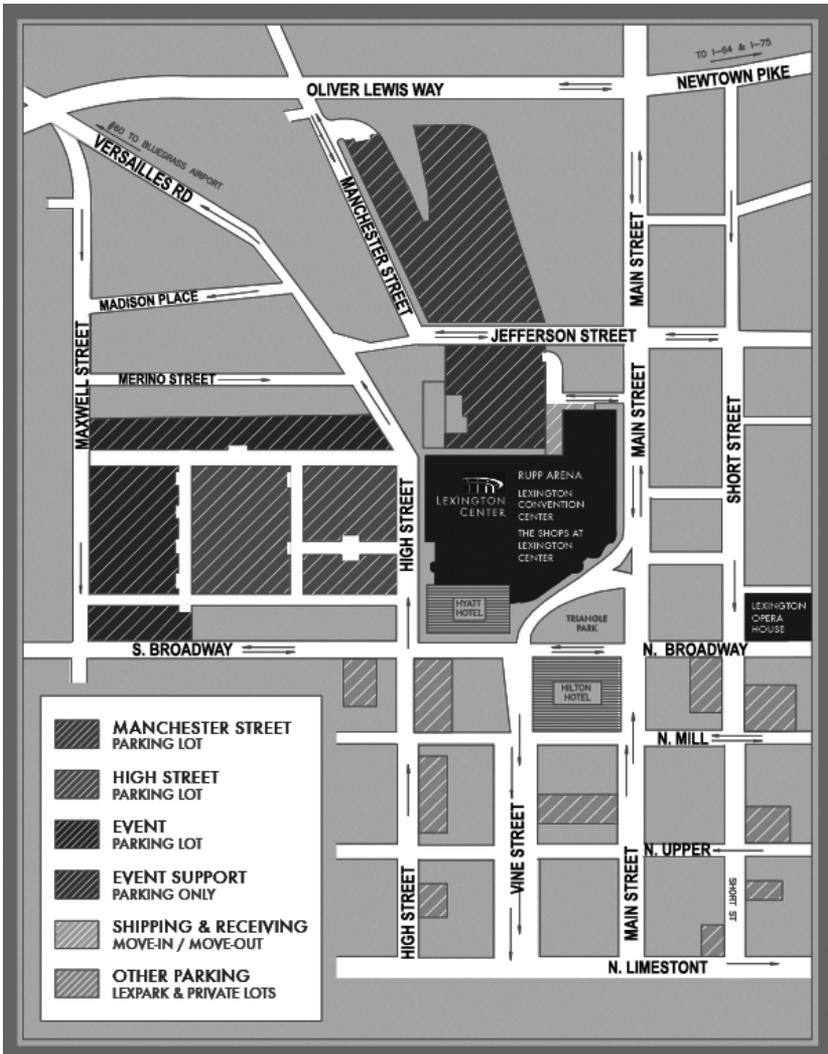
Cate Webb

Judy Voelker

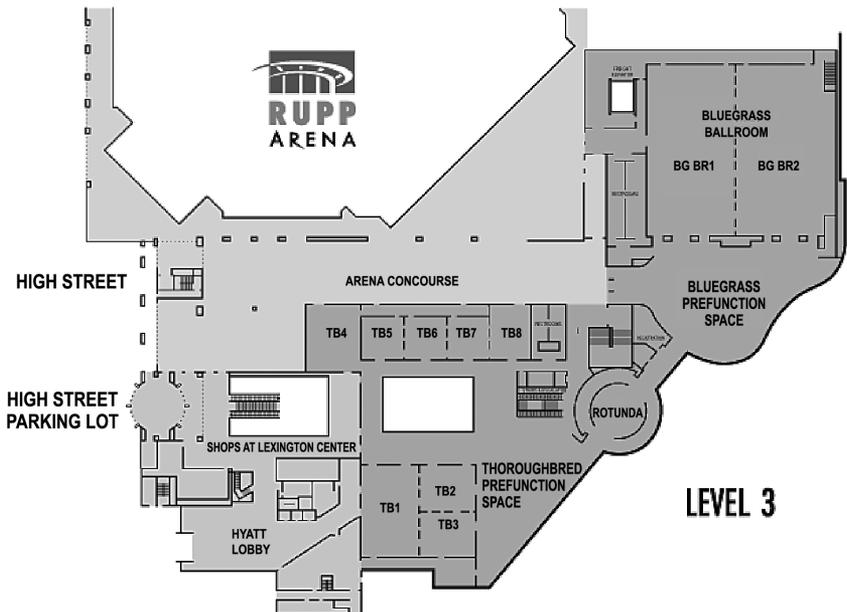
Ken Crawford

Amanda Fuller, Executive Director

Convention Center Parking Map



LEXINGTON CONVENTION CENTER



SYMPOSIUM

“Scientific Communication and Publishing”

Friday, November 14, 2014

Thoroughbred 1--3
4:30 – 6:00 pm

Introduction and Presiding

David White, Program Chair and President Elect
Kentucky Academy of Science
Murray State University

4:30-5:15pm

Dr. Jim Krupa, University of Kentucky

5:15- 6:00 pm

**“Why, What, and How to publish in the
Journal of the Kentucky Academy of Science”**

Panel of speakers:

Dr. Jerzy W Jaromczyk
Dr. Neil Moore
Kristen McQuerry

STAY CONNECTED WITH KAS



Wi-Fi Network: KY Science / Password: KAS100th

Tweet about the Centennial meeting at #KAS100

Watch our Live Twitter feed in the lobby.



Facebook : Follow the Kentucky Academy of Science

4:30-5:15 pm

“Teaching, communication, and the art of storytelling”



DR. JIM KRUPA

University of Kentucky

Jim Krupa is a Professor of Biology at the University of Kentucky. For 15 years, Krupa taught two the non-majors biology courses at UK (Human Ecology and Basic Biology). Currently, he teaches the Introduction to Evolution core course and Vertebrate Biology. Since 1996 he has taught 24,000 students. He has published articles in *The American Biology Teacher* on topics ranging from taking students into nature for experiential learning to discussion-based activities for large classrooms to the importance of story-telling as a teaching tool. A 2005 *ABT* article “A classroom exercise for testing urban myth:

Does wedding rice cause birds to explode or were Ann Landers, Martha Stewart and Bart Simpson wrong?” details how students in large courses can participate in designing experiments to test urban myth. Krupa along with Erik Reece published *The Embattled Wilderness* (University of Georgia Press) in 2013. Krupa has received the National Association of Biology Teachers Evolution Education Award, the National Association of Biology Teachers Four-year College and University Teaching Award, the Kentucky Academy of Science Outstanding College and University Teacher Award, University of Kentucky’s College of Arts and Sciences Outstanding Teaching Award, University of Kentucky’s Provost’s Award for Outstanding Teaching, and the University of Kentucky Alumni Association Great Teacher Award. Krupa’s current research is on competition between carnivorous plants and spiders as predators.

5:15-6:00 pm

“Why What and How to publish in the Journal of the Kentucky Academy of Science”

Panel of Speakers:

Jerzy W Jaromczyk, Neil Moore, Kristen McQuerry

Almost since the beginning of the Kentucky Academy of Science, the *Journal of the Kentucky Academy of Science* (JKAS; previously *Transactions*) has been the Academy’s principal research publication. The *Journal* publishes research articles and notes in all the areas of the sciences encompassed by the Academy. This talk will address questions such as: Why should I publish in JKAS? What kind of articles should I submit? What can I expect from the editorial and review process? How do I prepare and submit an article? We will begin by addressing the first two questions, the “why” and the “what”. The remainder of the session will focus on “how”, discussing two technical aspects of publishing JKAS: formatting tables and figures for publication; and using appropriate statistical analysis.

Preparing figures, tables, and images for publication in JKAS

One of the most time-consuming parts of the publication process is the preparation of extra-textual information, including figures and tables. From table headings to image resolution, the formatting of these materials strongly affects the appearance and quality of the final publication; as a result, publishers have very specific requirements about these materials, and our publisher, Allen Press, is no exception. We give some guidelines authors should follow to help simplify the editing, revision, and typesetting process, and to reduce turn-around time on their submissions.

Planning and Starting a Research Study: steps in preparing a research article with a statistical analysis component

Whether you are reporting summary statistics or performing statistical tests, applying sound statistical techniques is critical for any research project involving data. With so many available statistical tests, how do you know which ones to use to answer your research question? How do you know what you should and should not report in order to have a correct statistical analysis? We take a look from a statistical point of view at preparing and executing a research study. We look at different types of studies, as well as different types of data and how this affects the statistical test that you use. Lastly, we discuss common misinterpretations and mistakes in statistical analyses.



DR. JERZY JAROMCZYK

University of Kentucky

**Editor, Journal of the
Kentucky Academy of Science**

Dr. Jaromczyk is an Associate Professor in the Department of Computer Science at the University of Kentucky. He received his PhD degree from the University of Warsaw, Poland. His specialties are in algorithms and their applications, and he has been involved in a number of multidisciplinary research projects from computing for the humanities to bioinformatics -- his recent interests. He has published and presented numerous

articles in journals and professional conferences. In addition to research, he enjoys his roles as teacher, director of undergraduate studies, coach of competitive programming teams, and promoter of computer programming to K-12 students.



KRISTEN MCQUERRY

Applied Statistics Laboratory Project Manager,
Department of Statistics, University of Kentucky

Insert Photo, Kristen McQuerry is a Ph.D. candidate in the Statistics Department at the University of Kentucky. She is the project manager for the Applied Statistics Lab (ASL). During her time at UK, she has helped over 100 faculty, staff, and students with their statistical analyses. Kristen received her Master's in Statistics and Bachelor's in Secondary Mathematics Education from UK.



DR. NEIL MOORE
University of Kentucky

Assistant Editor, Journal of the Kentucky Academy of Science

Dr. Moore, associate editor of the Journal of the Kentucky Academy of Science, is a bioinformatician in the Department of Computer Science at the University of Kentucky. He received his PhD from the University of Kentucky. He develops software for organizing and analyzing biological data, particularly genome sequences and annotations for the Fungal Endophyte Genome Project (www.endophyte.uky.edu). In addition to his bioinformatics work, he teaches introductory computer science at UK.

The book cover features detailed botanical illustrations of various vascular plants, including leaves, stems, and flowers. The title is written in a cursive font, and the compiler information is in a smaller, sans-serif font. The overall design is classic and scientific.

*Guide to the
Vascular Plants
of Tennessee*

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TENNESSEE FLORA COMMITTEE

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Pick up a Meeting Evaluation, or fill it out online - find the link at <http://kyacademyofscience.net/programs/annual-meeting/>



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FRIDAY EVENING KEYNOTES

Friday, November 14, 2014
Thoroughbred 1--3

Welcome

Dr. KC Russell, KAS President
Northern Kentucky University

Presiding

Dr. David White, KAS President-Elect
Murray State University

7:00-7:45 Nancy C. Martin, Ky EPSCoR

7:45-8:30 Joanne Lang, Advance Kentucky



NANCY C. MARTIN

Chair, KY Statewide EPSCoR Committee

“KY EPSCoR Can Help Support Your Research”

Nancy C. Martin is a professor emerita of Biochemistry and Molecular Biology at the University of Louisville. Throughout her career, she has applied state of the art molecular biological techniques to make distinguished contributions in the areas of mitochondrial biogenesis, RNA enzymology, and protein targeting. She holds an honorary degree from the University of Umea and has been elected a Fellow by the American Association for the Advancement of Science. She served as Senior Vice

President for Research at the University of Louisville from 1996 to 2006 and oversaw a tremendous expansion of research infrastructure and a more than fourfold expansion of extramural funding.

She implemented a number of new policies and procedures supportive of research and technology transfer, including creation of a Technology Transfer Office. More recently she served as a Special Assistant to the Provost for STEM initiatives. She sits on the Board of the Northern Kentucky University Research Foundation, the Kentucky Academy of Science, is on the leadership team of the Kentucky Girls Collaborative in STEM (science, technology, engineering, and math), and chaired the Kentucky Statewide EPSCoR Committee from 2009 until November 2014.



JOANNE LANG

Executive Vice President, Kentucky Science and Technology Corporation, and Executive Director, Advance Kentucky

“Accelerating Learning: Do High Expectations Play a Role in Success?”

Joanne Lang, Executive Director of AdvanceKentucky, oversees AdvanceKentucky program, operations, and fundraising to support needs of schools participating in this successful, six-year-old program to dramatically accelerate math and science learning among Kentucky high school students. She, including the development of new partners and resources to support the various needs of participating schools. She is responsible for fundraising for all program support, including the original 1:1 matching funds that made Kentucky eligible for the \$13 million from the National Math and Science Initiative and is responsible for reporting to all funders. She joined KSTC in 1996 and also serves as KSTC executive vice president. Among Ms. Lang’s leadership responsibilities has been ensuring the creative collaboration and efficiencies among Kentucky Innovation Programs managed by KSTC involving education, R&D and investments in tech-based entrepreneurs. She supported the founding of IdeaFestival, entreSchools and other innovation initiatives. Prior to KSTC, Joanne served at the Kentucky Council on Higher Education for 17 years. As Deputy Executive Director she developed three five-year statewide strategic plans for higher education, including numerous partnerships with K-12 education. She holds a master’s of science from SUNY Buffalo.

SATURDAY MORNING KEYNOTES

Saturday, November 15, 2014
Bluegrass Ballroom

8:30 – 8:45

Welcome from KAS President KC Russell

8:45-9:00

Welcome from Lexington Mayor Jim Gray



9:00- 9:45

Lee T. Todd, Jr.

9:45 – 10:00

Break

10:00 – 10:45

Tracie Prater

10:45 – 11:30

Carole Cramer



LEE T. TODD JR.

Professor of Electrical Engineering
Former President, University of Kentucky

**“Science and Technology in
Kentucky – We Must Do More During the
Next 100 Years”**

Lee T. Todd, Jr. served for 10 years as the 11th president of the University of Kentucky. After a one-year leave-of-absence, he returned to UK as an Electrical Engineering faculty member.

Continued

Dr. Todd, a native of Earlington, Kentucky, received his BS degree in Electrical Engineering from UK and his MS and PhD degrees from M.I.T. where he received six U.S. Patents in the area of large-screen, projection displays. He returned to U.K. where he taught and performed research for nine years before leaving to begin two technology companies based on his research. Projectron, developer of high-resolution, projection CRTs for flight simulators, was purchased by Hughes Aircraft and Todd became Vice President of Hughes Display Products. DataBeam, developer of teleconferencing systems and software, was purchased by I.B.M. in 1998. Todd became Senior Vice President of I.B.M.'s Lotus Development Company and served in that capacity until returning to U.K. as President on July 1, 2001.

Dr. Todd also co-founded the Kentucky Science and Technology Corporation (KSTC) in 1987, a not-for-profit organization focused on increasing university research capacity, developing science and technology education (K-12) programs, and encouraging an entrepreneurial economy in Kentucky.

Dr. Todd served as a member of the National Academies' Committee on Research Universities and presently serves as chair of the Advisory Committee for the National Science Foundation's Directorate for Education and Human Resources.



TRACIE PRATER, PH.D., NASA

“Materials Research at NASA Marshall Space Flight Center.”

Tracie Prater, Ph.D. is an aerospace engineer in the Materials and Processes Laboratory at NASA Marshall Space Flight Center in Huntsville, Alabama. The scope of her work in this position entails verification of materials requirements for space flight hardware, microgravity materials science payloads for the International Space Station (ISS), research initiatives related to manufacturing in space, and development of standards and specifications for additive manufacturing. She received her M.S. and Ph.D. in Mechanical Engineering from Vanderbilt University in 2008 and 2012, respectively. She has a B.S. in Physics from Eastern Kentucky University, where she was a 4th generation EKU student. Tracie is also the director of young professionals for the American Institute of Aeronautics and Astronautics (AIAA) for the southeast region, a full member of Sigma Xi, and an adjunct associate professor in the mechanical engineering department at Vanderbilt University.



CAROLE L. CRAMER, PHD

Director, Arkansas EPSCoR Center for Plant-Powered Production

Professor, Biological Sciences and Arkansas Biosciences Institute at Arkansas State University, Jonesboro

Chief Scientific Officer, BioStrategies LC

“Making human pharmaceutical proteins in plants – the journey from “that’s crazy” to “that’s awesome”

For certain rare genetic diseases, providing the patient with the missing protein (enzyme replacement therapy, often administered weekly) can be a life-saver. However, these complex protein drugs need to be produced in biological systems and are among the most expensive drugs in the world. These drugs are typically produced in mammalian cell cultures grown in large (and expensive) bioreactors. Cramer was a pioneer in developing ways to produce these complex human enzymes in plants. 20 years ago, using plants as factories for human protein was considered improbable, if not impossible. Now the first FDA-approved plant-made therapeutic enzyme is helping hundreds of patients. Cramer will share her scientific journey as the “crazy” plant biologist who thought it was worth a try, found creative ways to fund the research (including starting two start-up biotech companies), and demonstrated that plants are very effective in producing fully functional human lysosomal enzymes. In 2012, Cramer (with her husband David Radin) received a national Tibbetts Award for this innovation and saw the first plant-made pharmaceutical protein receive FDA approval. She now works on the next “crazy” idea, using sugar binding proteins from plants to enhance delivery of these human proteins into critical cells and tissues (the hard-to-reach ones) to increase drug efficacy in addressing these devastating orphan diseases. Cramer received her BA at the University of California, Berkeley and her PhD in Molecular Biology and Biochemistry at UC Irvine. She served on the faculty of Virginia Tech for 18 years prior to moving to Arkansas to head up A-State’s Biosciences Institute in 2004.

PROGRAM SUMMARY**FRIDAY, NOVEMBER 14**

8:00 am - 10:00 am	KAS Governing Board meeting.....	Thoroughbred 3
9:00 am - 4:00 pm	KBRIN Grant-writing workshop	WT Young Library UK campus
10:00am - 12 noon	Kentucky Organization of Field Stations meeting.....	UK Ecological Research & Education Center
10:00am - 12 noon	Kentucky Science Center's STEM Teacher training collaborative	Thoroughbred 2
11:00 am	Sectional Officers and Judges meeting	Thoroughbred 3
Noon - 4:00 pm	All posters on display	Thoroughbred lobby

ORAL PRESENTATIONS

Noon - 12:30 pm	<i>Kentucky Community and Technical College System (KCTCS) General Session.....</i>	<i>Thoroughbred 4</i>
Noon – 2:15 pm	<i>Geography.....</i>	<i>Thoroughbred 2</i>
Noon - 4:00 pm	<i>Chemistry: Organic / Inorganic.....</i>	<i>Thoroughbred 1</i>
12:45 pm - 1:45 pm	<i>KCTCS Physics.....</i>	<i>Thoroughbred 4</i>
	<i>KCTCS Biology.....</i>	<i>Thoroughbred 3</i>
2:00 pm - 4:00 pm	<i>Geology.....</i>	<i>Thoroughbred 3</i>
2:00 pm - 3:00 pm	<i>KCTCS Chemistry.....</i>	<i>Thoroughbred 4</i>

SECTION MEETINGS

Noon -12:30 pm	<i>Physiology & Biochemistry Section Meeting.....</i>	<i>Thoroughbred 3</i>
3:00 pm - 3:30 pm	<i>Agricultural Sciences Section Meeting</i>	<i>Thoroughbred 4</i>
3:30 pm - 4:00 pm	<i>Ecology & Environmental Science Section Meeting.....</i>	<i>Thoroughbred 2</i>
3:30 pm - 4:00 pm	<i>Engineering Section Meeting</i>	<i>Thoroughbred 4</i>
4:00 pm - 4:30 pm	Break	
4:30 pm - 6:00 pm	Symposium: Scientific Communication and Publishing	Thoroughbred 1-2-3
6:00 pm	Social hour	Thoroughbred Lobby
7:00 – 8:30pm	Keynote Speakers.....	Thoroughbred 1-2-3

SATURDAY, NOVEMBER 15

8:00 am - 4:00 pm	Exhibitors (see inside cover)...	Thoroughbred and Bluegrass lobbies
8:00 am - 5:00 pm	Posters 1-128	Thoroughbred Lobby
	AND Posters 129-256.....	Bluegrass Lobby
8:30 am - 11:30 am	Keynote speakers	Bluegrass Ballroom
11:30 am -12:30 pm	Lunch on your own	
11:30 am- 12:30pm	Past Presidents Luncheon	Bluegrass Ballroom

ORAL PRESENTATIONS

12:00 pm - 5:00 pm	<i>Ecology & Environmental Sciences</i>	<i>Thoroughbred 1</i>
12:30 pm - 2:15 pm	<i>Anthropology & Sociology</i>	<i>Elkhorn C</i>
12:30 pm - 2:15 pm	<i>Zoology</i>	<i>Thoroughbred 5</i>
12:30 pm - 2:30 pm	<i>Physics & Astronomy</i>	<i>Thoroughbred 7</i>
12:30 pm - 2:45 pm	<i>Psychology</i>	<i>Elkhorn A</i>
12:30 pm - 3:15 pm	<i>Health Sciences</i>	<i>Elkhorn D</i>
12:30 pm - 3:45 pm	<i>Microbiology</i>	<i>Elkhorn B</i>
12:30 pm - 4:15 pm	<i>Cellular & Molecular Biology</i>	<i>Thoroughbred 8</i>
12:30 pm - 4:15 pm	<i>Science Education</i>	<i>Thoroughbred 3</i>
12:30 pm - 5:00 pm	<i>Agricultural Sciences</i>	<i>Thoroughbred 2</i>
12:30 pm - 5:00 pm	<i>Engineering</i>	<i>Thoroughbred 4</i>
12:30 pm - 5:00 pm	<i>Physiology & Biochemistry</i>	<i>Thoroughbred 6</i>
2:45 pm - 5:00 pm	<i>Botany</i>	<i>Thoroughbred 7</i>
2:30 pm - 4:45 pm	<i>Chemistry: Analytical / Physical</i>	<i>Thoroughbred 5</i>
2:30 pm - 4:30 pm	<i>Mathematics</i>	<i>Elkhorn C</i>
3:15 pm - 4:45 pm	<i>Computer & Information Sciences</i>	<i>Elkhorn A</i>

SECTION MEETINGS

12:30 pm - 1:00 pm	<i>Chemistry: Organic / Inorganic</i> <i>Section Meeting</i>	<i>Bluegrass Ballroom</i>
1:15 pm - 1:45 pm	<i>Chemistry: Analytical / Physical</i> <i>Section Meeting</i>	<i>Bluegrass Ballroom</i>
2:00 pm - 2:30 pm	<i>Geology Section Meeting</i>	<i>Bluegrass Ballroom</i>
2:00 pm - 2:30 pm	<i>Geography Section Meeting</i>	<i>Bluegrass Ballroom</i>
2:45 pm - 3:15 pm	<i>Psychology Section Meeting</i>	<i>Bluegrass Ballroom</i>
2:45 pm - 3:15 pm	<i>Physics & Astronomy Section Meeting</i>	<i>Bluegrass Ballroom</i>
2:45 pm - 3:15 pm	<i>Zoology Section Meeting</i>	<i>Bluegrass Ballroom</i>
2:45 pm - 3:15 pm	<i>Anthropology / Sociology</i> <i>Section Meeting</i>	<i>Bluegrass Ballroom</i>
3:15 pm - 3:45 pm	<i>Health Sciences Section Meeting</i>	<i>Elkhorn D</i>
3:45 pm - 4:15 pm	<i>Microbiology Section Meeting</i>	<i>Elkhorn B</i>
4:15 pm - 4:45 pm	<i>Cellular & Molecular Biology Section Meeting</i>	<i>Elkhorn B</i>
4:15 pm - 4:45 pm	<i>Science Education Section Meeting</i>	<i>Thoroughbred 3</i>
4:30 pm - 5:00 pm	<i>Mathematics Section Meeting</i>	<i>Elkhorn C</i>
5:00 pm - 5:30 pm	<i>Botany Section Meeting</i>	<i>Thoroughbred 7</i>
3:00 pm - 5:00 pm	Poster presentations judging	Thoroughbred Lobby (1-128) and Bluegrass Lobby, (129-256)
5:00 pm	Reception	Thoroughbred Lobby
5:30 pm - 6:30 pm	Kentucky Academy of Science Annual Business Meeting (all members welcome).....	Thoroughbred 2
6:45 pm - 8:30 pm	Awards banquet & Centennial Celebration	Bluegrass Ballroom

KAS CENTENNIAL MEETING FIELD TRIPS AND OUTINGS

Sunday November 16

9:00 am - 12:00 noon, Winchester, KY

Lower Howard's Creek Nature and Heritage Reserve

Hosted by the Kentucky Heritage Land Conservation Fund (KHLCF) and the KAS Ecology and Environmental Sciences section

Led by

Zeb Weese, KHLCF biologist,

Dr. Richie Kessler, Chair, KHLCF,

Albert Meier, Former KAS Representative and Chair of KHLCF.

The Lower Howard's Creek Nature and Heritage Preserve in Clark County is approximately 400 acres of riparian forest on a significant tributary of the Kentucky River, protected in perpetuity by Kentucky Heritage Land Conservation Fund conservation easements. At least two federally endangered species are documented on the site, running buffalo clover and the gray bat, as well as several species listed by the Kentucky State Nature Preserves Commission as rare in the state, including water stitchwort, Missouri arrowwood, and the evening bat. Several researchers from the University of Kentucky, Eastern Kentucky University, and Transylvania University have conducted ecological studies on the site. Current research includes an assessment of the effects of exotic bush honeysuckle infestations on the foraging ability of forest bats by EKU's Dr. Luke Dodd and the KHLCF's Zeb Weese. Visitors will stop at their research plots and a discuss habitat issues on the site. For more information on Lower Howard's Creek go to <http://www.lowerhowardscreek.org>.

Western Kentucky University freshman and Photojournalism major Jennifer King is excited to be the photographer for this year's KAS meeting. From a young age, Jennifer expressed an insatiable curiosity for just about everything. Through photojournalism Jennifer hopes to explore new pressing issues, to learn about a variety of topics, and to create photographs that will draw the attention of readers who, like her, have the desire to discover.



Sunday November 16

2:00 pm

501 West 6th Street, Lexington, KY.

FREE.

West Sixth Brewing

Find out about the science of brewing beer, from one of Lexington's successful small breweries. One hour, Limit 30.

Center for Energy Research Laboratory

2:00 pm

2540 Research Park Drive,

Lexington, KY

Visit the greenhouse where researchers are growing and testing algae as biofuel. This project seeks to mitigate CO₂ emissions from coal-fired power plants and produce biomass as an alternative to carbon-capture technology. The tour will be 90 minutes, indoors. All ages are welcome.

Attention Presenters:

Publish your research in the Journal of the Academy of Science

Spring issue published typically in May/June

- submit by January 31
- decision by March 31

Fall issue published typically in November/December

- submit by July 31
- decision by September 30

The authors may submit at any time by sending an email to the JKAS editor with a copy to ***JournalOfKAS@cs.uky.edu***.

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/>

Centennial Scavenger Hunt

Complete this Scavenger Hunt to win fame, prestige, and fabulous prizes! When you find the person who matches the description, have them sign this page. Extra credit for posting selfies of you and the people that you find to our Facebook page! (Don't forget to tag the pictures!) Find a person who:

1. Has attended more than 10 KAS meetings. _____
2. Is presenting a paper in a field that is not the same as yours. _____
3. Teaches at an institution other than yours. _____
4. Is on the Governing Board for KAS. _____
5. Is a Past President of KAS. _____
6. Attended the first KAS meeting in 1914 (name them here). _____
7. Attends the university where the next meeting is being held. _____
8. Does geocaching as a hobby. _____
9. Does research on infectious diseases. _____
10. Teaches at a Community and Technical College. _____
11. Is attending their first KAS meeting. _____
12. Is the section representative for your field. _____
13. Is presenting a poster in a field that is not the same as yours. _____
14. Does research at one of Kentucky's Field stations. _____
15. Has published in the Journal of the KAS. _____
16. Does research involving nanotechnology. _____
17. Has participated in running a marathon. _____
18. Has lived in any country outside of the USA. _____
19. Has traveled to Central America. _____
20. Does research on something that glows in the dark. _____
21. Forages for food. _____
22. Will graduate from college in 2015. _____
23. Is a graduate student. _____
24. Has a pet other than a cat or dog. _____
25. Loves opera. _____



The KAS Centennial Celebration:

Getting Out of Your Comfort Zone



Because we are celebrating 100 years, we are having an expanded meeting that focuses on convergence of the sciences, providing greater opportunities to interact with those outside your discipline and to better understand the state of science in Kentucky. There will be five plenary lectures spanning the range from research funding to science education to entrepreneurship. The large number of posters and oral talks has been spaced out over a day and a half to provide greater opportunities for everyone to visit the posters and still attend as many oral presentations as possible.



Even though judging does not take place until Saturday, we have asked that posters be set up on Friday so more people can see your work at their leisure. You will notice that the posters are not organized strictly by discipline. This was purposefully done to emphasize the multidisciplinary nature of the Academy. With 19 disciplines represented, the meeting provides a unique opportunity to foster convergence, where scientists from one discipline are encouraged to interact with scientists from other areas. . . .

A botanist may wind up being next to a physicist. How might a botanist and physicist come together to ask and answer a question? We hope it will get you out of your comfort zone and that you will take some time to interact with individuals from disciplines that might be quite different from your own. Each of you is the future of science and the future of the Academy.



PRESENTATIONS

AGRICULTURAL SCIENCES

Hideka Kobayashi, Chair
Kentucky State University

John Sedlacek, Secretary
Kentucky State University

SATURDAY, NOVEMBER 15, 2014
THOROUGHbred ROOM 2

- 12:30 p.m. **Use of Municipal Sewage Sludge in Land Farming.** Regina R Hill - Kentucky State University, George F. Antonious - Kentucky State University
- 12:45 p.m. **Evaluation of Stocking Density During Second Year Growth of Largemouth Bass, *Micropterus salmoides*, Raised Indoors in a Recirculating Aquaculture System.**¹ Chelsea Watts - Kentucky State University, Shawn Coyle - Kentucky State University, Leigh Anne Bright - Kentucky State University, James Tidwell - Kentucky State University
- 1:00 p.m. **Cowpeas (*Vigna unguiculata*) and sweet potatoes (*Ipomoea batatas*) as companion crops in a climate change world and their production yields as monoculture versus polyculture.**¹ Cynthia Rice - Kentucky State University
- 1:15 p.m. **Production of Hybrid Kale, *Brassica oleracea*, Under Different Light Types in an Indoor Aquaponic System.**¹ Eugene Blair - Kentucky State University, Shawn Coyle - Kentucky State University, James Tidwell - Kentucky State University
- 1:30 p.m. **Identification of *Nosema* pathogens in honey bee with Polymerase Chain Reaction rn.**¹ Kemper Rogers - Kentucky State University, Thomas Webster - Kentucky State University, Li Lu - Kentucky State University
- 1:45 p.m. **Evaluation of Fresh Brewers Grains for Onsite Production of Feed for Tilapia in an Aquaponic System.**¹ Richard Hulefeld - Kentucky State University, Kenneth Thompson - Kentucky State University, James Tidwell - Kentucky State University
- 2:00 p.m. **Break – Thoroughbred Lobby and Bluegrass Lobby**
- 2:15 p.m. **GAP recommendations and evaluations of practices from Kentucky farmers: Assessing microbial quality of produce.**² Alexandra Hitter - Kentucky State University
- 2:30 p.m. **No Tillage Culture and Nitrogen Fertilizer Management for Burley Tobacco Production in Kentucky.**² Congming Zou - University of Kentucky, Robert C. Pearce - University of Kentucky,

¹Undergraduate Research Competition

²Graduate Research Competition

John H. Grove - University of Kentucky, Mark S. Coyne - University of Kentucky

- 2:45 p.m. **Growth and Survival of Juvenile Australian Red Claw Crayfish, *Cherax quadricarinatus*, Grown at Three Different Stocking Densities.**² Grant Curran - Kentucky State University, Kenneth Thompson - Kentucky State University, Siddhartha Dasgupta - Kentucky State University
- 3:00 p.m. **Evaluation of hot pepper genotypes for growth and fruit production in Kentucky.**² Joseph K. Palmer - Kentucky State University, Eric T. Turley - Kentucky State University, Regina R. Hill - Kentucky State University, George F. Antonious - Kentucky State University, John C. Snyder - University of Kentucky
- 3:15 p.m. **Overview of Production of Different Plants Raised Under Different Light Types in an Indoor Aquaponic System.**² Luke Oliver - Kentucky State University, Shawn Coyle - Kentucky State University, James Tidwell - Kentucky State University
- 3:30 p.m. **The Inclusion and Content of an International Agricultural Education Course at the Post- Secondary Level: A Delphi Study.** Thomas Kingery - Western Kentucky University
- 3:45 p.m. **Screening the USDA/ARS New Capsicum Genotypes for Fruit Antioxidant Contents.** George F. Antonious - Kentucky State University, Eric T. Turley - Kentucky State University, Hideka Kobayashi - Kentucky State University, John C. Snyder - University of Kentucky
- 4:00 p.m. **Applications of Tomato Grafting in Two Communities.** Clarice Esch - Western Kentucky University
- 4:15 p.m. **Student perceptions of an Agriculture Department Led Study Abroad Experience to Ireland.** Thomas Kingery - Western Kentucky University
- 4:30 p.m. **Monitoring Nutrients Levels in Kentucky River.** Eric Turley - Kentucky State University, George Antonious - Kentucky State University
- 4:45 p.m. **Glucosinolates of Collard Greens Grown Under Three Soil Management Practices.** George F. Antonious - Kentucky State University

¹Undergraduate Research Competition

²Graduate Research Competition

ANTHROPOLOGY AND SOCIOLOGY

Benjamin Freed, Chair
Eastern Kentucky University

Andrew Deane, Secretary
University of Kentucky

SATURDAY, NOVEMBER 15, 2014
ELKHORN ROOM C

- 12:30 p.m. ***The relationship between brain size and muscle mass among primates***
¹ Heidi Vollrath - University of Kentucky, Holden Hemingway - University of Kentucky, Magdalena Muchlinski - University of Kentucky
- 12:45 p.m. **Infant riding and the ontogeny and function of the forelimb and hindlimb musculature of Humboldt's woolly monkey (*Lagothrix lagotricha*)**
¹ Kelly Snowden - University of Kentucky, Vanya Bistrekova - University of Kentucky, Lindsey Hays
Infant riding and the ontogeny and function of the forelimb and hindlimb musculature of Humboldt's woolly monkey (*Lagothrix lagotricha*) - Center for Autoimmune Genomics and Etiology, Cincinnati Children's Hospital Medical Center, William Witt - University of Kentucky, Michael Miller - University of Kentucky, Andrew Deane - University of Kentucky
- 1:00 p.m. **A new scale-free approach to dietary reconstruction in fossil hominoids**
¹ William Witt - University of Kentucky, Andrew Deane - University of Kentucky
- 1:15 p.m. **A qualitative description of forelimb musculature variation in suspensory platyrrhines and hominoids**
¹ Michael Miller - University of Kentucky, Andrew Deane - University of Kentucky
- 1:30 p.m. **Perceived and Experienced Obstacles to Completing an Undergraduate Degree at Northern Kentucky University**
Douglas W. Hume - Northern Kentucky University
- 1:45 p.m. **Are Tarsiers fast or slow? A comparison of the triceps surae muscle and muscle fibers.**
¹ Holden Hemingway - University of Kentucky, Heidi Vollrath - University of Kentucky, Magdalena N. Muchlinski - University of Kentucky
- 2:00 p.m. **Standardization issues for the measurement of mammalian body composition**
¹ Michael Steenken - University of Kentucky, Heidi Vollrath - University of Kentucky, Andrew Deane - University of Kentucky, Magdalena N Muchlinski - University of Kentucky

¹Undergraduate Research Competition

²Graduate Research Competition

BOTANY

Brad Ruhfel, Chair
Eastern Kentucky University

Jann Fry, Secretary
University of Kentucky

SATURDAY, NOVEMBER 15, 2014 THOROUGHBRED ROOM 7

- 2:45 p.m. **Podostemum is not monophyletic: phylogenetic placement of *Podostemum flagelliforme* (Podostemaceae), a neotropical rheophyte rediscovered after 160 years.**¹ William A. Ciocca - Eastern Kentucky University, Claudia P. Bove - Universidade Federal do Rio de Janeiro, C. Thomas Philbrick - Western Connecticut State University, Brad R. Ruhfel - Eastern Kentucky University
- 3:00 p.m. **An evaluation of management strategies for Running Buffalo Clover (*Trifolium stoloniferum*) at the Blue Grass Army Depot, KY.**² Alexi Dart-Padover - Eastern Kentucky University, Jennifer Koslow - Eastern Kentucky University, David Brown - Eastern Kentucky University
- 3:15 p.m. **The Effects of Levee Building on Tree Growth in a Bottomland Hardwood Forest: A Dendrochronological Approach.**² Grace Porter-Walker - Murray State University, Kate He - Murray State University, Nathan English -
- 3:30 p.m. **Vascular Plant Associates of a Population of the Endangered Yellow Gentian (*Gentiana flavida* A. Gray), in Southern Madison County, Kentucky.** Christopher A. Adams - Berea College, Ralph L. Thompson - Berea College
- 3:45 p.m. **One of Kentucky's least explored habitats: slanting sandstone outcrops of Cumberland Mountain.** Allen C. Risk - Morehead State University
- 4:00 p.m. **Digitizing Kentucky's Herbaria.** Brad R. Ruhfel - Eastern Kentucky University
- 4:15 p.m. **Plant Communities of the Bluegrass Region using indicator species for conservation priorities in Garrard County, Kentucky.** Will W. Overbeck - Eastern Kentucky University, Ron L. Jones - Eastern Kentucky University
- 4:30 p.m. **Orange-eye Butterfly Bush (*Buddleja davidii* Franch., Scrophulariaceae) Naturalized, Not Invasive, in Kentucky and Tennessee.** Ralph L. Thompson - Berea College, Katrina Rivers Thompson - Berea College, G. Neil Douglas - Berea College, Paul F. Threadgill - Maryville College
- 4:45 p.m. **An experimental test for sex differences in cost of prefertilization in the plant *Marchantia inflexa* Nees & Mont. (Marchantiaceae).** Min Zheng - School of Environmental Studies, China University of Geosciences (Wuhan), D. Nicholas Mc Letchie - University of Kentucky

¹Undergraduate Research Competition

²Graduate Research Competition

CELLULAR AND MOLECULAR BIOLOGY

Chris Trzepacz, Chair
Murray State University

Dawn Anderson, Secretary
Berea College

SATURDAY, NOVEMBER 15, 2014 THOROUGHbred ROOM 8

- 12:30 p.m. **Role of IFN γ in Experimental Autoimmune Encephalomyelitis.**¹ Alyssa Hubbard - Berea College, Chella David - Mayo Graduate School
- 12:45 p.m. **Effect of Glucose on LOX expression in Renal Cell Lines.**¹ Amber Crabtree - Berea College, Carolina AÃ±azco - Vanderbilt University, Roberto Vanacore - Vanderbilt University
- 1:00 p.m. **Characterization of the spontaneous capillary-like network formation of human stromal vascular fraction cells.**¹ Braden R. Bocard - Georgetown College, Kevin T. Tien - University of Louisville, Venkat M. Ramakrishnan - University of Louisville, Nolan L. Boyd - University of Louisville
- 1:15 p.m. **Investigating the multipotency potential of chondrogenic progenitor cells.**¹ Hsuan Peng - Berea College, Yangzi Jiang - University of Pittsburgh, Rocky S. Tuan - University of Pittsburgh
- 1:30 p.m. **Investigation of Genome Instability Due to Mutations in the SAM1 and SAM2 Genes in *Saccharomyces cerevisiae*.**¹ Justin Gibson - Northern Kentucky University, Erin Strome - Northern Kentucky University
- 1:45 p.m. **Pak1 Activity and Expression in Breast Cancer Growth, Survival, & Motility.**¹ Kelly Kleier - Wood Hudson Cancer Research Laboratory, Tristan Browne M.S. - Wood Hudson Cancer Research Laboratory, Hannah Graff - Wood Hudson Cancer Research Laboratory, Courtney McCall - Wood Hudson Cancer Research Laboratory, Brad Meyer - Wood Hudson Cancer Research Laboratory, Kyle Neltner - Wood Hudson Cancer Research Laboratory, Alexandra Fajardo PhD. - Wood Hudson Cancer Research Laboratory, Julia Carter PhD. - Wood Hudson Cancer Research Laboratory
- 2:00 p.m. **Understanding the Role of Myc In Squamous Cell Carcinoma.**¹ Lin Peng - Berea College, Enrique Torchia - University of Colorado - Denver, Mikayla Peterson - University of Colorado - Denver
- 2:15 p.m. **Break – Thoroughbred Lobby and Bluegrass Lobby**

¹Undergraduate Research Competition

²Graduate Research Competition

- 2:30 p.m. **Possible association between pre-ART CD4+ T-cell count and the emergence of identical HIV-1 sequences after long-term antiretroviral therapy.**¹ Michael J. Bale - University of Kentucky, Ann P. Wiegand - HIV Drug Resistance Program, Christina M. Lalama - Center for Biostatistics in AIDS Research, Harvard College, Ronald J. Bosch - Center for Biostatistics in AIDS Research, Harvard College, Deborah K. McMahon - University of Pittsburgh School of Medicine, Division of , John M. Coffin - Department of Microbiology, Tufts University, Mary F. Kearney - HIV Drug Resistance Program, John W. Mellors - University of Pittsburgh School of Medicine, Division of Infectious Disease
- 2:45 p.m. **The role of Tudor protein in germline development.**¹ Nhaj Huynh - Murray State University, Ming Gao - Murray State University, Jarred Koerner - Murray State University, Patrick McCluskey - Murray State University, Zachary Ryne - Murray State University, Jimiao Zheng - Murray State University, Alexey L. Arkov - Murray State University
- 3:00 p.m. **Identification of fatty acid biosynthesis genes involved in tissue specific production of unusual monoenoic lipids in the trichomes of *Pelargonium x hortorum*.**² Richa A Singhal - University of Louisville, David J. Schultz – University of Louisville
- 3:15 p.m. **Transcriptomic Insights into Drought-Resistant Adaptations in *Bromeliaceae*.**² Victoria Gilkison - Western Kentucky University
- 3:30 p.m. **Characterization of Family Ipyrophosphatase (PpaC) from *S. aureus*.**² Xinyi Zhang - University of Kentucky
- 3:45 p.m. **Mechanism of Membrane Protein Denaturation Monitored Using CPM labeling.**² Zhaoshuai Wang - University of Kentucky, Cui Ye - University of Kentucky, Yinan Wei - University of Kentucky
- 4:00 p.m. **Histological examination of honey bees (*Apis mellifera*) infected with *Nosema* pathogens.** Martin A. Matisoff - Kentucky State University

¹Undergraduate Research Competition

²Graduate Research Competition

CHEMISTRY: ANALYTICAL / PHYSICAL

Pei Gao, Chair
Eastern Kentucky University

William Stevens, Secretary
Kentucky Christian College

SATURDAY, NOVEMBER 15, 2014
THOROUGHBRED ROOM 5

- 2:30 p.m. **Pulsed Chronopotentiometric Method for Simultaneous Detection of Extracellular and Intercellular Potassium Ion Concentration in Blood.**¹ Andrew Sabelhaus - Northern Kentucky University, Simon Segal - Northern Kentucky University, Kebede Gemene - Northern Kentucky University
- 2:45 p.m. **Optimization of ion mobility spectrometry for the detection of trace pesticides.**¹ Grace Anne Martin - Centre College, Leonard T. Demoranville - Centre College
- 3:00 p.m. **Natural Glycoside Capped Gold Nanoparticles - An Attempt to Regain Its Lost Charm.**¹ Jason Payne - Western Kentucky University, Hitesh Kumar Waghvani - Western Kentucky University, Tulsi Modi - Western Kentucky University, Dr. Rajalingam Dakshinamurthy - Western Kentucky University
- 3:15 p.m. **Quantification of Local Bonding Environments in Cesium Silicate Glasses Using Si-29 Magic Angle Flipping NMR.**¹ Pyae Phyo - Berea College, Jay Baltisberger - Berea College, Kevin Sanders - Ohio State University, Eric Keeler - Ohio State University, Philip Grandinetti - Ohio State University
- 3:30 p.m. **Deuterium enrichment, inverse and normal isotope effect during ruthenium catalyzed Fischer-Tropsch Synthesis.**² Jennifer Naumovitz - Eastern Kentucky University, Yunxin Liao - Eastern Kentucky University, Buchang Shi - Eastern Kentucky University
- 3:45 p.m. **Preparation and characterization of mesoscale protein patterns based on nanosphere lithography.**² Panae Noomuna - Eastern Kentucky University, Dr. Gao, Pei - Eastern Kentucky University
- 4:00 p.m. **Kinetic Study of Conversion of Calcium Sulfate Hydration Forms.** Sandeep Kumar Kuthadi - Western Kentucky University, Quentin Lineberry - Western Kentucky University

¹Undergraduate Research Competition

²Graduate Research Competition

- 4:15 p.m. **Chemical Profile Analysis of Beer / Spirits using Direct Analysis in Real Time Mass Spectrometry (DART-MS).** Darrin Smith - Eastern Kentucky University, Alexandra Anderson - Eastern Kentucky University, Kevin Elmer - Eastern Kentucky University, Casey Howdieshell - Eastern Kentucky University, Megan Keller - Eastern Kentucky University
- 4:30 p.m. **William Kelly Pneumatic Iron and Steel Process-Revisited.** Bommanna Loganathan - Murray State University, Harry Fannin - Murray State University, Don Hicks -

¹Undergraduate Research Competition

²Graduate Research Competition

CHEMISTRY: ORGANIC/ INORGANIC

Buchang Shi, Chair
Eastern Kentucky University

Mary Robert Garrett, Secretary
Berea College

FRIDAY, NOVEMBER 14, 2014
THOROUGHbred ROOM 6

- 12:00 p.m. **STEM Undergraduate Research in International Settings.**
Isabelle Lagadic - Northern Kentucky University
- 12:15 p.m. **Infrared Photodissociation Spectroscopy of Metal Carbonyls.**¹ Mikiyas Kurabachew Assefa - Berea College, Michael A. Duncan - University of Georgia
- 12:30 p.m. **Immobilization of flavin adenine dinucleotide at indium tin oxide surfaces through azo coupling.**¹ Tatiana Mikhailova - Berea College, Dr. Nicholas Marshall - Berea College
- 12:45 p.m. **Synthetic and mechanistic studies of highly efficient catalytic oxidations by iron(III) corrole with a mild oxygen source.**² Tse-Hong Chen - Western Kentucky University, Ka Wai Kwong - Western Kentucky University, Rui Zhang - Western Kentucky University
- 1:00 p.m. **Practical Applications of Electrochemical Polymerization for Latent Fingerprint Development on Varying Metal Surfaces.**¹ Courtney Miller - Eastern Kentucky University
- 1:15 p.m. **An Efficient Photocatalytic Oxidation through a Highly Reactive Porphyrin-Ruthenium(V)-Oxo Species.** Weilong Luo - Western Kentucky University, Eric Vanover - University of Kentucky, Rui Zhang - Western Kentucky University
- 1:30 p.m. **Palladium-Catalyzed Direct Heteroarylation of Ketones.**¹ Nathan Johnson - Northern Kentucky University, Thuy (Donna) Do - Northern Kentucky University, Lili Ma - Northern Kentucky University
- 1:45 p.m. **Examining new synthetic strategies that functionalize fullerene and coronene for organometallic supramolecular systems.**¹ Chad Beneker - Northern Kentucky University, Keith A. Walters - Northern Kentucky University
- 2:00 p.m. **Break – Thoroughbred Lobby**
- 2:15 p.m. **Simplified synthetic strategies for fullerene-bipyridine ligands used in organometallic complexes for solar cell dyes.**¹ Jessica Horn - Northern Kentucky University, Keith A. Walters - Northern Kentucky University

¹Undergraduate Research Competition

²Graduate Research Competition

- 2:30 p.m. **Synthesis and Biological Evaluation of Polyhydroxylchalcone as Xanthine Oxidase Inhibitor.**¹Thuy Do - Northern Kentucky University, Jonathan Webster - Northern Kentucky University, Emily Hofmann - Northern Kentucky University, Reid Kline - Northern Kentucky University
- 2:45 p.m. **Progress Toward the Total Synthesis of Recently Isolated Cyclic Peptides.**¹ Lucas Edelen - Northern Kentucky University, Brandon Wiefering - Northern Kentucky University, Kathleen McElheney - Northern Kentucky University, John Carmen - Northern Kentucky University, Amber J. Onorato - Northern Kentucky University
- 3:00 p.m. **Development of MOFs Materials for mercury removal.**² Xin Liu - Western Kentucky University, Nicholas Fedorka - Western Kentucky University, Bangbo Yan - Western Kentucky University
- 3:15 p.m. **Synthesis and Characterization of Peptide-Linked Metal Chelators.**¹ Mary Cundiff - Centre College, Louis Rogers - Centre College
- 3:30 p.m. **Synthesis and Applications of Novel [12]- and [14]-Annulenes.**¹ Andres Gasper - Northern Kentucky University, Melanie Couch - Northern Kentucky University, Andrew Blank - Northern Kentucky University, Dr. K.C. Russell - Northern Kentucky University
- 3:45 p.m. **Photocatalyzed Benzylic Fluorination: An Alternative Approach through Radical Cations.**¹ Michael H McCann - Berea College

¹Undergraduate Research Competition

²Graduate Research Competition

COMPUTER AND INFORMATION SCIENCES

Jerzy Jaromczyk, Chair
University of Kentucky

Sherif Rashad, Secretary
Morehead State University

SATURDAY, NOVEMBER 15, 2014
ELKHORN ROOM A

- 3:00 p.m. **Path-Finding Under Network Uncertainty.**² Bryan A. Knowles - Western Kentucky University, Dr. Mustafa Atici - Western Kentucky University
- 3:15 p.m. **What a Smartphone Says.** Jacob Crump - Morehead State University
- 3:30 p.m. **Using Data Mining Techniques to Predict Possible Adverse Drug Effects.** Brittany Hodge - Morehead State University
- 3:45 p.m. **Using a Genetic Algorithm and Wisdom of Artificial Crowds for Decoding Substitution Ciphers.**² Marc Beck - University of Louisville, Roman Yampolskiy - University of Louisville
- 4:00 p.m. **Understanding the process of mobile malware creation.** Tiaunda Ramsey - Morehead State University
- 4:15 p.m. **Predicting behavior of mobile users using mobile computing algorithms.**¹ Jonathon Byrd - Morehead State University, Sherif Rashad - Morehead State University

¹Undergraduate Research Competition

²Graduate Research Competition

ECOLOGY AND ENVIRONMENTAL SCIENCE

Stephen Yanoviak, Chair
University of Louisville

Secretary

SATURDAY, NOVEMBER 15, 2014 THOROUGHbred ROOM 1

- 12:00 p.m. **Nutrient Dynamics and Water Quality in Ohio River Tributary Ecosystems.** Martha L. Carlson Mazur - Bellarmine University, Rachel Clemons - Bellarmine University, Grace Mican - Bellarmine University
- 12:15 p.m. **Influences of a filled valley and deep soil water saturation on tree growth in the Green River floodplain.** Victoria Peters - Western Kentucky University, Albert Meier - Western Kentucky University, Michael May - Western Kentucky University, Thomas Brackman - Northern Kentucky University
- 12:30 p.m. **Food Forestry in Urban Public Areas.**¹ Brittany Austin - Western Kentucky University
- 12:45 p.m. **Leaded paint as a source of soil lead in Berea, Kentucky.**¹ Michael S. Oxendine - Berea College, Rachele S. Johnson - Berea College, Bishnu Kafley - Berea College, Paul C. Smithson - Berea College
- 1:00 p.m. **Isolation, Disturbance, and Watershed Affiliation as Factors in the Diversity and Abundance of Stream Salamanders in Central Kentucky.**¹ Michon Martin - Berea College, Taylor Fagin - Berea College, Brenna Goldberg - Berea College, Sean Nilan - Berea College, Leif Van Laar - Berea College, Roy Scudder-Davis - Berea College
- 1:15 p.m. **Analysis of Barriers of Participation in Cost-Share Programs.**¹ Sait Sarr - Kentucky State University, Gyawali, Buddhi - Kentucky State University
- 1:30 p.m. **Eco-Friendly Synthesis of Ceftazidime Gold Nanoparticles and Evaluation of its Antibacterial Activity.**¹ William R. Hamilton - Western Kentucky University, Tulsi Modi - Western Kentucky University, Hitesh Kumar Waghvani - Western Kentucky University, Sarah Tockstein - Western Kentucky University, Jason Payne - Western Kentucky University, Dr. Rajalingam Dakshinamurthy - Western Kentucky University
- 1:45 p.m. **Exploring the relationship between coal mining and land cover change in the Appalachian region.**² Andrew Gott - Kentucky State University, Dr. Buddhi Gyawali - Kentucky State University, Ken Bates - Kentucky State University

¹Undergraduate Research Competition

²Graduate Research Competition

- 2:00 p.m. **Invasive Pac Man: Diet Analysis of Silver Carp (*Hypophthalmichthys molitrix*) in Major Kentucky Reservoirs.**² Ben Tumolo - Murray State University, Michael Flinn - Murray State University
- 2:15 p.m. **The influence of woody vines on Neotropical canopy ant communities.**² Benjamin Adams - University of Louisville, Stephen Yanoviak - University of Louisville
- 2:30 p.m. **New Gar in Town: Diet Overlap of Reintroduced Alligator Gar with Three Sympatric Relatives.**² Bradley Richardson - Murray State University, Dr. Michael Flinn - Murray State University
- 2:45 p.m. **How aging silver nanoparticles effect their toxicity in *Caenorhabditis elegans*.**² Daniel L. Starnes - University of Kentucky, Stuart Lichtenberg - University of Kentucky, Jason Unrine - University of Kentucky, Catherine P. Starnes - University of Kentucky, Blanch Collin - University of Kentucky, Paul Bertsch - University of Kentucky, Olga Tsuysko - University of Kentucky
- 3:00 p.m. **Lightning ecology and the electrical resistivity of trees.**² Evan M Gora - University of Louisville, Stephen P Yanoviak - University of Louisville
- 3:15 p.m. **Epiphytic diatom community structure in a karst riverine system.**² Gregory Barren - Western Kentucky University, Scott A. Grubbs - Western Kentucky University
- 3:30 p.m. **Examination of enrichment using space and food for African elephants (*Loxodonta africana*) at the San Diego Zoo Safari Park.**² Lance Miller - Chicago Zoological Society - Brookfield Zoo, Bruce Schulte - Western Kentucky University
- 3:45 p.m. **Comparative decay rates of allochthonous macroproducers and riverine *Cladophora*.**² Megan Grandinetti - Western Kentucky University, Dr. Scott Grubbs - Western Kentucky University, Dr. Albert Meier - Western Kentucky University, Delaney Rockrohr - Western Kentucky University
- 4:00 p.m. **Occurrence of mammalian prey and scavengers on potential re-introduction sites for *Nicrophorus americanus* (Coleoptera: Silphidae; American burying beetle) at Land-Between-the-Lakes National Recreation Area.**² Nick Cash - Murray State University, Terry Derting - Murray State University
- 4:15 p.m. **Exploring Pool Areas for Macroinvertebrate Community Responses to a Headwater Stream-Wetland Restoration in Eastern Kentucky.**² Rebecca Roberts - Eastern Kentucky University, Amy Braccia - Eastern Kentucky University, Arthur Parola - University of Louisville, Clayton Mastin - University of Louisville

¹Undergraduate Research Competition

²Graduate Research Competition

- 4:30 p.m. **Factors influencing the production of suitable roost trees for the Indiana bat, *Myotis sodalis* Miller and Allen.**² Santiago Martin - Murray State University, Terry Derting - Murray State University
- 4:45 p.m. **As, Cd, Pb, and formaldehyde in domestic and imported whiskey and wine available in Kentucky.** John G. Shiber, PhD - Kentucky Community and Technical College System
- 5:00 p.m. **Hatchery Creek Restoration at Wolf Creek Dam, Russel County, KY: Constructing the “Field of Dreams.”** Michael B. Flinn - Murray State University, Bradley Richardson - Murray State University, Benjamin Tumolo - Murray State University, Christiane Soldo - Murray State University, Michael Chaise Gilbert - Western Kentucky University

¹Undergraduate Research Competition

²Graduate Research Competition

ENGINEERING

Nilesh Joshi, Chair
Morehead State University

Sanjeev Adhikari, Secretary
Morehead State University

SATURDAY, NOVEMBER 15, 2014 THOROUGHBRED ROOM 4

- 12:30 p.m. **Study on the die-sinking micro-electro-discharge machining of Ti-6Al-4V with focus on surface quality of micro features.**¹ Jack Wassom - Western Kentucky University, Muhammad Jahan - Western Kentucky University
- 12:45 p.m. **Mission Operations for the ISEE-3 Reboot Project.**¹ Kennedy Haught - Morehead State University, Benjamin K. Malphrus - Morehead State University, Bob Kroll - Morehead State University
- 1:00 p.m. **Design and Development of a Digital CricketSat.**¹ Murphy Stratton - Morehead State University, Bob Twiggs - Morehead State University, Ben Malphrus - Morehead State University, Bob Kroll - Morehead State University
- 1:15 p.m. **Morehead Satellite Communication Operations.**¹ Sarah Wilczewski - Morehead State University, Dr Benjamin Malphrus - Morehead State University, Robert Twiggs - Morehead State University, Robert Kroll - Morehead State University
- 1:30 p.m. **Development of the Tu-POD at the morehead state university space science center.**¹ Travis S. Miller - Morehead State University, Zachary S. Taulbee - Morehead State University, David S. Mays - Morehead State University, Jennafer L. A. Grindrod - Morehead State University, Jacob R. Wade - Morehead State University, Robert J. Twiggs - Morehead State University
- 1:45 p.m. **Archiving TCP IP Wi-Fi Connection at 10,000ft with a Raspberry Pi Powered ARLISS Payload.**¹ William L. Roach-Barrette - Morehead State University
- 2:00 p.m. **Break – Thoroughbred Lobby and Bluegrass Lobby**
- 2:15 p.m. **Ergonomics Risk Analysis using Human Modeling and Simulation.**¹ Cody Garcia - Morehead State University, Nilesh Joshi - Morehead State University
- 2:30 p.m. **The Evolution of the PocketQube Form Factor.**¹ David S. Mays - Morehead State University, Bob J. Twiggs - Morehead State University, Dr. Ben K. Malphrus - Morehead State University, Jordan Healea - Morehead State University

¹Undergraduate Research Competition

²Graduate Research Competition

- 2:45 p.m. **Modeling and Simulation of Orbital Elements for Nanosatellites for Data Exfiltration from Unattended Ground Sensors.**² Jonathan F. Fitzpatrick - Morehead State University, Jeff Kruth (mentor) - Morehead State University, Ben Malphrus (mentor) - Morehead State University
- 3:00 p.m. **Development of a CZT-based X-Ray Detector Array for use on the Cosmic X-Ray Background NanoSatellite-2; Precision mapping of the Diffuse X-Ray Background.**² Jordan Healea - Morehead State University, Sean McNeil - Morehead State University, Benjamin Malphrus - Morehead State University, Kevin Brown - Morehead State University
- 3:15 p.m. **ELECTRICAL POWER SYSTEM FOR DEEP SPACE APPLICATIONS.**² Kien Dang - Morehead State University, Jordan Healea - Morehead State University, Travis Miller - Morehead State University
- 3:30 p.m. **Investigating the machinability and challenges during micro scale electro-discharge machining of Titanium alloys.**² Pegah Kakavand - Western Kentucky University, Mychal-Drew Moses - Western Kentucky University, Muhammad Jahan - Western Kentucky University
- 3:45 p.m. **Electro-discharge machining of shape memory alloy - A review.**² Pegah Kakavand - Western Kentucky University, Muhammad Jahan - Western Kentucky University
- 4:00 p.m. **Investigating the effectiveness of Titanium Carbo-Nitride and Aluminium Titanium Nitride coatings on the carbide tool for dry machining of Ti-6Al-4V.**² Abdulhameed Dawood - Western Kentucky University, Muhammad Jahan - Western Kentucky University, Greg Arbuckle - Western Kentucky University
- 4:15 p.m. **Smart Tagging method to track multiple Ultrasonic Transmitters in a Ultrasonic based Tracking System.**² Chaitanya Deepak Dogga - Murray State University, Sanjeevi Chitikeshi - Murray State University, Nagaraju Pureti - Murray State University, Yashashree Nimje - Murray State University
- 4:30 p.m. **ARLISS High Definition Video Experiment.** Michael Robbins - Morehead State University, Kaden Martin - Morehead State University, Bob Twiggs - Morehead State University

¹Undergraduate Research Competition²Graduate Research Competition

GEOGRAPHY

Leslie North, Chair
Western Kentucky University

Jason Polk, Secretary
Western Kentucky University

FRIDAY, NOVEMBER 14, 2014 THOROUGHBRED ROOM 2

- 12:00 p.m. **Spatial Analysis of Solid Waste Generation Streams at Higher Educational Institutes with GIS Application: Western Kentucky University Case Study.**² Kianoosh Ebrahimi - Western Kentucky University, Dr. Leslie North - Western Kentucky University, Dr. Jun Yan - Western Kentucky University
- 12:15 p.m. **Sustainability interpretive sign use on a university campus: A matter of perspective.**² Ellen Barringer - Western Kentucky University, Dr. Leslie North - Western Kentucky University, Christian Ryan - Western Kentucky University
- 12:30 p.m. **Country Political Risk: Influence of Bordering Nations.** Christine E. Emrich - Morehead State University, Donald J. Burns - Morehead State University
- 12:45 p.m. **Glacial Pollution in the Cordillera Blanca Mountains of Peru.** John All - Western Kentucky University, Carl Schmitt - , Aaron Celestian - Western Kentucky University
- 1:00 p.m. **Carbon Cycling Dynamics Inferred from Carbon Isotope Sourcing in a Mid-Latitude Karst-Influenced River.** Kegan McClanahan - Western Kentucky University, Jason Polk - Western Kentucky University, Chris Groves - Western Kentucky University, Laura Osterhoudt - Western Kentucky University, Scott Grubbs - Western Kentucky University
- 1:15 p.m. **Where Are You From?** Glen Conner - Western Kentucky University
- 1:30 p.m. **Climate Change, Water Resources, and Karst Environments: A Geographical Nexus of Complex Problems in Kentucky and Abroad.** Jason S. Polk - Western Kentucky University, Leslie A. North - Western Kentucky University
- 1:45 p.m. **Using Visual Learning Design to Promote Water Literacy in Rural West Africa.** Jonathan Oglesby- Western Kentucky University, Leslie North - Western Kentucky University
- 2:00 p.m. **LiDAR, Mounds and Missing Cemeteries: KYAPED to the Rescue.** Demetrio P. Zourarakis - Kentucky Division of Geographic Information
- 3:30 p.m. **Break – Thoroughbred Lobby**

¹Undergraduate Research Competition

²Graduate Research Competition

GEOLOGY

Charles Mason, Chair
Morehead State University

Frank Ettensohn, Secretary
University Of Kentucky

FRIDAY, NOVEMBER 14, 2014 THOROUGHbred ROOM 3

- 2:00 p.m. **Nutrient and fecal microbe contamination within the Otter Creek watershed, Madison County, Kentucky.**¹ Nathaniel Crockett - Eastern Kentucky University, Walter S. Borowski - Eastern Kentucky University
- 2:15 p.m. **An Investigation of Groundwater Flow in the Vicinity of Patoka Dam, Indiana to Support Dam Safety Risk Assessment.**² Lee Anne Bledsoe - WKU Crawford Hydrology Laboratory, Chris Groves - Western Kentucky University, Kenneth Henn - U.S. Army Corps of Engineers Louisville District, Jackie Rowe - U.S. Army Corps of Engineers Louisville District
- 2:30 p.m. **Soil and Water Quality at Two Eastern Kentucky Coal Fires.**² Trenede M. Garrison - University of Kentucky, James Hower - University of Kentucky
- 2:45 p.m. **Updating the Fresh-Saline Water Interface Map in Eastern Kentucky.**¹ Jerrad Grider - University of Kentucky, Thomas (Marty) Parris - University of Kentucky
- 3:00 p.m. **Tectonic controls on the Devonian Shale Gas Plays along the Pine Mountain Thrust fault System.**¹ Brad Stanley - Western Kentucky University, Nahid Gani - Western Kentucky University
- 3:15 p.m. **Geothermobarometry of Lithologies at Winding Stair Gap, NC.**¹ Brook Curry - Western Kentucky University, Dr. Andrew Wulff - Western Kentucky University
- 3:30 p.m. **An Early Silurian Dysaerobic Fauna from Eastern Kentucky, U.S.A.: Changing Paleozoic Patterns of Dominance and Tropic Structure in Dysaerobic Communities.** Charles E. Mason - Morehead State University, Frank R. Ettensohn - University of Kentucky, R. Thomas Lierman - Eastern Kentucky University, Stewart M. Abrams - Morehead State University
- 3:45 p.m. **Functional Morphology of the Unusually Large Crinoid Stem of *Rhabdocrinus*? From the Upper Mississippian Slade Formation, Eastern Kentucky, U.S.A.** Frank R. Ettensohn - University of Kentucky, Donald R. Chestnut Jr. - Morehead State University

¹Undergraduate Research Competition

²Graduate Research Competition

HEALTH SCIENCES

Lingyu Huang, Chair
Kentucky State University

Avinash Tope, Secretary
Kentucky State University

SATURDAY, NOVEMBER 15, 2014 ELKHORN ROOM D

- 12:30 p.m. **Comparative study of Glucocorticoid and Mineralocorticoid receptor roles in *Xenopus* Development.**¹ Audrey C. Brown - Western Kentucky University, Leena Shewade - University of Cincinnati, Daniel Buchholz - University of Cincinnati
- 12:45 p.m. **Testing of Water Purification System in Haiti.**¹ Candice Graves - Eastern Kentucky University, Dr. Jason Marion - Eastern Kentucky University, Ashton Porter - Eastern Kentucky University
- 1:00 p.m. **Does Exposure to TiO₂ Nanoparticles Trigger Inflammatory Response in Mice?**¹ Cyrus Sadrinia - Western Kentucky University, Ananya Sharma - Western Kentucky University, Nilesh Sharma - Western Kentucky University
- 1:15 p.m. **Experimental analysis of the effects of animal-assisted therapy on the physiological and psychological stress of first-year female undergraduates.**¹ Dr. Terry Derting - Murray State University
- 1:30 p.m. **The effects of excess taurine during adolescence on learning and memory.**¹ Josephine Brown - Northern Kentucky University, Clare Pickering Ludwig - Northern Kentucky University, Jamie Weimer - Northern Kentucky University, Sean Campbell - Northern Kentucky University, Samantha Hampton - Northern Kentucky University, Christine Perdan Curran - Northern Kentucky University
- 1:45 p.m. **Herpes Simplex Virus Infection Alters Tau Metabolism in Cells of the Central Nervous System.**¹ Sean Shumate - Northern Kentucky University, Joseph Mester - Northern Kentucky University
- 2:00 p.m. **Break – Thoroughbred Lobby and Bluegrass Lobby**
- 2:15 p.m. **Evaluating Cyanobacteria Concentrations in Selected Central Kentucky Lakes.**¹ Stephanie Moore - Eastern Kentucky University, Dr. Jason Marion - Eastern Kentucky University
- 2:30 p.m. **Sleep fragmentation induces tissue-specific changes in cytokine gene expression and increases serum corticosterone concentration in a murine model.**² Jennifer Dumaine - Western Kentucky University

¹Undergraduate Research Competition

²Graduate Research Competition

- 2:45 p.m. **Viability of Losartan and other anti-fibrotics in combination with oncolytic adenovirus therapy.**² Stephen Wechman - University of Louisville, Dr. Xiao-Mei Rao - University of Louisville, Harry Gao - University of Chicago, Dr. Kelly McMasters - University of Louisville, Dr. Heshan Zhou - University of Louisville
- 3:00 p.m. **Anacardic Acid as Complementary Medicine for Pancreatic Cancer Patients.** Maiyon Park - KYCOM, University of Pikeville, Scott Craver - KYCOM, University of Pikeville, Austin Thacker - University of Pikeville, Dawn Neal - KYCOM, University of Pikeville

¹Undergraduate Research Competition

²Graduate Research Competition

MATHEMATICS

John Porter, Chair
Murray State University

R. Douglas Chatham, Secretary
Morehead State University

SATURDAY, NOVEMBER 15, 2014

ELKHORN ROOM C

- 2:30 p.m. **Fibonacci, Zeckendorf, and Strategic Games.**¹ Larisa Gauze - Morehead State University
- 2:45 p.m. **Conflicting Sines: Newton's Anagram and His Priority Dispute with Leibniz.** Dr. Andy Martin - Kentucky State University
- 3:00 p.m. **On the Number of Representations of a Positive Real Number as a Finite or Infinite Sum of Distinct Unit Fractions.** Dr. Andy Martin - Kentucky State University, Dr. Max Brown - Kentucky State University, Dr. Robert Hebble - Kentucky State University, Jonathan Martin - Kentucky State University
- 3:15 p.m. **The Urban Planning Problem.** Brittany Knapmeyer - Morehead State University
- 3:30 p.m. **Predicting Play Calls: A Topological Approach.** Kirklyn Phelps - Morehead State University
- 3:45 p.m. **The n-queens problem with forbidden squares.** R. Douglas Chatham - Morehead State University
- 4:00 p.m. **On Coefficients of Polynomial Functions.** Carolyn Crump - Morehead State University
- 4:15 p.m. **A note on Collins-Roscoe Structuring Mechanism and D-spaces.** John Porter - Murray State University

¹Undergraduate Research Competition

²Graduate Research Competition

MICROBIOLOGY

Cangliang Shen, Chair
Western Kentucky University

Geoff Gearner, Secretary
Morehead State University

SATURDAY, NOVEMBER 15, 2014

ELKHORN ROOM B

- 12:30 p.m. **Analyzing sequence variation of centromeric regions from wild and lab isolates of *Saccharomyces cerevisiae*.**¹ Collin Johnson - Northern Kentucky University, Erin D. Strome - Northern Kentucky University
- 12:45 p.m. **A study of *Nosema apis* and *Nosema ceranae* in Honeybees, *Apis mellifera*.**¹ Kristin Conrad - Kentucky State University, Thomas Webster - Kentucky State University, Li Lu - Kentucky State University
- 1:00 p.m. **Incidence of Antibiotic Resistant Genes in Well Water From Southeastern Kentucky.**¹ Megan Holmes - Eastern Kentucky University, Heath Ward - Eastern Kentucky University, Brooke Johnson - University of Kentucky, Jason Marion - Eastern Kentucky University, William Staddon - Eastern Kentucky University
- 1:15 p.m. **Immunological Effect of Respiratory Syncytial Virus F Peptide on Culture-Derived Alveolar Macrophages.**¹ Rachael Cicci - Northern Kentucky University, Joseph Mester - Northern Kentucky University
- 1:30 p.m. **Kanamycin Functionalized Gold Nanoparticles with Potent Antibacterial Activity.**² Hitesh Kumar Waghwani - Western Kentucky University, Tulsi Modi - Western Kentucky University, Jason Payne - Western Kentucky University, Michael Connor - University of Louisville, Dr. Matthew Lawrenz - University of Louisville, Dr. Rajalingam Dakshinamurthy - Western Kentucky University
- 1:45 p.m. ***Aggregatibacter actinomycetemcomitans* *qseBC* in the Mediation of Catecholamine Hormone Acquisition of Iron.**² W.A. Weigel - University of Louisville, D.R. Demuth - University of Louisville
- 2:00 p.m. **Break – Thoroughbred Lobby and Bluegrass Lobby**
- 2:15 p.m. **Equine Influenza A (H3N8) Virus Infections in Cats.** Alexander C K Lai - Kentucky State University, Shuo Su - South China Agricultural University, Xinliang Fu - South China Agricultural University, Shuyi He - South China Agricultural University, Malin Hong - South China Agricultural University, Pei Zhou - South China Agricultural University, Shoujun Li - South China Agricultural University, Gregory Grey - University of Florida

¹Undergraduate Research Competition

²Graduate Research Competition

- 2:30 p.m. **DprA is required for natural transformation and limits pilin antigenic variation in *Neisseria gonorrhoeae*.** Paul M. Duffin - Transylvania University, Daniel A. Barber - Transylvania University
- 2:45 p.m. **Decontamination of pathogenic bacteria from Hybrid Stripped bass fillets by acidic electrolyzed water.** Changzheng Wang - Kentucky State University, Jiashuo Ma - Kentucky State University, Robert Durborow - Kentucky State University, Lingyu Huang - Kentucky State University, Cecil Butler - Kentucky State University
- 3:00 p.m. **A Search for Novel Inhibitors of UDP-N-acetylglucosamine enolpyruvyl transferase (MurA).** Luke Presson - Centre College
- 3:15 p.m. **Identifying MurA (UDP-N-acetylglucosamine enolpyruvyl transferase) Inhibitors Using DOCK6 Screening.** Daniel S. Graham - Centre College

¹Undergraduate Research Competition

²Graduate Research Competition

PHYSICS AND ASTRONOMY

Keith Andrew, Chair
Western Kentucky University

Robert Arts, Secretary
University of Pikeville

SATURDAY, NOVEMBER 15, 2014
THOROUGHbred ROOM 7

- 12:30 p.m. **Spatially Resolved Spectral Analysis of Galactic Supernova Remnant W28 with the Chandra X-ray Observatory.**¹ Alekzander R. Kosakowski - Morehead State University, Dr. Thomas G. Pannuti - Morehead State University
- 12:45 p.m. **Damage of DNA by helium and oxygen atmospheric pressure plasma jet.**¹ Catie Luck - Thomas More College, Sylwia Plasinska - University of Notre Dame
- 1:00 p.m. **Fluorescence of Laser Pointer Light by Neon Pigments.**¹ Clarissa A. Roe - Morehead State University, Jennifer J. Birriel - Morehead State University
- 1:15 p.m. **A Multi-wavelength Analysis of Cold Evolving Interstellar Clouds.**¹ Mary Spraggs - Western Kentucky University, Steven Gibson - Western Kentucky University
- 1:30 p.m. **Search for the Z-Prime Boson with the Hiperwall Visualization System using the LHC-ATLAS Datasets.**¹ Tyler Martinez - Bellarmine University, Bryan Fagan - University of Louisville, Amber Byrum - Bellarmine University, Dr. Akhtar Mahmood - Bellarmine University
- 1:45 p.m. **Why IC 3599 is not a Tidal Disruption Event.** Dirk Grupe - Morehead State University
- 2:00 p.m. **A quantum history of the helium ground state.** Ed Montgomery - Centre College
- 2:15 p.m. **Incorporating Peer Instruction In Online Introductory Physics.** Kent J. Price - Morehead State University

¹Undergraduate Research Competition

²Graduate Research Competition

PHYSIOLOGY AND BIOCHEMISTRY

Michael Fultz, Chair
Morehead State University

Sarah Blank, Secretary
Berea College

SATURDAY, NOVEMBER 15, 2014 THOROUGHbred ROOM 6

- 12:30 p.m. **Novel small molecule inhibitors of the CLC-Ka Chloride Channel.**¹ Chase Wood - Georgetown College, Jonas Almqvist - , Kee-Hyun Choi - , Anna Koster - , Rhiannon Thomas - , Justin Du Bois - , Merritt Maduke -
- 12:45 p.m. **SCN Prevents HOBr-mediated Formation of Sulfilimine Crosslinks in Collagen IV Scaffolds.**¹ Chi Peng - Berea College, Christopher F. Cummings - Vanderbilt University, Billy Hudson - Vanderbilt University
- 1:00 p.m. **Exploring novel psychiatric drug actions at the alpha2A adrenergic receptor.**¹ Craig J. Ferryman - Morehead State University, Bethanny Glahn - Morehead State University, Christopher Cottingham - Morehead State University
- 1:15 p.m. **Measuring Changes in TOR Activity and the Impact on Genome Instability.**¹ Eon Chilson - Northern Kentucky University, Patrick Pocsatko - Northern Kentucky University, Erin D. Strome - Northern Kentucky University
- 1:30 p.m. **Two germline variants of transforming growth factor-beta receptor 1 and their associations with colorectal carcinoma.**¹ Hannah Pennington - Wood Hudson Cancer Research Laboratory, Gretchen Mueller - Wood Hudson Cancer Research Laboratory, Kyle Idoine - Wood Hudson Cancer Research Laboratory, Katilyn Gronauer - Wood Hudson Cancer Research Laboratory, Ryan Staun - Wood Hudson Cancer Research Laboratory, Grant Lewis, B.A. - Wood Hudson Cancer Research Laboratory, Larry Douglass, M.D. - Wood Hudson Cancer Research Laboratory, Julia Carter, PhD. - Wood Hudson Cancer Research Laboratory
- 1:45 p.m. **The pharmacological profile of the cholinergic system on larval Drosophila heart.**¹ Henry Uradu - University of Kentucky, Cole Malloy - University of Kentucky, Jessica Hill - University of Kentucky, Kyle Ritter - Centre College, Johnathan Robinson - Morehead State University, Wen Hui Wu - University of Kentucky, Robin Cooper - University of Kentucky

¹Undergraduate Research Competition

²Graduate Research Competition

- 2:00 p.m. **Chalcones and Analogues of Caffeic Acid Phenethyl Ester as Compounds Capable of Suppressing Oxidative Stress in Cells.**¹ Jonathan Webster - Northern Kentucky University, Lindsey Snider - Northern Kentucky University, Emily Hofmann - Northern Kentucky University, Stefan Paula - Northern Kentucky University, Reid Kline - Northern Kentucky University
- 2:15 p.m. **Assessing the role of CYP1B1 on motor function using a mouse model.**¹ Megan Menix - Northern Kentucky University, Chloe Bates - Northern Kentucky University, Samantha Hampton - Northern Kentucky University, Sean Campbell - Northern Kentucky University, Kelsey Klinefelter - Northern Kentucky University, Breann Hays - Northern Kentucky University, Molly Kromme - Northern Kentucky University, Christine Perdan Curran - Northern Kentucky University
- 2:30 p.m. **Break – Thoroughbred Lobby and Bluegrass Lobby**
- 2:45 p.m. **Gene expression and cerebellar development in mice exposed to polychlorinated biphenyls during development.**¹ Molly Kromme - Northern Kentucky University, Samantha Hampton - Northern Kentucky University, Melinda Stegman - Northern Kentucky University, Chloe Temple Bates - Northern Kentucky University, Alejandro Juarez Lopez - , Christine Perdan Curran - Northern Kentucky University
- 3:00 p.m. **The Effects of Rho-kinase Inhibition on Alpha-Actin and Beta-Actin Cytoskeletal Remodeling in Resting and Contracting Aortic Smooth Muscle Cells.**¹ Sarah McClanahan - Morehead State University, Michael E. Fultz - Morehead State University
- 3:15 p.m. **Restoration of enzymatic activity of energy related proteins in traumatic brain injured rats following the administration of gamma-glutamylcysteine ester ether.**² Brittany B. Rice - Eastern Kentucky University, Tanea T. Reed - Eastern Kentucky University
- 3:30 p.m. **Morphological and Histological Study of Prostate in Hormonal Regulated Animals.**² Nidal Shkarni - Murray State University, Suguru Nakamura - Murray State University
- 3:45 p.m. **Labeling and Tracing of Efflux Pump AcrB Using a Non-radioactive Method.**² Qian Chai - University of Kentucky
- 4:00 p.m. **The Role of Vesicle- Associated Membrane Proteins (VAMPs) in Differential Platelet Exocytosis and Granule Biogenesis.**² Smita Joshi - University of Kentucky, Dr. Sidney W. Whiteheart - University of Kentucky

¹Undergraduate Research Competition

²Graduate Research Competition

- 4:15 p.m. **Interaction of Human Fibroblast Growth Factor-1 with a Tyrosine Kinase Inhibitor: Imatinib.**² Tulsi Modi - Western Kentucky University, Dr. Rajalingam Dakshinamurthy - Western Kentucky University
- 4:30 p.m. **Attenuated RBM3 induction by cold shock in myotubes.**² Yuechen Zhu - University of Kentucky, Amy Confides - University of Kentucky, Robin Cooper - University of Kentucky, Esther Dupont-Versteegden - University of Kentucky
- 4:45 p.m. **Photochemistry and Photophysics of Fluoxetine.** Krista Loose - Northern Kentucky University, Vicheth Kong - Northern Kentucky University, Brooke Siegel - Northern Kentucky University, Rachael Wessner - Northern Kentucky University, Patrick M. Hare - Northern Kentucky University

¹Undergraduate Research Competition

²Graduate Research Competition

PSYCHOLOGY

David Porter, Chair
Berea College

David Butz, Secretary
Morehead State University

SATURDAY, NOVEMBER 15, 2014 ELKHORN ROOM A

- 12:30 p.m. **A Role for Dopamine in Avian Pair Bonds.**¹ Andrea Merchak - Centre College, Taylor Walker-Smith - Centre College, Melissa Burns-Cusato - Centre College
- 12:45 p.m. **Shake it off! College Students and concussion reporting.**¹ Erika Ripberger - Centre College, Allison Chumbley - Centre College
- 1:00 p.m. **Judges, Attorneys, Bias, and "Prehabilitation."**¹ Hillary Moore - Centre College, Leah Storch - Centre College, Mykol C. Hamilton - Centre College
- 1:15 p.m. **Off Field Aggressive Tendencies in Non-Athletes and Athletes of Contact and Non-Contact Sports.**¹ Laura Tan - Centre College, Lydia Prevost - Centre College
- 1:30 p.m. **Perceived Parent-Child Relationships Through Children's Five-Minute Speech Samples.**² Evan Rollins - Morehead State University, Shari Kidwell - Morehead State University, Josh Combs - Morehead State University, Truman Harris - Morehead State University, Kayla Nichelson - Morehead State University, Ashley Morris - Morehead State University
- 1:45 p.m. **Connections between parental emotion-coaching and adolescent emotion regulation: An observational study.**² K.D. Nichelson - Morehead State University, G.T. Harris - Morehead State University, B.N Weeks - Morehead State University, O.G. Reed - Morehead State University, S.L. Kidwell - Morehead State University
- 2:00 p.m. **Initial Validation of the Hexaflex Process Assessment Scale.**² Kellen Crager - Morehead State University, Aaron Ellis - Morehead State University, John T. Blackledge - Morehead State University, Richard Ward - Morehead State University
- 2:15 p.m. **Parental mentalizing in association with trauma and sensitive interactive behavior.**² Ashley Nicole Morris - Morehead State University, Dr. Shari Kidwell - Morehead State University, Kayla Sizemore - Morehead State University, Sarah Keating - Morehead State University, Tenecia Wellington - Morehead State University
- 2:30 p.m. **The Relationship Between Parental Trauma and Adolescent Self-Protective Attachment Strategies.**² Harris, G.T. - Morehead State University, Kidwell, S.L. - Morehead State University, Rollins, E.S. - Morehead State University, Nichelson, K.D. - Morehead State University, Wellington, T. - Morehead State University

¹Undergraduate Research Competition

²Graduate Research Competition

SCIENCE EDUCATION

Bill Staddon, Chair
Eastern Kentucky University

Marilyn Akins, Secretary
Kentucky Community and Technical
College System

SATURDAY, NOVEMBER 15, 2014 THOROUGHBRED ROOM 3

- 12:30 p.m. **Helping Students Succeed in Anatomy and Physiology I: A Study of a Peer Assisted Learning Program.**¹ Chioma Amaechi - Berea College, Willie Gosnell - Berea College, Yunpeng Xia - Berea College, Judith Weckman - Berea College, Sarah Blank - Berea College
- 12:45 p.m. **Helping Students Succeed in Anatomy and Physiology II: A Study of a Peer Assisted Learning Program.**¹ Yunpeng Xia - Berea College, Chioma Amaechi - Berea College, Willie Gosnell - Berea College, Judith Weckman - Berea College, Sarah Blank - Berea College
- 1:00 p.m. **Using Item Response Theory to improve diagnostic assessments of pre-service teachers.**¹ Andrea P. Wilhoite - Morehead State University, Janie L. Knell - Morehead State University, Joshua Z. Fugate - Morehead State University, Wilson J. Gonzalez-Espada - Morehead State University
- 1:15 p.m. **The STEM Scholars Program and the Eureka Learning Community at Bellarmine University.**¹ Ben Flint - Bellarmine University, Jackson Sherman - Bellarmine University, Michael Bowden - Bellarmine University, Dr. Akhtar Mahmood -
- 1:30 p.m. **Teaching chemical equilibrium with technology.**² Bharath S Kumar - University of Kentucky
- 1:45 p.m. **Using LabVIEW to help students understand engineering concepts.** Shen Liu - West Kentucky Community and Technical College
- 2:00 p.m. **Break – Thoroughbred Lobby and Bluegrass Lobby**
- 2:15 p.m. **Assessing sustainability literacy of Appalachian college students: A preliminary study.** Darla French - University of Pikeville, Eric Mathis - University of Pikeville
- 2:30 p.m. **Design and implementation of a STEM faculty professional development.** Dr. Lloyd Mataka - Berea College, Dr. Tracy Hodge - Berea College, Dr. Jon Saderholm - Berea College
- 2:45 p.m. **Pre-Health Collection within MedEdPORTAL's iCollaborative: Shared Resources to Help Science Instructors Address Pre-Health**

¹Undergraduate Research Competition

²Graduate Research Competition

Competencies. Bruce Branan - Asbury University, Jen Page - Association of American Medical Colleges

- 3:00 p.m. **Genomics Education Partnership (GEP).** Heather Eisler - University of the Cumberlands
- 3:15 p.m. **Investigation of Analytical Skills Taught to Middle School Students in Science as Related to the Next Generation Science Standards.** Michael W. Kessinger - Morehead State University
- 3:30 p.m. **Student's Behaviors and Attitudes In a Problem-Solving Exercise Leading to an Oral Mini-Test.** Bill Staddon - Eastern Kentucky University
- 3:45 p.m. **Teaching University Physics using the Tablet PC and partially completed lecture notes.** Shen Liu - West Kentucky Community and Technical College
- 4:00 p.m. **Implementing a program to attract and retain female Hispanic students into computer science careers.** Wilson J. Gonzalez-Espada - Morehead State University, Lilliam Casillas - University of Puerto Rico at Humacao, Esther Vega - University of Puerto Rico at Humacao, Denny Fernandez - University of Puerto Rico at Humacao, Raymond Temblay - University of Puerto Rico at Humacao, Idalyn Rios - University of Puerto Rico at Humacao, Joaquin Rivera - University of Puerto Rico at Humacao

¹Undergraduate Research Competition

²Graduate Research Competition

ZOOLOGY

Noah Ashley, Chair
Western Kentucky University

Philip Lienesch, Secretary
Western Kentucky University

SATURDAY, NOVEMBER 15, 2014 THOROUGHbred ROOM 5

- 12:30 p.m. **Blow fly parasitism and nestling provisioning in Carolina chickadee nests.**¹ Brendan Hall - Northern Kentucky University, Zachary Holtkamp - Northern Kentucky University, Lindsey Walters - Northern Kentucky University
- 12:45 p.m. **Nighttime inattentive bouts by incubating female Carolina chickadees (*Poecile carolinensis*).**¹ Brittany Jones - Northern Kentucky University, Cassandra Volker - Northern Kentucky University, Lindsey Walters - Northern Kentucky University
- 1:00 p.m. **Carolina chickadees do not avoid nesting near habitat edge despite a higher risk of nest predation.**¹ Danielle Frevola - Northern Kentucky University, Michelle Kelley - Northern Kentucky University, Lindsey Walters - Northern Kentucky University
- 1:15 p.m. **Comparison of Barn Owl (*Tylo alba* L.) Prey from a Silo Roost in Claiborne County, Tennessee.**¹ Moondil Jahan - Berea College, Rhea P. Sharma - Berea College, G. Neil Douglas - Berea College, Ralph L. Thompson - Berea College
- 1:30 p.m. **Analyze the Honey Bee Epidemic with Molecular Methods**
ALEXANDER DAVIE¹, THOMAS WEBSTER², and LI LU¹. Alexander Davie - Kentucky State University, Thomas Webster - Kentucky State University, Li Lu - Kentucky State University
- 1:45 p.m. **Habituation to auditory stimuli by captive African elephants (*Loxodonta africana*).**² Sarah E. Goodyear - Western Kentucky University, Bruce A. Schulte - Western Kentucky University
- 2:00 p.m. **Prevalence and Mean Intensity of *Cotylaspis insignis* (Trematoda: Aspidogastridae) Infections in the Fat Mucket, *Lampsilas siliquoidea* (Bivalvia: Unionidae) at North Elkhorn Creek, and Location of its Egg Development.**¹ Lauren Ballou - Berea College, Hanna Abe - Berea College, Kidist Ashami - Berea College, Olamide Adejumo - Berea College, Kevin Montgomery - Berea College, Sophia Toe - Berea College, Ron Rosen - Berea College

¹Undergraduate Research Competition

²Graduate Research Competition

POSTER PRESENTATIONS

All poster presentations will be on display in the Thoroughbred and Bluegrass lobbies of the Lexington Convention Center on Friday, November 14 from 12:00 noon until 4:00 pm and on Saturday, November 15, 8:00 am until 5:00 pm. Each presenter will be provided with an easel and a poster board. Each poster board will be identified with a number that matches the presenter's number in the poster portion of the program booklet.

Poster presenters will check in at the Thoroughbred Lobby on Friday between 10:00 am – 12:00 noon. Posters will be set up from Noon on Friday until 5pm Saturday. Students entering Undergraduate Research Competition will have their posters judged from 3:00 – 5:00 pm on Saturday afternoon, and presenters must be at their poster in order to have it judged.

AGRICULTURAL SCIENCES

Poster No.	Title
9.	Establishing minimal labor input demonstration gardens on Kentucky State University main campus. <u>Hideka Kobayashi</u> , Kirk W. Pomper, Teferi Tsegaye, Kentucky State University
12.	Kentucky State University Pawpaw Program Outreach Methods. <u>Sheri Crabtree</u> , Kirk Pomper, Jeremiah Lowe, Kentucky State University
13.	The Threat of Global Warming on Meeting Chilling Requirements of Perennial Fruits Grown in Kentucky. <u>Yao Xue</u> , Elmer Gray, Western Kentucky University
33.	Predatory insect populations in late planted sweet corn bordered by native perennial and pasture borders in central Kentucky. ¹ <u>Lindsey Morris</u> , John D. Sedlacek, Karen L. Friley, Kentucky State University
44.	Ground Dwelling Insect Populations in Sweet Corn Bordered by Native Perennial and Pasture Border Rows in central Kentucky. <u>Karen L. Friley</u> , Denita Brown, John D. Sedlacek, Kentucky State University
56.	Yield characteristics of Prime-Ark ®45 and Black Magic ® primocane fruiting blackberries grown organically in Kentucky. <u>Jeremiah D. Lowe</u> , Kirk W. Pomper, Sheri B. Crabtree, Kentucky State University, John R. Clark, John G. Strang, University of Kentucky
59.	Species Diversity of Beneficial Insects in Blackberries Baited With Methyl Salicylate-Based Lures . <u>John D. Sedlacek</u> , Justina A. Riddick, Karen L. Friley, Kentucky State University

90. **Runoff and Leaching of Herbicides from Agriculture Fields** **Runoff and Leaching of Herbicides from Agriculture Fields.**¹ Catherine Croft, Regina R. Hill, George F. Antonious, Kentucky State University
94. **Value-chain financing as a sustainable economic development solution in the developing world: case study of sesame, shea butter and dried mangoes in Burkina Faso.**¹ Ali Djire, Berea College
95. **Meat Goats in Hillside Pastures: Control of Undesirable Plant Species and GPS Collar Determination of Activity Patterns.** Frederick Bebe, Kentucky State University
124. **A Horse's Responses to Receiving Masterson Method Integrated Equine Performance Bodywork Treatments.**¹ Carla Beu, Western Kentucky University
126. ***In Vitro* Egg Development in the Trematode, *Cotylaspis insignis* (Subclass Aspidogastrea).**¹ Lin Peng, Ericka Berg, Kaitlyn Reasoner, Ron Rosen, Berea College
160. **Analysis of Forage Quality in Switchgrass at Varied Maturities Using NIRS**¹ Adam Crisologo, Asbury University, S. Ray Smith, University of Kentucky, Bruce Branan, Asbury University
172. **Analysis and Measurement Techniques of Orchard Grass Using Time-Lapse Photography**¹ Friend Bechtel, Asbury University, S. Ray Smith, University of Kentucky, Bruce Branan, Asbury University
185. **Energy efficiency and greenhouse gas emissions during transition to organic and reduced-input practices: Student farm case study.** Sean Clark, Berea College, Benyamin Khoshnevisan, University of Tehran, Paria Sefeedpari, University of Tehran
204. **The Center for Sustainability of Farms and Families: Impacts of the Small Scale Farm Grant.** Joni Nelson, Allison Noel, Kirk W. Pomper, Teferi Tsegaye, Kentucky State University
211. **Exploring No-Till Roll-Down Organic Farming.**¹ Jeff Wylie, Berea College
223. **Effect of Xanthan/Enzymatically Modified Guar Gum Mixtures on the Physicochemical Properties of Whey Protein Stabilized Oil-in-Water Emulsions.** Pavan Kumar Chityala, Dr. John Khouryieh, Dr. Kevin Williams, Western Kentucky University
246. **Developing a trapping system to manage spotted wing drosophila for organic growers of primocane fruiting blackberries.**¹ Deborah R. Hoskins, Kirk W. Pomper, John D. Sedlacek, Jeremiah D. Lowe, Karen L. Friley, Sheri B. Crabtree, Kentucky State University

250. **Dissemination of research and extension information related to the Kentucky State University field station: research and demonstration farm.** Kirk W. Pomper, Eddie Reed, Teferi Tsegaye, Kentucky State University

ANTHROPOLOGY AND SOCIOLOGY

69. **Benefits of social play between captive juvenile and adult bonobos (*Pan paniscus*).**¹ Lindsey M. Meador, Monica Wakefield, Northern Kentucky University,
88. **A Carnivorous Affair: The Comparative Taphonomic Study of Gruta das Pulgas and Lapa do Picareiro.**¹ Milena Carvalho, Jonathan Haws, University of Louisville
121. **Healthy, Hunger-Free Kids? Results from an Elementary School Plate Waste Study.** Andrea Woodward, Sydney Henderson, Tiffany Estep, Berea College

BOTANY

15. **A Vascular Flora of Boyle County, Kentucky.** Heidi Braunreiter, Eastern Kentucky University
18. **Identification of endophytic bacterial species isolated from the stems of trees growing in Louisville, KY.** David L. Robinson, Josef. J. Jareczek, Christian Johns, Kathleen Triplett, Joann M. Lau, Bellarmine University
42. **Relationship between climatic variables and canopy position in *Tsuga canadensis* (eastern hemlock) growth rates, Spaws Creek, KY.**¹ Genna Petrey, Benjamin Rasp, Allen C. Risk, Morehead State University
60. **A preliminary herbaceous plant species floristic inventory of Carter Caves State Resort Park, Carter County, KY.**¹ Mary D. Webb, Allen C. Risk, Morehead State University
96. **Comparison of acetogenin activity in ripe fruit of six pawpaw [*Asimina triloba* (L.) Dunal] varieties as determined by the brine shrimp test.**¹ Rebecca Graves, Jeremiah Lowe, Kirk Pomper, Sheri Crabtree, Kentucky State University
120. **Dendroclimatological comparison of *Tsuga canadensis* and *Liriodendron tulipifera*, Spaws Creek, Menifee and Morgan counties, KY.**¹ Benjamin Rasp, Genna Petrey, Allen C. Risk, Morehead State University

176. **Designing a Rainwater Catchment System for a Community Garden as an Experiential Service-Learning Project for a Botany Course.**¹ Tami Blackburn, Olivia Boyette, University of Pikeville
224. **Dormancy-Breaking and Germination Requirements for Seeds of the Kentucky Endangered Yellow Gentian *Gentiana flavida* A. Gray (Gentianaceae).**¹ Caleb M. Krebs, Jacob P. McClain, Jonathon D. Terrell, Christopher A. Adams, Berea College

CELLULAR AND MOLECULAR BIOLOGY

8. **Measuring the Impact of Alterations in Branched-Chain Amino Acid Availability on Genome Stability in *Saccharomyces cerevisiae*.**¹ Gabrielle Remy I. Sevilla, Taylor Strohmaier, Fatima Mohmoud, Erin D. Strome, Northern Kentucky University
31. **Stress, personality, and immune function in house sparrows (*Passer domesticus*): Is there a relationship?** Thomas Hirn, Dr. Rebecca Fox, Transylvania University
40. **Carbaryl's effect on *cyp1* gene expression in zebrafish (*Danio rerio*) embryos.**¹ Sarvani Ramcharran, Wittenberg University
47. **Locating Loci that Regulate Reproductive Senescence in *Drosophila melanogaster*.**¹ Emily Rayens, Sarah Milian, Hana Kebede, Eiman Ashraf, Michelle Giedt, Doug Harrison, University of Kentucky
50. **Presence of Magnetosomes - A Question of the Presence of Iron Compounds?**¹ Sydni Fazenbaker, Kentucky Wesleyan College
63. **An Analysis of 23andMe Direct-to-Consumer Reports as Compared to Primary Literature.**¹ Benjamin Lyvers, K. Alex Schmitt, M. Browning Smith, Elizabeth Schmitt, Belinda Sly, Transylvania University
91. **Application of *de novo* peptide sequencing methods to discern effects of ethanol on histone post-translational modifications.** Blake Kusiak, Kentucky Biomedical Research Infrastructure Network, Daniel W. Wilkey, Ming Li, and James Hribar, PhD, Core Proteomic Laboratory, University of Louisville; Jian Cai, PhD, and Michael L. Merchant, PhD, Core Proteomic Laboratory, University of Louisville; Department of Medicine; Department of Pharmacology and Toxicology, University of Louisville School of Medicine
98. **Ribosome Content Increases while Nucleolar Activity Simultaneously Decreases in Developing Rat Brains.**¹ Shane D. Elliott, Bellarmine University, Lukasz P Slomnicki, Ph.D., Jing-Juan Zheng, and Michal Hetman, M.D., Ph.D., University of Louisville

123. ***Betta splendens* as a model organism for studying the evolution and development of pigmentation.**¹ Alexis Carey, Benjamin Lyvers, Sydney Katz, Anne Marie Dumaine, Belinda Sly, Transylvania University
133. **The Implications of Pak1 Inhibition in Breast Cancer Cells.**¹ Hannah Graff, Tristan Browne, Kelly Kleier, Courtney McCall, Brad Meyer, Kyle Neltner, Alexandra Fajardo, Julia Carter, Wood Hudson Cancer Research Laboratory
146. **Investigation of the relationship between *dpb11* and *rad9* mutations and their combined effect on genome stability in yeast.** Nathan C. Hogarth, Arianna E. Cabrales, Erin D. Strome, Northern Kentucky University
155. **Neutrophils and Macrophages within the Zebrafish (*Danio Rerio*) Retina.** Alexander Williams, Centre College, Wen Wen, University of Kentucky, Ann Morris, University of Kentucky
166. **Purification and reassembly of oxidized Collagen IV NC1 domains.**¹ Kaamilah Wilson, Berea College, Carl Darris, Billy Hudson, Paul Voziyan
170. **Posttranslational modifications and binding of Chmp1A with Ubiquitin or Sumo Proteins in HEK 293 cells.** Maiyon Park, KYCOM, University of Pikeville, Austin Thacker, University of Pikeville, Dawn Neal, and Scott Craver, KYCOM, University of Pikeville
182. **Towards inhibition of tumor angiogenesis through disruption of collagen IV scaffold assembly by anti-NC1 antibodies.**¹ Jenna Rufer, Berea College, Vadim Pedchenko, Vanderbilt University, Billy G. Hudson, Vanderbilt University
192. **Breast Cancer Ca²⁺ independent Phospholipase A₂^{Î²} Mediates Nicotine-induced Metastasis through Matrix Metalloprotease-9 Secretion.**¹ Nova Arnold, Eastern Kentucky University
205. **Sleep deprivation, stress, and inflammation: controls matter.** David W. Sams, Noah T. Ashley, Western Kentucky University
216. **Morphological Characterization of Male Reproductive Aging in *Drosophila melanogaster*.**¹ Connor Appelman, Andrew Boling, Justin Simpaio, Michelle Giedt, Douglas Harrison, University of Kentucky
229. **Selection Acting on the Allorecognition Gene, FuHC, in *Botryllus schlosseri*.** Kirsten Giesbrecht, Centre College
239. **Phenotypic analysis of tyrosine hydroxylase immunoreactive interneurons in the human cerebral cortex.**¹ Nick Rauh, Eric Beyerly, Courtney McKernan, Steve Asmus, Centre College

240. **Observations into the Role of the *MSH4 MSH5* Heterodimer in Yeast Genome Stability.**¹ Olivia Davis, Miranda Combs, John Crum, Erin D. Strome, Northern Kentucky University
247. **Reducing the Immunogenicity and Oxidation of the HIV Microbicide, Griffithsin, by Alteration of T-cell Epitopes and Oxidizable Amino Acids.**¹ Haleigh Bickett, Kentucky Wesleyan College, Joshua Fuqua, Ph.D., Janice Walker, Shonna Denton, Kenneth Palmer, Ph.D.

CHEMISTRY: ANALYTICAL / PHYSICAL

11. **Development of Nanoscale Electrochemical Probes for Detection of 4-Nitrocatechol.**¹ Theresa Ruwe, Barbara Cata, Celeste Morris, Ph.D., Northern Kentucky University
21. **Development of a Quantitative Photodegradation Method for Progesterone and other Pharmaceuticals.**¹ Taylor Kidd, Ryan Gaherty, Alex Sasaran, Babes-Bolyai Univesitatea, Patrick M. Hare, Northern Kentucky University
22. **Characterization of ion mobility spectrometry for the pesticides carbaryl and bifenthrin.**¹ Lauren Moskowitz, Liren Yu, Leonard Demoranville, Centre College
37. **Green Synthesis, Characterization of Sugar Coated Gold Nanoparticles for Catalytic Applications.**¹ Fenil Chavda, Tulsi Modi, Hitesh Kumar Waghvani, Jason Payne, Sarah Tockstein, Dr. Rajalingam Dakshinamurthy, Western Kentucky University
48. **Temperature and electric field dependency of asymmetric stretching of nitrate ion.**¹ Konnor K. Jones, Matthew J. Nee, Western Kentucky University
53. **pH switchable responsive surfaces for the trapping and release of hydrophobic substances.** Ali Esmail Karim, Dr. Eric Conte, Western Kentucky University, Dr. G. Kane Jennings, Vanderbilt University
64. **Study of the Mechanical Properties of PVA Fiber-Reinforced Concrete in Relation to Raman Spectroscopic Analysis.** Ramyasree Annam, Dr. Shane M Palmquist, Dr. Cathleen Webb, Western Kentucky University
71. **Enhancement of hydrophilic anions by pulsed chronopotentiometry with an asymmetric cellulose triacetate membrane electrode.**¹ Jeremy Meyers, Northern Kentucky University
83. **Phase-incremented Echo Train Acquisition (PIETA) experiments to measure J-coupling in new phosphate glasses.**¹ Solomon Tesfamichael, Kyaw Hpone Myint, Pyae Phyo, Berea College; Brennan Walder, Philip Grandinetti, Ohio State University; Jay Baltisberger, Berea College

84. **Corrosion Preventions of Applied Coatings on Aluminum Alloys under Corrosive Environments.** Jingyi Yue, Western Kentucky University
85. **Field Deployable Electrochemical Cells for Enhancement of Latent Fingerprints on Metal Surfaces.**¹ Taylor Baldwin, Courtney Miller, David Cunningham, Eastern Kentucky University
92. **Vitamin C in Pine Needle Tea.**¹ Kayla Leonard, Nathan Coker, Ph.D., Morehead State University
99. **Combining an extended Czjzek model with spinning sideband simulations of magic-angle turning (MAT) experiments on phosphate glasses.**¹ Kyaw Hpone Myint, Solomon Tesfamichael, Berea College, Brennan Walder, Ohio State University, Pyae Phyo, Berea College, Philip Grandinetti, Ohio State University, Jay Baltisberger, Berea College
109. **Boron Nitride Nanotube Composite Aerogels.**¹ Laura Abelquist, Berea College, Sang-Hyon Chu, National Institute of Aerospace, Catharine Fay, NASA Langley Research Center
110. **Effect of pH and salinity on the Migration of Bisphenol A from coatings of epoxy food cans.** Yuwei V. Tsai, Dr. Amanda Bowman, Transylvania University
118. **Thermal analysis of titanium dioxide: Adsorption/desorption of some organic pollutants.**¹ Samuel T. White, Shashidhar Annarapu, Dr. Matthew Nee, Western Kentucky University
128. **Development of an Assay for Nanoparticle Toxicity Evaluation for Drug Delivery Across the Blood Brain Barrier.**¹ Jacob Shaffer, Hannah Hughes, Andrew Hall, Brandon Mucker, Kristi Haik, Ph.D., Celeste Morris, Ph.D., Northern Kentucky University
132. **Use of carbon disulfide as an internal standard for SERS experiments.**¹ Frankie Wallace, Matthew Nee, Western Kentucky University
175. **Are low-cost marijuana drug tests reliable?** Larry Warfield, Diane Vance, Eastern Kentucky University
252. **Development of Nanoscale Electrochemical Sensors for Thyroid Hormone Detection.**¹ Barbara Cata, Theresa Ruwe, Celeste Morris, Ph.D., Northern Kentucky University

Chemistry: Organic / Inorganic

4. **Layer-by-layer formation of conjugated thin films through diazonium chemistry.**¹ Brennan L. Taylor, Tatiana Mikhailova, Nicholas M. Marshall, Berea College

7. **The Solid-Phase Organic Synthesis of a Fluorescence-Quenching Analog of Lysine.**¹ Andrew Norris, Matthew Saderholm, Berea College
23. **Fullerene-transition metal sensitized solar cells: Construction and efficiency studies.**¹ Hannah Hearn, Keith A. Walters, Northern Kentucky University
36. **Synthesis and Biological Evaluation of Histone Deacetylase 2 (HDAC2) Inhibitors.** Emily Hogle, Nicole Brusman, Reid Klein, Benjamin Haim, Stefan Paula, Lili Ma, Northern Kentucky University
39. **4,5-Bisakynylcatechols: Precursors for oxalixarenes and covalent organic frameworks.**¹ Melanie Couch, Andres Gasper, Andrew Blank, K.C. Russell, Northern Kentucky University
41. **Progress toward the structure activity relationship of a new diarylheptanoid.**¹ Richard McLane, Evan Boychan, Jacob Telesz, Amber J. Onorato, Northern Kentucky University
45. **Synthesis and characterization of novel complexes utilizing the {Re(CO)₃}⁺ core with tridentate triamine chelators for use in targeted chemotherapeutic drug delivery mechanisms.**¹ Carrie A. Black, Margaret W. Ndinguri, Eastern Kentucky University
52. **Halogenated Catechol Derivatives as Precursors to DBAs.**¹ Dustin Khourie, Akia Dawson, Paolo Guerini, Gwénoél© Laxalde, Northern Kentucky University, Doug Abbot, Mackenzie Hill, KC Russell, Northern Kentucky University
54. **Synthesis of polymers and their subunits that incorporate fullerenes and transition metal chromophores,**¹ Jason Callihan, Keith A. Walters, Northern Kentucky University
57. **Spectroscopic studies on polymers and their subunits that incorporate fullerenes and transition metal chromophores.**¹ Sarah Siemer, Keith A. Walters, Northern Kentucky University
66. **Fused Arenes-based molecular systems as additives for organic photovoltaics.** RACHANA NEESU, Dharmesh Patel, Western Kentucky University
70. **Synthesis of Tridentate Aliphatic Amine Chelates for Platinum.**¹ Lily Gosser, Margaret Ndinguri, Eastern Kentucky University
79. **The Detection and Control of Diabetes through Exhaled Breath by Gas Sensors.** Allison Durr, Eastern Kentucky University, ZhenZhen Xie, and Dr. Xiao-an Fu, University of Louisville

101. **Method Development for Post-Derivatization Techniques for Analysis of Carbonylated Proteins.** Joseph Rollins, Eastern Kentucky University
111. **Progress Toward the Total Synthesis of Microcyclamides MZ602 and MZ568.**¹ Brandon Wiefering, Lucas Edelen, Kathleen McElheney, John Carmen, Amber J. Onorato, Northern Kentucky University
113. **Synthesis of Fluorinated Homoallylic Compounds via Ring-Opening Nucleophilic Fluorination of Methylene Cyclopropanes (MCP).**¹ Otome Okoromoba, Gerald B. Hammond, University of Louisville
119. **An Inquiry Into The Biomedical Value Of Flavonoids As Inhibitors Of The Sarco-Endoplasmic Reticulum Calcium ATPase.** Keegan Hodge, Reid Kline, Emily Hofmann, Stefan Paula, Northern Kentucky University
127. **Synthesis and reactivity of a group of tridentate carboxamide ligands with N₂O and NO₂ donor spheres and their corresponding Ni(II) complexes.**¹ Jesus A. Berlanga, Christopher Mullins, Campbellsville University; Craig Grapperhaus, University of Louisville
139. **Synthesis of substituted 2-benzylidene-1*H*-indene-1,3(2*H*)-diones, (*E*)-5-benzylidenecyclopent-2-enones and 5-benzoylcyclopent-2-enones.** Caleb Kilburn, Mark Blankenbuehler, Morehead State University
150. **Nicholas Fedorka**, Xin Liu, Bangbo Yan, Western Kentucky **Novel metal-organic framework built with 2,5-bromoroterephthalate ligand.** University
154. **Synthesis of (*S*)-Ethyl Benzyloxy-Methyl Malonate Acyl Chloride: An Intermediate Towards the Total Synthesis of Ergovaline.**¹ Jacob Bonta, Jacy Ball, Joseph Bequette, , Darrin Smith, Eastern Kentucky University
162. **Synthesis, Purification, and Structural Characterization of Organic Processing Impurities.**¹ Seth Reasoner, Berea College, Ryan Memmber, Andrea Frederick, and Michael Kobierski, Small Molecule Design & Development, Eli Lilly and Company.
167. **Electron Rich Phosphinimines: Catalysts for Polymerization of Cyclic Esters.** Ernest McGill Duffee III, Kentucky State University, Rajesh Thapa, and Christopher T. Burns, University of Louisville
184. **Synthesis of Fluorogenic Peptide Substrates for the Peptidase Neurolysin.**¹ D'Angela Townsend-Brooks, Tyller Culver, Jonah Rector, Matthew Saderholm, Berea College
189. **Synthesis of Cyclo(-Pro-Val): An Intermediate Towards the Total Synthesis of Ergovaline.**¹ Corwin McCollum, Joshua York, Joseph Bequette, Darrin Smith, Eastern Kentucky University

199. **Isoform-Specific Overexpression Systems for Screening Sarco(endo)plasmic Reticulum Calcium ATPase (SERCA) Inhibitors.** Stephen Linn, Emily Hofmann, Stefan Paula, Northern Kentucky University
200. **Design and synthesis of sterically unhindered functional monomers for Kumada catalyst-transfer polycondensation.**¹ Garrett Cairo, Nicholas Marshall, Berea College
208. **Exploring Hydrogen Evolution Reactions with Cu-ATSM: Proton Reduction with a Mononuclear Copper Complex in Acidic Media.**¹ Lucas Roy, Campbellsville University, Andrew Haddad, University of Louisville, Grapperhaus Ph. D, University of Louisville
230. **Highly selective epoxidation catalysis by manganese(III) porphyrin complexes with iodobenzene diacetate.**¹ Ka Wai Kwong, Tse-Hong Chen, Rui Zhang, Western Kentucky University

COMPUTER AND INFORMATION SCIENCES

198. **Remote Monitoring of Computer Servers in Real-Time.** Zhongzhong Chen, Dalton Jantzen, Siddhartha Bhattacharyya, Chi Shen, Kentucky State University
234. **Bellarmine University's Hiperwall (Highly Interactive Parallelized Display Wall) Visualization System for Big Data Research.**¹ Amber Byrum, Tyler Martinez, Benjamin Flint, Dr. Akhtar Mahmood, Bellarmine University

ECOLOGY AND ENVIRONMENTAL SCIENCE

5. **Industrial discharges of dissolved metals into Ohio River tributaries and consequential effects on benthic macroinvertebrate communities.**¹ Garrett J. Gabhart, Martha L. Carlson Mazur, Bellarmine University
14. **Developing an Amphibian Index of Biotic Integrity and Validating a Rapid Assessment Method for Kentucky's Wetlands .** Kari Dupler, Michelle Guidugli, Eastern Kentucky University; John MacGregor, Kentucky Department of Fish and Wildlife Resources; David Brown and Stephen Richter, Eastern Kentucky University
25. **Seedling survival after novel drought-induced germination in *Ceanothus megacarpus*.**¹ Amanda Burns, Berea College, Stephen D. Davis, Pepperdine University
26. **A Non-Traditional Approach to Re-Discover the Traditional Foundations of Community Through a Restoration Ecology Course.** Rush Stacy, Austin Williamson, Angel Bevins, University of Pikeville

43. **Effects of Predator Size Variation on Future Generations of Predators.**¹ Bradley Hartman, Murray State University
78. **Effect of shrub honeysuckle on bird diversity in forested areas of the Louisville Metropolitan Area.** Katie Lynch, University of Louisville
86. **Developing a Vegetation-Based Index of Biotic Integrity for Wetlands of Kentucky,** Noelle Smith, Tanner Morris, Eastern Kentucky University, David Brown , Michelle Guidugli, Stephen Richter
97. **Development of eDNA protocols for detection of four darter species in central Kentucky streams.** Mary R. Johnson, Annissia L. Wood, Cierla V. McGuire, Harold A. Brabon, Malinda A. Stull, Ben F. Brammell, Asbury University
107. **Using qPCR to quantify *Nosema spp.* infection levels in honey bees.** Joseph Palmer, Thomas Webster, Kentucky State University ,
122. **Odonate diversity across an urban-rural gradient: Odonates in ponds and streams respond differently to altered habitats.** Victoria Prescott, Perri Eason, University of Louisville
138. **The Effect of Vine Presence on Arboreal Ant Community Structure in a Temperate Forest.**¹ Chloe Lash, Valparaiso University, Dr. Steve Yanoviak, University of Louisville ,
145. **The Effects of Switchgrass (*Panicum virgatum*) on Wildlife Utilization and Soil Health of Renovated Fields.**¹ Marissa Zatezalo, Asbury University; Tom Keene and S. Ray Smith, University of Kentucky
152. **Effects of leaning on the secondary growth of *Betula lenta*,** Travis Keene, University of Pikeville
158. **The Structure and Distribution of Stream Salamander and Macroinvertebrate Communities Across Southeastern Kentucky.** John Bourne, Amy Braccia, Stephen Richter, Eastern Kentucky University
168. **Temporal comparisons of genetic variation in the dusky gopher frog. *Lithobates sevosus*,** Kristin Hinkson, Stephen Richter, Eastern Kentucky University
171. **A Species Checklist of the Macrolepidoptera at Robinson Forest, Kentucky.** Luke E. Dodd, Eastern Kentucky University, Lynne K. Rieske-Kinney, University of Kentucky ,
180. **Development of an eDNA protocol for detection of hellbenders (*Cryptobranchus alleganiensis*) in central Kentucky streams.**¹ Christopher C. Pauley, Ronald B. Sams, Malinda A. Stull, Asbury University; Andrew J. Wigginton, Eastern Kentucky University, Ben F. Brammell, Asbury University

187. **A Base-line Study of Erosion at a Site in Eastern Kentucky,** Joseph Valentino, University of Pikeville
191. ***Euonymus fortunei* (purple wintercreeper) increases decomposition via alterations of biotic and abiotic environment.**¹ Andrew M Hoyt, Henry Clay High School, Sarah R Bray, Transylvania University, Mary A Arthur, University of Kentucky
202. **Physicochemical and shoreline development factors affecting lake littoral benthic macroinvertebrates.** Tami M. Cloherty, Campbellsville University, J.W. Rachlin, Lehman College, CUNY ,
203. **Quantification of Common Agricultural Herbicide Dispersal and Land Use in Selected Areas of the Kentucky River Watershed.**¹ Andrew Nagel, Dave Thompson, Northern Kentucky University
206. **Effects of nectar feeding on cannibalism in newly hatched striped lynx spiderlings, *Oxyopes Salticus*.**¹ Laurel Lietzenmayer, James Wagner, Transylvania University
219. **Assessment of burn severity and response of non-native invasive species (*Paulownia tomentosa*) in an eastern deciduous forest using Landsat Thematic Mapper (TM) imagery.** Suraj Upadhaya, Mary A Arthur, Marco A Contreras, University of Kentucky
225. **Bilateral mate preference in the firemouth cichlid: gender differences in a monomorphic fish.** Sarah A. Fauque, Perri K. Eason, University of Louisville
227. **Monitoring the efficiency of a constructed wetland.**¹ James Brown, Dr. Kristy Hopfensperger, Northern Kentucky University
236. **The identification of pawpaw (*Asimina triloba*) and American persimmon (*Diospyros virginiana*) populations in the Bernheim Research Forest in relation to biodiversity and forest health.** Kirk Pomper, Dustin Hodges, Charlie Collins II, Kentucky State University; Andrew Berry, Bernheim Arboretum and Research forest, Ken Bates, and Jeremiah Lowe, Kentucky State University

SPECIAL POSTER SESSION: KENTUCKY ORGANIZATION OF FIELD STATIONS

3. **Horner Bird and Wildlife Sanctuary: a field research site at the University of Louisville.** Stephen P. Yanoviak, James E. Alexander, Jr., University of Louisville

24. **Educational and research opportunities at Eastern Kentucky University's Lilley Cornett Woods Appalachian Ecological Research Station,** Stephen C. Richter, Melinda S. Wilder, Eastern Kentucky University
49. **Robinson Forest: Kentucky's Land Grant Forest Laboratory and Classroom,** Chris C. Osborne, University of Kentucky
108. **The St. Anne Woods and Wetlands Research and Education Center: Research, Environmental Education, and Outreach Activities.** Richard D. Durtsche, Richard L. Boyce, Northern Kentucky University, Mary Kathryn Dickerson
151. **Taylor Fork Ecological Area: Student-based Natural Area Management at Eastern Kentucky University.** David R. Brown, Melinda Wilder, Eastern Kentucky University
188. **Floracliff Nature Sanctuary: Connecting Education, Management, and Research in Fayette County.** Beverly James, Floracliff Nature Sanctuary
195. **Maywoods Environmental and Educational Laboratory,** Eastern Kentucky University. Homer L. Strong, Eastern Kentucky University
231. **The University of Kentucky's Ecological Research and Education Center (EREC): A New Field Station in the Central Bluegrass.** Philip H. Crowley, R. Craig Sargent, University of Kentucky
232. **WKU Green River Preserve: Conservation, Research, Education, and Service.** Quida W. Meier, Albert J. Meier, Scott Grubbs. Justin Kunkle, Western Kentucky University
242. **Clay Hill Memorial Forest: an environmental education and research site managed by Campbellsville University.** Gordon K. Weddle, Campbellsville University, Amy L. Berry, Campbellsville University
248. **Research and outreach approaches at the Kentucky State University field station: the environmental education and research center.** Charlie Collins II, Kirk W. Pomper, Teferi Tsegaye, Kentucky State University

ENGINEERING

244. **Building a Cluster System on a Strict Budget.**¹ Benjamin Turi, Vidar Ottosson, Hunter Holbrook, Andrej Cucilovic, Bellarmine University

GEOGRAPHY

34. **Collaborating With City Officials to Conduct An "As Built Survey" of Downtown Richmond, KY**. N.M. Deberdt, R.M. Dubin, J.L. Dye, M.J., Francis, T.A., Fugate, D.L. Hays, S.T. Jones, B.S. Lainhart, R.A. Rowland, A.P. Shear, S.J. Smart, L.D. Watkins, D.M. Yow, Eastern Kentucky University
55. **Urban Barge Agriculture.**¹ Doug Kaiser Western Kentucky University

GEOLOGY

6. **Correlating Refraction Microtremor Data with Electrical Resistivity Survey Data To Identify the Location of the River Styx at Mammoth Cave National Park**¹ Catherine Sosso, Northern Kentucky University
65. **Apatite-Helium Thermochronology of the Blue Nile Canyon, Ethiopia**, Nathaniel C. Blackburn, Nahid D. Gani, Western Kentucky University; Matthijs C. Van Soest

HEALTH SCIENCES

10. **Impact of Maternal Age and the Combination of Maternal Age and Smoking on Cytokine Levels in Serum and Cervicovaginal Fluid.**¹ Emily Hellstrom, Asbury University; Kristen McQuerry, and Kristen Ashford, University of Kentucky; Bruce Branan, Asbury University
28. **The Physiology of Sodium: A primer for better health.** W.W. Gearheart, University of Pikeville, A.S. Gearheart, Morehead State University
62. **Changing population dynamics in the world from 1972 to 2012 and the projections for 2030.** Venkata Sravani, Reddy Seethi, Elmer Gray, Western Kentucky University
80. **Evaluating toxicity of silver nanoparticles using a fruit fly (*Drosophila melanogaster*) model.**¹ Ananya Sharma, Ajay Srivastava, Western Kentucky University
87. **Celiac disease: Crumbling management.**¹ Sara Meyer, Martin Brock, Eastern Kentucky University
125. **Nucleolin Targeted Therapies for Treatment of Hepatocellular Carcinoma.**¹ Debbie Li Ping Voong, Jesse W. Wilson, Gina T. Bardi, Martin G. O'Toole, Paula J. Bates, Malik MT, University of Louisville.
134. **Decreased Expression of Viral Entry Receptors by Treatment of Human Cells with Cat's Claw Extract.**¹ Emily Igel, Joseph Mester, Northern Kentucky University

135. **Investigation of Ginkgolic Acid Sumoylation Inhibitor on Pancreatic Tumor Cell Growth.** Maiyon Park and Dawn Neal, KYCOM, University of Pikeville; Austin Thacker, University of Pikeville, Scott Craver, KYCOM, University of Pikeville
153. **Investigation of the cancer immunotherapeutic potential of Avaren-Fc¹** Clayton Royal , Adam Husk, Krystal Hamorsky, Nobuyuki Matoba .
197. **Effects of Exercise on Motor Deficits in Genetically Susceptible Mice.** ¹ Samantha Hampton, Kelsey Klinefelter, Sean Campbell, Breann Hays, Kelsey Taylor, Chloe Temple Bates, Melinda Stegman, Christine Perdan Curran, Northern Kentucky University
222. **Assessing Genetic Susceptibility to Motor Function Deficits Following Developmental Exposure to Polychlorinated Biphenyls.**¹ Mindy Stegman, Anna Lang, Kelsey Taylor, Molly Kromme, Helen Garber, Chloe Temple Bates, Christine Perdan Curran, Northern Kentucky University
238. **Counteract Antibiotic resistance of *Pseudomonas* through antibiotic combination.**¹ Sheniqua Austin, Berea College, Yangmin Hu, St Georges University - London
241. **The effects of excess dietary taurine during adolescence on behavior and motor function.**¹ Jamie Weimer, Josephine Brown, Clare Pickering Ludwig, Christine Perdan Curran, Northern Kentucky University
245. ***Proterometra macrostoma* (Trematoda: Azygiidae): Effect of Serotonin on Redial Movement and Emergence of Cercariae from Rediae and Snails, *Elimia semicarinata* Gastropoda: Pleuroceridae).** ¹ Olamide Adejumo, Kevin Montgomery, Sophia Toe, Hanna Abe, Kidist Ashami, Lauren Ballou, Kaitlyn Reasoner, Ron Rosen, Berea College

MICROBIOLOGY

2. **Aminoglycoside Assisted Synthesis of Gold Nanoparticles and Their Antibacterial Activity.**¹ Sarah Tockstein, Tulsi Modi, Dr. Rajalingam Dakshinamurthy, Western Kentucky University
16. **Microbial load on vegetables irrigated with rainwater in high tunnels.** Cecil Butler, Lingyu Huang, Michael Bomford, Changzheng Wang, Kentucky State University
32. **Identity of the fungus causing mummified crickets in Kentucky caves.**¹ Blake W. Nelson, Leighanne R. Main, Jay A. Yoder, Wittenberg University

35. **Commensal *Neisseria* species undergo type IV pilus phase variation and DNA uptake-sequence dependent natural transformation.**¹ W. Jared Brewer, Courtney M. Marshall, Ryan M. Kaufman, Priyanka D Patel, Armando Bosch, Lorin J. Martin, Paul M. Duffin, Transylvania University
46. **Effects of acidic electrolyzed water on microbial load of black seed lettuce irrigated with rainwater in a high tunnel.** Lingyu Huang, Changzheng Wang, Cecil Butler, Michael Bomford, Kentucky State University
73. **Efficient Protocol for Expression and Purification of Human Fibroblast Growth Factor-1 and Its Receptor.** Filani Oluwadamilola, Tulsi Modi, , Dr. Rajalingam Dakshinamurthy, Western Kentucky University
93. **Utilizing open-source bioinformatic tools for genomic comparison between thermally dimorphic fungi and state-specific fungi.**¹ Stephanie Gehrlich, Alyson McLane, Yasmeen Daher, John C. Carmen, Northern Kentucky University
112. **Diversity of Antibiotic Resistant Bacteria within Distinct Ecological Niches in Kentucky.**¹ Trevor Loomis, Brad Clark, Devin McBride, Steve Tran, Deborah Yoder-Himes, Paul Himes, University of Louisville
140. **Bioprospecting: Searching for Useful Natural Products with Antimicrobial Activity.**¹ Yasmeen Daher, Alyson McLane, Stephanie Gehrlich, Elizabeth Slattery, David King, Alyx Cox, Amber J. Onorato, John C. Carmen, Northern Kentucky University
163. **Effect of culture medium composition on agar degradation by microbes from a cyanobacterial mat.** Derek Hamilton and Norm Strobel, PhD, Kentucky Community and Technical College System
173. **Knockout of the *mef(A)* gene in *Streptococcus pyogenes* via targeted electroporation.** Hayley L. Helton, Robert D. Jackson, Marcia M. Pierce, Eastern Kentucky University
183. **Seroprevalence of vector-borne disease pathogens in canines from central and eastern Kentucky.**¹ Katelyn Cox, Ashley Smith, Cheryl D. Davis, Western Kentucky University
210. **DNA damage phenotypes of growth deficiency and transcriptional regulation in *ddrR* mutants of *Acinetobacter*.**¹ Megan A. Peterson, Travis A. Witkowski, Alison N. Grice, Janelle M. Hare, Morehead State University
214. **Isolation and characterization of plasmids from normal flora *E. coli*.**¹ Maria Anastasiadou, Dawn J. Anderson, Berea College

249. **The Effect of *Coragyps atratus* and *Cathartes aura* regurgitation on *Escheichia coli* Bacteria.**¹ Katelyn Dotson, Noah Ashley, Western Kentucky University

PHYSICS AND ASTRONOMY

67. **Graphene-based Hybrids with Electrochemical Synthesized Manganese Oxides as Tailored Interfaces for Electrochemical Energy Storage: Structure and Physical Properties.** M. Van Meveren, Jacek Jasinski, Prof. S. Gupta, Western Kentucky University
72. **Flexible Multilayered Graphene-on-Paper Piezoresistive Sensors.**¹ Jared Walden, Prof. S. Gupta, Western Kentucky University
75. **The Dynamics of Centaurs in the 2:1 Mean Motion Resonance of Neptune.** Jeremy Wood, Kentucky Community and Technical College System
115. **Semiconductor Heterostructures of Monolayer Transition Metal Dichalcogenides,** Jacob S. Townson, Georgetown College; George Anderson, Sreyansh Agarwal, Humberto Gutierrez, University of Louisville
156. **Electrostatic Self-assembled Graphene/Carbon Nanotube Hybrid Multilayer Films as Efficient Energy Storage Ultracapacitor Devices.**¹ Eli Heintzman, Carson Price, Prof. S. Gupta, Western Kentucky University
174. **Hybrid multilayer thin film supercapacitors of electrochemically processed graphene nanosheets with polypyrrole and polyaniline: significance of establishing intimate electronic contact through nanoscale manipulation.**¹ Carson Price, Eli Heintzman, Prof. S. Gupta, Western Kentucky University
178. **Characterizing Turbulent Flow in Quiescent Prominences.**¹ Mikki Wilburn, Transylvania University; Michael Freed, and Dr. David McKenzie, Montana State University

PHYSIOLOGY AND BIOCHEMISTRY

19. **The Effects of Estrogen, Progesterone, and Melatonin On the Ishikawa Endometrial Cancer Cell Line.**¹ Chelsea Bright, Georgetown College
30. **The Effects of Season on Inflammation and Immune Response in Geriatric and Young Horses.**¹ Brooke Hadley, Asbury University; Melissa H. Siard and David W. Horohov, University of Kentucky; Bruce Branam, Asbury University; Amanda A. Adams, University of Kentucky

76. **Cyclic Peptide Agonists of the Mu Opioid Receptor: An Integrated Study Using Homology Modeling, Docking and QSAR.** Jason Goff, Maher Alia, John E. Burden, Spalding University
77. **The pharmacological profile and actions of cholinergic system in larval *Drosophila*: Behavior, development, CNS activity, and heart.** C. Malloy, J. Hill, University of Kentucky; K. Ritter, Centre College; J. Robinson, Morehead State University; W.-H Wu and R.L. Cooper, University of Kentucky
82. **Investigating the role of alpha2A adrenergic receptors in antipsychotic-induced weight gain.**¹ Victor Kremser, Evan Childers, Christopher Cottingham, Morehead State University
104. **Attempts to develop a reproducible assay to study potential modulators of *Staphylococcus epidermidis* biofilm formation.**¹ Qyshawn Johnson-Sanders, Matthew Stark, Diana McGill, Northern Kentucky University
117. **The Serotonin Signaling Pathway in Adult Dorsal Root Ganglia of Mice.**¹ Madison Ross, Georgetown College; Elaine Ritter and Michelle Southard-Smith, Vanderbilt University
142. **Thermal plasticity has diverged between northern and southern populations of the eastern newt (*Notophthalmus viridescens*).** Patrick M. Mineo, Berea College; Christopher Waldrup and, Nancy J. Berner, The University of the South; Paul J. Schaeffer, Miami University
143. **Detection of bacterial DNA sequences utilizing engineered zinc finger proteins.** Dat Tinh Ha, Moon-Soo Kim, Western Kentucky University
147. **Specific mechanosensory defects caused by manipulating dopamine pathways in *Drosophila melanogaster* larvae.** Douglas Potts, University of Kentucky, Josh Titlow, University of Oxford, UK, Jordan Rice, Transylvania University, Robin Cooper, University of Kentucky
165. **A comparison of traditional and engaging lecture methods in a large, professional-level course.** Cynthia J. Miller, University of Louisville, Michael J. Metz, University of Louisville
169. **Developing systems for heparin detection using cationic lysine and arginine compounds.**¹ Amneh Alzatout, Taylor Williams, KC Russell, Northern Kentucky University
179. **How the inhibitory modulator GABA alters development, behavior and survival and heart function in *Drosophila*.**¹ Nadera Dabbain, University of Kentucky, Elizabeth Schwarcz, Sayre, Justin Graff, Emory University, Zana Majeed and Robin L. Cooper, University of Kentucky

181. **Acute actions of fluoxetine (Prozac) on neuronal and cardiac function.**¹ Kyle Ritter, Centre College; Zana R. Majeed, Univ. Salahaddin, Erbil, Iraq; Jonathan Robinson, Morehead State University; Sandra L.E. Blümich, V.M.F., Univ. Leipzig, Germany; Eugen Brailoiu, Temple University, Robin L. Cooper, University of Kentucky
190. **Production optimization of a mucosally deliverable broadly neutralizing HPV prophylactic vaccine.**¹ Anna Owens, Kentucky Wesleyan College, Joshua Fuqua, Ph.D, Janice Walker Shonna Denton, Kenneth E. Palmer, Ph.D
209. **PCB metabolism in mice varying at the *Ahr* and *Cyp1a2* loci.**¹ Clare Pickering Ludwig, Northern Kentucky University; Geoffrey M. Kranseth, Izabel Korwel, and Hans-Joachim Lehmler, University of Iowa; Christine Perdan Curran, Northern Kentucky University
226. **Badges of stress? Bib size, circulating corticosterone, and corticosterone deposition in feathers in male house sparrows (*Passer domesticus*).**¹ Casey Coomes, Sarah Gardner, Rebecca Fox, Transylvania University
235. **The Developmental Role of Methyl Farnesoate in the Formation of Puparia in *Drosophila melanogaster*.**¹ Forrest Goodwin, Kentucky Biomedical Research Infrastructure Network; Ross Micciche, Srijana Mandal, Grace Jones, and Davy Jones, University of Kentucky; Peter Teal, USDA/ARS

PSYCHOLOGY

27. **Comparing personal qualities of one-time cheaters and serial cheaters.**¹ Allexa L. Koeninger, Macy T. Kootz, Laurie L. Couch, Morehead State University
81. **Working Memory: The Effect of Practice and Task Type on Working Memory Components.**¹ Sophia AL-Maamary, Dave Porter, Berea College
89. **Detecting Changes in the Continuity of an Object in Motion.** Zoe Becerra, Taylor Smith, Gregory M. Corso, Morehead State University; Nicholas Kelling, University of Houston - Clear Lake
103. **Glutamate Induced Apoptosis in Human Olfactory Neuroepithelial Progenitor Cells Derived from Bipolar and Non Bipolar Subjects.** David Thompson, Kentucky Wesleyan College; Yonglin Gao and Rif S El-Mallakh, University of Louisville
106. **Correlates of Posttraumatic Growth: A Meta-analysis.** Richard Osbaldiston, Patricia Ward, William Bowling, Virginia Jones, Denise Patrick, Mary Larsen, Tosha Haynes, Eastern Kentucky University, Bridgette Allen

114. **Thinking it through vs. pushing it away: The physiological costs of emotion regulation strategies.**¹ Ethan Campbell, Mason McClay, Kayla Morris, Amber Ustinovich, and Aaron Godlaski, Centre College
116. **The Effects of Gender, Priming, and Stereotype Threat on Verbal Fluency Task Performance.** Shelby Williams, Richard Osbaldiston, Eastern Kentucky University
131. **Detecting Changes in the Direction of an Object in Motion.** Taylor Smith, Zoe Becerra, Gregory M. Corso, Morehead State University, Nicholas Kelling, University of Houston - Clear Lake, Houston, TX 77062.
136. **Does Affectionate Parenting Affect Bullying in Students?**¹ Jennifer Duke, Joshua Back, Mary Dusing, Eastern Kentucky University
137. **The Transformation from Caterpillar to Butterfly: The Relationship Between Posttraumatic Stress and Posttraumatic Growth.** Richard Osbaldiston, William Bowling, Virginia Jones, Patricia Ward, Bridgette Allen, , Tosha Haynes, Mary Larsen, Eastern Kentucky University, Denise Patrick
141. **Predicting Personality Traits using Cell Phone Behaviors and Attitudes.**¹ Justyn Bigam, Adrienne Coffey, Mary Soehnlén, Joseph Reese, Janet Dean, Asbury University
144. **Attentional control and mindfulness moderate the influence of rumination on depression.** Tanner Muehler, Eastern Kentucky University; Erika Brennan, North Dakota State University
148. **The Relationship of Religiosity and Family Involvement on Abstinence Pledges in Christian Undergraduate Students.** Meredith Anderson, Alfred Mattingly, Kendall Meeks, Asbury University
159. **The Effects of Mood on Exhibiting and Experiencing Counterproductive Workplace Behaviors and Organizational Citizenship Behaviors from the Perspectives of Faculty, Staff, and Students.** Alaina Rodriguez, Richard Osbaldiston, Eastern Kentucky University
177. **Believing in the American Dream: The Role of Quality Education.** Shelby Williams, Richard Osbaldiston, Eastern Kentucky University
194. **"Bogus Focus": Do energy drinks improve attention?**¹ Qinpu He, Omolola Fakunle, Centre College
196. **Targeting Psychological Distress with a Brief Defusion Intervention.**¹ Richard Ward, John T. Blackledge, Gabriela Alshafie, Kellen Crager, Whitney Ramos, Kayla Nichelson, Evan Rollins, Morehead State University

201. **Early activation of dopamine D1 receptors appears to be involved in acute-withdrawal-related hypophagia produced by amphetamine and morphine.**¹ Daniel Elmlinger, Laura Secord, Wesley White, Morehead State University
212. **Spied Eyes: The Effect of Model's Pupil Size and Gender on Product and Person Preference.**¹ Sophia AL-Maamary, Dave Porter, Berea College
213. **Don't Blink: An exploration of methods to attenuate artifacts in EEG/ERP data.**¹ Bryce A. McCoy, Carter Baughman, Centre College
217. **Dopamine D1 receptor involvement in the elicitation of symptoms of acute withdrawal by morphine in rats.**¹ Afton Lewis, Alecia Mosley, Richard Ward, Wesley White, Morehead State University
228. **Longitudinal and concurrent associations of attachment measures in adolescence.**¹ Michelle Deaton, Morgan Blevins, Katelynn Fugate, Ashley Hamm, Shari Kidwell, Morehead State University
233. **Simulated Cyberbullying and Personality: Implications for Coping Strategies and Explicit Self-Esteem.** Ashley Dickey, Lauren Young, Shannon Shaughnessy, Emily Wireman, Eastern Kentucky University
237. **Techniques for Increasing Metacognition in Statistics.** Richard Osbaldiston, Eastern Kentucky University
243. **A picture of prejudice: in-group bias in the evaluation of non-Christian artists.**¹ Andrew G. Preston, David A. Butz, Morehead State University
251. **Going the distance: The role of emotional intelligence in long-distance vs. face-to-face relationships.**¹ Laura J. Secord, Laurie L. Couch, Morehead State University

SCIENCE EDUCATION

1. **Population dynamics based on resource availability and founding effects: live and computational models.**¹ Samuel Potter, Rebecca Krall, Susan Mayo, Diane Johnson, Kim Zeidler-Watters, Robin Cooper, University of Kentucky
58. **New Educational Modules of the Anatomy and Function of Skeletal Muscle for Middle School and High School Students.** Michael Schultz, Rebecca Krall, Esther E. Dupont-Versteegden, Susan Mayo, Diane Johnson, Kim Zeidler- Watters, Robin Cooper, University of Kentucky
61. **Creation of interactive manipulatives and educational games, and determination of their effectiveness in improving students' understanding of Anatomy and Physiology.**¹ Willie Gosnell, Chioma Amaechi, Yunpeng Xia, Sarah Murphy Blank, Berea College

68. **A novel and interactive method for teaching DNA replication.**¹ Kaitlyn Reasoner, Megan Hoffman, Berea College
100. **The Use of High-Impact and Non-Cognitive Educational Practices In Building Classroom Communities in a Biology Course.** Darla French, Mathys Meyer, University of Pikeville
220. **Pre-Health Collection Within MedEdPORTAL's iCollaborative: Share Resources to Help Science Instructors Address Pre-Health Competencies.** Bruce Branan, Asbury University, Jen Page, Association of American Medical Colleges

ZOOLOGY

17. **Investigating Rowan County Lepidoptera Biodiversity, part one: Papilionidae and Pieridae.**¹ Rachel Brown, Sean O'Keefe, Morehead State University
20. **Distinguishing between Eurasian Wild boar Hybrids and Feral Swine Using Molecular Analyses.**¹ Jason A Matthews, Joe N Caudell, Murray State University, Blake McCann
29. **Comparison of beetle biodiversity in yellow pan versus brown pan traps.** Bailey Lucas, Haley J. Nichols, Dr. Sean O'Keefe, Morehead State University
38. **Studying the Tail Tip Amputation and Regenerative Abilities of Embryos from Sea Lamprey, *Petromyzon marinus*.** Austin Smith, University of Kentucky
51. **New county distribution records for 20 species of Lepidoptera in eastern Kentucky.** James A. Evans, Stantec Consulting
74. **Who takes better care of their eggs, the Carolina chickadee or the house wren?**¹ Paige Moore, Lindsey Walters, Northern Kentucky University
102. **Discovery of Molecular Markers for Population Genetic Analysis of Non-Model Insects.**¹ Scott Shreve, Centre College
105. **Does ambient temperature affect how long incubating female Carolina chickadees leave their eggs?**¹ Jaelyn Webber, Brittany Jones, Cassandra Volker, Lindsey Walters, Northern Kentucky University
129. **A Study of Beetle Diversity in the Daniel Boone National Forest.** Hannah Brough, Amanda Perkins, Sean O'Keefe, Morehead State University

130. **Preliminary comparison of two different trapping methods as an assessment of spider diversity.** Zachary McKinley, Sean O'Keefe, Morehead State University
149. **Do sparrows like toys? Environmental enrichment and indicators of welfare in captive house sparrows (*Passer domesticus*).**¹ Dr. Rebecca Fox, Transylvania University
157. **Water relations of the parasitic hairworm as a sign of high quality water in freshwater streams.**¹ Leighanner R. Main, Blake W. Nelson, Jay A. Yoder, Wittenberg University
161. ***Cotylaspis insignis* (Trematoda: Aspidogastridae): Effect of Osmolality on Adult Worm Survival, Egg Production and Rate of Development.** ¹ Hanna Abe, Kidist Ashami, , Lauren Ballou, Olamide Adejumo, Kevin Montgomery, Sophia Toe, Ron Rosen, Berea College
164. **Matching in parental provisioning rates by male and female Carolina chickadees.**¹ Elizabeth Nickell, Lindsey Walters, Northern Kentucky University
186. **The Consumption of Metallic Lead and its Effects on Tissue Lead Levels in Rural and Urban Eastern Gray Squirrels.**¹ Robert J. Lewis, Stephen B. White, Joe N. Caudell, Robert D. Johnson, Murray State University
193. **Niche Analysis of the European Wall Lizard From Two Introduced North American Populations.**¹ Wesley S. Parsons, Marisa Derenzo, Northern Kentucky University, Richard D. Durtsche
207. **Effect of variation in nestling hunger levels on the provisioning behavior of adult American Kestrels.** Katheryn Watson, Gary Ritchison, Eastern Kentucky University
215. **On head up displays in green salamanders, *Aneides aeneus* ,** Paul V. Cupp, Jr., Eastern Kentucky University
218. **Water Level and Feeding Regimen as Factors Promoting Metamorphosis in Laboratory-Reared Southern Two-Lined Salamanders, *Eurycea cirrigera*.**¹ Taylor Fagin, Brenna Goldberg, Michon Martin, Sean Nilan, Leif Van Laar, Berea College, Roy Scudder-Davis,
221. **A Northern Fish in a Southern Land: Conservation Status of Trout-Perch (*Percopsis omiscomaycus*) in Lewis County, Kentucky.**¹ Brooke A. Washburn, David J. Eisenhour, Morehead State University

Past Presidents of the Kentucky Academy of Science

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

Past Meeting Locations of the Kentucky Academy of Science

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

Next KAS Annual Meeting

**101th Annual Meeting of the
Kentucky Academy of Science**

will be hosted by

Northern Kentucky University

Friday – Saturday

November 13-14, 2015

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