

FACULTY MERIT EVALUATION MATERIALS CHECKLIST FOR BIOLOGY FACULTY

Please attach the following documents to be reviewed by the FMER Committee:

Required:

<input checked="" type="checkbox"/>	Faculty Merit Review Report
<input checked="" type="checkbox"/>	Reporting Form for Teaching
<input checked="" type="checkbox"/>	Brief Research Plan
<input checked="" type="checkbox"/>	Updated CV (not restricted to the review period)

Optional:

<input type="checkbox"/>	Reflective Statement on Teaching/Advising
<input type="checkbox"/>	Updated Course Syllabi

**College of Arts and Sciences
Faculty Merit Review Report
2012**

1. *Personal Data:*

Name: **Robin L. Cooper**
Academic Rank: **Associate Professor**
Administrative Title (if any): **none**

UK ID No. **00009947**
Department **Biology**

2. *Period Covered by this Report:*

☒ Spring Semester 2011

☒ Fall Semester 2011

☒ Spring Semester 2012

☒ Fall Semester 2012

Check one:

(☒) Tenured Faculty Member.

(☐) Untenured faculty member, annual evaluation.

(☐) Lecturer, annual evaluation.

(☐) New faculty member, first evaluation.

3. *Distribution of effort* (% of time) agreed upon with the Dean and Chair averaged across period covered by report:

40 % Teaching (Scheduled Classes) and Advising

50 % Research

0 % Administration

10 % Service

100 % Total

Signature of Department Chair _____ Date _____

Signature of Faculty Member _____ Date _____

I. RESEARCH AND OTHER SCHOLARLY ACCOMPLISHMENTS

The following questions on research and service pertain to the period since the previous merit review.

A. Original Research (Also see on line web pages for research and activities: [here](#); **HOT LINKS** are embedded in this PDF file for your use)

1. List all books, articles and other research publications published since the previous review (not abstracts). For each item provide the following information: full citation; web link for the article (attach a hardcopy if web access is not available); provide the ISI impact factor for that journal ([ISI Journal Citation Reports](#)); indicate which authors were affiliated with your lab; briefly explain your own role in the work.
101. **Cooper, R.L. (2011)** Respecting a Korean health custom in a Western society. *Nursing Reports* 1: e6. doi: 10.4081/nursrep.2011.e6
This was just a fun report. Non peer reviewed. ([PDF](#))
102. Johnstone, A.F.M., Viele, K., and **Cooper, R.L. (2011)** Structure/Function assessment of crayfish neuromuscular junctions. **SYNAPSE** 65(4):287-299. doi: 10.1002/syn.20847, ([PDF](#))
Impact factor: 3.220

Andy Johnstone was my PhD student. Dr. Viele is a statistician that helped with the analysis.

Related to publications 103 - 105, Note from publisher:

<http://www.jove.com/subscribe/faq>

JoVE articles are cited in many science journals including leading publications such as *Nature*, *Cell*, *PNAS*, *PLoS* and others. *JoVE*'s calculated unofficial Impact Factor is **1.19**, determined using the regular impact factor methodology as described [here](#). To obtain an official Impact Factor, a journal has to be selected by Thomson Reuters (ISI) for indexing in the Web of Science, which we expect to happen in the future.

103. Robinson, M.M., Martin, J.M., Atwood, H.L. and **Cooper, R.L. (2011)** Modeling biological membranes with circuit boards and measuring conduction velocity in axons: Student laboratory exercises. **Journal of Visualized Experiments (JoVE)**. *JoVE*. 47: e2325 <http://jove.com/details.php?id=2325> doi: 10.3791/2325 Movie and paper ([PDF](#))

Robinson, M.M., Martin, J.M., were undergrads taking Bio395 under my supervision to develop this lab. Dr. Atwood (retired) is a collaborator.

View Count 20,247

104. Cooper, A.S., Leksrisawat, B., Gilberts, A.B., Mercier, A.J. and **Cooper, R.L. (2011)** Physiological experimentations with the crayfish hindgut. **Journal of Visualized Experiments (JoVE)**. JoVE 47: <http://www.jove.com/details.php?id=2324> doi: 10.3791/2324. Movie and paper ([PDF](#))

Cooper, A.S., Leksrisawat, B., Gilberts, A.B were all undergrads taking Bio395 under my supervision to develop this lab. Dr. Mercier is a collaborator from Brock Univ. in Canada.
View Count 13,191
105. Baierlein, B., Thurow, A.L., Atwood, H.L. and **Cooper, R.L. (2011)** Membrane potentials, synaptic responses, neuronal circuitry, neuromodulation and muscle histology using the crayfish: Student laboratory exercises. **Journal of Visualized Experiments (JoVE)**. Jove 47: <http://www.jove.com/Details.php?ID=2322> doi: 10.3791/2325. Movie and paper ([PDF](#))

Baierlein, B. and Thurow, A.L were undergrads taking Bio395 under my supervision to develop this lab. Dr. Atwood (retired) is a collaborator.
View Count 22,663
106. Cooper, R.M., Schapker-Finucane, H. Adami, M. and **Cooper, R.L. (2011)** Heart and ventilatory measures in crayfish during copulation. *Open Journal of Molecular and Integrative Physiology* 1(3): 36-42. <http://www.scirp.org/journal/PaperInformation.aspx?paperID=8344>
Impact factor ? not sure. I don't think it has one as this is a new journal less than 5 yrs old. No page charges so I published here.

Cooper, R.M., is a high school student that worked in my lab on this project for a science fair project. Schapker-Finucane, H. and Adami, M. were undergrads taking Bio395 under my supervision to work on this research project.
107. Holsinger, R.C., and **Cooper, R.L. (2012)**. Effect of Environment and Modulators on Hindgut and Heart Function in Invertebrates: Crustaceans and *Drosophila*. *Tested Studies for Laboratory Teaching*, Volume 33 (K. McMahon, Editor). Proceedings of the 33rd Conference of the Association for Biology Laboratory Education (ABLE). ([PDF](#))
<http://www.ableweb.org/volumes/vol-33/v33reprint.php?ch=7>

Holsinger, R.C., is my MS student.
108. Wu, W.-H. and **Cooper, R.L. (2012)** The regulation and packaging of synaptic vesicles as related to recruitment within glutamatergic synapses. **Neuroscience** 225:185–198. **Impact 3.380** ([PDF](#))

Wu, W.-H. is my PhD student

109. Wu, W.-H. and **Cooper, R.L. (2012)** Role of serotonin in the regulation of synaptic transmission in invertebrate NMJs. **Experimental Neurobiology** 21(3):101-112. ([PDF](#))
Impact factor ? not sure. I don't think it has one. No page charges so I published here.

Wu, W.-H. is my PhD student

110. 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. ([PDF](#)) Impact factor ? not sure. I don't think it has one as this is a new journal less than 5 yrs old. No page charges so I published here.

Cooper, R.M. and Graff, J. were high school students that worked in my lab on this project for a science fair project. Chung, Y.-S. was an undergrad taking Bio395 under my supervision to work on this research project.

111. Bierbower, S.M., Shuranova, Z. P., Viele, K. and **Cooper, R.L. (2012)** Comparative study of environmental factors influencing motor task learning and memory retention in sighted and blind crayfish. (**In early view press, Brain and Behavior**). ([PDF](#)). Impact factor ? not sure. I don't think it has one.

Bierbower, S.M., was my past PhD student. Dr. Shuranova, Z. P., was a collaborator in Russia. Dr. Viele, K. is a statistician that helped with the analysis.

2. List all work accepted for publication but not yet published. Provide available citation information and anticipated publication date.

See #4 below for work pending acceptance of revised manuscripts.

Titlow, J., Majeed, Z.R., Hartman, H.B., Burns, E., and **Cooper, R.L. (2012)** Neural Circuit Recording from an Intact Cockroach Nervous System (**In Press**). ([CLICK HERE FOR HOT LINK TO PAPER](#)) Update Dec. 2012

3. List the paper(s), poster(s), or talk(s) you delivered presenting research findings before a professional society or a group of peers. Provide titles, forum, and date information. Identify invited presentations and whether abstracts accompanied a presentation.

ABSTRACTS PRESENTED AT MEETINGS:

278. Wu, W.-H. and **Cooper, R.L. (2011)** Packaging and physiological separation of the RRP and RP of vesicles within various types of presynaptic terminals. Annual meeting. Society for Neuroscience Bluegrass Chapter. March 31. University of Kentucky, Lexington, Kentucky.

279. Robinson, A.D., Wu, W.H, and **Cooper, R.L. (2011)** Ephaptic transmission between motor neurons. Annual meeting. Society for Neuroscience Bluegrass Chapter. March 31. University of Kentucky, Lexington, Kentucky.
280. Cooper, A., Gilberts, A., Baierlein, B., Leksrisawat, B., Thurow, A., Robinson, M.M., Martin, J.M. and **Cooper, R.L. (2011)** Creating Interactive Neurophysiology Laboratory Experiments for the Students at the University of Kentucky. Annual meeting. Society for Neuroscience Bluegrass Chapter. March 31. University of Kentucky, Lexington, Kentucky.
281. Cooper, A., Gilberts, A., Baierlein, B., Leksrisawat, B., Thurow, A., Robinson, M.M., Martin, J.M. and **Cooper, R.L. (2011)** Creating Interactive Neurophysiology Laboratory Experiments for the Students at the University of Kentucky. 6th Annual Showcase of Undergraduate Scholars, University of Kentucky, Lexington, Kentucky. April.
282. Chung, Y.S., Graff, J., Cooper, R.M., **Cooper, R.L. (2011)** The acute and chronic effect of temperature on heart and ventilatory rate in prawns. 6th Annual Showcase of Undergraduate Scholars, University of Kentucky, Lexington, Kentucky. April.
283. Robinson, A.D., Wu, W.H, **Cooper, R.L. (2011)** Ephaptic transmission between motor neurons. Univ. of KY, Showcase of Scholars. 6th Annual Showcase of Undergraduate Scholars, University of Kentucky, Lexington, Kentucky. April.
284. Wu,W.-H. and **Cooper, R.L. (2011)** Packaging and physiological separation of the RRP and RP of vesicles within various types of presynaptic terminals. Annual meeting of Society for Neuroscience. Washington, DC, USA.
285. Robinson, A.D., Wu, W.H, **Cooper R.L.(2011)** Ephaptic transmission between motor neurons. Annual meeting of Society for Neuroscience. Washington, DC, USA.
286. Majeed, Z.R., **Cooper, R.L.** and Nichols, C.D. (2011) Effect of DREADD receptor activation in *Drosophila* motoneurons on synaptic transmission. Annual meeting of Society for Neuroscience. Washington, DC, USA.
287. Cooper, A., Gilberts, A., Baierlein, B., Leksrisawat, B., Thurow, A., Robinson, M.M., Martin, J.M. Holsinger, R.C., and **Cooper, R.L. (2011)** Creating Interactive Neurophysiology Laboratory Experiments for the Students at the University of Kentucky. Annual meeting of Society for Neuroscience. Washington, DC, USA.
288. Cooper, R.M., Chung, Y.S. Holsinger, R.C. and **Cooper, R.L. (2011)** Development of neurophysiology laboratory experiments for high schools in Kentucky. Annual meeting of Society for Neuroscience. Washington, DC, USA.
289. Crum M., Robinson, M.M. and **Cooper, R.L. (2011)** Model of hypercalcemia in crayfish with correlates to a human pathophysiological condition. Annual meeting of Society for Neuroscience. Washington, DC, USA.
290. Potenza, J.B., Mercier, A.J. and **Cooper, R.L. (2011)** Physiological investigations with the crayfish hindgut. The Center for Muscle Biology Univ. of KY., Modeling Workshop for trainees in Muscle Biology. July 27, 2011. (*JBP won an award for best presentation*).
291. Wu,W.-H. and **Cooper, R.L. (2011)** Packaging and physiological separation of the RRP and RP of vesicles within various types of presynaptic terminals. 26th Meeting of the Ohio Physiological Society, University of Cincinnati, October 6–7, Cincinnati, Ohio.

292. Holsinger, R.C., Potenza, J.B., LeBlancq, M.J., Mercier, A.J. and **Cooper, R.L.** (2011) Modulating the neural control and direct actions on the crayfish hindgut: Serotonin, octopamine and dopamine. 26th Meeting of the Ohio Physiological Society, University of Cincinnati, October 6–7, Cincinnati, Ohio.
293. Cooper, A.S., Johnstone, A.F.M., and **Cooper, R.L.** (2011) Nerve terminal pruning in conjunction with muscle atrophy by disuse & unloading. 26th Meeting of the Ohio Physiological Society, University of Cincinnati, October 6–7, Cincinnati, Ohio.
294. Cooper, R.M., Schapker-Finucane, H. Adami, H. and **Cooper, R.L.** (2011) Heart and ventilatory measures in crayfish during copulation. The Kentucky Academy of Science annual meeting. Nov. 4-5, 2011, Murray State University, Murray, Kentucky.
295. Potenza, J.B., Holsinger, R.C., LeBlancq, M.J., Mercier, A.J. and **Cooper, R.L.** (2011) Crayfish hindgut: A model system for examining central and peripheral control mechanisms. The Kentucky Academy of Science annual meeting. Nov. 4-5, 2011, Murray State University, Murray, Kentucky.
296. Cooper, A.S. and **Cooper, R.L.** (2011) Transection of a motor nerve results in a rapid synaptic depression. The Kentucky Academy of Science annual meeting. Nov. 4-5, 2011, Murray State University, Murray, Kentucky.
297. Crum M., Robinson, M.M., Robinson, A.D. and **Cooper, R.L.** (2011) Pathophysiological conditions with hypercalcemia: Neuron, CNS, intestine, and behavior. The Kentucky Academy of Science annual meeting. Nov. 4-5, 2011, Murray State University, Murray, Kentucky.
298. Cooper, R.M., Schapker-Finucane, H. Adami, H. and **Cooper, R.L.** (2012) Heart and ventilatory measures in crayfish during copulation. Society for Integrative and Comparative Biology. Annual meeting. January 3-7, 2012, Charleston, South Carolina.
299. Holsinger, R.C., Potenza, J.B., Mercier, A.J. and **Cooper, R.L.** (2012) Physiological investigations with the crayfish hindgut. Society for Integrative and Comparative Biology. Annual meeting. January 3-7, 2012, Charleston, South Carolina.
300. **Cooper, R.L.**, Nadolski, J., Smith, L.A., Krall, R.M., Cooper, H.W. and Holsinger, R.C (2012) Providing a simple understanding of respiration-related buffering for nurses and their clients. **The Southern Nursing Research Society**, 26th Annual Conference. February 22-25, 2012. New Orleans, LA.
301. Burns, E., Potenza, J.B., Holsinger, R.C., LeBlancq, M.J., Maslink, C., Mercier, A.J., and **Cooper, R.L.** (2012). Crayfish hindgut: A model system for examining central and peripheral control mechanisms. Spring Neuroscience Day, University of Kentucky, Lexington, Kentucky. March 29, 2012.
302. Cooper, A.S. and **Cooper, R.L.** (2012). Transection of a motor nerve results in a rapid synaptic depression. Spring Neuroscience Day, University of Kentucky, Lexington, Kentucky. March 29, 2012.
303. Wu, W.-H. and **Cooper, R.L.** (2012) Packaging and physiological separation of the RRP and RP of vesicles within various types of presynaptic terminals. Spring Neuroscience Day, University of Kentucky, Lexington, Kentucky. March 29, 2012.
304. Majeed, Z.R., Nichols, C.D. and **Cooper, R.L.** (2012) Effect of DREADD receptor activation in *Drosophila* motoneurons on synaptic transmission. Spring

- Neuroscience Day, University of Kentucky, Lexington, Kentucky. March 29, 2012.
305. Crum, M., Robinson, M.M., Robinson, A.D. and **Cooper, R.L. (2012)**. Pathophysiological conditions with hypercalcemia: Neuron, CNS, intestine, and behavior. Spring Neuroscience Day, University of Kentucky, Lexington, Kentucky. March 29, 2012.
 306. Titlow, J., Ghosh, S., **Cooper, R.L.**, Harrison, D. and Rymond, B. (2012). A modifier of spinal muscular atrophy may be involved in motor behavior and stress response. Spring Neuroscience Day, University of Kentucky, Lexington, Kentucky. March 29, 2012.
 307. **Cooper, R.L.**, Titlow, J. and Majeed, Z.R. (2012) Introduction of a new neurophysiology laboratory for students at the University of Kentucky. Spring Neuroscience Day, University of Kentucky, Lexington, Kentucky. March 29, 2012.
 308. Ghosh, S., Titlow, J., **Cooper, R.L.**, Harrison, D. and Rymond, B. (2012). SERF1 gene function in *Drosophila melanogaster*. 53rd Annual Drosophila Research Conference. Chicago, IL March 7- 11, 2012.
 309. 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.
 310. LeBlancq, M.J., Maslink, C., Burns, E., Potenza, J.B., Holsinger, R.C., **Cooper, R.L.**, Mercier, A.J. (2012) Neural control of the crayfish hindgut. East Coast Nerve Net. Woods Hole Marine Biological Laboratory. Woods Hole, MA. March 22-24, 2012.
 311. **Cooper, R.L.**, Sipe, G., Nadolski, J., Smith, L.A., Holsinger, R.C., 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. UK College of Nursing 8th Annual Student Scholarship Showcase. March 30, 2012. (Oral presentation).
 312. Dixon, R., Spitz, N., Holsinger, R.C., Rose, S., Cooper, H., Krall, R.M., Johnson, D. and Zeidler-Watters, K., **Cooper, R.L. (2012)**. STEM & Health: Stressors on the circulatory system. 7th Annual Showcase of Undergraduate Scholars, University of Kentucky, Lexington, Kentucky. Lexington, Kentucky. April 25, 2012.
 313. Sipe, G., Nadolski, J., Smith, L.A., Holsinger, R.C., Cooper, H., Krall, R.M., Johnson, D. and Zeidler-Watters, K., **Cooper, R.L. (2012)**. Classroom activity on buffering related to respiration for high school and introductory college courses in biological sciences. 7th Annual Showcase of Undergraduate Scholars, University of Kentucky, Lexington, Kentucky. April 25, 2012.
 314. Cooper, A.S. and **Cooper, R.L. (2012)**. Transection of a motor nerve results in a rapid synaptic depression. 7th Annual Showcase of Undergraduate Scholars, University of Kentucky, Lexington, Kentucky. April 25, 2012.
 315. Burns, E., Potenza, J.B., Holsinger, R.C., LeBlancq, M.J., Maslink, C., Mercier, A.J., and **Cooper, R.L. (2012)**. Crayfish hindgut: A model system for examining central and peripheral control mechanisms. 7th Annual Showcase of Undergraduate Scholars, University of Kentucky, Lexington, Kentucky. April 25, 2012.
 316. Crum, M., Robinson, M.M., Robinson, A.D. and **Cooper, R.L. (2012)**. Pathophysiological conditions with hypercalcemia: Neuron, CNS, intestine, and

- behavior. 7th Annual Showcase of Undergraduate Scholars, University of Kentucky, Lexington, Kentucky. April 25, 2012.
317. Nichols, C.D., Becnel, J., Johnson, O., Majeed, Z.R., Tran, V., Yu, B., Roth, B.L. and **Cooper, R.L. (2012)**. DREADD receptor control of behavior, signalling, and physiology in the model organism *Drosophila melanogaster*. Meeting on: **Optogenetics and Pharmacogenetics in Neuronal Function and Dysfunction**. Hilton Riverside, New Orleans, LA, USA. 11-12 October 2012. Sponsored by Thorlabs (Photonics).
 318. Majeed, Z.R., **Cooper, R.L.**, and Nichols, C.D. (2012). The influence of DREAD receptors activation in the CNS of *Drosophila melanogaster*. Annual meeting of Society for Neuroscience. New Orleans, LA., USA.
 319. **Cooper, R.L.**, Titlow, J. and Majeed, Z.R. (2012). Introduction of a new neurophysiology laboratory for students at the University of Kentucky. Annual meeting of Society for Neuroscience. New Orleans, LA., USA.
 320. Titlow, J., Turner, C.A. and **Cooper, R.L. (2012)**. Come discuss DA's involvement in *Drosophila* behavior and development Annual meeting of Society for Neuroscience. New Orleans, LA., USA.
 321. Crum, M., DeCastro, L., Robinson, M.M., Robinson, A.D. and **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.
 322. Cooper, A.S. and **Cooper, R.L. (2012)**. Transection of a motor nerve results in a rapid synaptic depression. Annual meeting of Society for Neuroscience. New Orleans, LA., USA.
 323. Wu, W.-H. and **Cooper, R.L. (2012)** The regulation and packaging of synaptic vesicles related to recruitment within glutamatergic synapses. Annual meeting of Society for Neuroscience. New Orleans, LA., USA.
 324. Titlow, J., and **Cooper, R.L. (2012)**. Behaviors and neural circuits modulated by dopamine. Sept. 30-Oct.3, 2012. Behavioral Neurogenetics of *Drosophila* larva. **HHMI Janelia Conference. Virginia, USA.**
 325. Cooper, A.S. and **Cooper, R.L. (2012)** Transection of a motor nerve results in a rapid synaptic depression. The Kentucky Academy of Science annual meeting. Oct.19-20, 2012, Eastern Kentucky University, Richmond, Kentucky.
 326. Rufer, J.M, King, K., Titlow, J. and **Cooper, R.L. (2012)**. Ritalin and other dopaminergic drugs affect CNS function and development in *Drosophila* larvae. The Kentucky Academy of Science annual meeting. Oct.19-20, 2012, Eastern Kentucky University, Richmond, Kentucky.
 327. Majeed, Z.R., Nichols, C.D. and **Cooper, R.L. (2012)**. Pharmacogenetic approach in directing inhibition of the larval heart in *Drosophila melanogaster*. The Kentucky Academy of Science annual meeting. Oct.19-20, 2012, Eastern Kentucky University, Richmond, Kentucky.

** Won 1st place.

328. Wu, W.-H. and **Cooper, R.L. (2012)**. The regulation and packaging of synaptic vesicles related to recruitment within glutamatergic synapses. The Kentucky Academy of Science annual meeting. Oct.19-20, 2012, Eastern Kentucky University, Richmond, Kentucky.

329. Stacy, A., Majeed, Z.R. and **Cooper, R.L. (2012)**. Characterization of 5-HT (serotonin) receptor subtypes in *Drosophila melanogaster* larval heart. The Kentucky Academy of Science annual meeting. Oct.19-20, 2012, Eastern Kentucky University, Richmond, Kentucky.
330. Burns, E., Potenza, J.B., Holsinger, R.C., LeBlancq, M.J., Maslink, C., Mercier, A.J. and **Cooper, R.L. (2012)**. Crayfish hindgut: A model system for examining central and peripheral control mechanisms. The Kentucky Academy of Science annual meeting. Oct.19-20, 2012, Eastern Kentucky University, Richmond, Kentucky.
331. Krall, R.M., Rose, S., Cooper, H., Mayo, S., Johnson, D., Zeidler-Watters, K. and **Cooper, R.L. (2012)**. STEM & Health: Stressors on the circulatory system. The Kentucky Academy of Science annual meeting. Oct.19-20, 2012, Eastern Kentucky University, Richmond, Kentucky.
332. King, K., Rufer, J.M., Titlow, J. and **Cooper, R.L. (2012)**. Pharmacological analysis of dopamine modulation in the developing fruit fly heart. The Kentucky Academy of Science annual meeting. Oct.19-20, 2012, Eastern Kentucky University, Richmond, Kentucky.
333. Keathley, J. Titlow, J. and **Cooper, R.L. (2012)**. Carbohydrate energy considerations for cardiac function in *Drosophila melanogaster* larvae. The Kentucky Academy of Science annual meeting. Oct.19-20, 2012, Eastern Kentucky University, Richmond, Kentucky.
334. Titlow, J.S., Smith, J. and **Cooper, R.L. (2012)**. Genotyping abnormal behavior- Lessons from the fruit fly. The Kentucky Academy of Science annual meeting. Oct.19-20, 2012, Eastern Kentucky University, Richmond, Kentucky.
335. Kong, W.-K., Wu, W.-H. and **Cooper, R.L. (2012)**. The action of stimulating adenylyl cyclase within motor nerve terminals in the regulation of synaptic vesicles. The Kentucky Academy of Science annual meeting. Oct.19-20, 2012, Eastern Kentucky University, Richmond, Kentucky.
336. Majeed, Z.R., Nichols, C.D. and **Cooper, R.L. (2012)**. Pharmacogenetic approach in directing inhibition of the larval heart in *Drosophila melanogaster*. The Center for Muscle Biology Univ. of KY. Oct. 25, 2012.
337. Stacy, A., Majeed, Z.R. and **Cooper, R.L. (2012)**. Characterization of 5-HT (serotonin) receptor subtypes in *Drosophila melanogaster* larval heart. The Center for Muscle Biology Univ. of KY. Oct. 25, 2012.
338. Titlow, J., King, K., Rufer, J.M., and **Cooper, R.L. (2012)**. Fruit fly heart rate is modulated by dopamine through canonical metabotropic pathways. The Center for Muscle Biology Univ. of KY. Oct. 25, 2012.
339. Keathley, J. Titlow, J. and **Cooper, R.L. (2012)**. Influence of carbohydrate transport in *Drosophila* cardiac function. The Center for Muscle Biology Univ. of KY. Oct. 25, 2012.
340. Holsinger, R.C. and **Cooper, R.L. (2013)**. The effect of regional phenotypic differences of *Procambarus clarkii* opener muscle on sarcomere length, fiber diameter, and force development. Society for Integrative and Comparative Biology. Annual meeting. January 3-7, 2013, San Francisco, California.
341. **Cooper, R.L.**, Majeed, Z.R., Titlow, J., Stacy, A., King, K., Rufer, J.M., Nichols, C.D. (2013) Pharmacogenetic approaches in altering heart rate in *Drosophila* larvae. The American Physiological Society annual meeting. April 20-24, 2013. Boston, MA. USA

342. **Cooper, R.L.**, Krall, R.M., Cooper, H., Mayo, S., Johnson, D., Zeidler-Watters, K. and Rose, S. (2013) STEM & Health: Stressors on the circulatory system. The American Physiological Society annual meeting. April 20-24, 2013. Boston, MA. USA

SEMINARS PROVIDED:

- Sept. 2, 2011. Regulation and modulation of vesicle pools during synaptic transmission within motor nerve terminals of the crayfish and *Drosophila* model systems. Dept. Seminar. **Dartmouth Medical School**, Department of Physiology and Neurobiology. Lebanon, NH.
- Jan. 14, 2012. Properties of synaptic transmission. Korean-American Scientists and Engineers Association Kentucky Chapter (KSEA-KY) Winter Conference and Annual Dinner. University of Kentucky, Lexington, KY.
- March 5, 2012. Modulation of vesicle pools during synaptic transmission within motor nerve terminals. **Centre College**, Department of Life Sciences. Danville, KY.
- Sept 12, 2012. The effects of deep tissue injury (muscle) and healing processes. Center for Muscle Biology, **Department of Physiology**, University of Kentucky.

Health Related Community Service presentations related to future and current educational grant submissions (some were funded and one is being submitted in 2012)

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. Volunteer multiple times in evenings as a RN for Mission Clinic at the Baptist Church, Frankfort, KY. (~50hrs within 2012). Also provide educational information and test approaches in educational concepts for personal information of what kind of delivery method is connecting with clients.
3. Presentation and activity on the importance of good respiration with pH balance for elderly and people with COPD: Concerns with oxygen therapy. The Lexington Senior Center. February 7, 2012. Contact: Mr. Wright.
4. Presentation and activity on the circulatory system: Concerns with obesity and atherosclerosis. The Lexington Senior Center. "Did you know presentations" April 2, 2012. Contact: Mr. Wright.
5. 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.

4. Describe all other original research activities.

MANUSCRIPTS SUBMITTED (IN REVIEW OR IN REVISION)

111. Becnel, J., Johnson, O., Majeed, Z.R., Tran, V., Yu, B., Roth, B.L., **Cooper, R.L.** and Nichols, C.D. (2012) A pharmacogenetic approach for robustly controlling behavior, neuronal signaling, and physiology in *Drosophila*. (In Revision). ([CLICK HERE FOR HOT LINK TO PAPER](#))
112. Wu, W.-H. and **Cooper, R.L.** (2012) Physiological separation of vesicle pools in low- and high-output nerve terminals. (In Revision). ([CLICK HERE FOR HOT LINK TO PAPER](#))
113. Bierbower, S.M., Nadolski, J. and **Cooper, R.L.** (2012) Sensory systems and environmental change on behavior during social interactions. (In Review). ([CLICK HERE FOR HOT LINK TO PAPER](#))
114. Bierbower, S.M. and Cooper, R.L. (2012) The mechanistic action of carbon dioxide on neural and NMJ communication (In Revision). ([CLICK HERE FOR HOT LINK TO PAPER](#))
115. Majeed, Z.R., Nichols, C.D., and **Cooper, R.L.** (2012) Pharmacogenetic approach in directing inhibition of the larval heart in *Drosophila melanogaster*. (Compiled and sent to collaborator for his edits.) ([CLICK HERE FOR HOT LINK TO PAPER](#))
116. Titlow, J., Majeed, Z.R., Hartman, H.B., Burns, E., and **Cooper, R.L.** (2012) Neural Circuit Recording from an Intact Cockroach Nervous System (In Press). ([CLICK HERE FOR HOT LINK TO PAPER](#)) Update Dec. 2012
117. Titlow, J., Majeed, Z.R., Nicholls, J.G. and **Cooper, R.L.** (2012) Identifiable neurons in the central nervous system of a leech via electrophysiology and morphology, sensory field maps in skin and synapse formation in culture: Student laboratory exercises. (In Review for Journal of Visualized Experiments (JoVE). Professional movie and peer reviewed manuscript)
Sent in Dec. 18, 2012

B. Other Scholarly Activities

1. List any articles or books you have published which review or survey the current state of research in your field or synthesize information from different fields.

REVIEW

Wu, W.-H. and **Cooper, R.L. (2012)** Role of serotonin in the regulation of synaptic transmission in invertebrate NMJs. **Experimental Neurobiology** 21(3):101-112. (PDF)

2. List any textbooks or other instructional materials you have published.

Holsinger, R.C., and **Cooper, R.L. (2012)**. Effect of Environment and Modulators on Hindgut and Heart Function in Invertebrates: Crustaceans and *Drosophila*. *Tested Studies for Laboratory Teaching*, Volume 33 (K. McMahon, Editor). Proceedings of the 33rd Conference of the Association for Biology Laboratory Education (ABLE). (PDF)
<http://www.ableweb.org/volumes/vol-33/v33reprint.php?ch=7>

Laboratory exercises for Bio450 (A&S 500 sec005, Neurophysiology Lab) at the Univ of KY, 2012.

All of these labs will have a movie of “how to do the lab” in time. Currently, each one has a detailed protocol and movie drafts have been started.

1. Robinson, M.M., Martin, J.M., Atwood, H.L. and **Cooper, R.L. (2012)** Modeling biological membranes with circuit boards and measuring electrical signals in axons: Student laboratory exercises. (*updated version from the Bio350 lab that was developed*)
2. Hartman, H.B. and **Cooper, R.L. (2012)** Properties of annelid giant axons.
{Movie made how to do the lab by Burns, E. Stacy, A.L., and **Cooper, R.L. 2012**}
Posted on [YOUTUBE](#)
3. **Cooper, R.L.**, Baierlein, B., Holsinger, R.C., Thurow, A.L. Atwood, H.L. (2012) The effects of K⁺ and Na⁺ on resting membrane potentials using the crayfish: Student laboratory exercises
4. **Cooper, R.L.**, Atwood, H.L. (2012) Synaptic Responses, Neuronal Circuitry and Neuromodulation Using the Crayfish: Student Laboratory Exercises. (some parts taken from the lab developed for Bio350 experimental labs in Baierlein, et al., 2010)
5. Majeed, Z.R., Titlow, J., Hartman, H.B., Burns, E., and **Cooper, R.L. (2012)**
Proprioception: Response properties of joint receptors.
6. Majeed, Z.R., Titlow, J., Hartman, H.B., Burns, E., and **Cooper, R.L. (2012)** Tension receptors in crab limbs: Responses related to muscle force.
7. Stacy, A.L., Burns, E. and **Cooper, R.L. (2012)** Electroencephalogram (EEG) lab.
{Movie made on how to do the lab. Posted on [YouTube](#)
<http://youtu.be/lsDLbXH9e4Q> }
8. **Cooper, R.L.**, and Atwood, H.L. (2012) Quantal analysis of synaptic transmission: Crayfish NMJ record quantal responses.
9. Titlow, J., Majeed, Z.R., Nicholls, J.G. and **Cooper, R.L. (2012)** Identifiable neurons in the central nervous system of a leech.

10. Majeed, Z.R., Titlow, J., Nicholls, J.G. and **Cooper, R.L. (2012)** Sensory field maps in the skin of a leech for touch, pressure and nociceptive neurons.
11. Titlow, J., Majeed, Z.R., Nicholls, J.G. and **Cooper, R.L. (2012)** Electrophysiological examining synapse formation in culture between identifiable neurons: Central neurons of leech.
12. Titlow, J., Majeed, Z.R., Hartman, H.B., Burns, E., and **Cooper, R.L. (2012)** Mechanosensory integration: Input and output of mechanosensory information in the cockroach wind escape reflex. Posted on [YOUTUBE](#)
([CLICK HERE FOR HOT LINK TO PAPER](#))

In addition, a subset of above teaching modules is currently in the works for submission to Journal of Visualized Experiments (JoVE). These are the ones that I have had discussions with the editors of JoVE about. These publications can be used for educational purposes as well as helping to describe the preparations for researchers. This also provides Dept. of Biology and UK with very good PR on the educational front for advanced undergraduate courses.

Majeed, Z.R., Titlow, J., Hartman, H.B. and **Cooper, R.L. (2012)** Proprioception and tension receptors in crab limbs: Student laboratory exercises. (**In preparation** for Journal of Visualized Experiments (JoVE). Professional movie and peer reviewed manuscript)

Titlow, J., Majeed, Z.R., Nicholls, J.G. and **Cooper, R.L. (2012)** Identifiable neurons in the central nervous system of a leech via electrophysiology and morphology, sensory field maps in skin and synapse formation in culture: Student laboratory exercises. (**In preparation** for Journal of Visualized Experiments (JoVE). Professional movie and peer reviewed manuscript)

Titlow, J., Majeed, Z.R., Hartman, H.B., Burns, E., and **Cooper, R.L. (2012)** Neural Circuit Recording from an Intact Cockroach Nervous System (In Review for Journal of Visualized Experiments (JoVE). Professional movie and peer reviewed manuscript)
([CLICK HERE FOR HOT LINK TO PAPER](#))

I have also provided educational material for Science Teachers in Middle and High School. Four different educational modules were constructed for teachers to use as educational templates for their classes. I also used these for teacher's workshops I provided in the summer of 2012. In addition these are the foundation for a current grant submission to the KY Dept of Education for integration of Biology, Chemistry and Physics in high schools.

Four YouTube movies were constructed by me for the foundation of this content:

YouTube links:

1st fluid flow <http://youtu.be/XVr-MT3k0mw>

2nd fluid flow <http://youtu.be/KHxOwnh4YVo>

3rd fluid flow http://youtu.be/ZOCNVUa0f_g

4th fluid flow <http://youtu.be/UJt3-lGnhVU>

National Science Teachers Association (NSTA) Regional Conference in Louisville (October 18-20, 2012). Three were presented. See web link:

<http://web.as.uky.edu/Biology/faculty/cooper/NSTA%20Main%20page.htm>

(1) 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**

(2) 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**

(3) 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**

Grants related to this educational material:

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.

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**.

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**.

Pending grant proposal related to this educational topic:

2013 Submitted Nov 26, 2013. Kentucky Department of Education. *MUSE - modeling for understanding in science and engineering*. Kentucky's Mathematics and Science Partnership (MSP) 2013. Kentucky Department of Education **\$140,000** for year 1 (January, 2013 to September 30, 2013) and at **\$195,000** for the second year (October 1, 2013 to September 30, 2014), with a possible third year (at \$97,500). PI. is Kimberly Zeidler-Watters, Partnership Inst. for Math and Science. CO-PI Robin Cooper.

3. List books, journals and special issues you have edited.
None
4. Describe any other role you have played in integrative, multi-disciplinary, or exploratory research work during the review period.

During the 2010 year I started in a ADN Nursing program part time at BCTC and completed the ADN degree and obtained a Registered Nurse (**RN**) license in KY 2011. This took two years. I then went part time for one full year to UK College of Nursing, University of Kentucky to complete a **BSN (summer 2012)**.

The rationale to take on this extra academic work load and on my own personal financial expense was to prepare myself for a transition to clinical research. This was a tremendous amount of extra work on my own time and expense. During this time I did start to develop research projects and wrote 2 internal research project reviews for potential people to interact with on research projects. In fact, I have a sabbatical request in the Dean's office to pursue one project to gain preliminary data for future grant submissions to NIH-Nursing. The title of the project for the sabbatical request is ***"Effects of deep tissue injury (muscle) and healing processes"***. The research on this project has mostly been reviewing the literature and communicating with physicians in the ER and ICU departments.

I gave a seminar to the UK Center of Muscle Biology (~15 faculty members in attendance) to obtain feedback on my ideas and to broaden my base for potential collaboration (see Center's web site <http://www.mc.uky.edu/muscle/>). The talk and research project went over very well and I was strongly encourage to seek a sabbatical time to develop the project for grant submissions. In the hope the sabbatical is granted or even if it is not, I have already started to collaborate with Dr. Esther E. Dupont-Versteegden (PhD., Associate Professor, Division of Physical Therapy, Dept. Rehabilitation Sciences, College Health Sciences, University of Kentucky) on this project. She is also the person I hope to spend my sabbatical time with in Spring 2014.

Seminar provided. Sept 12, 2012. The effects of deep tissue injury (muscle) and healing processes. **Center for Muscle Biology**, University of Kentucky.

In addition, in the summer of 2012, I shadowed a certified wound care nurse and participated as a RN (unpaid) at Central Baptist Hospital, Lexington to learn more about specific care and treatments of deep tissue injuries for exploratory research into this project.

C. Extramural Funding

1. Describe awards, grants, contracts, or fellowships you received that were active or awarded during the review period, including funding source, dates of the award, and amount awarded.

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.

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.**

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.**

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. Grant ID: XX52454953

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 was 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

2. List other grant and fellowship applications you made, indicating whether they are still being considered or were unsuccessful. (Attach reviews if appropriate)

2013 Submitted Nov 26, 2013. Kentucky Department of Education. *MUSE - modeling for understanding in science and engineering.* Kentucky’s Mathematics and Science Partnership (MSP) 2013. Kentucky Department of Education **\$140,000** for year 1 (January, 2013 to September 30, 2013) and at **\$195,000** for the second year (October 1, 2013 to September 30, 2014), with a possible third

year (at **\$97,500**). PI. is Kimberly Zeidler-Watters, Partnership Inst. for Math and Science. **CO-PI Robin Cooper**.

Submitted March 25, 2012. 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.

II. SERVICE AND OTHER PROFESSIONAL ACTIVITIES

- A. Intramural (UK) service activities. Identify departmental, college and university levels of this service (*e.g.*, committees). Provide a brief description of each activity and note formal leadership roles assigned to you.

1. TriBeta (faculty representative for the Biology Honor Society local chapter of TriBeta) **(2005-present)** . Bimonthly meetings to engage undergraduates in various activities.

2. Founder and faculty representative of UK-SHIFT. (2006- 2009)

This has morphed into the secular student society. (2011-present). I am the current faculty representative of this official student organization.

The purpose of UK SHIFT and now the secular student society : The purposes of the organization are to 1) promote and practice the open, rational, and scientific examination of the universe and our place in it, 2) and that ethics and morality can be meaningfully based on rational and humanistic ideals and values, 3) promote skeptical inquiry, 4) provide community for atheists, agnostics, humanists, skeptics, naturalists and other freethinkers, 5) organize activities, such as forums for discussion, guest speakers, and debates that educate the University of Kentucky and surrounding community, 6) foster acceptance of freethinkers and promote a positive image of freethinkers through community service, and 7) advocate for the separation between church and state.

3. Member of the Mathematics and Science Education Program Faculty in the College of Education at the University of Kentucky. (2007-present). Role is to supervise graduate training in the College of Education. I serve on the Program Faculty, which is also the same as the admission board, for the MIC program for sciences. MIC is the masters with Initial Certification for high & middle school teachers.

4. Participated in the College of Arts and Sciences' Envision 2020 program. Presented and demonstrated my research to UK donors at Keenland and to Scholars night on Campus. Took two full days with setup and tear down as well as preparation time. See- http://envision.as.uky.edu/Predictions/bench_sciences.aspx#RobinCooper
See- **Ampersand Issue Spring 2011 page 39.**

5. April 2011. Reviewed proposals for the Oswald Competition by Univ of KY undergraduates. Reading papers and ranking them for University wide awards.

6. **Chair** of Chemical Safety Committee (**2012-present**). Campus wide oversight. Univ. of Ky president appointed.

7. Chair of the Presentation Committee for NCUR 2014. (**2012-2014**). The National Conference on Undergraduate Research annual conference. To be held at Univ. of KY in 2014. Several meetings have already occurred related to this activity. I am a team leader to review all 3,500 abstract submissions and in charge of poster displays for these students. To be held in the Memorial Coliseum. (Contact Dr. Diane Snow)

8. Fall **2012**. Review 10 research proposals submitted by undergraduate students in the AMSTEMM Program (Appalachian & Minority Science, Technology, Engineering & Math Majors) to determine which ones should be funded.

9. 2011-present Biology dept.- Faculty Merit Evaluation committee.

10. 2011-present Biology dept.- Undergraduate affairs committee.

11. 2010-2012 Biology dept.- Graduate affairs committee.

12. 2012- Fall, Biology Department advising of Sr students.

13. Fall 2012. Review 5 Oswald Competition fellowships for the University of Kentucky. Only Dr. Danley (biology) and I reviewed these proposals

B. Extramural (non-UK) service activities. Include contributions as reviewer/referee of grant proposals, journal articles, book manuscripts, published books, external promotion and tenure files. Include any consulting work or other scholarly evaluative writing you have produced during the review period.

1. **2012 See UK NOW News about the NEW Kentucky Chapter of the American Physiological Society (APS).** <http://uknow.uky.edu/node/25964>

Robin Cooper (President), Mike Reid (vice president) and Francisco H. Andrade (treasurer)

Three University of Kentucky faculty have lead the effort in establishing an important statewide initiative in the field of physiology. Robin Cooper from

the Department of Biology, along with Michael Reid and Francisco H. Andrade, both from the Department of Physiology, have brought together physiologists from across the Commonwealth to form the Kentucky Chapter of the American Physiological Society (APS).

2. 2011 NSF external grant reviewer. (Program dir.-Karen A. Mesce)

3. NATIONAL/INTERNATIONAL SERVICE - Editing & Reviewing

2007-2012. CHIEF EDITOR for *International Journal of Zoological Research*

This journal is published by Academic Journals Inc.

Scope of the journal includes: behaviour, biochemistry and physiology, developmental biology, ecology, genetics, morphology and ultrastructure, parasitology and pathology, and systematics and evolution. Academic Journals Inc. is dedicated to publishing the finest peer-reviewed research in all fields of science and technology on the basis of its originality, importance, interdisciplinary interest, timeliness, accessibility, elegance and surprising conclusions.

<http://www.scialert.net/eboard.php?issn=1811-9778> (jpg)

4. 2011-present. Accepted the invitation by the editor to be on the Editorial Review Board of *Frontiers in Skeletal Muscle Physiology*.

http://community.frontiersin.org/people/RobinCooper_1/31932

5. 2012-present. CHIEF EDITOR for *Asian Journal of Animal and Veterinary Advances*

This journal is published by Academic Journals Inc., NY, USA

Asian Journal of Animal and Veterinary Advances is a high-quality peer-reviewed well indexed scientific journal publishing original research findings on all aspects of animal and veterinary sciences. Scope of the journal includes: pathology, microbiology, parasitology, physiology, pharmacology, physiology, veterinary medicine, poultry science, animal genetics and breeding, animal husbandry, animal reproduction and animal nutrition. Please see new www site: <http://scialert.net/jindex.php?issn=1683-9919> Update Dec. 2012

6. MANUSCRIPT REVIEWS

Reviewed manuscripts/chapters from the following journals

African Journal of Biotechnology (2012)

American Journal of Physiology - Regulatory, Integrative and Comparative Physiology (2012)

Behaviour (2012)

Brain Research (2002, 2003x3, 2004, 2005x2, 2011)

Crustacean Nervous System (2011) Peer reviewed a chapter for the editor of this book.

Journal of Comparative Biochemistry and Physiology
(1998,1999,2002,2003,2007,2008, 2011x2)

Journal of Experimental Biology (1998; 2007, 2008x2, 2012x2)

Journal of Microscopy (2011)
Journal of Visualized Experiments (JoVE) (3x2011)
Neuroscience (2012)
Neurosignals (2011x2)
Physiology & Behavior (2012)
PLoS ONE (2010x2, 2011)
Synapse (2005, 2012)

- C. List other academic service and professional responsibilities. Include contributions to public and private schools, supervision of high school students, *etc.*

Community Service for the State of KY

1. 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.

2. 2010 , 2011 2012. Jr. Kentucky Academy of Sciences. Serve as a judge of presentations. April 23, 2011. Annual meeting

Community Service in Lexington, KY & local areas

1. 1998-2013

Served as the **Member at Large (1998-1999), President elect (2001-2002) and President (2002-2003)** for the Society for Neuroscience-Kentucky chapter. My role as Member at Large was to organize the national Brain Awareness Week among the local elementary, middle, and high schools and to help coordinate external events to better promote knowledge about the field of neuroscience (1998-1999). In **2002-2004**, I designed and maintained the WWW site for the Society for Neuroscience-Kentucky chapter. **2012-2013 Outreach Coordinator** for the chapter.

2. 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.

3. (2003-present) Related to the local middle school (Morton). Since **2003** I have been presenting hands on demonstrations neurophysiology experiments for students. (contact Ms. Jacobs-Science teacher). I also organize the Science fair at the middle school to secure judges for the event and determine the over winners for the competitions. These events involve 3-5 days each year.

4. Science Fair Judging:

2003-present Judged at Fayette County Science fair, District Science fair at Northern KY Univ., State Science fair at Eastern KY Univ. and at the Jr. Kentucky Academy of Sciences annual meeting Campbellsville Univ. served as a mentor.

5. 2003-present. 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. In 2004, 2005 and 2006 - I coach students from Morton Middle school on their skills to present their science projects and helped them prepare their research lab notebooks so that they could compete at the Jr. Kentucky Academy of Sciences. Four of the 5 placed 1st in their divisions.

6. 2000-present. 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.

7. 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. As an RN I have engaged in these activities

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. Volunteer multiple times in evenings as a RN for Mission Clinic at the Baptist Church, Frankfort, KY. (~50hrs within **2012**).

3. Presentation and activity on the importance of good respiration with pH balance for elderly and people with COPD: Concerns with oxygen therapy. The Lexington Senior Center. February 7, **2012**. Contact: Mr. Wright.

4. Presentation and activity on the circulatory system: Concerns with obesity and atherosclerosis. The Lexington Senior Center. "Did you know presentations" April 2, **2012**. Contact: Mr. Wright.

5. 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.

High School Students

1. Leo de Castro 2011-2013 Henry Clay High School (sophomore-junior)
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)
6. Valarie Sarge 2011-2012 Dunbar High School (sophomore). **Won 3rd overall place at State Level. Presented at International INTEL.**

III. TEACHING AND ADVISING ACTIVITIES

- A. Complete the separate Reporting Form for Teaching.
1. Created a new on line international seminar course. This brings international PR for our Dept and University.
See local PR <http://theworldreportuky.com/2012/09/28/uk-seminar-course-promotes-international-dialogue/>
Also the write up in the Undergraduate Research newspaper page 3 ([PDF](#))
 2. Developing a whole new set of wet labs for the **new** Neurophysiology course (A&S 500 sec 005) to be taught in Spring 2013. This has **taken a lot of time and effort**. See web page and click on the various links for each new lab.
<http://web.as.uky.edu/Biology/faculty/cooper/Bio450-AS300/Bio450Fall2012.html>
 3. Developing a **new** course Animal Senses (A&S 500, sec 008) for Spring 2013
 See web page
<http://web.as.uky.edu/Biology/faculty/cooper/SENSORY%20Biology%20class/AnimalSensesFall2012.htm>
- B. Graduate student advisory activities. List master's or doctoral committees you served. Indicate clearly those students for whom you act as chief advisor and those to whom degrees were awarded during this period.

Current Graduate Students in my lab

1. Wen Hui Wu Graduate student. Fall 2008 (PhD student; postquals)
2. Zana R. Majeed Graduate student. Spring 2011 (PhD student; prequals)
3. Rachel C. Holsinger Graduate student. Summer 2011 (MS student; thesis)
4. Josh Titlow Graduate student, Spring 2012 (PhD student)
5. Weikai Kong Rotating Graduate student, summer 2012(will pursue a non-thesis MS by May 2013)

MS Committee service:

1. Nathan Klar 2010-2011 (advisor Dr. Crowley)
2. Rachel C. Holsinger 2011-present. **Advisor**

PhD Committee service:

1. Tim Bradshaw 2006-2012; Member (advisor Dr. Osborn; Biology)
2. Katherine Smith 2006-2011; Member (advisor Dr. Prendergast; Psychology)
3. Tracy Butler 2008-2011; Member (advisor Dr. Prendergast; Psychology)
4. Wen Hui Wu 2008-present; **Advisor**
5. Jessica Harris 2011-present; Member (advisor-Dr. Butterfield, Dept of Chemistry)
6. Nathan Klar 2011-present; Member (advisor Dr. Crowley, Dept of Biology)
7. Zana R. Majeed 2011-present; **Advisor**
8. Josh Titlow 2011-present; **Advisor**
9. Mansi Sethi 2012-present; Member (advisor Dr. O'Hara; Biology)

- C. Undergraduate student advisory activities. List all undergraduate students you have supervised during the review period, including their academic major, the nature of their activity (*e.g.*, Independent Study), the semesters or dates of the supervisory activities, and **any publications that resulted from this activity.**

Undergraduate students

1. Ann S. Cooper Summer & Fall 09, Spring, Summer 2010, Spring, Summer, Fall 2011, Spring, summer 2012
2. Ellen Burns Spring, summer 2012 (Bio395; **UK Chellgren fellow**), Fall 2012 **Ribble Fellow 2012**
3. Rebekah Dixon Spring, summer 2012 (Bio395)
4. Kayla King Summer 2012 (UK medical school outreach program summer student), Fall 2012 Ag BioTech
5. Jeremy Keathley Fall 2012 (Bio395)
6. Audra Stacy Fall 2012 (Bio395) **Ribble Fellow 2012**
7. Jensen B. Potenza Summer 2011 (Student from Transylvania University, KY)
8. Chioma Anosike Fall 2011 (Bio395)
9. Emily Houston Fall 2011 (Bio199)
10. Ariel D. Robinson Fall 2010 (Ag Biotech), Spring, Fall 2011, Spring 2012 Ag BioTech
11. Michael Crum Summer & Fall 2011, Spring, summer 2012 (Bio395)
12. Nathan Spitz Spring, summer 2012 (Bio395)
13. Yoo Sun Chung Spring, Summer, Fall 2011, Spring, summer 2012 (Bio395)
14. Jenna Mae Rufer Summer 2012 (KBRIN summer student)

PUBLICATIONS WITH UNDERGRADUATES (undergrads in Bold)

1. **Robinson, M.M., Martin, J.M.**, Atwood, H.L. and Cooper, R.L. (2011) Modeling biological membranes with circuit boards and measuring conduction velocity in axons: Student laboratory exercises. **Journal of Visualized Experiments (JoVE).** JoVE. 47: e2325 <http://jove.com/details.php?id=2325> doi: 10.3791/2325
2. **Cooper, A.S., Leksrisawat, B., Gilberts, A.B.**, Mercier, A.J. and Cooper, R.L. (2011) Physiological experimentations with the crayfish hindgut. Journal of Visualized Experiments (JoVE). Jove 47:

<http://www.jove.com/details.php?id=2324> doi: 10.3791/2324.

3. **Baierlein, B., Thurow, A.L.,** Atwood, H.L. and Cooper, R.L. (2011) Membrane potentials, synaptic responses, neuronal circuitry, neuromodulation and muscle histology using the crayfish: Student laboratory exercises. Journal of Visualized Experiments (JoVE). Jove 47:<http://www.jove.com/Details.php?ID=2322> doi: 10.3791/2325.
4. Cooper, R.M., **Schapker-Finucane, H. Adami, H.** and Cooper, R.L. (2011) Heart and ventilatory measures in crayfish during copulation. Open Journal of Molecular and Integrative Physiology 1(3): 36-42. <http://www.scirp.org/journal/PaperInformation.aspx?paperID=8344>
5. **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. (PDF) Impact factor ? not sure. I don't think it has one as this is a new journal less than 5 yrs old.
6. Titlow, J., Majeed, Z.R., Hartman, H.B., **Burns, E.,** and Cooper, R.L. (2012) Input and output of mechanosensory information in the cockroach wind escape reflex: Student laboratory exercises. (In Review for Journal of Visualized Experiments (JoVE). Professional movie and peer reviewed manuscript) (CLICK HERE FOR HOT LINK TO PAPER)

*Also a number of posters were presented by undergrads at various meetings (KAS, Showcase)

- D. Advising postdoctoral and other professional personnel. List all postdoctoral, visiting scholar, or professional personnel sponsored during the review period, including dates of these activities.

None. I have enough work with grad, undergrad and high school kids.

- E. Other teaching or advising activities.

1. 2012-present. Serve as an Advisor for Biology majors during advising time
2. 2000-present, Serve as an advisor and mentor to students in UK A&S Topical Studies program. Review proposals and advise in course work. Created the Topical Studies **MAJOR in Neuroscience at UK.** See www page [here](#).

3. Taught courses:

Bio 350 -Animal physiology Biology core course - Fall 2010, Fall 2011, Sum 2011 & Fall 2012. IN FALL 2010: BIO 350 Animal Physiology with wet labs. 21 hours per week contact time. This was the 1st semester to introduce wet labs into Bio350.

Bio 650 - Neurophysiology lab - Spring 2011

A&S 300 - Undergrad physiology lab - Spring 2011

Bio 621- Membrane Biophysics - Spring 2012

A&S 300 - On line Seminar course (new adventure) –Fall 2012

Note: In addition to the above activities during this FMER period, I completed an ADN (Associate Degree in Nursing) from BCTC in summer 2011 and obtained an RN state license in the summer 2011. I then started the RN to BSN program at UK College of Nursing and graduated in summer 2012. I paid for the tuition costs from my personal pocket while employed by UK. I maintained a part time student status as a nursing student while employed at UK. I conducted clinical rotations during the summers of 2011 and 2012, all the while managing my lab and maintaining a research productive group. Kudos to me ([class photo](#)). I volunteer as an RN, paying my own liability insurance, at various places to maintain my nursing skills. By going through the Nursing programs I have now been able to apply 1st hand knowledge into the classroom teaching and I am able to participate in more outreaching activities as a representative of UK. In addition, the nursing experience has opened new ideas for future research projects that I am now pursuing.