

K-12 outreach for Robin Cooper (Biology) 2012 activities.

FUNDED ACTIVITIES FOR K-12 TEACHERS EDUCATION: GRANTS RECEIVED

1. KY Department of Education. **Start 10/01/12 End 09/30/13.** Science Leadership Support Network - **Central Region** Year 3. # 3048109915. PI. is Kimberly Zeidler-Watters, Partnership Inst. for Math and Science. **CO-PI Robin Cooper.** Total \$97,500.
2. KY Department of Education. **Start 10/01/12 End 09/30/13.** Science Leadership Support Network – **Eastern Region** Year 3. # 3048109914. PI. is Kimberly Zeidler-Watters, Partnership Inst. for Math and Science. **Only one CO-PI Robin Cooper.** Total \$97,500.
3. Toyota Motor Manufacturing Kentucky for support of Kentucky Science and Engineering Fair. \$3,000. Dec. 14, 2011. (PI. Cooper) Funds to support the science fair and students travel to attend INTEL in **2012.** Grant ID: XX52454953
4. **2010-2012** The P-12 Math and Science Outreach Unit of PIMSER in partnership with OSPA, UK College of Ed, and UK was awarded 2 of the 5 state Math and Science Partnership projects to design and facilitate a Science Leadership Support Network in the Central and Eastern region of the state. UK will receive \$195,000/project per year x 2 years so approx. \$800,000 total. The higher ed partners for the funded projects are: Central KY (Christine Schnittka, Becky McNall, and **Robin Cooper**). [Kim Zeidler, University of Kentucky is the PI]. Awarded in 2010.
5. **Toyota PEP Grant with Fayette County Public Schools (FCPS) 2011- 2012.** Title: “Biology Realignment and Curriculum Enhancement (BRACE).” I was placed on this grant as the scientist partner at the Univ of KY. No other faculty member at Univ of KY is a participant on the grant. (David Helm at FCPS is the PI’s on the grant). \$ 30,000

Goals of the grant are:

- 1 – Align the current Kentucky Program of Studies for Biology with the recently released ACT Quality Core which the Biology End of Course Assessments will be based on
- 2 – Training on implementation and use of equipment recently purchased DNA technology equipment (gel electrophoresis equipments, PCR thermo cycler, etc.)
- 3 – Continued work on the implementation of Science Literacy Standards released last year as a part of the career and college readiness standards for Language Arts

Submitted Grant

1. PreProposal for the American Honda Foundation. “See Blue Mathematics Outreach Initiative”. **Project Team:** The project team will consist of: Carl Lee, Professor of Mathematics in the Department of Mathematics, will serve as PI and Director of the Family Mathematics Night; Margaret Mohr-Schroeder, Assistant Professor of

Mathematics Education in the Department of STEM Education, will serve as co-PI and Director of the Mathematics Clinic; Bruce Walcott, Professor of Electrical Engineering in the College of Engineering, will serve as co-PI and co-Director of the Middle School Summer STEM Camp; Craig Schroeder, Mathematics Coach for Fayette County Public Schools, will serve as co-PI and Director of the Middle School Summer STEM Camp; and Robin Cooper, Associate Professor of Biology in the Department of Biology, will serve as senior personnel and assist with the content modules for the summer STEM Camp. Submitted March 25, 2012.

MENTOR HIGH SCHOOL STUDENTS WITHIN MY RESEARCH LAB

For the past 10 years I have been mentoring high school students within my research group. See web page

<http://web.as.uky.edu/Biology/faculty/cooper/High%20school%20OUTREACHING.htm>

(present and over the last year)

1. Leo de Castro 2011-2012 Henry Clay High School (sophomore)
2. Richard M. Cooper 2010-2012, Lafayette High School. UKRP fellowship \$500
3. Clara de Castro 2012-2013 Sayre High School (Freshman)
4. Robin Swoveland 2012-2013 Dunbar High School (Junior)
5. Elizabeth Schwarcze 2012-2013 Sayre High School (Junior)

PUBLICATIONS WITH HIGH SCHOOL STUDENTS THIS PAST YEAR

Chung, Y-S. **Cooper, R.M., Graff, J.** and Cooper, R.L. (2012) The acute and chronic effect of low temperature on survival, heart rate and neural function in crayfish (*Procambarus clarkii*) and prawn (*Macrobrachium rosenbergii*) species. Open Journal of Molecular and Integrative Physiology 2:75-86.

ABSTRACTS WITH HIGH SCHOOL STUDENTS THIS PAST YEAR

Chung, Y.S., **Graff, J., Cooper, R.M.,** Cooper, R.L. (2012) The acute and chronic effect of temperature on heart and ventilatory rate in prawns. Korean Student Technical & Leadership Conference. Chicago, IL March 16-18, 2012.

Crum, M., **DeCastro, L.,** Robinson, M.M., Robinson, A.D., Cooper, R.L. (2012). Effects of hypercalcemia in a crayfish model : Neuron, CNS, intestine, and behavior. Annual meeting of Society for Neuroscience. New Orleans, LA., USA.

OTHER ACTIVITIES ASSOCIATED WITH K-12 (including events within 2012)

1. **2012-2013 Outreach Coordinator** for the Society for Neuroscience-Kentucky chapter.
2. Submitted 4 workshop proposals for 2012 **National Science Teachers Association (NSTA)** Regional Conference in Louisville (October 18-20). Three were accepted and presented .
 - (A) Cooper, R.L., Holsinger, R.C., Rose, S., Cooper, H., Krall, R.M., Johnson, D. and Zeidler-Watters, K. (2012). STEM & Health: Stressors on the circulatory system related with excess body fat. **PRESENTED**
 - (B) Cooper, R.L., Holsinger, R.C., Krall, R.M., Johnson, D. and Zeidler-Watters, K. (2012). Human Respiration Laboratory Experiment with a Geometric Calibration.
 - (C) Holsinger, R.C., Cooper, R.L., Krall, R.M., Johnson, D. and Zeidler-Watters, K. (2012). Effect of Environment and Modulators on Hindgut and Heart Function in Invertebrates: Crustaceans and *Drosophila*. **PRESENTED**
 - (D) Holsinger, R.C., Cooper, R.L., Cooper, H., Krall, R.M., Johnson, D. and Zeidler-Watters, K. (2012). Classroom activity on buffering related to respiration for high school and introductory college courses in biological sciences. **PRESENTED**
3. **2008-2012**. I am a board member of the KY-SEF (KY STATE SCIENCE AND ENGINEERING FAIR). This is to help organize and fundraise for the state science fair held annually at Eastern KY Univ. We meet 3 times a year in Frankfort at the Dept of Education (KY) to help plan state wide science activities for high school and middle school students.

2012-present, President of the board for KY-SEF (Kentucky & Science Engineering Fair). This is the STATE Science fair. All the regional fairs work their way to the highest state fair. We are really two fairs (Life sciences and Physical Sciences). Our winners go directly to the International INTEL competition.
4. Science Fair 2000-2012 Glendover Elementary School. **Coordinated the judging** of the science fair projects. Every 4th and 5th grader (~200) is required to present at the Science Fair. In the year 2002, I had to coordinate all the science fun day activities and organize 30 judges for the event. I also judged at the local school level and at the county level.
5. Science Fair 2003-2012 The local middle school (**Morton**). Since **2003-present** I also organize the Science fair at the middle school to secure judges for the event and determine the over winners for the competitions. This event involves 1 day each year.
6. **2003-2012** Judged at **Fayette County Science fair, Regional Central KY Intel Science Fair** and at the **Jr. Kentucky Academy of Sciences** annual meeting. (These events take 3 full days each year to serve as a judge at these three different events)
7. **2003-2012**. Serve as a **mentor** for the **Jr. Kentucky Academy of Sciences**. This is to help High School Students with Science projects so that they will be able to learn the

investigative principles of science. I also help the students prepare to present their findings at the Jr. Kentucky Academy of Sciences annual meeting.

8. **2000-2012.** Serve as a resource for MAD SCIENCE network. I serve as a resource for questions from students around the world related to neuroscience questions. This service is coordinated by graduate students from Washington University, School of Medicine.
9. Provided an entire day (March 6, **2012**) to teaching all the 8th graders (4 classes) at Beaumont Middle School (Lexington, KY) differences in innate and learned behaviors. This was done with lecture and hands on activities. (Contact person: Mr. Patrick Goff, Science teacher at Beaumont Middle School).

Health Related Community Service in Lexington, KY & local areas with High Schools using my BSN and RN status

1. Presentation and activity on the importance of good respiration with pH balance for elderly and people with COPD: Concerns with oxygen therapy. Presentation to students in High School Biology classes (2 different classes). FCPS, Southside Technical Center, Lexington, KY. Feb. 1, 2012. Contact: Ms. Shannon Raymer, RN, MSN, CCRN
2. Presentation and activity on the importance of good respiration with pH balance for elderly and people with COPD: Concerns with oxygen therapy. Presentation to students in High School Biology classes (3 different classes). Sayre high school, Lexington, KY. April 2012. Contact: Ms. Maggi O'Neill.

AWARDS RELATED TO OUTREACHING/TEACHING ACTIVITIES

Recipient of KAS (Kentucky Academy of Science) Outstanding College/University Teacher of 2012-2013. The qualifications: The recipient shall have made some significant contribution primarily to science teaching but also to research at the college/university level in Kentucky. Contributions should be interpreted broadly to mean contribution directly to the Commonwealth, or the intellectual growth in the Commonwealth.