John K. Koepppe Undergraduate Honors Research Symposium
April 2 - April 5, 2018

Department of Biology - 215 Coker Hall
University of North Carolina at Chapel Hill

Presentation Schedule for Monday, April 2

12:00   Welcome and Opening Remarks by Dr. Amy Shaub Maddox - Assistant Professor and Biology Honors Chair and Dr. Victoria Bautch - Beverly Long Chapin Distinguished Professor and Chair of Biology

12:05   INTRODUCTION TO HUMAN PATHOLOGIES

12:10   Lyndsey Moore
         “Intestinal Fibrosis Driven by a Pathobiont-derived Small Molecule of the Microbiota”

12:30   Marco Fanous
         “Development of a New Transgenic Alzheimer’s Disease Mouse Model to Evaluate Therapeutic Approaches using Adeno-associated Virus (AAV)”

12:50   Kristin Weiss
         “Detection and Quantification of Vibrio cholerae in Water Using the Compartment Bag Test”

1:10 - 1:20   BREAK

1:20   INTRODUCTION TO COMPLEX PHYSIOLOGICAL MECHANISMS

1:25   Makayla Lund
         “Determining the Mechanism of Action of NK Cell Regulation of T Cell Responses to Infection”

1:45   Annaleigh Powell
         “Investigation of Placental Phenotype in CalcR<sup>–/–</sup>; Wt1-Cre mice”

2:05   Cathleen Rueckei
         “microRNA -19b is a Sex-dependent Regulator of Posttraumatic Stress Symptoms and Widespread Pain”

2:25 - 2:35   BREAK

2:35   INTRODUCTION TO CANCER

2:40   Madison Butler
         “The Role of EGFRvIII and PTEN Deletion in Dynamic Kinome Reprogramming”

3:00   Xuewen (Kirsten) Chen
         “Metabolic Reprogramming Underlies Differential Effects of Folate Depletion in Nonmetastatic and Metastatic Claudin-low Breast Cancer ”

3:20   RECEPTION
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Presentation Schedule for Tuesday, April 3

2:00 Welcome and Opening Remarks by Dr. Amy Shaub Maddox - Assistant Professor and Biology Honors Chair
and Dr. Gregory Matera - Professor and Associate Chair of Biology

2:05 INTRODUCTION TO EPIGENETICS, DIFFERENTIATION & DEVELOPMENT
2:10 Caroline Tarallo
   “Identifying a Cellular Mechanism of Cardiac Interventricular Septal Formation”
2:30 Rebecca Notini
   “Schwann Cells Promote Peripheral Neuropathy Through Upregulation of Extracellular Matrix Protein Periostin”
2:50 Jeremy Morowitz
   “Mapping 5-Hydroxymethylcytosine in the Intestinal Epithelium and Assessing Its Impact on Gene Expression”
3:10 Samuel Chao
   “Investigating Histone Regulation of Metazoan Replication Timing In Vivo”

3:30 - 3:40 BREAK

3:40 INTRODUCTION TO CYtoskeleton AND BIOMECHANICS
3:45 Alexander Davis
   “Hydrodynamics of the American Horseshoe Crab (Limulus polyphemus)”
4:05 Claire Drysdale
   “Probing the 3D Architecture of the Inner Kinetochore”
4:25 Zachary Robbe
   “Identifying the Role of Non-Cardiac Myofibril Isoforms in the Development of Cardiomyopathies”
4:45 Halle Ronk
   “Characterizing the Role of Canoe as a Cell Junction-cytoskeletal Linker Protein during Drosophila Morphogenesis”

5:05 RECEPTION
12:00  Welcome and Opening Remarks by Dr. Amy Shaub Maddox - Assistant Professor and Biology Honors Chair and Dr. Gidi Shemer - Teaching Associate Professor and Director of Biology Undergraduate Research

12:05  INTRODUCTION TO SIGNALING I

12:10  Shaily Aghera  “Inducible Expression of the CRTC1-MAML2 Fusion Oncogene for Modeling Mucoepidermoid Carcinoma Cell Phenotypes”

12:30  Scott Sackett  “Determining the Role of CLS Genes in the Cytokinin Signaling Pathway in Arabidopsis thaliana”

12:50  Adarsh Rao  “Flow Cytometric Quantification of RASA3 and CalDAG-GEFI to Determine Platelet Reactivity in Health and Disease”

1:10 - 1:20  BREAK

1:20  INTRODUCTION TO SIGNALING II

1:25  Alison Bonner  “Characterizing the Role of Crk in Central Nervous System Development in Drosophila”

1:45  Carolyn Rapp  “Differential Gene Expression in SHH Pathway Inhibition”

2:05  Judy Wang  “Suppressor Screen for New Components of the Cytokinin Signaling Pathway in Arabidopsis thaliana”

2:25 - 2:35  BREAK

2:35  INTRODUCTION TO PHYSIOLOGICAL MECHANISMS AS MEDIATED BY CELL SIGNALING

2:40  Seth Alexander  “Rifampicin Mediated Cell Death in Staphylococcus aureus”

3:00  Sophia Shwartz  “Regulation of Mitogen-Activated Protein Kinases (MAPK) and Matrix Metalloproteinases (MMP) by Reactive Oxygen Species (ROS) and Secondary Messengers”

3:20  Divya Venkatasubramanian  “CRISPR/Cas9 Mediated Disruption of Genes that Regulate Levels of 1-Aminocyclopropane-1-Carboxylic Acid (ACC) in Arabidopsis thaliana to Study the Role of ACC Signaling in Plants”

3:40  RECEPTION
John K. Hoeppe Undergraduate Honors Research Symposium
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DEPARTMENT OF BIOLOGY - 215 COKER HALL
UNIVERSITY OF NORTH CAROLINA AT CHAPEL HILL

Presentation Schedule for Thursday, April 5

1:00 Welcome and Opening Remarks by Dr. Amy Shaub Maddox - Assistant Professor and Biology Honors Chair and Dr. Victoria Bautch - Beverly Long Chapin Distinguished Professor and Chair of Biology

1:05 INTRODUCTION TO STRUCTURE/FORM
1:10 Nicholas Keith
   “Dysregulation of Phospholipase C Gamma 1 Activity in Adult T-cell Leukemia/Lymphoma”
1:30 Danny Oh
   “Characterization of a Novel Mutant Virus from the AAV8 Capsid Library for Liver Gene Therapy”
1:50 Chase Yuan
   “Examining the Influence of Positions K+1 and K+2 on Response Regulator CheY Phosphorylation and Dephosphorylation Reactions”

2:10 - 2:20 BREAK

2:20 INTRODUCTION TO GENOME DYNAMICS
2:25 Caitlin Moffatt
   “Altering Substrate Specificity of the Nuclease GEN”
2:45 Falecia Metcalf
   “How Well Could Targeted Sequencing Detect Primary Newborn Screening Conditions?”
3:05 Leno Smith
   “The Evolution of Phenotypic Diversification in Heterogeneous Microcosms Maintained by a Liquid-handling Robot”

3:25 - 3:35 BREAK

3:35 INTRODUCTION TO NEUROPATHIC DISORDERS
3:40 Hannah Jagers
   “Activation of Orbito-accumbens Projections does not Reliably Reverse Sign-tracking Behavior in Adolescent Alcohol Exposed Rats”
4:00 Shan Yu
   “Expression Levels of XIST RNA Predict PTSS and Chronic Pain Outcomes in Women Experiencing Motor Vehicle Collision”
4:20 Trevor McPherson
   “Physiological Correlates of Active and Passive Music Therapy Interventions”

4:40 RECEPTION