

# PROGRAM OF EVENTS

## MIDSTATES SCIENCE & MATHEMATICS CONSORTIUM

### UNDERGRADUATE RESEARCH SYMPOSIUM IN THE BIOLOGICAL SCIENCES AND PSYCHOLOGY

WASHINGTON UNIVERSITY □ ST. LOUIS, MISSOURI  
NOVEMBER 1ST & 2ND

#### Friday, November 1

5:30 pm **Registration**

The Parkway Hotel Lobby

6:15 pm **Buffet Dinner**

Eric P. Newman Educational  
Center: Great Rooms A & B.

7:00 pm **Introduction, Welcome and Activity**

Bruce Carlson, Ph.D., Assistant Professor, Biology  
Division of Biology and Biomedical Sciences  
Washington University in St. Louis

Brandy Russell, PhD  
Associate Professor, Department of Chemistry  
Director, Midstates Consortium for Math and Science  
Gustavus Adolphus College

8:00 pm **Keynote Address**

Eric P. Newman Educational Center

*“May the Force be With You: How Plants Sense Gravity, Touch, & Pressure”*

*Dr. Elizabeth Haswell*

*Departments of Environmental Studies and Biology*

*Washington University in St. Louis*

**Saturday, November 2**

7:00 am **Breakfast at The Farrell Learning & Teaching Center**

7:30 am **Poster Session I Set up** Farrell Learning and Teaching Center:Atrium

8:00-9:30 am **Oral Session I** Connor Auditorium  
**Oral Session II** Holden Auditorium  
**Oral Session III** FLTC Room 213/214

9:45 am **Poster Session I** FLTC: Atrium

11:00 am **Janet Andersen Lecture** Connor Auditorium

*“The role of freshwater mussels in river systems and threats to their biodiversity”*

*Dr. Daniel Hornbach*

*Departments of Environmental Studies and Biology*

*Macalester College*

*Freshwater mussels provide a number of ecosystem services to river systems. North America houses the most diverse assemblage of mussels in the world, but they are one of the most endangered groups of animals in North America. This presentation will describe our long-term study of mussels in a national Wild and Scenic River and will discuss the factors that influence their distribution and abundance especially the impact of dams on long-term population stability.*

12:15 pm **Lunch (boxed) & Workshops** FLTC Atrium

Please pick up a boxed lunch in the Atrium and take it with you to the workshop of your choice.

Workshop discussions will begin at 12:30pm.

*Applying to Graduate School*

Connor Auditorium

*Dr. John Russell, Ph.D.*

*Associate Dean for Graduate Education, and  
Professor, Molecular Biology and Pharmacology  
Washington University in St. Louis*

*Graduate Student Panel, Washington University in St. Louis*

*Britta Anderson*

*Lisa Drewry*

*Anne Georges*

*Gavriel Matt*

*Arshag Mooradian*

*Kim Sukhum*

*Careers at Liberal Arts Colleges*

Holden Auditorium

1:30 pm **Poster Session II** FLTC Atrium

2:45 pm	<b>Oral Session IV</b>	<u>Connor Auditorium</u>
	<b>Oral Session V</b>	<u>Holden Auditorium</u>
	<b>Oral Session VI</b>	<u>FLTC 213/214</u>
4:15 pm	<b>Evaluations &amp; Final Comments</b>	<u>Connor Auditorium</u>
4:30 pm	<b>Boxed Dinner</b>	<u>FLTC Atrium</u>
	<i>Available for those leaving Saturday night</i>	
5:00 pm	<b>Dinner for those staying Saturday Night</b>	<u>FLTC Atrium</u>

**POSTER SESSION I**  
**SATURDAY, NOVEMBER 2**  
**9:45A.M.-11A.M.**  
**ATRIUM**

**P-01-01**

**Presenter:** Anastasia Hains, St. Olaf College  
**Title:** Manipulation of intercellular phosphatidylcholine and efficiency of protein binding to lipid droplets  
**Advisor(s):** Laura Listenberger  
**Co-Author(s):** None

**P-01-02**

**Presenter:** Andrea Quinn, Grinnell College  
**Title:** The Effects of Calcium on Biofilm Formation By *Psychrobacter arcticus*  
**Advisor(s):** Shannon Hinsa-Leasure  
**Co-Author(s):** None

**P-01-03**

**Presenter:** Andrew Valesano, Hope College  
**Title:** Genome-Wide Analysis of Fundamental Transcription Factors in *Giardia lamblia*  
**Advisor(s):** Dr. Aaron Best  
**Co-Author(s):** None

**P-01-04**

**Presenter:** Andrew Voight, St. Olaf College  
**Title:** UTILIZING FLUORESCENT CELLULAR PROFILING FOR INVESTIGATING ASYMMETRIC CELLULAR SPREADING  
**Advisor(s):** Keir H Fogarty  
**Co-Author(s):** None

**P-01-05**

**Presenter:** Ang Xu, Washington University in St. Louis  
**Title:** Structural Studies of the Allosteric Regulation of Chorismate Mutase from *Arabidopsis thaliana*  
**Advisor(s):** Joseph M. Jez  
**Co-Author(s):** Corey S. Westfall

**P-01-06**

**Presenter:** Ann O'Leary, Carthage College  
**Title:** Regulatory Role of GTPase Activating Protein 10056 During Cytokinesis in *Giardia intestinalis*  
**Advisor(s):** Dr. Alex Paredez  
**Co-Author(s):** None

**P-01-07**

**Presenter:** Bennett Riddering, Hope College  
**Title:** Insect Development in a Changing Climate: Bean Beetle Phenology Modeling  
**Advisor(s):** Dr. Aaron Putzke  
**Co-Author(s):** None

**P-01-08**

**Presenter:** Beth Klein, Carthage College  
**Title:** Variation in Tick Populations Between Invasive and Native Vegetation  
**Advisor(s):** Scott Hegrenes  
**Co-Author(s):** None

**P-01-09**

**Presenter:** Bradley Buse, Macalester College  
**Title:** Spectroscopic characterization of copper binding to zinc finger domains  
**Advisor(s):** Kathryn Splan  
**Co-Author(s):** Reginald Doku

**P-01-10**

**Presenter:** Brenna Decker, Lawrence University  
**Title:** Like a good neighbor: Neighboring plants predict herbivore presence  
**Advisor(s):** Alyssa Hakes  
**Co-Author(s):** Alyssa Hakes, William Gislason

**P-01-11**

**Presenter:** Brooke Meyer, Gustavus Adolphus College  
**Title:** Reduction in Physiological, Facial, and Self-Report Anger Responses Following Mindfulness Meditation vs. Self-Regulation Techniques  
**Advisor(s):** Marie Walker  
**Co-Author(s):** None

**P-01-12**

**Presenter:** Cassandra Rickertsen, St. Olaf College  
**Title:** Phosphatidylethanolamine Levels Influence Perilipin 2 Binding to Synthetic Lipid Droplets  
**Advisor(s):** Laura Listenberger  
**Co-Author(s):** None

**P-01-13**

**Presenter:** Cecilia Votta, Washington University in St. Louis  
**Title:** Increased intrusive thoughts occupy working memory capacity for students with subclinical obsessive-compulsive symptoms  
**Advisor(s):** Deanna Barch  
**Co-Author(s):** Alan Ceaser, Deanna Barch

**P-01-14**

**Presenter:** Chiamaka Isaguzo, St. Olaf College  
**Title:** The Impact of Contrast on Non-Visual Photoreceptors  
**Advisor(s):** Dr. Jay Demas  
**Co-Author(s):** Zoe Christenson, Dr. Jay Demas

**P-01-15**

**Presenter:** Christine Ajinjeru, Grinnell College  
**Title:** Investigating the Internal Structure of the Light Harvesting Antenna of Green Bacteria  
**Advisor(s):** Hugh O'Neill  
**Co-Author(s):** Hugh O'Neill, Jakub Pscencik, Robert Blankenship, Volker Urban, Joseph Kuo-Hsiang Tang

**P-01-16**

**Presenter:** Christopher Frane, Knox College  
**Title:** Regulation of the Macrophage Response by Ethanol  
**Advisor(s):** Janet Kirkley  
**Co-Author(s):** None

**P-01-17**

**Presenter:** Christopher Miller, Hope College

**Title:** Exploring the Unknown: Characterization of New Microbial Populations in the Macatawa Watershed

**Advisor(s):** Dr. Aaron Best

**Co-Author(s):** None

**P-01-18**

**Presenter:** Clara Schriemer, Hope College

**Title:** Fatty acid species and amount differentially regulate the  $\Delta 9$  desaturase in *Saccharomyces cerevisiae*

**Advisor(s):** Dr. Virginia McDonough

**Co-Author(s):** Marshall Willey, Mathew Ochs, Lauren Bedard, and Virginia McDonough

**P-01-19**

**Presenter:** Claudia Landazabal, Washington University in St. Louis

**Title:** A Lesion Study to Identify Brain Regions Involved in Event Segmentation and Memory

**Advisor(s):** Dr. Jeffrey Zacks

**Co-Author(s):** None

**P-01-20**

**Presenter:** Colin Ronald, Colorado College

**Title:** Modeling Treeline Dynamics

**Advisor(s):** David Brown

**Co-Author(s):** None

**P-01-21**

**Presenter:** Colin Breit, Hope College

**Title:** Resveratrol Affects Localization of VACM-1/cul5 in Endothelial Cells

**Advisor(s):** Dr. Maria Burnatowska-Hledin

**Co-Advisor(s):** None

**P-01-22**

**Presenter:** Darien Jefferson, Heidi Fenske, Carthage College

**Title:** Intracellular Visualization of a Internalized Viral Nanoparticle (VNP) Delivery Vehicle

**Advisor(s):** Kristopher J. Koudelka

**Co-Author(s):** Kristopher J. Koudelka

**P-01-23**

**Presenter:** Derek Heussner, St. Olaf College

**Title:** Probing the Catalytic Promiscuity in Tautomerase 1 and 2 in *Methylobium petroleiphilum* PM1

**Advisor(s):** Cassidy R. Terrell

**Co-Author(s):** Cassidy R. Terrell

**P-01-24**

**Presenter:** Dinesh Rathakrishnan, Macalester College

**Title:** Haptoglobin as Treatment for Sickle-Cell Anemia

**Advisor(s):** Gregory Vercellotti

**Co-Author(s):** Sam Lillie, Tayler Bockstruck

**P-01-25**

**Presenter:** Dingxi (Safari) Fang, Beloit College

**Title:** Restoration Management at Chamberlin Springs Nature Preserve

**Advisor(s):** Susan K. Swanson

**Co-Author(s):** Susan K. Swanson

**P-01-26**

**Presenter:** Domokos Lauko, Macalester College

**Title:** Effects of European Buckthorn on soils and leaf litter communities in a Minnesota Oak Woodland

**Advisor(s):** Sarah Boyer

**Co-Author(s):** Mike Anderson, Sarah Boyer

**P-01-27**

**Presenter:** Drew Krumm, Hope College

**Title:** Investigating the cytotoxic effects of mycobacteriophage Vix Gene 80

**Advisor(s):** Dr. Virginia McDonough

**Co-Author(s):** Andrew Neevel, Danielle Goodman, Megan Ludwig, Daniel Obregon, Virginia McDonough and Joseph Stukey

**P-01-28**

**Presenter:** Elizabeth Unterbrink, Hope College

**Title:** Identifying Trafficking Proteins that Interact with the C-terminus of System Xc-

**Advisor(s):** Dr. Leah Chase

**Co-Author(s):** None

**P-01-29**

**Presenter:** Elizabeth Wiese, Gustavus Adolphus College

**Title:** Separation and Characterization of  $\gamma$ -glutamylcysteine Ligase

**Advisor(s):** Dr. Brenda Kelly

**Co-Author(s):** None

**P-01-30**

**Presenter:** Eric Steed, Grinnell College

**Title:** Population structure of *Megalagrion hawaiiense* damselflies in Hawaii

**Advisor(s):** Jackie Brown

**Co-Author(s):** None

**P-01-31**

**Presenter:** Evan Craine, Holly Swedlund, Colorado College

**Title:** Tamarix Drought Response, Beetle Herbivory, and Disturbance

**Advisor(s):** Shane Heschel

**Co-Author(s):** Shane Heschel,

**P-01-32**

**Presenter:** Felipe Giuste, Washington University in St. Louis

**Title:** Identification of a Hypothesized NMUR/EPOR Complex

**Advisor(s):** Martin Carroll M.D.

**Co-Author(s):** Susan Shetzline Ph.D; Becca Lenzo; Martin Carroll M.D.

**P-01-33**

**Presenter:** Frank Qian, University of Chicago

**Title:** ASSOCIATION OF ALCOHOL CONSUMPTION AND BREAST CANCER RISK: RESULTS FROM A CASE-CONTROL STUDY IN THREE AFRICAN COUNTRIES

**Advisor(s):** Dezheng Huo

**Co-Author(s):** Ningqi Hou, Olufunmilayo Olopade, Dezheng Huo

**P-01-34**

**Presenter:** Gretchen Walljasper, Knox College

**Title:** Determining the role of the endocytic protein intersectin (*itsn1*) in early *Xenopus laevis* development

**Advisor(s):** Judith Thorn

**Co-Author(s):** Cheng Cheng, Oscar A. Jimenez, Judith M. Thorn

**P-01-35**

**Presenter:** Tague Zachary, Grinnell College

**Title:** Abundance and Diversity of Antibiotic Resistant Enterococci In and Around Hog CAFOs

**Advisor(s):** Shannon Hinsaleasure

**Co-Author(s):** Shannon Hinsaleasure

**P-01-36**

**Presenter:** Thelma Chiremba, Grinnell College

**Title:** Positive and Negative Modulation of Nicotinic Receptors Form a Continuum

**Advisor(s):** Professor. Mark M. Levandoski

**Co-Author(s):** Professor Mark M. Levandoski

**P-01-37**

**Presenter:** Tiange Zhang, Washington University in St. Louis

**Title:** Gene Knockout Study of RhoGTPase Protein ROP28 in *Toxoplasma gondii*

**Advisor(s):** David Sibley

**Co-Author(s):** None

**P-01-38**

**Presenter:** Timothy O'Neal, Knox College

**Title:** Interaction between the dorsolateral periaqueductal gray and glucocorticoids in the formation of aversive memories

**Advisor(s):** Antonio de Padua Carobrez

**Co-Author(s):** Cristiane Mochny

**POSTER SESSION II**  
**SATURDAY, NOVEMBER 2**  
**1:30 P.M.-2:45 P.M.**  
**ATRIUM**

**P-02-01**

**Presenter:** Jacelyn Peabody, Carthage College  
**Title:** The Hunt for Agmatine Receptors on Macrophages  
**Advisor(s):** Bryan Williams MD PhD  
**Co-Author(s):** None

**P-02-02**

**Presenter:** Jacob Westerberg, St. Olaf College  
**Title:** Analysis of LFP data in a nonhuman primate model of the cognitive deficits present in schizophrenia  
**Advisor(s):** Matthew Chafee  
**Co-Author(s):** Rachel Blackman, Sophia Sakellaridi, David Crowe, & Matthew Chafee

**P-02-03**

**Presenter:** Jamison Ash, Thando May, Luther College  
**Title:** Population genetics of gray fox (*Urocyon cinereoargenteus*) in the Midwest, USA  
**Advisor(s):** Dawn Reding  
**Co-Author(s):** None

**P-02-04**

**Presenter:** Jaward Arshad, University of Chicago  
**Title:** Transient Expression of FcIL7 in CHO-S cells to Augment the Level of T-cell Engraftment in Mice  
**Advisor(s):** Dr. Mark Sherman  
**Co-Author(s):** None

**P-02-05**

**Presenter:** Jennifer Dorman, Carthage College  
**Title:** Determining Whether Roadside Affects Density, Height, and Number of Flower Heads of Cut-Leaved Teasel  
**Advisor(s):** Tracy Gartner, Scott Hegrenes  
**Co-Author(s):** None

**P-02-06**

**Presenter:** Jennifer Mohn, St. Olaf College  
**Title:** Effects of speed of processing training in patients who have lost central vision  
**Advisor(s):** Kristina Visscher  
**Co-Author(s):** Rodolphe Nenert, Lesley Ross, Dawn DeCarlo and Kristina Visscher

**P-02-07**

**Presenter:** Johnson (Jason) Saba, Beloit College  
**Title:** Preferential Deletion of Anti-Tumor CD8<sup>+</sup> T Cells in the Context of Viral Infection  
**Advisor(s):** Demetrius Gravis  
**Co-Author(s):** Erica J. Huelsmann<sup>2</sup>, Andrew T. Lacey<sup>2</sup>, Eugene Lusciks<sup>2</sup>, Joseph L. Poshepny<sup>1,2</sup>, Arman Nabatiyan PhD<sup>2</sup>, Andrew Zloza MD PhD<sup>2,3</sup>

**P-02-08**

**Presenter:** Joseph Poshepny, Beloit College

**Title:** Combination Immunotherapy with Interleukin-2 and CTLA-4 Blockade Decreases Tumor Growth and Improves Overall Survival

**Advisor(s):** Andrew Zloza

**Co-Author(s):** Joseph R. Broucek MD, Johnson J. Saba, Erica J. Huelsmann, Carl E. Ruby PhD,, Andrew Zloza MD PhD , Howard L. Kaufman MD FACS

**P-02-09**

**Presenter:** Joshua Padgett, Carthage College

**Title:** Physical Attributes and Activities as they apply to Grip Strength

**Advisor(s):** Dr. Paul F. Martino

**Co-Author(s):** Gretchen E. Heidorn, Joe Miller, and Aaron Dirck

**P-02-10**

**Presenter:** Julia Mandsager, Sarah Floden, Kelsi Swanson, Luther College

**Title:** The influence of ubiquitination on the trafficking of an aldehyde dehydrogenase in the autophagy pathway

**Advisor(s):** Dr. S. Brookheart Shields

**Co-Author(s):** Sarah Floden, Dr. S. Brookheart Shields

**P-02-11**

**Presenter:** Katherine Cicolello, Macalester College

**Title:** Modulation of Fibroblast Differentiation by Decellularized Lung Extracellular Matrix

**Advisor(s):** Dr. Peter Bitterman

**Co-Author(s):** Jeremy Herrera

**P-02-12**

**Presenter:** Kimberly Howell, Luther College

**Title:** Diversity and Effect of Endophytic Fungi on Iowa Prairie Grasses

**Advisor(s):** Dr. Eric J. Baack

**Co-Author(s):** None

**P-02-13**

**Presenter:** Kory Kolis, Gustavus Adolphus College

**Title:** Pollinator efficiency of Echinacea angustifolia: which bees get an A?

**Advisor(s):** Stuart Wagenius

**Co-Author(s):** None

**P-02-14**

**Presenter:** Kyle Brotkowski, Carthage College

**Title:** Building functional strength with strongman training

**Advisor(s):** Paul Martino

**Co-Author(s):** Alwin Mathew, Braden O'Shaughnessy, Colby Lehew, Eric Niwinski, Anne Boyler, Daniel Ruffner, Paul Martino

**P-02-15**

**Presenter:** Kyle Gibbs, St. Olaf College

**Title:** Development of shielded measles virus vectors: design of a chimeric attachment protein

**Advisor(s):** Dr. Roberto Cattaneo

**Co-Author(s):** Rosalie Sterner and Dr. Chanakha Navaratnarajah

**P-02-16**

**Presenter:** Leah Lieber, Colorado College

**Title:** Functional Significance of Type IV Pilus Proteins in Acinetobacter baylyi

**Advisor(s):** Phoebe Lostroh

**Co-Author(s):** None

**P-02-17**

**Presenter:** Linda Jimenez, Colorado College

**Title:** Investigation of the function of pil U and pil T starvation induced genes in Acinetobacter baylyi ADP1 Strain

**Advisor(s):** Phoebe Lostroh

**Co-Author(s):** Phoebe Lostroh

**P-02-18**

**Presenter:** Matthew Ranftle, Washington University in St. Louis

**Title:** CSF Concentrations of Amyloid and Tau in Congenital Hydrocephalus

**Advisor(s):** David Limbrick M.D.

**Co-Author(s):** David Limbrick M.D. Diego Morales

**P-02-19**

**Presenter:** Modestas Filipavicus, Macalester College

**Title:** PSA-NCAM role in persistent inflammatory pain in mice

**Advisor(s):** Lin Aanonsen

**Co-Author(s):** None

**P-02-20**

**Presenter:** Monica Johnson, Gustavus Adolphus College

**Title:** Using CRY and PER Co-localization to Map CRY's PER Binding Surface

**Advisor(s):** Dr. Karla Marz

**Co-Author(s):** Mariecus Jarvis, Audrey Messelt, Dr. Karla Marz

**P-02-21**

**Presenter:** Nipun Basrur, Grinnell College

**Title:** Allosteric modulation of nicotinic acetylcholine receptors is affected by binding site arrangement and subunit stoichiometry

**Advisor(s):** Mark Levandoski

**Co-Author(s):** None

**P-02-22**

**Presenter:** Patrick Hooke, Grinnell College

**Title:** Ribosome Inactivation Initiated by Ribosome Modulation Factor (RMF) and Hibernation Promoting Factor (HPF)

**Advisor(s):** Peter V. Cornish

**Co-Author(s):** Drew E. Menke, Bassem M. Shebl, and Peter V. Cornish

**P-02-23**

**Presenter:** Petra Hahn, Jon Peterson, St. Olaf College

**Title:** Characterization of a Stalkless Mutant of Caulobacter crescentus

**Advisor(s):** Lisa Bowers, PhD

**Co-Author(s):** Lisa Bowers, PhD

**P-02-24**

**Presenter:** Phung Nguyen, Carthage College

**Title:** The effects of arbuscular mycorrhizal fungi and competition on the growth of Microstegium vimineum

**Advisor(s):** Sarah Emery

**Co-Author(s):** Sarah Emery

**P-02-25**

**Presenter:** Ron Nwumeh, Washington University in St. Louis  
**Title:** Functional Characterization of Arabidopsis thaliana Isopropylmalate Dehydrogenase 2 in the Leucine and Glucosinolate Biosynthesis Pathways  
**Advisor(s):** Joe Jez  
**Co-Author(s):** None

**P-02-26**

**Presenter:** Rowena Foo, Macalester College  
**Title:** The Complex Role of Empathy in Prompting Action Against Climate Change  
**Advisor(s):** Professor Christie Manning  
**Co-Author(s):** None

**P-02-27**

**Presenter:** Samantha Powers, Washington University in St. Louis  
**Title:** Roles for ABCC members in indole-3-butyric acid response  
**Advisor(s):** Lucia Strader  
**Co-Author(s):** None

**P-02-28**

**Presenter:** Shanice Webster, Grinnell College  
**Title:** Microbial Interactions and Environmental preferences in a cheese rind community  
**Advisor(s):** Rachel Dutton  
**Co-Author(s):** Benjamin Wolfe

**P-02-29**

**Presenter:** Shibo Gao, Luther College  
**Title:** Optimal Placement of Protein Side-Chains Using a Many-Body Potential: New Beginnings for Dead End Elimination  
**Advisor(s):** Michael J. Schnieders  
**Co-Author(s):** Stephen D. LuCore, Ava M. Lynn, William T.A. Tollefson, and Michael J. Schnieders

**P-02-30**

**Presenter:** Stacy Yun, Washington University in St. Louis  
**Title:** The Alzheimer's Disease Knowledge Scale: Cross-Cultural Study between South Korea and the U.S.A.  
**Advisor(s):** Brian D. Carpenter  
**Co-Author(s):** Brian D. Carpenter

**P-02-31**

**Presenter:** Timothy Tynan, Colorado College  
**Title:** The role of RNA binding proteins in dendrite morphogenesis in *C. elegans*  
**Advisor(s):** Darrell Killian  
**Co-Author(s):** None

**P-02-32**

**Presenter:** Tyler Buddell, Knox College  
**Title:** C2C12 as a model for skeletal muscle satellite cell research  
**Advisor(s):** Joseph Dimario  
**Co-Author(s):** None

**P-02-33**

**Presenter:** Zoe Christenson, Chiamaka Isiguzo, St. Olaf College  
**Title:** The Impact of Contrast on Non-Visual Photoreceptors  
**Advisor(s):** Jay Demas  
**Co-Author(s):** Jay Demas

**ORAL SESSION I**  
SATURDAY, NOVEMBER 2  
8:00-9:30 AM  
CONNOR AUDITORIUM  
MODERATOR: KATHERINE GEIST

**O-01-01**

**Presenter:** Helen Beilinson, University of Chicago  
**Title:** Host-Pathogen Interactions in Murine Models of Retroviral Infections  
**Advisor(s):** Tatyana Golovkina  
**Co-Author(s):** None

**O-01-02**

**Presenter:** Cosonya Smith, Lawrence University  
**Title:** ZAS-3 Differential Expression in Human Rhinoviruses Induces The Inflammatory Response  
**Advisor(s):** Dr. Dave Hall  
**Co-Author(s):** Chelsea Hameister

**O-01-03**

**Presenter:** Sarah Barnes, University of Chicago  
**Title:** The Role of T Cell-NF- $\kappa$ B in the Anti-tumor Immune Response  
**Advisor(s):** Maria-Luisa Alegre  
**Co-Author(s):** Cesar Evaristo, Maria-Luisa Alegre

**O-01-04**

**Presenter:** Samuel Funderburk, Washington University in St Louis  
**Title:** Ventral Striatum Reactivity and Coping Strategies Indirectly Link a PDYN Haplotype to Alcohol Use  
**Advisor(s):** Ryan Bogdan  
**Co-Author(s):** Lindsay J Michalski, Caitlin E Carey, Adam Gorka, Emily Drabant, Ryan Bogdan, Ahmad R Hariri

**O-01-05**

**Presenter:** Preston Luong, University of Chicago  
**Title:** Defining the role of microbes in the pathogenesis of intestinal anastomotic leak  
**Advisor(s):** Olga Zaborina  
**Co-Author(s):** Benjamin D. Shogan, Olga Zaborina, John C. Alverdy

**ORAL SESSION II**  
**SATURDAY, NOVEMBER 2**  
**8:00-9:30 AM**  
**HOLDEN AUDITORIUM**  
**MODERATOR: ANNE GEORGES**

**O-02-01**

**Presenter:** Kelly Moench, Carthage College

**Title:** The Effects of Acute Stress and Fear Conditioning on Spine Density in Rat Medial Prefrontal Cortex

**Advisor(s):** Cara Wellman

**Co-Author(s):** Cara L. Wellman, Mouna Maroun

**O-02-02**

**Presenter:** Travis Sigafoos, Gustavus Adolphus College

**Title:** The relationship between salicylate-induced tinnitus and circadian rhythmicity by means of the acoustic startle reflex

**Advisor(s):** Michael Ferragamo; Janine Wotton

**Co-Author(s):** None

**O-02-03**

**Presenter:** Lindsey Browne, Lawrence University

**Title:** Acoustic Bat Monitoring in Northeast Wisconsin

**Advisor(s):** Jodi Sedlock

**Co-Author(s):** None

**O-02-04**

**Presenter:** Hannah Marti, St. Olaf College

**Title:** Cannibalism as a context-dependent behavior in the forked fungus beetle, *Bolitotherus cornutus*

**Advisor(s):** Corlett Wolfe Wood

**Co-Author(s):** None

**O-02-05**

**Presenter:** Seth Margolis, Washington University in Saint Louis

**Title:** Variation in GATA1 Moderates the Association Between Childhood Adversity and Amygdala Habituation

**Advisor(s):** Ryan Bogdan

**Co-Author(s):** Caitlin E. Carey, Lindsay J. Michalski, Emily M. Drabrant, Ryan Bogdan, Ahmad R Hariri

**O-02-06**

**Presenter:** Andrew Burchill, University of Chicago

**Title:** Genetic Influence in the Caste Determination of Army Ants

**Advisor(s):** Corrie Moreau

**Co-Author(s):** Max Winston, Corrie Moreau

**ORAL SESSION III**  
**SATURDAY, NOVEMBER 2**  
**8:00-9:30 AM**  
**FLTC ROOM 213**  
**MODERATOR: KIM SUKHUM**

**O-03-01**

**Presenter:** Yiqiao Bao, Colorado College

**Title:** Investigating the barrier that prevents penicillin catabolism genes from transferring from PE-S1G-1 to ADP1

**Advisor(s):** C. Phoebe Lostroh

**Co-Author(s):** C. Phoebe Lostroh

**O-03-02**

**Presenter:** Erica Kwiatkowski, Grinnell College

**Title:** Autophagy progression is impaired but responsive to drugs in TSC2-deficient neurons

**Advisor(s):** Clark Lindgren

**Co-Author(s):** None

**O-03-03**

**Presenter:** Krista Hoevemeyer, Hope College

**Title:** The role of klotho in the regulation of adult neurogenesis

**Advisor(s):** Gwendalynn King

**Co-Author(s):** None

**O-03-04**

**Presenter:** Alex Terry, University of Chicago

**Title:** BNIP3 and Mitochondrial Dysfunction in Hepatocellular Carcinoma

**Advisor(s):** Kay Macleod

**Co-Author(s):** Michelle Beaton, Kay Macleod

**O-03-05**

**Presenter:** Tony Sun, Washington University in St. Louis

**Title:** Immune cell trafficking facilitates HIV dissemination

**Advisor(s):** Andrew Luster

**Co-Author(s):** Maud Deruaz, Andrew Luster

**O-03-06**

**Presenter:** Greg Wiessner, Gustavus Adolphus College

**Title:** Developmental chorioallantoic membrane expression of calbindin-D28K by viviparous *Zootoca vivipara* under manipulated ex-utero calcium provision

**Advisor(s):** Dr. Thomas Ecay

**Co-Author(s):** None

**ORAL SESSION IV**  
**SATURDAY, NOVEMBER 2**  
**2:45-4:15 PM**  
**CONNOR AUDITORIUM**  
**MODERATOR: BRITTA ANDERSON**

**O-04-01**

**Presenter:** Chelsea Freeman, Beloit College  
**Title:** Resolving diversity: phylogenetic analysis and ecological niche modeling of *Crassula*  
**Advisor(s):** Dr. Ken Yasukawa  
**Co-Author(s):** Dr. Mark Mort

**O-04-02**

**Presenter:** Cody Memmel, Colorado College  
**Title:** Purification and characterization of a starvation-induced cysteine protease in the model organism *Acinetobacter baylyi*  
**Advisor(s):** Margaret Daugherty  
**Co-Author(s):** Margaret Daugherty

**O-04-03**

**Presenter:** James Lichtenstein, Knox College  
**Title:** Personality and Mate Choice in Zebra Finches  
**Advisor(s):** Jennifer Templeton & Jim Mountjoy  
**Co-Author(s):** Jim Mountjoy & Jennifer Templeton

**O-04-04**

**Presenter:** Patricia Brandt, The University of Chicago  
**Title:** Circumscription of the lichens genus *Lecanora*  
**Advisor(s):** Dr. Thorsten Lumbsch  
**Co-Author(s):** None

**O-04-05**

**Presenter:** Reina Nielsen, Gustavus Adolphus College  
**Title:** Variation in ecophysiological traits is related to genetic diversity in *Echinacea angustifolia* (Purple Coneflower)  
**Advisor(s):** Pamela Kittelson  
**Co-Author(s):** Pamela Kittelson, Mike Howe

**O-04-06**

**Presenter:** Cameron Gmehlin, Lawrence University  
**Title:** Exploring heterotaxia and *zdvr1*, a *vgl* related ortholog, in *D. rerio*  
**Advisor(s):** Nancy Wall  
**Co-Author(s):** None

**ORAL SESSION V**  
**SATURDAY, NOVEMBER 2**  
**2:45-4:15 PM**  
**HOLDEN AUDITORIUM**  
**MODERATOR: ZUSANA KOCSISOVA**

**O-05-01**

**Presenter:** Matthew Rishel, Beloit College  
**Title:** Roles of SypA and cyclic-di-GMP in biofilm formation in *Vibrio fischeri*  
**Advisor(s):** Karen Visick  
**Co-Author(s):** None

**O-05-02**

**Presenter:** Taylor Bachaus, Lawrence University  
**Title:** Elucidating connections between autophagy, reactive oxygen species and anticancer organocobalt compounds  
**Advisor(s):** Stefan Debbert  
**Co-Author(s):** None

**O-05-03**

**Presenter:** Mitchell Sungelo, Colorado College  
**Title:** The effects of mutations in lipoprotein lipase on enzyme function and neuronal cell metabolism  
**Advisor(s):** Darrell Killian  
**Co-Author(s):** None

**O-05-04**

**Presenter:** Cyril Appiagyei, Beloit College  
**Title:** The Effects of YfiQ and Acetylphosphate on Metabolism in *E. coli*  
**Advisor(s):** Dr. Alan Wolfe  
**Co-Author(s):** Robert Davis, Alan Wolfe

**O-05-05**

**Presenter:** Chelsea Hameister, Lawrence University  
**Title:** Asthma-related gene matrix metalloproteinase 12 (MMP12) is regulated by Human Rhinovirus exposure in Macrophages  
**Advisor(s):** David Hall  
**Co-Author(s):** None

**O-05-06**

**Presenter:** Michelle Hulke, Gustavus Adolphus College  
**Title:** n-3 PUFA Regulation of Sortilin 1 in Diabetic Hyperlipidemia  
**Advisor(s):** Tiangang Li PhD  
**Co-Author(s):** None

**ORAL SESSION VI**  
**SATURDAY, NOVEMBER 2**  
**2:45-4:15 PM**  
**FLTC ROOM 213**  
**MODERATOR: JEREMY HUYNH**

**O-06-01**

**Presenter:** Alexa Sughroue, Beloit College  
**Title:** Regulation of breast cancer metastasis by SIN3A  
**Advisor(s):** Dr. Douglas R. Hurst  
**Co-Author(s):** Monica J. Lewis and Douglas R. Hurst

**O-06-02**

**Presenter:** Alexander Hurburt, Lawrence University  
**Title:** Investigating neuronal targets of the transcription factor DAF-19 in *C. elegans*  
**Advisor(s):** Elizabeth A. De Stasio  
**Co-Author(s):** Bonnie Arbuckle

**O-06-03**

**Presenter:** Charles Chen, Washington University in St. Louis  
**Title:** Comparing Fiber Orientations from Diffusion MRI and Histology in the Macaque Brain  
**Advisor(s):** David Van Essen  
**Co-Author(s):** Stamatios N Sotiropoulos, Krikor Dikranian, David Van Essen, and Matthew F Glasser

**O-06-04**

**Presenter:** Thomas Sasani, Lawrence University  
**Title:** Comparative genomics reveals novel genes associated with sensory cilia  
**Advisor(s):** Brian P. Piasecki  
**Co-Author(s):** Ethan Landes, Brendan O'Flaherty, Terese Swords, Johan Henrikson, Elizabeth De Stasio, Peter Swoboda, & Brian P. Piasecki

**O-06-05**

**Presenter:** Wendy Bindeman, St. Olaf College  
**Title:** Epigenetic Regulation of ESR1 in Ovarian Cancer  
**Advisor(s):** Steffi Oesterreich  
**Co-Author(s):** Courtney L. Andersen, Steffi Oesterreich

**O-06-06**

**Presenter:** Mary Schulz, Lawrence University  
**Title:** Vps4 Stimulation Via ESCRT-III and Co-factor Vta1  
**Advisor(s):** Dr. David Katzmann  
**Co-Author(s):** Brian Davies, Andrew Norgan, Zhaohui Xu, Johanna Payne, David Katzmann