

**2014 Berea Undergraduate Research Symposium**  
**October 17<sup>th</sup>, 2014**

Sponsored by Division I



**Special Thanks**

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**Undergraduate Research and Creative Projects Program**

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## Oral Session I – Room 106

Moderator – Dawn Anderson

Speakers indicated by bold typeface

- 1:40 PM**      **Hsuan Peng**, “Investigating the multipotency potential of chondrogenic progenitor cells”, University of Pittsburgh; Mentor – Yangzi Jiang, Rocky S Tuan
- 2:00 PM**      **Lin Peng**, “Understanding the Role of Myc in Squamous Cell Carcinoma”, University of Colorado-Denver; Mentor – Enrique Torchia
- 2:20 PM**      **Moondil Jahan**, Rhea P. Sharma, “Comparison of Barn Owl (*Tyto alba* L.) Prey from a Silo Roost in Claiborne Co., TN”, Berea College; Mentor – Ralph Thompson & G. Neil Douglas
- 2:40 PM**      **Michon Martin**, Taylor Fagin, Brenna Goldberg, Sean Nilan, Leif Van Laar, “Isolation, Disturbance, and Watershed Affiliation as Factors in the Diversity and Abundance of Stream Salamanders in Central Kentucky”, Berea College; Mentors – Roy Scudder-Davis
- 3:00 PM**      **Amber Crabtree**, “Effect of Glucose on LOX Expression in Renal Cells”, Vanderbilt University; Mentor – Roberto Vanacore
- 3:20 PM**      *Refreshment Break*
- 3:40 PM**      **Caleb M. Krebs**, Jacob P. McClain, and Jonathon D. Terrell, “Dormancy-Breaking and Germination Requirements for Seeds of the Kentucky Endangered Yellow Gentian *Gentiana flavida* A. Gray (Gentianaceae)”, Berea College; Mentor – Christopher Adams
- 4:00 PM**      **Chi Peng**, “SCN Prevents HOBr-mediated Formation of Sulfilimine Crosslinks in Collagen IV Scaffolds”, Vanderbilt University; Mentor – Christopher F. Cummings
- 4:20 PM**      **Ray Isinga Mirembo**, “Proximal NPxY motif of integrin beta1 is important for the regulation of growth factor dependent cell signaling”, Vanderbilt University; Mentor – Roy Zent
- 4:40 PM**      **Lauren Ballou**, Hanna Abe, Kidist Ashami, Olamide Adejumo, Kevin Montgomery, Sophia Toe, “Prevalence and Mean Intensity of *Cotylaspis Insignis* (Trematoda: Aspidogastriidae) Infections in the Fat Mucket, *Lampsilas siliquoidea* (Bivalvia: Unionidae) at north Elkhorn Creek, and Location of its Egg Development”, Berea College; Mentor – Ron Rosen

## Oral Session II – Room 101

Moderator – Mary Robert Garrett

Speakers indicated by bold typeface

- 1:40 PM**      **Amanda Burns**, Helen L. Holmlund, Victoria M. Lekson, “Seedling survival after novel drought-induced germination in *Ceanothus megacarpus*”, Pepperdine University; Mentor – Stephen Davis
- 2:00 PM**      **Chioma Amaechi**, Willie Gosnell, Yunpeng Xia, “Helping Students Succeed in Anatomy and Physiology I: A Study of a Peer Assisted Learning Program”, Berea College; Mentors – Judith Weckman & Sarah Blank

- 2:20 PM** **Mikiyas Assefa**, “Infrared Photodissociation Spectroscopy of Metal Carbonyls”, University of Georgia; Mentor – Michael Duncan
- 2:40 PM** **Pyae Phy**, “Simulations of magic-angle flipping experiments on alkali and alkaline earth silicate glasses”, The Ohio State University & Berea College; Mentors – Philip Grandinetti & Jay Baltisberger
- 3:00 PM** **Haley Boothe**, “Spreading Knowledge of a Recent Gift to a Larger Community”, Berea College; Mentor – Meghan Doherty
- 3:20 PM** *Refreshment Break*
- 3:40 PM** **Michael Oxendine**, “Leaded paint as a source of soil lead in Berea, Kentucky”, Berea College; Mentor – Paul C. Smithson
- 4:00 PM** **Michael McCann**, “Photocatalyzed Benzylic Fluorination: An Alternative Approach through Radical Cations”, Johns Hopkins University; Mentor – Thomas Lectka
- 4:20 PM** **Yunpeng Xia**, Chioma Amaechi, Willie Gosnell, “Helping Students Succeed in Anatomy and Physiology II: A Study of a Peer Assisted Learning Program”, Berea College; Mentors – Judith Weckman & Sarah Blank

### **Poster Session – Lobby**

**3:30 to 5:00 PM**

- Poster 1** Kaitlyn Reasoner, “A novel and interactive method for teaching DNA replication”, Berea College; Mentor – Megan Hoffman
- Poster 2** Michon Martin, Taylor Fagin, Brenna Goldberg, Sean Nilan, Leif Van Laar, “Water Level and Feeding Regimen as Factors Promoting Metamorphosis in Laboratory-Reared Southern Two-Lined Salamanders, *Eurycea cirrigera*”, Berea College; Mentor – Roy Scudder-Davis
- Poster 3** Jenna Rufer, “Towards inhibition of tumor angiogenesis through disruption of collagen IV scaffold assembly by anti-NC1 antibodies”, Vanderbilt University; Mentor – Vadim Pedchenko
- Poster 4** Lauren Ballou, Hanna Abe, Kidist Ashami, Olamide Adejumo, Kevin Montgomery, Sophia Toe, “Prevalence and Mean Intensity of *Cotylaspis Insignis* (Trematoda: Aspidogastriidae) Infections in the Fat Mucket, *Lampsilas siliquoidea* (Bivalvia: Unionidae) at north Elkhorn Creek, and Location of its Egg Development”, Berea College; Mentor – Ron Rosen
- Poster 5** Bailey Wiggins, Maria Anastasiadou, “Isolation and characterization of plasmids from normal flora *E. coli*”, Berea College; Mentor – Dawn Anderson
- Poster 6** Sheniqua Austin, “Counteracting antibiotic resistance in *Pseudomonas* through antibiotic combination”, Berea College; Mentor – Dawn Anderson
- Poster 7** Jordan Butts, “Potential benefit of the T-cell migration inhibitor FTY70 in Toxic Shock Syndrome”, Mayo Graduate School; Mentor – Chella David

- Poster 8** Lin Peng, Kaitlyn Reasoner, Ericka Berg, “In Vitro Egg Development in the Trematode, *Cotylaspis insignis* (Subclass Aspidogastrea)”, Berea College; Mentor – Ron Rosen
- Poster 9** Hanna Abe, Kidist Ashami, Lauren Ballou, Olamide Adejumo, Kevin Montgomery, Sophia Toe, “*Cotylaspis insignis* (Trematoda: Aspidogastridae): Effect of Osmolality on Adult Worm Survival, Egg Production and Rate of Development”, Berea College; Mentor – Ron Rosen
- Poster 10** Olamide Adejumo, Kevin Montgomery, Sophia Toe, Hanna Abe, Kidist Ashami and Lauren Ballou, “*Proterometra macrostoma* (Trematoda: Azygiidae): Effect of Serotonin on Redial Movement and Emergence of Cercariae from Rediae and Snails, *Elimia semicarinata* (Gastropoda: Pleuroceridae)”, Berea College; Mentor – Ron Rosen
- Poster 11** Seth Reasoner, “Synthesis, Purification, and Structural Characterization of Organic Processing Impurities”, Eli Lilly & Company; Mentor – Michael Kobierski, Ryan Memmer, & Andrea Frederick
- Poster 12** Anthony Boateng, “Synthesis of Fluorinated Homoallylic Compounds via Ring-Opening Nucleophilic Fluorination of Methylene Cyclopropanes (MCP)”, University of Louisville; Mentor – Gerald B. Hammond
- Poster 13** Andrew Norris, “The Solid-Phase Organic Synthesis of a Fluorescence-Quenching Analog of Lysine”, Berea College; Mentor – Matthew Saderholm
- Poster 14** De’Angela Townsend-Brooks, Tyller Culver, Jonah Rector, “Synthesis of Fluorogenic Peptide Substrates for the Peptidase Neurolysin”, Berea College; Mentor – Matthew Saderholm
- Poster 15** Kyaw Hpone Myint, Solomon Tesfamichael, Pyae Phyo, Brennan Walder, “Combining an extended Czjzek model with spinning sideband simulations of magic-angle turning (MAT) experiments on phosphate glasses”, Berea College; Mentors – Dr. Jay Baltisberger & Dr. Philip Grandinetti
- Poster 16** Solomon Tesfamichael, Kyaw Hpone Myint, “Phase-incremented Echo Train Acquisition (PIETA) experiments to measure J-coupling in new phosphate glasses”, Berea College; Mentor – Dr. Jay Baltisberger
- Poster 17** Kathryn Dunn, Moondil Jahan, Justin Dean Burton, Sean Riley, Robert Horn II, “Establishing the Past Lives of Appalachia in the Berea College Forest”, Berea College; Mentor – Broughton Anderson
- Poster 18** Willie Gosnell, Chioma Amaechi, Yunpeng Xia, Kristen Lynch, “Creation of interactive manipulatives and educational games, and determination of their effectiveness in improving students’ understanding of Anatomy and Physiology”, Berea College; Mentor – Sarah Blank
- Poster 19** Barbara Hollstein, “Gathering the Stories of Appalachian Foodways: An Oral History Research Project”, Berea College; Mentor – Margaret Dotson
- Poster 20** Laura Abelquist, “Boron Nitride Nanotube Composite Aerogels”, NASA Langley Research Center; Mentor – Sang-Hyon Chu

- Poster 21** Cassie Bodenste, Tyler Huff, “A Comparison of the Metabolic Costs of Elliptical Training Versus Treadmill Running”, Berea College; Mentor – A.J. Mortara
- Poster 22** Brandon Schurter, “How Hub Cells Hijack Neuronal Networks”, Ohio Wesleyan University; Mentor – Chris Fink
- Poster 23** Alyssa Hubbard, “Role of IFN $\gamma$  in Experimental Autoimmune Encephalomyelitis”, Mayo Graduate School; Mentor – Chella David
- Poster 24** Sydney Henderson, Tiffany Estep, “Healthy, Hunger-Free Kids: Results from an Elementary School Lunch Program Evaluation”, Berea College; Mentor – Andrea Woodward



**Plenary Talk – Room 106 at 5:20 PM**  
**Dr. Kathryn Uhrich - “PolyAspirin: Invention, Innovation,  
Inspiration and Inclusion”**  
**Professor of Chemistry**  
**Rutgers University**

Kathryn is a native of Grand Forks, ND and got her BS in Chemistry at the University of North Dakota. She did undergraduate research there and this led her to Cornell University for her Ph.D. followed up by post-doctoral research at both MIT and AT&T Bell Labs. She has been at Rutgers University since 1995. She has served various positions including Dean of Mathematical and Physical Sciences at Rutgers and a visiting professor at both the University of New South Wales and the University of Sao Paulo.