University of Connecticut

# **FRONTIERS** IN UNDERGRADUATE RESEARCH

SIXTEENTH ANNUAL POSTER EXHIBITION

### A CELEBRATION OF SCHOLARSHIP, INNOVATION, CREATIVITY, AND COLLABORATION

April 12, 2013

3:30 p.m. to 4:30 p.m.

April 13, 2013

11:30 p.m. to 2:00 p.m.

Wilbur Cross North and South Reading Rooms

### Sponsored by

### **The University of Connecticut**

Office of Undergraduate Research Enrichment Programs Honors Program

### **About Frontiers in Undergraduate Research**

The Frontiers Poster Exhibition is a multidisciplinary research forum and the largest showcase of undergraduate research, scholarship, and creative projects at the University of Connecticut. Frontiers 2013 is the sixteenth annual Frontiers event sponsored by the Office of Undergraduate Research (OUR). This year's poster exhibition includes 218 students presenting posters for 175 research projects.

The projects span the disciplines and include both independent research and work done in collaboration with other undergraduates as well as graduate student and faculty mentors. The presenters are among the top students at UConn and include Honors students, University Scholars, winners of OUR funding competitions, and winners and nominees of prestigious national scholarships. We hope you enjoy meeting our wonderful students and learning about their exciting work.

### About the Office of Undergraduate Research

The Office of Undergraduate Research (OUR) exists to encourage and support undergraduate research at the University of Connecticut. Our office provides information and resources to encourage all students to pursue undergraduate research, as well as several funding programs to support the students and their faculty mentors.

Many of the Frontiers presenters have received financial support for their projects from the OUR, which awarded approximately \$342,000 in 2011-2012 to students for their research work over the summer and during the academic year. These awards are funded by the Office of Undergraduate Research with generous support from the Deans of the schools and colleges, the Provost's office, and private donations from many, many alumni, parents, and other friends of UConn and undergraduate research.

### **Schedule of Events**

Poster Exhibition	Friday, April 12, 2013 3:30 p.m. – 4:30 p.m.
	Saturday, April 13, 2013 11:30 a.m. – 2:00 p.m.
Student and	Friday, April 12, 2013

**Faculty Reception** 4:30 p.m. – 5:30 p.m.

#### **UCONN Trumpet Quartet**

Russel Allyn, David Dorfman, Meagan Ferreira, Lesley Knaack

#### Introduction and Welcome

**Margaret Lamb**, Director, Office of Undergraduate Research and Senior Associate Director, Honors Program

#### **Keynote Speaker**

**Steven L. Suib**, Board of Trustees Distinguished Professor, Department of Chemistry, College of Liberal Arts & Sciences

#### **Closing Remarks**

**Jennifer Lease Butts,** Assistant Vice Provost for Enrichment Programs, and Director, Honors Program

### Poster Listing by School, College, or Program

This listing of projects includes the undergraduate student authors and their faculty mentors. Many projects also include the contributions and mentorship of dedicated graduate students and post-doctoral scholars. In some cases students work with faculty outside their school or college; in most cases, research is grouped according to the student's major.

### ROTUNDA

### School of Fine Arts

**1. Inherit the Culture: Traditional Puppetry in China** Xingxin Liu, Puppetry Advisor: Bart P. Roccoberton, Jr., Professor, Puppet Arts

### 2. The Carols of the Ritson Manuscript at Exeter Cathedral: Repertory and Context

Anastasia Pilato, Music Advisor: Eric Rice, Associate Professor, Music

### 3. From Blank Page to Final Bow: A Comprehensive Approach to the Creation of 21st Century American Opera

Spencer Reese, Music Advisor: Constance Rock, Associate Professor, Music

# 4. Presentation of William Schmidt's "Variants with Solo Cadenzas" by the University of Connecticut Trumpet Quartet

Russel Allyn, Music Meagan Ferreira, Music David Dorfman, Music Lesley Knaack, Music Advisor: Louis Hanzlik, Assistant Professor, Music

#### 5. "BURIED" An Exploration of Human Boundaries

Shane Harris, Acting Advisor: Laura Crow, Professor, Dramatic Arts

#### 6. Tips on Co-Designing Shakespeare with Contemporary Touches

Angela Armijo, Design and Technical Theater Advisor: Laura Crow, Professor, Dramatic Arts

#### 7. Female Tailoring of the 1940s Realized for CRT's His Girl Friday

Christina Ostner, Design and Technical Theater Advisor: Laura Crow, Professor, Dramatic Arts

### 8. Locating Commonalities in the Perceptions of Colored Hearing Synesthetes

Kaitrin Acuna, Art Advisor: Emily Myers, Assistant Professor, Speech, Language, and Hearing Sciences

#### 9. The City Street as Canvas: Copenhagen Street Art

Karolina Hac, Art History Advisor: Jean Givens, Professor, Art and Art History

### **School of Engineering**

#### 10. Detection of SINE element using Small RNA Fish

Nicholas Jannetty, Biomedical Engineering Advisor: Rachel O'Neill, Professor, Molecular and Cell Biology

### 11. An Automated System for Monitoring Learning of Sound Choice Behavior

Cheng Yang, Biomedical Engineering Advisor: Heather Read, Associate Professor, Psychology

#### 12. Mechanical Analysis of Various Pericardial Tissues for use in Trans-Catheter Aortic Valve Replacement

Bilal Kaleem, Biomedical Engineering Joseph Mummert, Graduate Student, Biomedical Engineering Advisor: Wei Sun, Associate Professor, Biomedical Engineering

# 13. Swelling, Sterilization, and Cutting of Collagen Hydroxyapatite Scaffolds for Bone Tissue Engineering

Alison Welch, Biomedical Engineering Alyssa Weinstein, Biomedical Engineering Max Villa, Graduate Student, Materials Science and Engineering Advisor: Mei Wei, Professor, Materials Science and Engineering

#### 14. Solar Battery Charger

Muhammad Khatri, Electrical Engineering Kevin McDowall, Electrical Engineering Joshua Ivaldi, Electrical Engineering Advisor: Sung Yeul Park, Assistant Professor, Electrical Engineering

### 15. Localization of Megalin Along Zebrafish Lateral Line; Implications for Ototoxicity of Nephrotoxic Drugs

Christine Nykyforchyn, Chemical Engineering Advisor: Daniel Burkey, Associate Dept. Head, Associate Professor-in-Residence, Chemical and Biomolecular Engineering

#### 16. Hollow Fiber module for Continuous Ethanol Fermentation

Leia Dwyer, Chemical Engineering Advisor: William Mustain, Assistant Professor, Chemical and Biomolecular Engineering

#### 17. Effects of Salt on the Fluorescence Quenching of Pyrene

Joshua Lemkin, Chemical Engineering Hyunsook Jang, Graduate Student, Chemical Engineering Advisor: Mu-Ping Nieh, Associate Professor, Chemical and Biomolecular Engineering

### 18. Electropolymerizable Membranes to Enhance Selectivity of Implantable Glucose Sensors

Kimberly Dout, Chemical Engineering Advisor: Fotis Papadimitrakopoulos, Professor, Chemistry

#### 19. Direct Observation of Biofouling in a Forward Osmosis Flow Cell

Jacob Deneff, Chemical Engineering Advisor: Leslie Shor, Assistant Professor, Chemical and Biomolecular Engineering

#### 20. Superporous Hydrogels for Controlled Release of Nanoparticles.

Kelsey Boch, Chemical Engineering Mark Battig, Graduate Student, Chemical Engieering Advisor: Yong Wang, Associate Professor, Chemical and Biomolecular Engineering

#### 21. Polymorphic Interface of Natural Crystal Titanium Dioxide

Jason Chan, Materials Science and Engineering Advisor: Barry Carter, Professor, Materials Science and Engineering

# 22. Synthesis and Characterization of Electrospun Titanium Dioxide Nanofibers

Nathan Martin, Materials Science and Engineering Maria Arellano-Jimenez, Post-Doc, Materials Science and Engineering Aravind Suresh, Post-Doc, Chemical Engineering Advisor: Barry Carter, Professor, Materials Science and Engineering

### School of Nursing

#### **23. Nicaragua: Efficacy of a Nurse-Led Diabetes Intervention Program** Paul Banach, Nursing

Advisor: Kelley Newlin Lew, Assistant Professor, Nursing

# 24. Factors Related to the Personal Development of a Young Adult with HIV/AIDS: A Case Study

Jenna Burns, Nursing Juan Salazar, Director of Pediatric Infectious Diseases, Connecticut Children's Medical Center Advisor: Elizabeth Anderson, Associate Professor, Nursing

#### 25. Resilience in Older Adults with HIV/AIDS

Margaret Holmes, Nursing Advisor: Elizabeth Anderson, Associate Professor, Nursing

### 26. Self-Medication Practices of Undergraduate Students: Drug Combinations That Increase Risk of GI Bleeding

Kara Dazkevich, Nursing Kim Vo, Nursing Heather Buck, Nursing Kristin Summers, Graduate, School of Nursing, May 2012 Michelle Santos, Graduate, School of Nursing, May 2012 Advisor: Patricia Neafsey, Professor, Nursing

#### 27. Self-Medication Practices of Undergraduate College Students: Non-Medical Prescriptive Stimulant Use

Kim Vo, Nursing Heather Buck, Nursing Kara Dazkevich, Nursing Kristin Summers, Graduate, School of Nursing, May 2012 Michelle Santos, Graduate, School of Nursing, May 2012 Advisor: Patricia Neafsey, Professor, Nursing

#### 28. Self-Medication Practices of Adults with Sickle Cell Disease

Courtney Beyers, Nursing Victoria Odesina, Nurse Practicioner, University of Connecticut Health Center Advisor: Patricia Neafsey, Professor, Nursing

### HALLWAY

### School of Nursing

29. Media Representations of Labor and Delivery: A Preliminary Investigation Brenna Czudak, Nursing

Advisor: Thomas Long, Associate Professor, Nursing

### **30.** Partnerships to Inform Practice: Advancing Correctional Nurse Competencies for Quality Care

Bing Zheng, Nursing Advisor: Denise Panosky, Assistant Clinical Professor, Nursing

#### 31. Pain Management for Opioid Tolerant Patients

Casey Martin, Nursing Advisor: Deborah McDonald, Associate Professor, Nursing

### 32. Do Published Studies of Educational Outreach Provide Documentation of Potentially Important Characteristics?

Nicole Miller, Nursing Advisor: Thomas Van Hoof, Associate Professor, Nursing

### 33. Limited English Proficient Patients use of Family Members and Interpreters: A Pilot Study

Brittany Histing, Nursing Advisor: Desiree Diaz, Assistant Clinical Professor, Nursing

### 34. Neonatal Nurses' Perceptions of Pain Management: Results from the U.S. and China

Laura Keating, Nursing Kimberly Chang, Nursing Advisor: Xiaomei Cong, Assistant Professor, Nursing

### NORTH READING ROOM

### **Technology Incubator Program**

### 35. Chondrogenic Disease Modeling: A Study of Signaling Across IPS and HESC derived Chondrocytes

Mike Tassavor, Molecular and Cell Biology, May 2012 Graduate Advisor: Caroline Dealy, Associate Professor, Center for Regenerative Medicine and Skeletal Development, Department of Reconstructive Sciences, Department of Orthopaedic Surgery, University of Connecticut Health Center Additional Advisor: Sara Patterson, PhD, Center for Regenerative Medicine and Skeletal Development, Department of Reconstructive Sciences, University of Connecticut Health Center

#### 36. Evaluation of AKT1 Synbody: A Novel Peptidic Binding Ligand

Marta Chlus, Chemical Engineering

Advisor: Caroline Dealy, Associate Professor, Center for Regenerative Medicine and Skeletal Development, Department of Reconstructive Sciences, Department of Orthopaedic Surgery, University of Connecticut Health Center

### School of Agriculture and Natural Resource

### 37. Prevalence, Effects and Management of Bovine Leukosis Virus in Dairy Cattle

Tia Ciliano, Agriculture and Natural Resources Advisor: Heather White, Assistant Professor, Animal Science

# 38. Pre-partum Insulin Resistance in Dairy Cattle Alters Offspring Birth Weight and Response to Glucose

Lisa Dauten, Animal Science Advisor: Heather White, Assistant Professor, Animal Science

#### 39. Hepatic Patatin-like Phospholipase Domain-containing 3 mRNA Expression is Decreased during Feed Restriction and in Transition Dairy Cows

Molly Viner, Animal Science Advisor: Heather White, Assistant Professor, Animal Science

#### 40. Cherry Picking Recombinant Vaccinia Virus

Peter Larson, Pathobiology Advisor: Paulo Verardi, Assistant Professor, Pathobiology

### 41. Minimum Requirements for Vaccinia Virus Early Gene Expression in Mammalian Cells

Ethan Sarnoski, Pathobiology Advisor: Paulo Verardi, Assistant Professor, Pathobiology

### 42. Designing a Microfluidic Protozoa Separator for Genetic Analysis of Microbial Eukaryotes in Termite Guts

Erika Orner, Pathobiology Advisor: Leslie Shor, Assistant Professor, Chemical and Biomolecular Engineering

## 43. Investigations in Early Detection and Diagnosis of Mastitis Utilizing Ultrasound Technology

Elizabeth Alexander, Pathobiology John Riesen, Professor Emeritus, Animal Science Advisor: Sheila Andrew, Associate Professor, Animal Science

# 44. The Effect of Poor Maternal Nutrition on Satellite Cell Number and Activity

Rachel Forbes, Animal Science Advisor: Sarah Reed, Assistant Professor, Animal Science

#### 45. Characterization of Equine Muscle Satellite Cells

Tymoteusz Siwy, Animal Science Advisor: Sarah Reed, Assistant Professor, Animal Science

# 46. Effects of Poor Maternal Nutrition during Gestation on Gene Expression in Renal Adipose Tissue of Lambs

Alison Bush, Animal Science Maria Hoffman, Graduate Student, Animal Science Kristen Peck, Graduate Student, Animal Science Advisor: Kristen Govoni, Assistant Professor, Animal Science

# 47. Effects of Poor Maternal Nutrition on Gene Expression in Bone Marrow Stromal Cells from Lambs

Dana Kaelin, Animal Science Advisor: Kristen Govoni, Assistant Professor, Animal Science

# 48. Characterization of Primary Bovine Mammary Epithelial Cells for In Vitro Experiments

Cameron Smart, Animal Science Advisor: Kristen Govoni, Assistant Professor, Animal Science

#### 49. Effects of Maternal 25-hydroxycholecalciferol (25OHD3) Supplementation on Fetal Bone Development in Pigs

Katelyn McFadden, Animal Science Maria Hoffman, Graduate Student, Animal Science J.D. Starkey, J.D. Coffey, E.A. Hines, C.W. Starkey - Texas Tech University Advisor: Kristen Govoni, Assistant Professor, Animal Science

# 50. Effects of Poor Maternal Nutrition on GH, IGF-I, Insulin, and Leptin Concentrations in Pregnant Ewes

Michelle Forella, Animal Science Amanda Fox, Animal Science Kristen Peck, Graduate Student, Animal Science Maria Hoffman, Graduate Student, Animal Science Steven Zinn, Professor/Department Head, Animal Science Kristen Govoni, Assistant Professor, Animal Science Advisor: Steven Zinn, Professor/Department Head, Animal Science

# 51. The Effects of Maternal Nutrition During Gestation on Postnatal Growth of Offspring

Amanda Fox, Animal Science Michelle Forella, Animal Science Kristen Peck, Graduate Student, Animal Science Melissa Rokosa, Graduate Student, Animal Science Kristen Govoni, Assistant Professor, Animal Science Advisor: Steven Zinn, Professor/Department Head, Animal Science

#### 52. Ranavirus Prevalence in Eastern Connecticut Wood Frogs

Kelly O'Connor, Natural Resources Advisor: Tracy Rittenhouse, Assistant Professor, Natural Resources and the Environment

# 53. Development and Validation of Reproductive Behavioral Endpoints for Mummichog, an Important Estuarine Model

Tanya Lama, Natural Resources

Chelsea Blatchley, Graduate Student, Natural Resources Advisor: Thijs Bosker, Assistant Professor, Natural Resources and the Environment/Center for Environmental Sciences and Engineering

# 54. Food Resource Competition Between Eastern and New England Cottontails

Samantha Kremidas, Natural Resources Advisor: Morty Ortega, Associate Professor, Natural Resources and the Environment

#### 55. Governing Climate Change: Local Impacts on a Global Problem

Andy Bilich, Natural Resources Advisor: Mark Boyer, Professor/Department Head, Political Science

### 56. Associations between Diet Quality and Adiposity Among Preschoolers from Low Socioeconomic Status

Brittany Christopher, Allied Health Sciences Mastaneh Sharafi, Graduate Student, Allied Health Sciences Advisor: Valerie Duffy, Professor, Allied Health Sciences

### 57. Using Technology to Measure Activity Levels among Older Population

Celina Rogers, Allied Health Sciences Elizabeth Tagg, Graduate Student, Human Development and Family Studies Advisor: Idethia Harvey, Assistant Professor, Human Development and Family Studies

### School of Pharmacy

# 58. Synthesis and SAR for Side Chain Oxysterol Agonists of the Hedgehog Signaling Pathway

Audrey Corman, Pharmacy Albert DeBerardinis, Post-Doc, Pharmacy Advisor: Kyle Hadden, Assistant Professor, Pharmaceutical Sciences

#### 59. Multiphasic CFD model to Characterize Inhaler-Spacer Interactions

Michael Saito, Pharmacy Cindi Sounthonevat, Pharmacy Saurabh Sarkar, Graduate Student, Pharmacy Advisor: Bodhisattwa Chaudhuri, Assistant Professor, Pharmaceutical Sciences

#### 60. The Protein TNIP1 Controls Production of Skin Cell "First Responders": Implications for Cutaneous Disease and Wound Healing

Michael Stamatis, Pharmacy Anastasia Shmukler, Pharmacy Vincent Ramirez, Graduate Student, Pharmacy Advisor: Brian Aneskievich, Associate Professor, Pharmaceutical Sciences

### **College of Liberal Arts and Sciences**

### 61. Detail and Gestalt Focus in Spontaneous Descriptions by Individuals with Optimal Outcomes From ASD

Allison Fitch, Psychology Advisor: Inge-Marie Eigsti, Associate Professor, Psychology

#### 62. Infant Sensitivity to Audiovisual Asynchrony in Speech

Arielle Rubin, Psychology Katie Shaw, Graduate Student, Psychology Advisor: Heather Bortfeld, Associate Professor, Psychology

### 63. Parental Stress in Relation to the Nature and Severity of Autism Symptoms

Emily Fox, Psychology Advisor: Marianne Barton, Associate Clinical Professor, Psychology

### 64. How Parent Child Relationship Satisfaction and Time Spent with Child Post-Divorce are Associated with Parents' Mental Health

Jennifer Barney, Psychology and Human Development and Family Studies Advisor: Edna Brown, Assistant Professor, Human Development and Family Studies

#### 65. Goals, Processes, And Outcomes Of An Adventure-Based Camp Program For Young Adults Living With a Chronic Or Life Threatening Illness

Katherine O'Brien, Human Development and Family Studies Advisor: Preston Britner, Professor, Human Development and Family Studies

#### 66. The Implications of Parenting Behaviors for Latino Youth's Well-Being

Andrea Lopez Salazar, Human Development and Family Studies Advisor: Annamaria Csizmadia, Assistant Professor, Human Development and Family Studies

### 67. Individual and Family Factors Associated with Mental Health in Colorectal Cancer Survivors

Shelby Borowski, Human Development and Family Studies Katrina Nygren, Human Development and Family Studies Elizabeth Tagg, Graduate Student, Human Development and Family Studies Andrew Salner, Department of Radiation Oncology, Hartford Hospital Advisor: Keith Bellizzi, Associate Professor, Human Development and Family Studies

#### 68. Disability Literacy and Attitudes Towards Autism Spectrum Disorders

Cathryn Ryan, Human Development and Family Studies Advisor: Anne Farrell, Associate Professor, Human Development and Family Studies

### 69. Exploring Physical Activity Identity Among College Undergraduate Women

Lindsey Leaverton, Human Development and Family Studies Elizabeth Tagg, Graduate Student, Human Development and Family Studies Advisor: Idethia Harvey, Assistant Professor, Human Development and Family Studies

#### 70. Reasons for Divorce and the Effects on Spousal Adjustment

Shamara James, English Hagar Odoom, Human Development and Family Studies Advisor: Edna Brown, Assistant Professor, Human Development and Family Studies

### 71. Gender-Based Disparities in the Cognitive Outcome of Premature Infants: A Meta-Analysis

Mona Lisa Sadek, Psychology Advisor: R. Holly Fitch, Associate Professor, Psychology

#### 72. A Pilot Study of HI Brain Injuries of Prematurity

Haley Garbus, Psychology Advisor: R. Holly Fitch, Associate Professor, Psychology

#### 73. Prevalence and Severity of ADHD Symptoms in Children with ASD

Kristen Weglarz, Psychology Advisor: Deborah Fein, Distinguished Professor, Psychology

#### 74. DSM-5 Changes in the Diagnostic Criteria of Repetitive and Restrictive Behaviors within Autism Spectrum Disorder: Implications for Diagnosis in Young Children

Danielle Murphy, Psychology Advisor: Deborah Fein, Distinguished Professor, Psychology

### 75. The Assessment of Off-Task Behaviors in Children with Autism Spectrum Disorders

Aubrey Wank, Psychology Advisor: Deborah Fein, Distinguished Professor, Psychology

# 76. Longitudinal Associations among Father Anxiety, Father Involvement, and Father-Child Relationships

Fariya Naz, Psychology Victoria Aguilera, Speech, Language, and Hearing Sciences Yeonsoo Yoo, Graduate Student, Human Development and Family Studies Advisor: Kari Adamsons, Assistant Professor, Human Development and Family Studies

### 77. Bureaucracy over Democracy?: Error, Oversight and Confusion in the Counting of Connecticut's Votes

Christopher Kempf, Political Science Advisor: Ronald Schurin, Associate Professor, Political Science

### 78. Exceptionalist-in-Chief: Presidents, American Exceptionalism, and U.S. Foreign Policy Since 1897

John Dearborn, Political Science Advisor: Ronald Schurin, Associate Professor, Political Science

# 79. Gender Wage Gap Policies in the United States: Equal Access or Equal Treatment Rights?

Claire Simonich, Political Science Advisor: Virginia Hettinger, Associate Professor, Political Science

#### 80. The Effects of Ideological Supplements on Individual Voting Behavior

John Khalil, Political Science Advisor: Virginia Hettinger, Associate Professor, Political Science

#### 81. The Exclusivity of Activism Before the United States Supreme Court: Amicus Curiae Briefs as a Tool of Organized Interest Elites

Erica Mason, Political Science Advisor: Virginia Hettinger, Associate Professor, Political Science

### 82. Banking on a Rescue: IMF Loan Size and its Relationship with US and Money-center Bank Interests

Garrett Rapsilber, Political Science Advisor: Jennifer Sterling-Folker, Professor, Political Science

# 83. Die Zeitsbewältigung: Perceptions of Time in 20th Century German Constitutions

Deanne Wallace, Political Science Advisor: Cyrus Zirakzadeh, Professor, Political Science

#### 84. Battling Hunger: Legislative Efforts Towards Food Security in India

Syeda Haider, Political Science Advisor: Shareen Hertel, Associate Professor, Political Science

### 85. Ruth Sarles and the Battle Against American Intervention in World War II

Sergio Goncalves, Political Science Advisor: John Garry Clifford, Professor, Political Science

### 86. Criminalizing Mental Illness: Juvenile Offenders in the U.S. Criminal Justice System

Sarah Purtill, Political Science Advisor: Eva Troyb, Graduate Student, Psychology

### 87. Community-Centered Design: Using Applied Research to Develop a New Identity for the Windham Harm Reduction Coalition

Celia Poirier, Communication Advisor: Rory McGloin, Assistant Professor, Communication

**88. Turn-Taking in Typically Developing Children and Children with Autism** Stephanie Sala, Communication Manuela Wagner, Associate Professor, Literature, Culture and Languages (German) Advisor: Letitia Naigles, Professor, Psychology

### **Neag School of Education**

89. The Effects of Resistance Training vs. Endurance Training on Plasma Catecholamine Responses to a Maximal Treadmill Test Alexander Bryce, Exercise Science

Advisor: William Kraemer, Professor, Kinesiology

#### 90. The Effects of Altering Macronutrient Composition on C-Reactive Protein Levels in Overweight and Obese Subjects with Metabolic Syndrome

Alexis Rudd, Exercise Science Advisor: Jeff Volek, Associate Professor, Kinesiology

### 91. The Relationship between Heart Rate and Rating of Perceived Exertion in the Lab Versus Field Setting

Alex Papanastassiou, Exercise Science Advisor: Lawrence Armstrong, Professor, Kinesiology

### 92. Teacher Questioning in Reading: Alignment to the Common Core State Standards

Rebecca Duchesneau, Secondary Education Advisor: Catherine Little, Associate Professor, Educational Psychology

# 93. Teachers' Follow-up Questions: How they Relate to a Student's Response

Sarah Forte, Secondary Education Advisor: Catherine Little, Associate Professor, Educational Psychology

### 94. Practicing Teachers' Self-Efficacy Beliefs Regarding their Use of Culturally Responsive Teaching Practices

Margaret Seclen, Elementary Education Advisor: Catherine Little, Associate Professor, Educational Psychology

## 95. Code Switching Among Emergent Bilingual Elementary School Students: A Review of the Literature

Chelsie Giegerich, Elementary Education Advisor: Mary Truxaw, Associate Professor, Curriculum and Instruction

### **College of Liberal Arts and Sciences**

### 96. Hillslope Sediment Analysis Using Fallout Radionuclides, Colorado Front Range

Hannah Mondrach, Geoscience Advisor: William Ouimet, Assistant Professor, Geography

#### 97. Delay of Principle B in Spontaneous Speech

Kelcie Reid, Linguistics Advisor: William Snyder, Professor, Linguistics

# 98. The Influence of the "Celtic": Quest for Paradise in Chwedl Iarlles y Ffynnon, Le Chevalier au Lion, and Frances Hodgson Burnett's The Secret Garden

Grace Vasington, English Advisor: Thomas Recchio, Professor, English

# 99. Dreaming of First Bites and Dark Nights: The Transformed Vampire and Female Empowerment

Kelly Blanchard, English Advisor: Pamela Bedore, Assistant Professor, English

#### 100. An Auction Theoretic Approach to Mergers under Incumbency

Yuriy Loukachev, Economics Advisor: Mikhael Shor, Assistant Professor, Economics

### HALLWAY

### **College of Liberal Arts and Sciences**

**101. The A Word: Deconstructing the Language Behind Affirmative Action** Charity Whitehead, African American Studies and Psychology Advisor: Michelle Williams, Associate Professor, Psychology

### 102. Remembering the Holocaust & Combating Indifference: the United States Holocaust Memorial Museum and the Jewish Museum Berlin

David Schwegman, History Advisor: Cathy Schlund-Vials, Associate Professor, English

## 103. Demonic Possession and Mass Conversion Disorder: A Historical Comparison

Laura Hatchman, History Advisor: Cornelia Dayton, Associate Professor, History

#### 104. The Impacts of the Zebra Mussel (Dreissena polymorpha) on the Feeding Ecology of Early Life Stage Striped Bass (Morone saxatilis) and River Herring (Alosa pseudoharengus and Alosa aestivalis)

Grace Casselberry, Ecology and Evolutionary Biology Advisor: Eric Schultz, Associate Professor, Ecology and Evolutionary Biology

### 105. Potential of Integrated Multi-Trophic Aquaculture for the Ornamental Pet Trade

Steven Ehrlich, Ecology and Evolutionary Biology Advisor: Eric Schultz, Associate Professor, Ecology and Evolutionary Biology

### 106. The Effect of Land-locking on Intestinal Aquaporin 1 Expression in Alosa pseudoharengus (alewife)

Emily Funk, Ecology and Evolutionary Biology Advisor: Eric Schultz, Associate Professor, Ecology and Evolutionary Biology

#### 107. Population Ecology of the Invasive Ant Myrmica Rubra

Aine O'Sullivan, Ecology and Evolutionary Biology Advisor: Eldridge Adams, Professor, Ecology and Evolutionary Biology

#### 108. Reproductive Phenologies of Phyllostomid Bats from Costa Rica

Ryan Hall, Ecology and Evolutionary Biology Kathryne Durant, Ecology and Evolutionary Biology Rachael Hyland, Ecology and Evolutionary Biology Laura Cisneros, Graduate Student, Ecology and Evolutionary Biology Advisor: Michael Willig, Professor, Ecology and Evolutionary Biology

### SOUTH READING ROOM

### **College of Liberal Arts and Sciences**

### 109. Embryonic Development of the Northern Two-lined Salamander: Revisited 101 Years Later

Taylor Ferguson, Ecology and Evolutionary Biology Advisor: Elizabeth Jockusch, Associate Professor, Ecology and Evolutionary Biology

### 110. An Analysis of the Notch Regulatory Gene fringe in Metamorphic Appendage Patterning of the Red Flour Beetle Tribolium castaneum

Devin O'Brien, Biological Sciences Frank Smith, Graduate Student, Ecology and Evolutionary Biology Advisor: Elizabeth Jockusch, Associate Professor, Ecology and Evolutionary Biology

# 111. Comparison of Nuclear and Mitochondrial Gene Phylogenies for the New Zealand Cicada Genus Kikihia

Sarah Banker, Biological Sciences Advisor: Chris Simon, Professor, Ecology and Evolutionary Biology

#### 112. Prostate Cancer and Chronic Disease Disparities among Latino Men

Veronica Bacong, Biological Sciences Melanie Castellanos, Psychology Ana Cerda, Biological Sciences Livja Koka, Biological Sciences Besnik Qeriqi, Biological Sciences Advisor: Thomas Blank, Professor, Human Development and Family Studies

#### 113. Cancer Attitudes and Beliefs in a College Setting

Livja Koka, Biological Sciences Melanie Castellanos, Psychology Advisor: Thomas Blank, Professor, Human Development and Family Studies

# 114. Polycyclic Aromatic Hydrocarbon Extraction from Avian Eggs by Ostro Protein Separation and Analysis by UPLC

Gina Guerrera, Chemistry Anthony Provatas, Research Associate, Center for Environmental Sciences and Engineering Advisor: James Stuart, Professor Emeritus, Chemistry

#### 115. Synthesis Of and Oxidations With "Bobbitt's Salt": 4-Acetamido-2,2,6,6-Tetramethylpiperidine-1-Oxoammonium Tetrafluoroborate

Casey Camire, Chemistry Advisor: Nicholas Leadbeater, Associate Professor, Chemistry Advisor: James Bobbitt, Professor Emeritus, Chemistry

#### 116. Preparation of an Electrophilic Difluoromethylating Reagent

Timothy Monos, Chemistry Advisor: Nicholas Leadbeater, Associate Professor, Chemistry

### 117. Development of Method for Determination of Sodium Content in the Threespine Stickleback

Marisia Fikiet, Chemistry Alexandra Longacre, Chemistry Eric Kim, Pathobiology Advisor: Robert Michel, Professor, Chemistry

#### 118. Chemical Functionalization of Reduced Graphene Oxide for Self-Assembly

Adam Woomer, Chemistry Advisor: Douglas Adamson, Associate Professor, Chemistry

#### 119. Synthesis of Rhenium(I) Complex for CO<sub>2</sub> Activiation

Ebun Öjekunle, Chemistry John Ng'ang'a, Graduate Student, Chemistry Christian Samanamu, Post-Doc, Chemistry Advisor: Alfredo Angeles-Boza, Assistant Professor, Chemistry

# 120. Oxoammonium Salt Oxidation of Alcohols to Aldehydes and Carboxylic Acids

Nyle Blanck, Chemistry Advisor: William Bailey, Professor, Chemistry

# 121. Contextual Influences on Phonetic Categorization in Developmental Populations

Vanessa Springer, Psychology Alexis Giroux, Speech, Language, and Hearing Sciences Heather McSherry, Speech, Language, and Hearing Sciences Jean Campbell, Graduate Student, Speech, Language, and Hearing Sciences Advisor: Rachel Theodore, Assistant Professor, Speech, Language, and Hearing Sciences

### 122. Adaptation to Talker-specific Phonetic Variation in Adults with Dyslexia: Preliminary Findings

Katlyn Salvador, Speech, Language, and Hearing Sciences Rebecca Sylvia, Speech, Language, and Hearing Sciences MaryKate Bisaillon, Speech, Language, and Hearing Sciences Advisor: Rachel Theodore, Assistant Professor, Speech, Language, and Hearing Sciences

# 123. Locus of Phonological Deficits in Adults with Dyslexia: Preliminary Evidence

MaryKate Bisaillon, Speech, Language, and Hearing Sciences Rebecca Sylvia, Speech, Language, and Hearing Sciences Katlyn Salvador, Speech, Language, and Hearing Sciences Advisor: Rachel Theodore, Assistant Professor, Speech, Language, and Hearing Sciences

#### 124. Talker-specific Perceptual Processing

Devin Roscillo, Speech, Language, and Hearing Sciences Sarah Montanaro, Speech, Language, and Hearing Sciences Janice Lomibao, Graduate Student, Speech, Language, and Hearing Sciences Advisor: Rachel Theodore, Assistant Professor, Speech, Language, and Hearing Sciences

#### 125. Effects of Auditory and Visual Variability on Word Learning in Children

Kelly Casey, Speech, Language, and Hearing Sciences Alex Bohner, Speech, Language, and Hearing Sciences Shayna Marmon, Speech, Language, and Hearing Sciences Advisor: Rachel Theodore, Assistant Professor, Speech, Language, and Hearing Sciences

#### 126. Evaluating Narrative Discourse in Patients with Traumatic Brain Injury

Alexandra Addabbo, Biological Sciences and Speech, Language and Hearing Sciences

Advisor: Carl Coelho, Professior, Speech, Language, and Hearing Sciences

#### 127. How Caffeine and Physostigmine Affect Memory in Rats

Alana Marczak, Biological Sciences Robert Renner, Biological Sciences Shang Lin (Tommy) Lee, Biological Sciences and Psychology Mohamed Eldirany, Glastonbury High School Nickie Paul, Graduate Student, Psychology Advisor: Etan Markus, Professor, Psychology

### 128. Dissociating Place Cell Activity Across the Dorsal and Ventral Regions of the Hippocampus

Shang Lin (Tommy) Lee, Biological Sciences and Psychology Andrew Bade, Biological Sciences Samantha Collins, Psychology Advisor: Etan Markus, Professor, Psychology

### 129. Changes in Hippocampal EEG during Place and Response Task Learning in Rats

Rachel Jackson, Cognitive Science Gregory Newman, Psychology Stephanie Vu, Physiology and Neurobiology Xiao Li, Physiology and Neurobiology Advisor: Etan Markus, Professor, Psychology

### 130. Determining Which Regions of the Hippocampus Respond to Emotional Context

Youstina Youssef, Cognitive Science Neiha Kidwai, Biological Sciences Xiao Li, Physiology and Neurobiology Amanda Swanson, Graduate Student Advisor: Etan Markus, Professor, Psychology

#### 131. Hippocampal Arc Knockdown Effects on Exploration and Memory

Patrick Rabus, Molecular and Cell Biology Krista Wolffer, Animal Science Jennifer Varughese, Biological Sciences Nickie Paul, Graduate Student, Psychology Advisor: Etan Markus, Professor, Psychology Additional Advisor: Sara Pallay, Graduate, Bachelor of Science, 2012

### 132. Transgenic Overexpression of Neurexin and Collybistin in the Rat Brain

Christopher Fekete, Physiology and Neurobiology Danielle Freeman, Chemistry Advisor: Angel de Blas, Professor, Physiology and Neurobiology

# 133. The Effects of Aging and Injury on the Subventricular Zone Stem Cell Niche

John Peters, Biological Sciences Advisor: Joanne Conover, Associate Professor, Physiology and Neurobiology

#### 134. MRI Analysis of Ventricularmegaly in Aging Humans

Ye Sun, Biological Sciences Advisor: Joanne Conover, Associate Professor, Physiology and Neurobiology

### 135. Developmental Invasion of Astrocytes into the Mouse Rostral Migratory Stream

Nicholas Gallo, Physiology and Neurobiology Matthew Eastman, Graduate Student, Physiology and Neurobiology Advisor: Joanne Conover, Associate Professor, Physiology and Neurobiology

# 136. The Influence of Repeated Mild Traumatic Brain Injury on the Sub Ventricular Zone

Lillian Talbot, Physiology and Neurobiology Rebecca Acabchuk, Graduate Student, Physiology and Neurobiology Meredith Halling, Graduate Student, Physiology and Neurobiology Advisor: Joanne Conover, Associate Professor, Physiology and Neurobiology

#### 137. Analyzing Gliosis in the Human Brain using Mouse Models

Andrew Trinh, Physiology and Neurobiology Advisor: Joanne Conover, Associate Professor, Physiology and Neurobiology

#### 138. The Role of CUGBP 4 (CELF4) in Developing Retinal Neurons

Sean Congdon, Physiology and Neurobiology Rouf Banday, Post-Doc, Physiology and Neurobiology Advisor: Rahul Kanadia, Assistant Professor, Physiology and Neurobiology

#### 139. Biomimetic Calcium Doped Manganese Oxide for Water Oxidation

Kimiya Zafar, Physiology and Neurobiology David Kriz, Graduate Student, Chemistry Advisor: Steven Suib, Distinguished Professor, Chemistry

#### 140. Synthesis, Characterization and Application of Nickel-Doped OMS-2 Manganese Oxide Nanofibers in Lithium-Ion Batteries

Amit Mehta, Physiology and Neurobiology Curt Guild, Graduate Student, Chemistry Advisor: Steven Suib, Distinguished Professor, Chemistry

#### 141. Alpha Zrp-Glucose Oxidase Intercalation and Release Maximization via Divalent Metal Ions (Mg2+, Ca2+, and Ba2+) and Cationized Bovine Serum Albumin (BSA) for an Noninvasive Oral Alternative to Insulin Drug Therapies

Momina Afrede, Biological Sciences Advisor: Challa Kumar, Professor, Chemistry and Biochemistry

### 142. Restoring Effort-Related Functions in Models of Depression Symptoms:

#### Reversing Fatigue Symptoms Induced by Catecholamine Depleting Agent Tetrabenazine with the Adenosine A2A Antagonist MSX-3

Charlotte Freeland, Physiology and Neurobiology Advisor: John Salamone, Distinguished Professor, Psychology

#### 143. Pharmacological Manipulations of Nucleus Accumbens Dopamine Using Tetrabenazine and MSX-3: Implications in Effort-Related Choice Behavior

Saagar Pandit, Biological Sciences Advisor: John Salamone, Distinguished Professor, Psychology

#### 144. Effort-Related Impairments Produced by Lipopolysaccharide

Brian Epling, Individualized Major: Behavioral Neuroscience Advisor: John Salamone, Distinguished Professor, Psychology

### 145.Emergent Metonymy: The Production of Novel Metonyms in a Language Coordination Task.

Robert Powers, Cognitive Science Advisor: Whitney Tabor, Associate Professor, Psychology

## 146. Indirect Activation of Abstract and Concrete Terms in the Visual World Paradigm

Chris Brozdowski, Cognitive Science Advisor: James Magnuson, Associate Professor, Psychology

### 147. The Role of Drosophila PGC-1 Homologue Spargel in Dopaminergic Neuroprotection against Rotenone

Munzareen Khan, Cognitive Science Advisor: Yih-Woei Fridell, Assistant Professor, Allied Health Sciences

#### 148. An Investigation into CILT Efficacy in Aphasia Therapy

Kaila Manca, Cognitive Science Advisor: Emily Myers, Assistant Professor, Speech, Language, and Hearing Sciences

#### 149. Logarithmic Autoregressive Conditional Duration (ACD) Models

James Anderson, Mathematics/Statistics Lilian Cheung, Statistics Advisor: Nalini Ravishanker, Professor, Statistics

#### 150. Determining the Spectrum of the Laplacian on 3N-Gaskets.

Jason Marsh, Mathematics Max Margenot, Mathematics Nikhaar Gupta, Mathematics William Oakley, Undergraduate Student, North Carolina State University Advisor: Alexander Teplyaev, Assistant Professor, Mathematics

#### 151. The Top Lyapunov Exponent of Multiplicative Stochastic Processes

David Wierschen, Mathematics Becky Simonsen, Mathematics Alex Baldenko, Graduate Student, Mathematics Advisor: Maria Gordina, Associate Professor, Mathematics

#### 152. Music Analysis with Fractal Strings: A Complex-Dimensional View

Tyler Reese, Mathematics Advisor: Luke Rogers, Assistant Professor, Mathematics Additional Advisor: Alexander Teplyaev, Professor, Mathematics Additional Advisor: Ronald Squibbs, Associate Professor, Music

# 153. Mutagenicity of 8-oxoguanine Lesion Adjacent to an Abasic site in Escherichia coli Cells Proficient or Deficient in Y-family DNA Polymerase(s)

Savas Tsikis, Molecular and Cell Biology Kimberly Rebello, Chemistry Advisor: Ashis Basu, Professor, Chemistry

#### 154. Effects of Estrogen on Male Gonadal Develpment

Robert Stickels, Molecular and Cell Biology Advisor: Andrew Pask, Associate Professor, Molecular and Cell Biology

## 155. Serum Type II Collagen Telopeptide (CTX II) Levels in a Rabbit Septic Arthritis model

Julianna Lau, Biological Sciences Advisor: Mark Lee, Assistant Professor of Orthopaedic Surgery, Department of Pediatrics, University of Connecticut School of Medicine Advisor: Arlene Albert, Professor, Molecular and Cell Biology

### 156. Dynamic Light Scattering Studies on the Stability of Membrane Mimetic Lipodisq $^{\ensuremath{\mathbb{R}}}$ Nano-particles

Diane Yu, Structural Biology and Biophysics Advisor: Arlene Albert, Professor, Molecular and Cell Biology

### 157. Thermal Stability and Gold Binding Properties of Delipidated Gold Binding Mutants

Edward Courchaine, Structural Biology and Biophysics Advisor: Robert Birge, Professor, Chemistry

### 158. Quantifying the Local pH Change Induced by Protein Based Artificial Retina

Nandan Pandit, Molecular and Cell Biology Advisor: Robert Birge, Professor, Chemistry

# 159. The Role of Horizontal Gene Transfer in the Evolution of a Thermophilic Bacterium

Anna Green, Molecular and Cell Biology Kristen Swithers, Post-Doc, Molecular and Cell Biology Advisor: Johann Peter Gogarten, Distinguished Professor, Molecular and Cell Biology

# 160. Examining Haloarchaeal Phylogroups through the Creation of a Tree from Enviornmental and Reported Bacteriorhodopsin Sequences.

Jeffrey O'Brien, Molecular and Cell Biology

Amanda Dick, Graduate Student, Molecular and Cell Biology Nikhil Ram Mohan, Graduate Student, Molecular and Cell Biology Matthew Fullmer, Graduate Student, Molecular and Cell Biology R. Thanke Papke, Assistant Professor, Molecular and Cell Biology Advisor: Johann Peter Gogarten, Distinguished Professor, Molecular and Cell Biology

# 161. Adaptive Immune Response to Neo-Antigens Generated *In Vivo* by Spontaneous Mutations

Rory Geyer, Molecular and Cell Biology

Siu-Pok Yee, Assistant Professor, Genetics and Developmental Biology, and Director, Gene Targeting and Transgenic Facility, University of Connecticut Health Center

Advisor: Pramod Srivastava, Professor, Department of Immunology, School of Medicine, Director, Center for Immunotherapy of Cancer and Infectious Disease, and Director, Carole and Ray Neag Comprehensive Cancer Center, University of Connecticut Health Center

# 162. Uptake and Vesicle Trafficking of Opsonized and Non-opsonized Silica Particles during Silica-induced Cell Death

Alexandra Goetjen, Molecular and Cell Biology

Gaurav Joshi, Graduate Student, Molecular and Cell Biology

Advisor: David Knecht, Professor, Molecular and Cell Biology

# 163. Measuring the Actin Binding Kinetics of Filamin using mEos, a Novel Photoconvertible Probe

Wells LaRiviere, Molecular and Cell Biology Reed LaRiviere, Molecular and Cell Biology Advisor: David Knecht, Professor, Molecular and Cell Biology

### 164. Probing the Interaction Between Translaitonal GTPase BipA and the 70S Ribosome Using FDS-AUC

David Levitz, Molecular and Cell Biology Advisor: Victoria Robinson, Associate Professor, Molecular and Cell Biology

#### 165. Functional Characterization of the ATP/ADP Carrier by Luminescence

Catherine O'Brien, Molecular and Cell Biology Ashley Long, Graduate Student, Molecular and Cell Biology Advisor: Nathan Alder, Associate Professor, Molecular and Cell Biology

### 166. Enterohemorrhagic *Escherichia coli* 0157 Manipulates Multiple Host Factors During Infection

Sarah Grout, Molecular and Cell Biology Advisor: Kenneth Campellone, Assistant Professor, Molecular and Cell Biology

#### 167. Development of a Fluorescence Assay to Probe PKR Dimerization

Michael Bruno, Physiology and Neurobiology Bushra Husain, Graduate Student, Molecular and Cell Biology Advisor: James Cole, Professor, Molecular and Cell Biology

### 168. Optimization of a Gene Circuit to Repress Gene Expression in Vaccinia Virus

Shari Perez, Molecular and Cell Biology Advisor: Paulo Verardi, Assistant Professor, Pathobiology

### 169. Aronia Berry Juice Sensory Analysis by Harvest Time and Oral Sensory Phenotype

Jeeha Park, Molecular and Cell Biology Advisor: Valerie Duffy, Professor, Allied Health Sciences

### HALLWAY

### **College of Liberal Arts and Sciences**

### 170. Instrumentation for Slowing and Cooling of CaF Molecules with Optical Bichromatic Forces

Tony Le, Physics Advisor: Edward Eyler, Professor, Physics

#### 171. Karyotypic Variation Throughout the Metastatic Process

Parker Sulkowski, Molecular and Cell Biology Advisor: Rachel O'Neill, Professor, Molecular and Cell Biology

### 172. Pre-Implantation Genetic Diagnosis: An Intersection of Science, Ethics, and Policy

Himanayani Mamillapalli, Molecular and Cell Biology Advisor: David Goldhamer, Professor, Molecular and Cell Biology Advisor: Richard Hiskes, Professor, Political Science

### 173. Optimization of a Melanoma Screening Program Based on a Computer Simulation Model for Metastasis

Priya Ranade, Biological Sciences Advisor: Michael Lynes, Professor, Molecular and Cell Biology Advisor: James Michaelson, Scientific Director, Division of Surgical Oncology, Massachusetts General Hospital

#### 174. Irish Rebel Songs: Spreading the Word

Christopher Wasko, Music Education Advisor: Jamie Spillane, Associate Professor, Music

#### 175. Canvassing Generations: Art Through Postmemory

Julianne Norton, Individualized Major: Transglobal Perspectives Advisor: Ray DiCapua, Associate Professor, Art

### Along with students who are presenting at Frontiers, the students listed below will be presenting at a "Mini-Frontiers" event on April 21, 2013.

#### An Investigation of an Efficient System to Harvest Clean Energy from Structural Vibrations

Bryan Blanc, Civil Engineering Advisor: Ramesh Malla, Associate Professor, Civil and Environmental Engineering

#### Sapling Functional Traits of Successional Specialists and Generalists in Tropical Wet Forest

Frank Cervo, Environmental Science Advisor: Robin Chazdon, Professor, Ecology and Evolutionary Biology

#### Comparison of the Habitat Characteristics of a Successful and Failed Eelgrass Zostera Marina Restoration Test Planting

Jennifer Dootz. Coastal Studies Advisor: Jamie Vaudrey, Assistant Research Professor, Marine Sciences

#### Effective Therapy Options Used to Treat Deaf Patients with Mental Disorders

Meredith Freeman, Individualized Major: ASL, Deaf Culture, and Creative Arts Therapy

Advisor: Sherry Powell, Lecturer, Linguistics

#### Processing of the Epstein-Barr Virus Noncoding RNAs, EBER1 and EBER2, and ther Potential Oncogenic Role in the Host Cell

Kristen Hughes, Molecular and Cell Biology Advisor: Rachel O'Neill, Professor, Molecular and Cell Biology

#### The Times of London's Support for Appeasement, September 1938-September 1939

Mairead Hynes, History Advisor: Joel Blatt, Associate Professor, History

#### War-Weary Germans, American Occupiers, and the Nazi *Werwolf* Movement in Postwar Germany, 1945-1947

Nick Hurley, History Advisor: Charles Lansing, Associate Professor, History

#### Marau Taaroa: The Last Queen of Tahiti

Isabelle Nat, Art History Advisor: Anne D'Alleva, Associate Professor, Art History

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### **Special Thanks**

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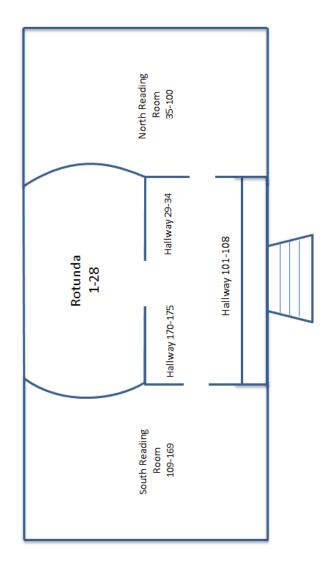
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