Kentucky Academy of Science

NEWSLETTER

http://www.kyscience.org Susan Templeton, Editor January 2009

The Voice of Science in Kentucky

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☞ Editor's Note: When viewing the Newsletter in Acrobat Reader the Table of Contents (TOC) contains live links to each article; at the bottom right of each page is a link back to the TOC!

The KAS Newsletter is published in January, May and August. Current and archived issues are available at http://www.kyscience.org. You may contact the KAS Newsletter Editor at susan.templeton@kysu.edu.

From the President...

I wish all our members the best for the new year of 2009. Our 2008 meeting in Lexington went over well according to the majority of the feedback provided. Of course, we welcome any additional feedback for improvements. The comments can be used for making this year's coming meeting even more successful. It would be nice to hear from members if the Friday-Saturday meeting was preferred to the normal 3-day meetings we had in the past. Hopefully it was a financial savings to most members to have a shorter meeting, which was part of the goal. We appreciate the special speakers that presented at last year's meeting. The guest talks and the educational symposium were well attended and received by the participants. Most of you are probably aware this year's meeting will be at Northern Kentucky University and that planning is underway. So please keep in mind to have your students prepare their research for talks and posters throughout this coming year.

We are continuing the push for increasing student and full membership to KAS. With the wonderful initiative that Dr. John Mateja put forth last year on Enhanced Affiliates, all students and faculty can be members for free at the institutions that joined as Enhanced. We should continue to increase our membership this coming year with faculty and students from this incentive. So, please get the word out to fellow faculty members and students at your institutions that are Enhanced Affiliates to sign up and join KAS. As Dr. Bob Creek had mentioned, if each current member recruits 1 or 2 new members, this would result in a substantial increase. Let all of us take on this task for KAS this coming year.

With the current economic environment, we have to continue to make our concerns known to Frankfort to protect the academic and educational future of Kentucky. KAS continues to be the voice of Science for Kentucky and we plan to keep a presence in Frankfort to insure a protection of science education in the Commonwealth. We also need to insure Kentucky citizens understand science and its benefits for them.

These days there tends to be a backlash against science in some sectors of our society. So when presenting science this year, there is a need to demonstrate that science and religion are not in competition. Science deals with the natural world and presenting testable hypotheses. A person in science should be able to present the scientific facts without having to intertwine them with any one particular religious view.

Since this is the Year of Science across the USA and a celebration of the 200th anniversary of Charles Darwin's birth, we have a good opportunity for public relations with KAS and Science in general. We should all help to provide public talks and education of these events throughout the year. There are very good www sites to help with content and presentations for these events, so please make use of them. If you have special events that you are conducting this year in relation to promoting the Year of Science 2009 (see page 16)and Darwin's birthday please send a synopsis to KAS, so we can help to promote and disseminate information related to your activity.

Robin Cooper

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2008 Annual Meeting Report

The 94th meeting of the Kentucky Academy of Science was held at the University of Kentucky on October 31 - November 1, 2008 The meeting was very well attended with a total of 620 people registered with 352 of those being students.

Under the new format the meeting started on Friday evening with a Symposium which consisted of a panel discussion entitled STEM in Kentucky - What is it? Where are we? Where are we going? The panelists consisted of Ms. Karen Kidwell, Ms. Joanne Lang, Mr. Rico Tyler and Mr. David Helm.

Saturday had a full day of presentations with the afternoon Plenary Session being the final presentation at which Dr. Hazel Barton provided the talk which was entitled Amazing Caves: Amazing Microbes. The day concluded with the Awards Banquet. Dr. Roger Quinn was the featured speaker who gave an interesting presentation entitled Animals as Models for Robot Mobility and Autonomy: Crawling, Walking, Running, Climbing and Flying. The winners of the Superlative Awards are provided elsewhere in this Newslettter

There were 188 oral presentations with 85 of them entering the URC and 44 in the GRC. There were 169 poster presentations with 103 entered in the URC. The total breakdown is as follows:

Presentation by Section	Total	URC	GRC
Agricultural Sciences	25	7	7
Anthropology & Sociology	4	1	2
Botany	10	3	0
Cellular & Molecular Biology	9	5	4
Chemistry	20	7	9
Computer & Info. Sciences	7	3	3
Ecology & Environ. Sciences	14	4	5
Engineering	8	2	3
Geography	6	1	0
Geology	4	3	1
Health Sciences	5	4	0
Mathematics	4	0	0
Microbiology	8	5	1
Physics & Astronomy	16	10	1
Physiology & Biochemistry	14	9	3
Psychology	16	12	3
Science Education	5	0	0
Zoology	13	9	2

From Dr. Robert Creek
KAS Program Director

2008 Undergraduate Research Competition Winners

ORAL COMPETITION

Agricultural Sciences
1st: Lauren Lobel, Ky State
2nd: Brandon Burchett, Western
3rd: Leslye Brent, Ky State

Anthropology and Sociology
1st: Jonathan Strayer, Ky State

Botany
1st: Channing Richardson, Morehead
2nd: Sanda Zolj, Bellarmine
3rd: Jessica Price, Berea College

Cellular and Molecular Biology
1st: Matthew Riddle, Asbury College
2nd: Christina Nichols, Northern
3rd: Dikshya Bastakoty, Berea College

Chemistry
1st: Chris Miller, Northern
2nd: Michael Lape, Northern
3rd: Jacob Vervynckt, Western

Computer and Information Sciences
1st: Joshua Bradley, Morehead
2nd: Jennifer Imel, Eastern
3rd: Austin Areaux, Eastern

Ecology and Environmental Sciences
1st: Christie Otto, Asbury College
2nd: Kati Coates, Western

Engineering
1st: Teresa Shaffer, U of the Cumberlands
2nd: Twyman Clements, U of Ky
3rd: Jared May, More head

Geology
1st: Samuel Williams, Morehead

Health Sciences
1st: De'Andra Robertson, Ky State
2nd: Megan Jackson, Berea College
3rd, Micah Buckel, Asbury College

Mathematics
1st: John Mosley, Morehead

Microbiology
1st: Kourtney Gentry, Western
2nd: Stephanie Green, Eastern
3rd: Andrew Jones, Northern

Physics and Astronomy
1st: Matthew Bailey, Berea College
2nd: Ramesh Adhikari, Berea College
3rd, Sean Bodine, Northern

Physiology and Biochemistry
1st: Becky Lindhorst, Centre College
2nd: Wanda Eberhard, Asbury College
3rd: Robert Shields, Wood Hudson Cancer Research Laboratory

Psychology
1st: Carey Shaner, Centre College
2nd: Cassie Watkins, Morehead
3rd: Emily Sither, Centre College

Zoology
1st: Jessica Price, Berea College
2nd: Ashby Turner, U of Ky
3rd: Easter Bocook, U of Ky

POSTER COMPETITION

Agricultural Sciences
1st: Steven Hammond, Berea College
2nd: Tara Holaday, Transylvania
3rd: Jonathan Sands, Berea College

Botany
1st: Lesley Mann, U of Ky
2nd: Melissa Pawley, Bellarmine

Cellular and Molecular Biology
1st: Oliver Munyaradzi, Berea College
2nd: Joseph Corbett, Thomas More College
3rd: Aaron Fidler, Berea College

Chemistry
1st: Brenda Barnes, Northern
2nd: Chris Markum, Eastern
3rd: Jonathan Brantley, Western

Ecology and Environmental Sciences
1st: Jesse Howell, U of Ky
2nd: Chad Downey, Eastern
3rd: Tanner Yess, Northern

Geography
1st: Richard Stockwell, Eastern

Health Sciences
1st: Lauren Seber, U of Louisville
2nd: Ashley Crockett, Berea College

Microbiology
1st: Rachel Skinner, Transylvania
2nd: Tyler Elam, Morehead
3rd: Brittany Muench, Northern

Physics and Astronomy
1st: Daniel Graves, Morehead
2nd: April Pease, Western
3rd: Jason Musser, Morehead

Physiology and Biochemistry
1st: William Hankinson, Morehead
2nd: Barbie Kelly, U of Ky
3rd: Suzanne Summe, Northern

Psychology
1st: Zach Bechtle, Centre College
2nd: Britney Maynard, Morehead
3rd: Megan Rodgers, Berea College

Science Education
1st: Jessica Carnes and Amy Jones, Berea College

Zoology
1st: Elizabeth Fleming, Berea College
2nd: K. Marie Damron, Pikeville College
3rd: Crystal Walker, Transylvania

Congratulations to the students who won awards. Congratulations also to their mentors and a special thanks to those who devoted their time to judge the presentations.

Messages from the Executive Director

Thank you to the sponsors and exhibitors of the 2008 KAS Annual Meeting. Without your support this meeting would not have been possible!

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University of Kentucky Office of the Provost

University of Kentucky College of Arts and Sciences

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Integrated Biomedical Science, University of Kentucky College of Medicine

Kentucky Biomedical Research Infrastructure Network (KBRIN)

Kentucky State University Division of Aquaculture

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The Space Science Center

UK College of Arts and Sciences

UK Graduate Biology Program

UK Office of the Registrar/Recruitment

UK Physician's Assistant Program at Morehead State University

University of Louisville Graduate Studies

WKU Ogden College Of Science and Engineering

2009 will be an exciting year for KAS as we continue to grow. KAS currently has over 1,500 members and has a great opportunity to grow to at least double this size. Please encourage all of your colleagues to become members of the Academy. As you know, KAS membership for faculty, staff and students at Enhanced Affiliate institutions (a list of current enhanced affiliates in on the front of the newsletter) is complimentary. Joining KAS as an enhanced member is simple and quick to complete!!

Simply follow the steps below.

1. Visit the KAS website: http://www.kyscience.org.
2. Click on the Join tab at the top of the home page.
3. Select Join and Pay Online (Enhanced members will not be asked for payment!).
4. Select Yes to Enhanced on Join as Member Page and click Submit.
5. Supply your Institution/organization email address (you must use your email address associated with your affiliation for enhanced memberships i.e. -@uky.edu) and click Submit.
6. Provide information on the Join as Enhanced Member Page (Please use numbers/letters for passwords) and click Submit. Note the enhanced membership includes electronic access to JKAS on the KAS webpage, but if you would like a printed copy of the journal mailed to you select the $20 payment option.
7. Please ACTIVATE your account as soon as you receive the message to do so. You will NOT be able to access membership benefits until you activate your account.

KAS members receive discounted annual meeting registration fees, receive the KAS Newsletter, are eligible to apply for KAS research grants and may submit publications to the Journal of KAS. Additionally members have free electronic access to the Journal of the Kentucky Academy of Science (JKAS) on the KAS website. To access an electronic copy of JKAS, please log in as a KAS member on the KAS website. After you log on your profile page will be dispayed. On the profile page click Journals, and then click on the issue you would like to view. If you are a current enhanced member and would like to purchase a hard copy of the journal for $20 annually, please contact me. Remember, this only applies to enhanced members; non-enhanced members receive a hard copy of the JKAS.

If you are a Non-Enhanced member and have not yet paid your 2009 dues, you can renew for 2009 online by logging and selecting Pay Dues on your Profile page. If you prefer not to complete this process online you may download a hard copy of the Membership Form from the link on the Join KAS webpage. If you have questions always feel free to contact me.

Jeanne Harris, Executive Director
executivedirector@kyscience.org
859-227-2837

REMINDER: All KAS affiliates may advertise job openings free of charge on the Employment Opportunities link below. Please forward new postion listings to KAS Executive Director Jeanne Harris at Executivedirector@kyscience.org.

http://www.kyscience.org/members/employment.php

2008 Superlative Awards

DISTINGUISHED COLLEGE/UNIVERSITY SCIENTIST

KAS President John Mateja presented the award to Dr. Diane Snow of the University of Kentucky.

The recipient of the Distinguished College/University Scientist is Dr. Diane Snow, Professor of Anatomy & Neurobiology and Endowed Chair, Spinal Cord and Brain Injury Research Center at the University of Kentucky College of Medicine. Dr. Snow received B.S and M.S. degrees from the University of Akron (1982 and 1985) and her Ph.D. in Neuroscience from Case Western Reserve University. She joined the faculty at UK in 1996. Dr. Snow has garnered substantial funding from both government and foundation granting agencies to support her work. She has been invited to present her work at many universities and at national and international meetings, and has published 44 journal articles in the very best journals.

Dr. Snow conducts basic science research on neural regeneration. Nominator Dr. Allan Butterfield said, "Dr. Snow is also involved in critically important research to develop molecular tools needed to study axon growth and regeneration…through an NIH-funded Small Business Innovation Research project that will...have considerable potential for commercialization with significant implications for future research."

Her nominators also extolled her efforts in training the next generation of scientists, ranging from high school students who are now in scientific careers, undergraduate students currently enrolled in medical school, dental school and graduate school. Her graduate students and post-doctoral fellows have earned awards and now hold positions in academics and industry. Dr. Snow also promotes science education for K-12 children by directing fun-filled neuroscience presentations at local schools. Dr. Gabrielle Curinga, in her nomination letter, pointed out that her excellence in science, teaching and mentoring, through her use of engaging presentation skills and offering challenging research opportunities have enabled her to inspire students of all ages to achieve their highest potential.

DISTINGUISHED PROFESSIONAL SCIENTIST

The recipient of the KAS Distinguished Professional Scientist (in a non-academic position) is Mr. Daniel Jesse Phelps. Mr. Phelps graduated from the University of Kentucky in 1984 with a BS in Geology, and in 1990 with an MS in Geology. Upon graduation he went to work for ARCO Oil and Gas's Research Center in Plano, Texas. In late 1994 he was hired by Kentucky Environmental Protection and has since worked in the Hazardous Waste, Underground Storage Tank, and Superfund branches. He does teach part time at Bluegrass Community College enriching the offerings in Physical Geology and Dinosaurs and Disasters, a class on the history of the earth and life, with an emphasis on dinosaurs.

Mr. Phelps has served in an editorial capacity with the Journal of Geodynamics. He is Chairman of the Geology Section for the Kentucky Academy of Sciences. He is founder and President of the Kentucky Paleontological Society (http://www.kyps.org), one of the most respected amateur paleontological organizations in the United States. In 2004, the Kentucky Section of the American Institute of Professional Geologists,awarded Mr. Phelps its "Geologist of the Year" award for his efforts in educating the public about geology and paleontology. Mr. Phelps has given numerous talks to the public in the last 15 years and more recently is well known for his efforts in organizing Kentucky's scientific community to oppose teaching creationism and intelligent design creationism in public school science classes. He has written numerous letters to the editor and op-eds on this subject.

Dr. Robin Cooper wrote in his nominating letter that "I had the pleasure of sitting on a panel discussion with Mr. Phelps concerning the … Creation museum being built in KY… Mr. Phelps is coherent and level headed when discussing 'hot' and controversial topics. He is a good advocate for education and rational thought for citizens of KY."

KAS President John Mateja (left) presented the award to Mr. Daniel Jesse Phelps of the Kentucky Dept. for Environmental Protection.

OUTSTANDING COLLEGE/UNIVERSITY TEACHER

KAS President John Mateja (left) presented the award to Dr. Joseph Hagerty of the University of Louisville.

The recipient of the Outstanding University Teacher Award was Dr. Joseph Hagerty. Dr. Hagerty obtained his Bachelor of Civil Engineering and Master of Engineering degrees from the University of Louisville, and Master of Science and Doctor of Philosophy degrees from the University of Illinois at Urbana-Champaign. Dr. Hagerty joined the faculty of the University of Louisville in January 1970. Dr. Hagerty is the author or co-author of 107 papers in peer-reviewed technical journals, conference proceedings and other journals. His research interests are broad but a major focus is on river bank instability; as a result of defining a major mechanism of bank failure and erosion on rivers he was given the Hilgard Prize by the American Society of Civil Engineers.

Through his active research career he has directed more than sixty master of engineering theses and doctoral dissertations at the University of Louisville. He has enriched his didactic teaching by taking knowledge gained through research into the classroom. He also published, with several co-authors, a number of textbooks on environmental engineering. He has developed fifteen undergraduate and graduate courses; of particular note are a course designed to focus student attention on interactions among technology and society, a course on professional ethics for engineers, and a graduate course for civil and environmental engineers based on the use of case histories, with the students functioning as groups of consultants responding to actual problems.

Outside the classroom, Dr. Hagerty has served as the faculty advisor for the student chapters of the American Society of Civil Engineers and the Society of American Military Engineers. For his efforts in 2005, the American Society of Civil Engineers named him one of the seven outstanding faculty advisors in the United States. He also works to create the pipeline through programs with elementary schools in the Engineering is Elementary program, and with middle school students.

Dr. Shirley Willihnganz wrote in her letter of nomination that "Dr. Hagerty is deeply committed to education, not just in the academic sense, but realizes that education is deeper than facts and figures. Education to Dr. Hagerty is molding the entire person–teaching the tools of the trade, but also developing a person who will be an asset to his or her community and the world. He knows that education does not end with graduation; he knows that education continues throughout one's life and what one does with what he or she is taught is just as important as being educated in one's chosen field of study."

OUTSTANDING ACADEMY SERVICE

The recipient of the 2008 Outstanding Academy Service Award is Ms. Susan Bolin Templeton, a researcher in the Kentucky State University Human Nutrition Research Program since 1977. She received her bachelor's degree from the University of Kentucky in 1975, and an Associate of Applied Science, Computer Science (1984) and a Master of Public Affairs (1988) from Kentucky State University. She has also taught computer applications at Kentucky State University, Midway College, and Bluegrass Community and Technical College as an adjunct instructor. Ms. Templeton has been a member of the Kentucky Academy of Science since 1995. She has served, and continues to serve, on the KAS board since 2002. She has served as a judge for the Kentucky Junior Academy of Science Annual Meeting several years. She has chaired the Health Sciences Section for three years and served as the sections's secretary for three years as well. While this is an excellent record of service to the academy, her service as editor of the Kentucky Academy of Science Newsletter was a major factor in selecting her for this award. Ms. Templeton has served as the editor since 2002 and as editor she has been responsible for this major communication tool for the Academy. She has done a remarkable job of indentifying organizations around the state that are active in areas of interest to the academy membership and seeking articles for the newsletter to share with us all.

Robert Creek, Ph.D. emeritus professor of biology at Eastern Kentucky University stated that "Since she became editor, the Newsletter has undergone a tremendous improvement which I can vouch for based upon my many years in the Academy. It is a first rate Newsletter. The Academy can be very proud of what Susan has accomplished during her tenure in the Academy."

KAS President John Mateja presented the award to Mrs. Susan Templeton of Kentucky State University.

KAS Governing Board Updates

The Nominations and Elections Committee, chaired by David Olson,congratulates those who were elected to office and expresses sincere appreciation to all those willing to serve the Academy by allowing their names to be placed into nomination.

Newly elected Board members:
- Vice President Barbara Ramey (Eastern)
- Physical Sciences Representative KC Russell (Northern)
- Social Science Representative Sean Reilley (Morehead)

Continuing Board members:
- Past President John Mateja (Murray)
- President Robin Cooper (UK)
- At-Large Rep.George Antonious (Kentucky State)
- Biological Sciences Rep. Sean O'Keefe (Morehead)
- Physical Sciences Rep. Eric Jerde (Morehead)
- Social & Behav. Sci. Rep. Kenneth Tankersley (Northern)

Ex-officio Board members:
- Executive Director Jeanne Harris
- Junior Academy of Science Director Ruth Beattie (UK)
- Program Coordinator Robert Creek (Eastern)
- Journal Editor David White (Murray)
- Webpage Editor Claire Rinehart (Western)
- Newsletter Editor Susan Templeton (Kentucky State)

Board members retiring:
- Past President Nigel Cooper (U of L)
- Physical Sciences Rep. Scott Nutter (Northern)
- Social & Behav. Sci. Rep.David Olson (Morehead)

The retiring board members were recognized for their service to KAS by President John Matega at the Kentucky Academy of Science Annual Business Meeting on October 31, 2008.

Call For Papers

The *Journal of the Kentucky Academy of Science*, now in its 69th year, is published through Allen Press each spring and fall and is abstracted through BioOne. The *Journal* publishes peer reviewed articles from all disciplines within the Academy. Turnaround time usually is six months or less, and page charges ($35/page) are very reasonable. The Journal accepts regular articles (12-20 manuscript pages), scientific notes (2-5 pages), and will accept Letters to the Editor. The Journal also seeks series of manuscripts that result from special workshops or conferences. In these cases, a special editor may be appointed. All manuscripts should be sent to:

David White, Editor J-KAS
Hancock Biological Station
561 Emma Drive
Murray KY 42072

Instructions for authors can be found at the KAS website http://www.kyscience.org. Please call 270-474-2272 or e-mail the editor (david.white @murraystate.edu) for more information.

2008 Graduate Research Competition Winners

Congratulations to the following students who won awards. Congratulations also to their mentors and a special thanks to those who devoted their time to judge the presentations.

Agricultural Sciences
1st: Daniel Starnes, Western
2nd: Diana Edlin, Western
3rd: Robert Tokosh, Murray

Anthropology and Sociology
1st: Cheryl Pan, University of Kentucky
2nd: Lincoln Sloas, Morehead

Cellular and Molecular Biology
1st: Jennifer Forbes-Stovall, Western
2nd: Christopher Whitaker, University of Louisville
3rd: Shobha Silparasetty, Western

Chemistry
1st: Pei Gao, University of Kentucky
2nd: Rituraj Borgohain, University of Kentucky
3rd: Jennifer Collins, University of Kentucky

Computer and Information Science
1st: Sungbo Jung, University of Louisville
2nd: Christy Bogard, University of Louisville
3rd: Ray Hiatt, University of Kentucky

Ecology and Environmental Science
1st: Jeffrey Jackson, Eastern
2nd: Bjorn Schmidt, Western
3rd: Miller Jarrell, Western

Engineering
1st: Samir Rawashdeh, University of Kentucky
2nd: Samuel Hishmeh, University of Kentucky
3rd: Tyler Doering, University of Kentucky

Geology
1st: David Fries, Western

Physics and Astronomy
1st: Marc Beck, Morehead

Physiology and Biochemistry
1st: Lakshmi Bollu, Western
2nd: Levi Castle, Morehead

Psychology
1st: Stacy Vettor, Morehead
2nd: Andrew Handcock, Morehead
3rd: Julie Cash, Morehead

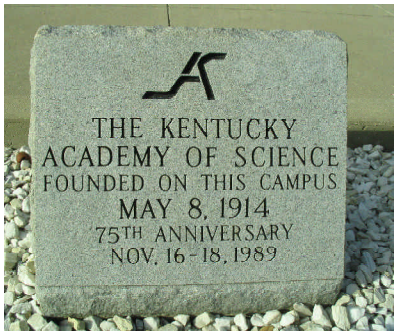
Zoology
1st: Aric Payne, Eastern
2nd: James Evans, Morehead

Griffith Memorial Graduate Award in Psychology
1st: Stacy Vettor, Morehead
2nd: Andrew Handcock, Morehead
3rd: Julie Cash, Morehead
4th: Steven Adams, Morehead

The Kentucky Academy of Science - Nearly 100 years old and still growing

The marker shown at right was placed in front of the Chemistry & Physics Building on Rose Street at the University of Kentucky campus in 1989 to commemorate the 75th Anniversary of KAS. Now is the time to start thinking about plans for the KAS Centennial Celebration coming up in 2014.

We certainly have grown over the years. KAS started in 1914 with “44 names” on its membership roll. In 2008, KAS membership passed the 1,000 member milestone, with over 1,500 professsional and student members representing 50 academic institutions and numerous non-academic organizations across the Commonwealth. The introduction of Enhanced Affliate membership in 2008 has more than doubled the size of KAS in one year.



2009 Sectional Officers

SECTION	CHAIRPERSON	SECRETARY
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Anthropology & Sociology	Cheryl Pan cherylpan @hotmail.com	Lincoln B. Sloas lbsloa01@moreheadstate.edu
Botany	Allen Risk a.risk@morehead-st.edu	Lawrence Alice lawrence.alice@wku.edu
Cellular & Molecular Biology	Dawn Anderson dawn_anderson@berea.edu	Joseph Mester mesterj1@nku.edu
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Physiology & Biochemistry	Michael Smith michael.smith1@wku.edu	Michael Fultz m.fultz@moreheadstate.edu
Psychology	Brian Cusato b.cusato@centre.edu	
Science Education	Beth Nolte betha.nolte@yahoo.com	Wilson Gonzales-Espada w.gonzales-@moreheadstate.edu
Zoology	Anthony Lentz alentz @bellarmine.edu	Sherry Harrell sherry.harrel@eku.edu

The View from CPE: Thoughts and Ideas of the STEM2 Task Force

By Dr. Michael Seelig, Interim Vice President for Academic Affairs, and Dr. Linda Linville, Assistant Vice President for Academic Affairs, Kentucky Council on Postsecondary Education
http://cpe.ky.gov/

The Kentucky Council on Postsecondary Education continues to be driven by efforts to promote the on-going and expanded implementation of successful STEM-disciplined initiatives throughout the Commonwealth. The publication of the STEM Report of March 2007 resulted in a renewed energy for realizing "best practices" in STEM education included in the recommendations of the hundred-member task force. The establishment of the STEM2 Task Force in April, 2008 per KRS 164.0467 was the result of a need for a business plan designed to support the initiatives. The members of the Task Force very recently presented their recommended priority 1-3 year implementation strategies. These priority strategies are based on continued calculations of how best to utilize practices having a proven track record for Kentucky's P-16 educators.

The first priority strategy focuses upon efforts to dramatically change a culture that has yet to grasp the critical issues that STEM prepared students play in the "21st Century Economy" of the state and nation. Through coordinated web development and public awareness campaigns, sectors and stakeholders across the Commonwealth will be encouraged to think STEM.

The second priority strategy is to scale and promote a number of research-based programs, proven to be effective, and related to STEM professional development throughout the state. These programs are producing desired outcomes in improving student achievement in STEM areas of study and include:

- Project Lead the Way (PLTW) is a middle school and high school project and problem based contextual learning curriculum that seeks to create dynamic partnerships with schools and industry in order to prepare an increasing and more diverse group of students for success in engineering and engineering technology programs
- AdvanceKentucky is a national partnership between the Kentucky Science and Technology Corporation (KSTC) and the National Math and Science Initiative (NMSI) to create a new enterprise for expanding Advanced Placement (AP) courses in Kentucky and the number of Kentucky students taking and excelling in the various mathematics, science and English AP exams
- The elementary "fast uptake" model, Primary Mathematics Intervention Program, assists teachers with professional development (PD) in the primary grades.

The third priority strategy is to align science and technology curricula to meet those of the revised math reforms. Blue ribbon panels of university researchers have, in recent years, built achievement standards and assessment tools now in place in Kentucky. Their work is a model to reform science and technology.

Dr. Michael Seelig
VP for Academic Affairs
Ky Council on Postsecondary Education

The fourth priority strategy focuses on developing a cadre of STEM educators in the state. Without improved recruitment and retention of talented STEM teachers, few of the reforms in STEM education can happen with haste as many of Kentucky's brightest STEM graduates choose non-education careers. There are a number of programs that are proving successful with engaging college students in the teaching profession such as the Program of Distinction at Northern Kentucky University, the Center for Integrative Natural Science and mathematics (CINSAM). The mission of CINSAM is to enhance the teaching, learning, and applying of science and mathematics through interdisciplinary collaboration with K-12 schools. Education and science faculty partner with K-12 teacher alliances to provide mutual opportunities that foster research opportunities as well as incentives to both current and future teachers. Another program is TeachKentucky, a recruiting and incentive initiative designed to recruit and develop STEM educators in Kentucky.

These priority recommendations may result in significant gains for Kentucky as we strive to work smarter, utilize our strengths and technology to provide professional development for our teachers, offer incentives for both present and future teachers, and engage all stakeholders in this pursuit. It will continue to be a challenge to find new resources, redirect existing resources to areas of success, realign educational content with 21st Century work skills, and return to an in-depth understanding and mastery of reading, mathematics and English. Multi-sector public and private investments in education will tremendously impact our future economic competitiveness and improve the lives of generations to come. Watch for your link to Kentucky STEM coming to you soon and consider being a partner in Kentucky's STEM educational initiatives. Begin by checking out "Know-How-To-Go" and encourage others to do likewise. Together, we can make a difference.

KENTUCKY COUNCIL ON POSTSECONDARY EDUCATION

Kentucky Space Has Successful Launch

On Saturday, October 11, 2008, at 09:56 PDT, a rocket carrying a payload built by students in the Kentucky Space programwas launched outside of Mojave, California. The flight, designated Prospector 12A (P-12A), was a sub-orbital test flight conducted to verify liquid fueled propulsion technologies being developed by Garvey Spacecraft Corporation (GSC) in partnership with California State University, Long Beach (CSULB).

The 1.7 pound payload was designed by Kentucky college students to precisely measure details of the trajectory of the rocket in flight. The payload was successfully recovered and data analysis of the flight data has begun.

Students in the Kentucky Space Consortium worked with engineers from GSC and students and faculty from CSULB and Stanford University throughout the day Friday, October 10th, to integrate the Kentucky payload atop the 23.8 foot long, 25 inch diameter, rocket. Despite extreme winds the day and night before the launch, Saturday morning dawned clear and calm as the rocket was fueled and final checks were completed. At 09:56 PDT the rocket was launched from the edge of the Koehn Dry Lake Bed 25 miles northeast of Mojave, California.

Lift-off of the Prospector 12A sub-orbital test flight

After the thrust phase, a failure in the drogue chute deceleration system resulted in the rocket impacting at a much higher velocity than intended, but all the payloads were still successfully recovered. Analysis continues on the data recovered from the computers on-board the Kentucky payload, but initial review shows very detailed information on the performance and trajectory of the rocket. The Kentucky payload included a student designed and built inertial measurement unit (IMU) consisting of accelerometers and gyroscopes on three axes that allow the motion of the rocket inthree dimensions to be precisely measured. With this data the students will be able to recover details of the motion of the rocket throughout its flight with a sub-millisecond resolution. This mission marks another significant milestone for Kentucky Space and provides the students with invaluable hands-on experience as they continue to develop technologies for sub-orbital and orbital space experimentation.

On October 28, 2008, Kentucky Space announced that its first orbital satellite, KySat-1, has been selected by NASA to fly on a mission projected for launch in mid-2009. KySat-1, the first satellite ever built in Kentucky, is a cube shaped pico-class satellite powered by solar energy, weighs 1 kg and measures 10cm on a side. Once KySat's on-board computers confirm its release into orbit, Kentucky Space ground controllers in Kentucky will operate the satellite for the duration of its expected 18-24 month mission. After proper operation is confirmed, KySat-1 will be made available to K-12 students throughout Kentucky, and the world, to allow them to issue select commands to the satellite and download the data received. The Commonwealth of Kentucky has invested approximately $850,000 over the last three years on the research and development of this project.

Kentucky Space has launched a series of sub-orbital and near space missions; however, this selection by NASA marks a historic first for the program and for Kentucky. This is also the first time NASA will launch university-built satellites into orbit.

The recommendations made by the launch panel and the NASA Flight Projects Office are being forwarded to NASA Headquarters for final approval and designation of the primary NASA mission.

This announcement is expected as soon as December 2008. The KySat-1 team has been asked to be prepared for a June 2009 launch. Further details and pictures can be found at http://www.kentuckyspace.com.

The Kentucky Space Consortium Members are: University of Kentucky, Morehead State University, University of Louisville, Murray State University, Western Kentucky University, Kentucky Community and Technical College System, Kentucky Space Grant Consortium, Belcan, Kentucky Council on Postsecondary Education, Kentucky Science and Engineering Foundation and Kentucky Science and Technology Corporation (Managing Partner).

From James Lumpp, Kentucky Space Faculty Advisor, and Kris Kimel, President, Kentucky Science and Technology Corporation

(Left to right) Anthony Karam, Daniel Erb, Tyler Doering, Jason Bratcher, and Dr. James Lumpp at the launch site. Karam is an undergraduate in Mechanical Engineering at UK; Erb, Doering and Bratcher are graduate students in Electrical and Computer Engineering at UK. Dr. Lumpp is an Associate Professor at UK in the ECE Dept.

KAS Has Key Role in State Conservation Program

The Kentucky Heritage Land Conservation Fund (KHLCF) is the primary source of state funding for the purchase of natural areas and is committed to protecting and conserving our Commonwealth's valuable and diverse natura areasl for posterity.

KHLCF grants have been awarded to protect and conserve some of Kentucky's best known areas: old-growth forest of Blanton Forest in eastern Kentucky; savannah woodlands at Griffith Woods in central Kentucky; urban forests at the Jefferson Memorial Forest in Louisville; bat populations and caves in southern Kentucky; cliff-lined areas of the Martin's Fork Wild River in Harlan County; and diverse watershed and wetlands areas with endangered mussel species in the upper portions of the Green River in western Kentucky.

The Fund and a governing Board were established by the Kentucky Heritage Land Conservation Act enacted in 1990 along with specific priorities for acquisition: (1) natural areas that possess unique features such as habitat for rare and endangered species; (2) areas important to migratory birds; (3)areas that perform important natural functions that are subject to alteration or loss; and (4) areas in their natural state for public use, outdoor recreation, and environmental education.

While the Act established the Kentucky Heritage Land Conservation Board and priorities, it provided no funding. In 1994, a viable funding mechanism was adopted through the diligent efforts of Governor Brereton Jones, people in his administration, and the legislation's sponsor, Representative Mark Brown of Meade County. The legislature overwhelmingly approved funding through three sources: the sale of license plates, the state portion of the unmined minerals tax, and environmental fines of the Kentucky Department of Environmental Protection.

Since 1995, the Kentucky Heritage Land Conservation Fund Board has played an integral part in providing grants to state natural resources agencies, local governments, and state colleges and universities to conserve over 31,500 acres of natural areas and habitats. To date, the Fund has provided financial support to acquire 113 properties from willing sellers (the Board does not have powers of eminent domain) in 65 counties.

The Kentucky Academy of Science has two representatives on the 12-member Board as required by statute. The KAS representatives were designated to assure that scientists have a role in assessing and approving worthwhile projects of the program. Other Board members represent various organizations and state agencies. Current KAS representatives are Dr. William H. Martin, forest ecologist (retired from EKU) and Chairman of the Board, and Dr. Richard Kessler, an aquatic ecologist at Campbellsville University, Chairman of the important Project Review Committee that visits and assesses the ecological values of the sites being proposed for purchase.

These KAS members serve 3-year, renewable terms. For each position, the KAS Executive Committee provides two nominees to the Governor who selects one for appointment as terms expire. Richard and Bill have each served over 10 years on the Board and they are honored to represent KAS.

As an ongoing commitment to land conservation, three Board members (including Dr. Martin) serve on the Land Stewardship and Conservation Task Force that is assessing the need for continued conservation of natural and agricultural lands. The Task Force will be reporting its findings along with recommendations for sustained funding to the 2010 General Assembly.

KAS members can all participate in this effort to protect Kentucky's natural heritage by asking for a Nature License Plate when registering their car, light truck, or SUV. The $10 fee above normal registration is tax deductible and goes directly to the Kentucky Heritage Land Conservation Fund. For more information contact the Fund office at 502-573-3080 or see the web site, http://www.dnr.ky.gov/heritageland/.

From Dr. William H. Martin
KHLCFB Chair and Kentucky Academy of Science Representative

Nature's Finest Designs

Nature Plates generate over $1 million annually for the purchase and preservation of selected natural areas across Kentucky. The Heritage Land Conservation Board received hundreds of design ideas from creative Kentuckians who are committed to the preservation of Kentucky's unique natural beauty. At right are the latest official nature license plates now available for purchase:

- Dragonfly - designed by Shannon Martin, graphic artist with the Kentucky Transportation Cabinet,
- Cumberland Falls - designed by Charlie Baglan, the Kentucky Department for Fish and Wildlife Resources, and
- Hummingbird - designed by Dawn and David Morrow of Frankfort.

Proposed Position Statement on AP Courses and AP Credit

The AP Position Statement developed by the KAS Science Education Committee is given below:

KAS Position Statement on AP Courses and AP Credit

Background

There is an increased emphasis at the state level on Advanced Placement (AP) courses in high schools as a means of promoting careers in STEM disciplines. Some educators feel that AP courses will encourage students to enter STEM fields by reducing the number of courses taken at the college level and by providing more challenging courses at the secondary level. However, as introductory college courses provide the background and laboratory experiences necessary for subsequent courses, many colleges and universities in Kentucky and elsewhere are reluctant to allow students planning to major in science to bypass introductory courses. The KAS Science Education Committee was asked by the KAS Board of Directors to conduct a survey to determine how colleges and universities across the state handle AP credit and to determine how well students with AP credit are prepared for the curriculum required for science majors at the postsecondary level. Two survey instruments were developed, an institutional one and one for individual science departments. The surveys were sent to Kentucky public institutions and to private institutions listed in the Association of Independent Kentucky Colleges and Universities.

Survey Results

Although all the institutions responding to the survey award college credit for some high school AP courses when the student achieves a sufficiently high score on the AP exam, many do not accept AP courses as substitutes for the introductory science courses required for a major. Others do allow credit for the introductory courses for the major, but the exam score required and the number of semesters of credit allowed varied from institution to institution. Some departments allow credit for the lecture but not for the lab; others advise students who could bypass the introductory course for the major to forego the credit and to enroll in the freshman course anyway. Reasons given for not awarding full credit include lack of specific laboratory skills, insufficient content (such as a lack of evolution theory), and lack of opportunity to interact with other freshman students in that major. Furthermore, subsequent courses at many institutions specifically build on the content and skills presented in the freshman course.

Some institutions find that AP students do well in advanced courses after bypassing the introductory course; many others do not.

Most departments feel that AP courses do prepare students to take the college introductory course for the major.

The Position of the Kentucky Academy of Science

1. Satisfactory completion of an AP course generally prepares a student to take the introductory science course at the postsecondary level for a major in that discipline. The academy supports the teaching of AP courses in Kentucky high schools and monetary awards for low-income students achieving satisfactory scores on the national AP exams.

2. Satisfactory completion of an AP course often does not adequately prepare a student to bypass the introductory science course for a major in that discipline at many institutions.

3. High schools should provide courses that concentrate on best preparing students to take college courses rather than preparing a few students to bypass college courses.

4. High school students taking AP science courses with the intent of obtaining college credit should be advised that there is substantial variation among Kentucky colleges and universities as to:

   (a) how much credit, if any, will be available;

   (b) the minimum AP exam score required for credit; and

   (c) whether laboratory credit will be included.

5. Satisfactory completion of an AP course may allow a student to receive college credit for a science course for nonmajors at the postsecondary level in that discipline.

6. High school guidance counselors should be prepared to advise students on which AP courses will be acceptable and at what level (major, nonmajor) at the various Kentucky colleges and universities.

The KAS Governing Board is scheduled to vote on the position statement at the January 24, 2009 meeting. If you have any comments or concerns regarding this statement, please contact Vern Hicks {hicks@nku.edu, (859)572-5406} as soon as possible. The Science Education Committee thanks all who participated in the development of the position statement.

From Vernon Hicks
Chair, KAS Science Education Committee

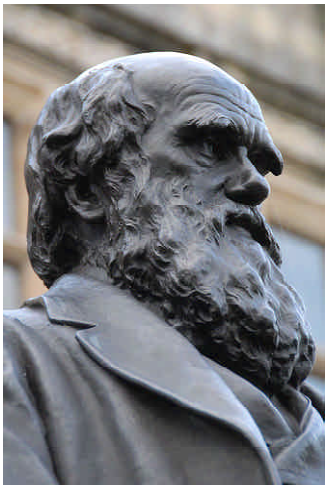
CollegeBoard

The College Board is a not-for-profit association whose mission is to connect students to college success and opportunity. Among its best-known programs are the SAT®, the PSAT/NMSQT®, and the Advanced Placement Program® (AP®).

Below is a link to the College Board's AP Credit Policy Info website. This site provides AP policy links and/or contact information for colleges and universities nationwide. We encourage both guidance counselors and students interested in pursuing advanced placement credit to use this tool in their planning process.

http://collegesearch.collegeboard.com/apcreditpolicy/index.jsp

Celebrations of Darwin and Evolution



A statue of Charles Darwin is located in his birthplace of Shrewsbury, UK.

The year 2009 marks both the 200th anniversary of the birth of Charles Darwin and the 150th anniversary of the publication of "On the Origin of Species". February 12, the birth date of Charles Darwin in 1809, is officially known as Darwin Day. Many institutions across the state are planning events for this year to recognize the contributions of Darwin and to celebrate evolution.

In the Northern Kentucky/ Greater Cincinnati area, home of the infamous Creation Museum, a year-long series of events are planned under the heading Darwin2009. The participating institutions include the University of Cincinnati, Northern Kentucky University, Thomas More College, College of Mount St. Joseph, Xavier University, Cincinnati Museum Center, and the Society for Evolution Education housed at Sunrock Farm; the Society for Evolution Education was featured in an earlier edition of the newsletter. For a listing of Darwin2009 events and locations go to http://www.uc.edu/darwin/. These events include, but are not limited to:

1. A live and virtual Darwin Exhibit and online Second Life Venue of Galapagos Islands
2. "The Darwin Bi-Centennial Celebration Lecture: A beagle's eye view of biodiversity in Darwin's finches" by Dr. Kenneth Petren on February 10 at UC and February 12 at NKU.
3. "Slam Dunk for Science and the Constitution: Kitzmiller et al. v. Dover Area School District 2005" by Dr. Barbara Forrest, expert witness at the Dover trial, on February 16 at NKU.
4. A hands-on workshop for teachers led by Karen Cruse at NKU on February 21.
5. "Evolving A Genius: The Extraordinary Early Life of Charles Darwin" by Doug Schwartz on February 17.
6. "Darwin's rEvolution" at the Museum of Natural History & Science, Cincinnati Museum Center.
7. "Global Distribution of Genomic Diversity Underscores Rich Complex History of Continental Human Populations" by Dr. Carlos Bustamante.
8. Summer Science Camps at Thomas More for High School Students that focus on the evolution of local species during the weeks of July 12 and July 19.
9. "Science, Evolution and Creationism" by Dr. Francisco Ayala on October 30.
10. "Evolution Ball" Halloween Party at Sunrock Farm on October 31.
11. November lecture series featuring Darwin-Wallace Medal winners.

Check out the website for places and times, as well as for information about many other events, some still in the planning stages.

The University of Louisville is planning a Darwin Symposium for the 150th anniversary of "On the Origin of Species", October 22-24, 2009, which will include the following speakers:

1. Dr. David Hull: (Northwestern University): A historical and philosophical look at The Origin of Species.
2. Dr. Michael Russell (California Institute of Technology, Jet Propulsion Lab): Origin of Life
3. Dr. Michael Galperin (NIH); Evolution of Genomes
4. Dr. Rick Michod (University of Arizona): Evolution of Multicellularity
5. Dr. Jeffrey Palmer (University of Indiana): Comparative genomics and molecular evolution in plants.
6. Dr. Kevin Padian (UC Berkeley): Dinosaurs, Birds, Evolution of Flight
7. Dr. Michael Novacek (American Museum of Natural History): Mammalian Evolution: From Fossils to DNA
8. Dr. David Buss (University of Austin): Evolutionary Psychology

The KAS Science Education Committee would like to hear about other 2009 Darwin and Evolution events planned in Kentucky and throughout the region. Please send any relevant information to:

Dr. Vern Hicks (hicks@nku.edu),

Dr. Jennifer Myka (jennifer.myka@yahoo.com), or

Dr. Chris Lorentz (chris.lorentz@thomasmore.edu).

From Vern Hicks
KAS Science Education Committee

"False facts are highly injurious to the progress of science, for they often endure long; but false views, if supported by some evidence, do little harm, for every one takes a salutary pleasure in proving their falseness; and when this is done, one path towards error is closed and the road to truth is often at the same time opened." – ***C. Darwin, The Origin of Species by Means of Natural Selection, 6th Edition, 1872***

Posters-at-the-Capitol – Showcasing Undergraduate Achievement for Eight Years

Now in its eighth year, Posters-at-the-Capitol has celebrated the research and scholarly achievements of undergraduates from across the Commonwealth. Initially funded through a grant from the Howard Hughes Medical Institute to Murray State University, the program has grown from 85 undergraduates in 2001 from Eastern Kentucky University, Kentucky State University, Morehead State University, Murray State University, Northern Kentucky University, and Western Kentucky University to over 200 participants in 2009 from the six comprehensive public universities, the University of Kentucky, the University of Louisville, and the Kentucky Community and Technical College System.

In a recent publication titled High-Impact Education Practices, the Association of American Colleges and Universities said that the goal of undergraduate research is to "involve students with actively contested questions, empirical observation, cutting-edge technologies, and the sense of excitement that comes from working to answer important questions." Posters-at-the-Capitol is a forum to help showcase the kinds of cutting-edge work Kentucky undergraduates are capable of doing - work that routinely results in presentations at professional society meetings and publications in professional journals - when they have the resources and when faculty step outside the "traditional" classroom to work with their students. Each year Posters-at-the-Capitol enables the Governor and members of the General Assembly, individuals responsible for higher education funding in the Commonwealth, to engage directly with students who have had this important educational opportunity.

Examples of high-quality student work abound. In the sciences, Yoon Heyon Hu worked with Dr. George Antonious, Professor of Plant and Soil Science at Kentucky State University (KSU), on research pertaining to the genotypes of hot peppers. That experience concluded with Hu co-authoring a peer reviewed article in the Journal of Environmental Science and Health, which helped her get into medical school in South Korea after graduating from KSU.

While once the domain of the sciences, undergraduates engaged in research and scholarly work can be found in every disciplinary area. Walter Early IV, a graduate from the University of Kentucky's College of Fine Arts, worked over a four year period on casting iron. After presenting his project "Cast Iron Sculpture Workshops at the Ironbridge Open Air Museum of Steel Sculpture and Relation 'Iron Works' Exhibition" in Posters-at-the-Capitol, he went on to present at other conferences during 2007, better preparing him to continue to follow his passion. He is currently attending graduate school at Notre Dame.

In the humanities, Brittany Fiscus, senior history major at Murray State University (MSU), worked with Dr. Terry Strieter, Professor of History, on research involving media fabrication of the pre-revolutionary image of Queen Marie Antoinette. This research led to additional presentation opportunities including the Ohio Valley History Conference in 2008. She is currently completing her undergraduate education at MSU and will be attending graduate school.

It is clear that when undergraduates engage in research and scholarly activity, the educational benefits have never been greater. "I am continually amazed at what I see coming from young scholars today. The effort put into undergraduate research is laudable and certainly something that I would like to see continue to grow in the future." said Speaker Jody Richards, Kentucky House of Representatives.

Posters-at-the-Capitol is a way undergraduate students can show those responsible for funding higher education across the Commonwealth that our future hinges on not simply providing access to college, but the quality of that education. "Having worked both in and outside the education sector, I can attest to the importance of providing the best undergraduate experience possible." said Secretary Helen Mountjoy, Kentucky Education and Workforce Development Cabinet. "Answering the tough questions and forming new ones that have yet to even be imagined should be part of the excitement tied to the collegiate experience. Posters-at-the-Capitol is a great way for members of the Legislature to see first hand what our students are capable of and should be doing."

The recently-released report Measuring Up 2008, the national report card on higher education compiled by the National Center for Public Policy and Higher Education, while showing some improvement, still presents a very troubling picture for Kentucky (Preparation - C, Participation - C, Affordability - F, Completion - B, and Benefits - D+). These grades clearly say that more needs to be done. Last year, the Posters-at-the-Capitol Organizing Committee put forward a proposal to the Council on Postsecondary Education to develop a statewide undergraduate research internship program. As the House and Senate grappled with serious budget challenges, the initiative stalled in the Legislature. This year the Commonwealth again faces serious budget shortfalls. Again, the Legislature has the opportunity to fund a statewide undergraduate research initiative that will help Kentucky develop the kind of workforce it needs to be nationally and globally competitive. For those responsible for preparing Kentucky's future workforce, the question is not "can we afford to fund such an initiative"; the question is "can we afford not to fund this initiative."

The public is invited to attend Posters-at-the-Capitol and Kentuckians across the state are encouraged to join together in celebrating "Undergraduate Research Day" on February 5, 2009 proclaimed by Governor Steve Beshear. More information regarding Posters-at-the-Capitol can be found online at http://campus.murraystate.edu/services/URSA/index.html.

From John Mateja, Director, and Jody Cofer, Program Specialist, Undergraduate Research and Scholarly Activity Office, Murray State University

Kentucky Program Encourages More Girls to Consider STEM Careers

According to the U.S. Bureau of Labor Statistics, over the next six years, job growth of 27 percent or more will occur in computer science, database administration, software engineering, biomedical engineering, environmental engineering, health care, medical research, and internet publishing. Will the workforce of Kentucky have the necessary skills to compete in this changing economy? Will industries choose to locate in Kentucky to provide job opportunities for our college graduates? These are important questions not only for Kentucky, but also for other states across the nation. Kentucky is in dire need to better prepare itself for these changes. For example, the Progressive Policy Institute ranks Kentucky in the lowest quartile in workforce education, number of scientists and engineers, number of patents, high-tech jobs, industry investment in R&D, and number of fastest growing companies, all economic growth indicators for increasing state income.

One step to accelerate Kentucky's performance within the science, technology, engineering and mathematics (STEM) disciplines was realized in Fall 2007, when Kentucky joined the National Girls Collaborative Project (NGCP). This national program is funded by the National Science Foundation. The "Kentucky Girls STEM Collaborative" was created with a primary goal of educating Kentucky girls and their parents on the advantages of careers in STEM, and at the same time bringing together organizations and programs that are committed to this goal. The Kentucky Collaborative has aligned its mission with that of other state organizations, such as the State STEM Task Force, focusing on strengthening the state's workforce.

The Collaborative is working to strengthen the state's capacity to increase the number of women pursuing college degrees in STEM. It operates by partnering with schools and universities, professional organizations, industries and state government to hold a variety of activities across the Commonwealth. These activities include the distribution of mini-grants, creation of professional databases of women scientists and engineers, implementation of forums, workshops, and annual conferences, the promotion of a program directory and website, and finally, the evaluation of the effectiveness of Collaborative programs. These activities are described below:

1) Offer mini-grants to fund innovative K - 12 programs. The Collaborative will support girl-serving organizations by offering up to $1,000 mini-grants to two organizations that offer programming designed to increase girls' interest in STEM and thereby increasing the number of girls in the STEM pipeline.

2) Develop a database of women in STEM careers to serve as resources for girl-serving organizations, including women who support internships and mentoring. The University of Kentucky is the lead institution in this Collaborative and will provide the web hosting for the database and the mini-grant web site.

3) Offer regional forums to provide information, training on programming, administrative issues, fundraising, assessment and best practices.

4) Host Annual Conferences to highlight best practices in STEM education throughout the K-16 pipeline and feature mini-grant awardees.

5) Promote Program Directory of new and on-going STEM programs in Kentucky. One single web-based location for parents, schools, and community leaders to find information on statewide STEM-related activities in which girls (and boys) might become involved.

6) Use evaluation instruments to strengthen the effectiveness of the Kentucky Girls Collaborative STEM programs activities.

Beginning Fall 2007, the Kentucky Girls STEM Collaborative was active across the state in reaching its stated goals. A statewide Information Session was held on December 4, 2007, to introduce the program and its activities. A press conference held at the State Capitol in Frankfort on April 16, 2008, officially announced the formation of the Collaborative. The following month on May 23, 2008, the Kentucky Girls STEM Collaborative Kickoff Conference was held on the University of Kentucky campus. Identification and dissemination of eight mini-grants awards was made in September 2008. These mini-grant awardees will be highlighted at the 2009 Annual Conference scheduled on June 15, 2009 in downtown Lexington. Regional forums are scheduled to be held in Prestonsburg, KY and Northern Kentucky this coming Spring 2009. The second mini-grant application period will be opened January 2 through January 31, 2009. For more information, contact Nancy C. Martin, Professor of Biochemistry and Molecular Biology at the University of Louisville, via e-mail at Nancymartin@louisville.edu, or phone 502.852.5226.

For more information on up-coming events or ideas on successful mini-grant program projects, see the National Girls Collaborative Project website: http://www.ngcproject.com - click on "South".

From Sue Scheff, Coordinator & Advisor,
AMSTEMM Program, University of Kentucky

The recently formed Kentucky Girls STEM Collaborative will be the topic of discussion on the KET television broadcast of "Connections with Renee Shaw". The show will air Friday, January 23rd at 4pm ET on KET 2 and Sunday, January 25th at 1:30pm ET on KET 1. Also, the show airs numerous times on The Kentucky Channel which is offered on expanded digital cable packages. If you miss it, the show will be archived on the web within 48-72 hours of the Sunday broadcast.

Panelists include: ***Sue Scheff***, Coordinator, Appalachian & Minority Science, Technology, Engineering, and Math Majors, University of Kentucky, ***Carol Hanley***, Director of Education and Communications, Tracy Farmer Center for the Environment, University of Kentucky, ***Nancy Martin,*** Professor, Biochemistry & Molecular Biology, University of Louisville, and ***Doris Clark-Saar***, Director, Adventures in Math & Science, Murray State University.

2009 Kentucky Science and Engineering Fair (KY-SEF)

Eastern Kentucky University will host the seventh annual Kentucky Science and Engineering Fair (KY-SEF) for middle school and high school students Saturday, April 4, 2009.

This event will feature the work of more than 175 students who have advanced through local and regional competitions across the Commonwealth. They will compete for trophies, ribbons, university and private scholarships, and special awards from corporations and organizations. The high school students will compete for the chance to represent the Commonwealth at the Intel International Science and Engineering Fair in Reno, NV, in May. Competition is held in 18 categories:

Animal Sciences
Behavioral and Social Sciences
Biochemistry
Cellular & Molecular Biology
Chemistry
Computer Science
Earth Science
Engineering (Materials & Bioengineering)
Engineering (Electrical & Mechanical)
Energy and Transportation
Environmental Management
Environmental Sciences
Mathematical Sciences
Medicine and Health Sciences
Microbiology
Physics and Astronomy
Plant Sciences
Team Projects.

This event represents an exciting milestone for the science and technical education community in Kentucky. The Fair's mission is to expand educational opportunities for all middle and high school students and to enhance the visibility and importance of science and engineering in Kentucky by providing annual statewide competitions that support, encourage and recognize student excellence in science and engineering research. The Fair also gives the public a chance to see the quality of science being done in Kentucky middle and high schools and to showcase what the students are capable of doing.

The Kentucky Academy of Science has been a loyal supporter of KY-SEF by providing both financial support and judges each year. The commitment of KAS members to this event is very important and the organizers of the fair hope that they can rely on your continued support. A call for judges will be sent by e-mail near the end of January. Please consider judging and playing a very rewarding role in the academic development of our next generation of scientists. So put Saturday, April 4, on your calendar and sign up to be a judge when notification comes your way!

As with all non-profit endeavors this year, KY-SEF is looking for financial sponsors. If any KAS member knows of a corporation or other group that would like to become involved with this worthy activity, please contact Barbara Ramey or Bob Creek (barbara.ramey@eku.edu or robertcreek@bellsouth.net).

Kentucky Junior Academy of Science

The Junior Academy was begun over fifty years ago to foster an interest in science for middle school and high school students in Kentucky. Members of the Kentucky Junior Academy have the opportunity to :

- interact with other high school students across the state who are interested in science and technology,
- apply for money to design and complete science projects,
- present projects at the annual KJAS meeting, and
- publish an abstract in the Journal of the Kentucky Academy of Science.

The KJAS 2009 Spring Symposium will be held Saturday, April 18, 2009 at the University of Kentucky. To learn more about the Kentucky Junior Academy of Science visit http://www.kyacademyofscience.org/members/jkas.html or contact the KJAS director:

Ruth E. Beattie
Director of Undergraduate Studies
Associate Professor, Dept. of Biology
University of Kentucky
Lexington, KY 40506
E-mail: rebeat1@email.uky.edu
Telephone: 859-257-7647
Fax: 859-257-1717

Attention KAS Members: Judges are needed for the KJAS Spring Symposium. Please contact rebeat1@email.uky.edu to volunteer. Thanks.

Beyond Our Borders: Tropical Dendrology in Costa Rica

Two 2-week classes will be offered in 2009: April 20-May 2 (in Spanish), and June 27-July 4 (in English). These classes offer intensive study of tropical trees while traveling through four life zones (dry, moist, wet, and cloud forests) in Costa Rica. A highly efficient teaching method is used, and students are able to identify about 80% of the important families and genera of Central America and Northern South America. Details and testimonials are available at http://www.hjimenez.org. Costs: US $1,600 which covers food and lodging (airfare not included). A Tropical Birding class is also scheduled for August, 2009. Contact: Dr. Humberto Jiménez Saa. Apdo. 86-1200/ San José, Costa Rica. FAX: (506) 22534963. Phones: (506) 2291-0862; 2231-1236 hjimenez@racsa.co.cr.

The hosting institution is the Tropical Science Center, a private non-profit association. Its objectives are to conduct and support scientific research and education, and to encourage the acquisition and application of knowledge concerning Man's enduring relationships with the resources–biological and physical– of tropical environments. The Center established its Continuing Education Program in 1992.

Year of Science 2009 Kicks Off Across the Nation

The Coalition on the Public Understanding of Science (COPUS) kicked off Year of Science 2009 (YoS2009) -- a national, yearlong, grassroots celebration--this month in Boston at the annual meeting of the Society for Integrative and Comparative Biology. COPUS, which represents more than 500 organizations, is celebrating how science works, who scientists are, and why science matters. Ira Flatow, host of Science Friday, broadcast every week on National Public Radio, launched the week's events with a plenary presentation encouraging scientists to get involved in communicating and sharing the excitement of science at every opportunity.

Flatow said: "If you don't stand up for science, then no one else is going to do it. We as journalists and scientists have to figure out ways to share science in plain English whenever possible." This call to action is what drives YoS2009: it is a call for scientists to step out of their laboratories and into the public eye.

COPUS participants—museums, federal agencies, K–12 schools, universities, scientific societies, and nonprofit and for-profit organizations from all 50 states and 13 countries—will host events in celebration of YoS2009.

Regionally connected COPUS participants are bringing science to their local communities in innovative ways. Washington, DC, the nation's capital, will be the site of a week-long "Meet the Scientist" effort in which leading scientists will go to schools, community groups, and science festivals to share their science with the general public and explain how they know what they know about science. Nationally. a special Web site (http://www.yearofscience2009.org) will help the general public learn more about this year-long, national event. The site will feature a different scientific theme each month, complemented by blogs from scientists and science communicators about those topics and their fields of expertise. Highlights from the dynamic YoS2009 Web site include the integration of components from the newly launched Web site Understanding Science (http://www.understandingscience.org).

Other nationwide activities include Flat Stanley explorations of science, the opportunity to name a new species of jellyfish or adopt a species for the Encyclopedia of Life, and a contest to build the most scientific pizza.

All of these events and activities foster innovative new partnerships that will bring science and the public closer together locally, regionally, and nationally—all in a growing celebration of science!

Rita Colwell, former director of the National Science Foundation, states:

> "In this Year of Science 2009, scientists around the globe collectively are shining a spotlight on their work to highlight the achievements of modern science in the public square. This year provides a special opportunity to be optimistic and express hope for a better future. Through their passion and dedication, scientists and nonscientists alike are able to share in the thrill of scientific discovery."

COPUS, which began with support from the National Science Foundation, has grown to be an inclusive grassroots endeavor spurring communication and collaboration in the scientific community while shining the spotlight on science in 2009. Still growing, the COPUS network of more than 500 organizations includes a broad range of participants from large federal agencies such as the National Oceanic and Atmospheric Administration and the Environmental Protection Agency to local groups such as the Banana Slug String Band from Santa Cruz, California, and TalkingScience, a New York City nonprofit that is organizing a "Rock-it Science" concert in 2009. Major sponsors of the Year of Science 2009 include the American Institute of Biological Sciences, the University of California Museum of Paleontology, the Geological Society of America, and the National Science Teachers Association. To register as a participant or to learn more, please visit http://www.copusproject.org.

> *"We as journalists and scientists have to figure out ways to share science in plain English whenever possible."* – Ira Flatow, host of NPR's Science Friday broadcast

For more information about COPUS and the Year of Science 2009, please visit

- http://www.copusproject.org
- http://www.yearofscience2009.org
- http://blogs.aibs.org/copus/

About COPUS

Support for COPUS planning workshops was provided by the National Science Foundation under grant nos. EAR-0606600, EAR-0628790, and EAR-0814048 to the University of California Museum of Paleontology. The cognizant fiduciary body for COPUS and the Year of Science 2009 project is the American Institute of Biological Sciences Inc., a 501(c)(3) nonprofit organization, which is providing staffing support and IT and other resources. The Geological Society of America, the University of California Museum of Paleontology, and the National Science Teachers Association are also contributing funds for COPUS and Year of Science 2009.

Year of Science sponsorship opportunities are available now! For more information, contact Sheri Potter at spotter@copusproject.org.

Condensed from an article by From Sherri Potter, Network Project Manager, and Judy Scotchmoor, Assistant Director, Education and Public Programs, COPUS

Shared by KAS President Robin Cooper

Kentucky Academy of Science

Employment Opportunities

If you are an employer and would like to post a notice regarding your organization's employment opportunities within the scientific field, please contact:

Ms. Jeanne Harris
Executive Director, Kentucky Academy of Science

The Kentucky Academy of Science
PO Box 22579
Lexington, KY 40522-2579

Phone: (859)-227-2837
E-mail: Executive Director

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