Celebration of Undergraduate Engaged Scholarship

Friday, May 5, 2017
12:30 PM to 3:30 PM
Perkins Student Center
University of Delaware
Newark, DE

The Celebration of Undergraduate Engaged Scholarship showcases the work of undergraduate students participating in a wide range of disciplines at the University of Delaware.
Welcome to the second annual Celebration of Undergraduate Engaged Scholarship (CUES)!

This event serves as our comprehensive spring celebration, an opportunity for student researchers from a variety of programs to share their work with the campus community. Today, we will be showcasing continuing research begun by the Summer Scholars in 2016, the achievements of students now completing their Senior Theses, and an array of other student accomplishments from across the campus.

We hope that you will enjoy this rich representation of UD’s continuing tradition of engaged learning, presented here through a variety of poster presentations and oral talks. Since the early 1980s, our undergraduates have increasingly been involved in research and engaged scholarship, making this a signature feature of a UD education. This coming summer, another 200 students will continue that tradition. They will present their work in May 2018, so be on the lookout for that event next year! For now, though, please enjoy the exceptional accomplishments of the 2017 CUES presenters.

- Dr. Kristen Poole
Faculty Director of Undergraduate Research & Experiential Learning
# Program Overview

## Welcome

<table>
<thead>
<tr>
<th>Time</th>
<th>Location</th>
<th>Details</th>
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<tbody>
<tr>
<td>12:30 P.M.</td>
<td>Concourse</td>
<td>Registration Desk Opens</td>
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<tr>
<td>12:30 P.M.</td>
<td>East Lounge</td>
<td>Refreshments Served</td>
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## Poster Presentations

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<tr>
<th>Time</th>
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<tr>
<td>12:45 P.M. – 2:00 P.M.</td>
<td>Rodney Room</td>
<td>Poster Session 1</td>
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<tr>
<td>2:15 P.M. – 3:30 P.M.</td>
<td>Rodney Room</td>
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## Oral Session 1

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<tr>
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<td>Humanities &amp; Social Sciences</td>
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## Oral Session 2

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<tr>
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A Note on Formatting: Each student is listed in the program in **bold**, followed by their department, their supervising professor and professor’s department, and their project title in *italics*. 

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Poster Presentations

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Oral Session 2

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POSTER SESSION 1

12:45 PM—2:00 PM in the Rodney Room

1:
**Eduardo Arocha**
Exercise Science  
Thomas Kaminski, Kinesiology and Applied Physiology  
The Relationship Between Y-Balance Test Scores and Cumberland Ankle Instability Tool Scores Among Collegiate Athletes

2:
**Branden Bateman**
Biomedical Engineering  
Randal Duncan, Biomedical Engineering  
Effects of IGF-1 on Chondrocyte Morphology in Three Dimensions

3:
**Carly Battistoni**
Chemical and Biomolecular Engineering  
Christopher Roberts, Chemical and Biomolecular Engineering  
Multiple Particle Tracking Microrheology: A Technique for Measuring Protein Solution Viscosity

4:
**Sarah Beamish**
Neuroscience  
Jaclyn Schwarz, Psychological Brain Sciences  
The Impact of Sex and Neonatal Infection on Delays in Novel Object Recognition and Location and Changes in Proinflammatory Gene Expression in Juvenile Rats

5:
**Amy Bednarek**
Athletic Training  
Thomas Buckley, Kinesiology and Applied Physiology  
A Descriptive Analysis of Concussion History and Abnormalities Identified by Vestibular/Ocular Motor Screening Tools

6:
**Corey Beinhart**
Cognitive Science  
Timothy Vickery, Psychology  
Contextual Cueing is Enhanced by Prior Regularities in Search Configurations

7:
**Ryan Beneck**
Electrical Engineering  
Sunita Chandrasekaran, Computer Science  
Optimizing Search and Graph Algorithms Using Parallel Programming Models
12:45 PM—2:00 PM in the Rodney Room

8:
Justin Berg
Biology/Pre-Veterinary Medicine and Animal Biosciences
Amy Biddle, Animal and Food Sciences
Equine Microbiome Project: Understanding the Difference in the Horse Gut Related to Diet

9:
Margaret Billingsley
Biomedical Engineering
Emily Day, Biomedical Engineering
Enhanced Detection of Circulating Tumor Cells Using EGFR-Targeted Nanoshells

10:
Nathaniel Borders
Biological Sciences
Sallie Lachke, Biological Sciences
Functional Characterization of RNA Binding Protein Caprin2 in Mouse Eye Development

11:
John Bounds
Mechanical Engineering
Michela Taufer, Computer Science
Study of Clustering Methods for Food Items in NHANES Datasets

12:
Megan Cain
Environmental Science
Danielle Dixson, Marine Science
Sunscreen Negatively Effects the Development and Survival of the Atlantic Horseshoe Crab, Limulus polyphemus.

13:
Casey Campbell
Electrical Engineering
Fouad Kiamilev, Electrical and Computer Engineering
Stochastic Parallel Gradient Descent

14:
Patrick Canning
Biomedical Engineering
Megan Killian, Biomedical Engineering
Sustained Growth of Mouse Embryonic Limb Buds in Vitro

15:
Tess Carella
Mechanical Engineering
Suresh Advani, Mechanical Engineering
Fabric and Textile 3D Permeability Characterization Workstation
12:45 PM—2:00 PM in the Rodney Room

16:
**EJ Carron**
Mechanical Engineering  
Valery Roy, Mechanical Engineering  
*Simulation, Design and Fabrication of a Torsional Galloping Wind Energy Harvester*

17:
**Johanna Chajes**
Neuroscience  
Tania Roth, Psychological and Brain Sciences  
*Using HDAC Inhibitors to Prevent Maltreatment-Induced Brain DNA Methylation*

18:
**Brian Chambers**
Pre-Vet & Animal Biosciences  
Amy Biddle Animal and Food Science  
*Optimization of Molecular Techniques for the Identification of Small Strongyles*

19:
**Marisa Chamness**
Neuroscience and Psychology  
Dayan Knox, Psychological and Brain Sciences  
*Glucocorticoid Receptor Functionality in the Hippocampus*

20:
**Kanak Chattopadhyay**
Mechanical Engineering  
Suresh Advani, Mechanical Engineering  
*Evaluation of Pore Structures in Partially Saturated Prepregs via Micro-CT*

21:
**Kelly Chen**
Nursing  
Ingrid Pretzer-Aboff, Nursing  
*Parkinson's Disease and Exercise*

22:
**Robert Cipolla**
Chemical and Biomolecular Engineering  
Maciek Antoniewicz, Chemical and Biomolecular Engineering  
*Metabolic Flux Analysis of the Extreme Thermophile Sulfolobus solfataricus*

23:
**Nicole Coffey**
Chemistry, Marine Science  
George Luther, School of Marine Science and Policy  
*Low-Level Soluble Manganese Speciation in Surface Seawater*
12:45 PM—2:00 PM in the Rodney Room

24:
**Louis Colaruotolo**  
Food Science  
Changqing Wu, Animal and Food Science  
*Influences of Pulsed Light on Anthocyanins and Other Compounds in Red Raspberries*

25:
**Shea Cole**  
Chemical Engineering  
Christopher Kloxin, Chemical & Biomolecular Engineering; Materials Science & Engineering  
*Anion & Ligand Effects on Kinetic Behavior of Photopolymerizable CuAAC Networks*

26:
**Charles Collins**  
Chemical Engineering  
Feng Jiao, Chemical Engineering  
*Bimetallic Nanoparticles for Electrochemical Conversion of CO2*

27:
**Shannon Coyle**  
Psychology  
Anjana Bhat, Physical Therapy  
*The Effects of Hippotherapy on Motor Abilities and Social Communication in Children with ASD*

28:
**Natalie Criscenzo**  
Energy & Environmental Policy and Public Policy  
Philip Barnes, Institute for Public Administration  
*Achieving Community Resiliency in Delaware: Local Planning Recommendations*

29:
**Griffen Desroches**  
Chemistry  
Sviilen Bobev, Chemistry and Biochemistry  
*Synthesis & Structural Characterization of RE6Cd23T (RE = La-Gd; T = Sn, Sb, Pb, & Bi)*

30:
**Margaret Donahue**  
Neuroscience  
Amy Griffin, Psychological and Brain Sciences  
*Optogenetic Inhibition of Prefrontal-Reuniens Projections During Working Memory*
12:45 PM—2:00 PM in the Rodney Room

31: Morgan Dukes
Psychology
Robert Simons, Psychological & Brain Sciences
*Behavioral Indices of Preparedness to Deceive Among Habitual Cheaters*

32: Kaitlyn Duong
Biological Sciences
Anja Nohe, Biological sciences
*The Effects of Turmeric Extract on PC12 Cell Adhesion*

33: Nicholas Geneva
Mechanical Engineering
Lian-Ping Wang, Mechanical Engineering
*3D Rayleigh-Benard Convection in a Cylindrical Cell with the Lattice Boltzmann Method*

34: Patrick Geneva
Mechanical Engineering
Guoquan Huang, Mechanical Engineering
*Visual-Inertial Navigation on Mobile Devices with Rolling Shutter Cameras*

35: Danielle Gerstman
Mechanical Engineering
Liyun Wang, Mechanical Engineering
*SimUThor Enhancement for Simulation Study Preparation*

36: Elspeth Grasso
Biomedical Engineering
Fabrizio Sergi, Biomedical Engineering
*Testing MR-Compatibility of the MR-SoftWrist*

37: Sydney Gualtieri
Biological Sciences
John Jungck, Biological Sciences
*Cancerous Tumor Growth Models*

38: Madison Gutekunst
Environmental Engineering
Rodrigo Vargas, Plant and Soil Sciences
*Below Ground Greenhouse Gas Concentrations in the St. Jones Estuary*
39:  
**Alex Kate Halvey**  
Chemical Engineering  
John Rabolt, Materials Science and Engineering  
*Miscibility and Crystallization Behavior of Poly(vinylidenefluoride)/Poly[(R)-3-hydroxybutyrate-co-(R)-3-hydroxyhexanoate] Blends*

40:  
**Nathan Hamilton**  
Chemical Engineering & Computer Science  
John Rabolt, Materials Science & Engineering  
*Discovery of Planar Zigzag Conformation in Mechanically Stretched Films of Biosynthesized and Biodegradable Poly (3-hydroxybutyrate-co-3-hydroxyhexanoate) Random Copolymers*

41:  
**Lauren Harper**  
Biological Sciences  
Anja Nohe, Biological Sciences  
*Ability of CK2 Blocking Peptides to Induce Mineralization and Lipid Droplet Formation in Differentiated C2C12 Cells*

42:  
**Ian Heffner**  
Chemical Engineering  
Eric Furst, Chemical Engineering  
*Microrheology and Differential Dynamic Microscopy of Complex Viscoelastic Materials*

43:  
**Kyle Hinkle**  
Biology  
Matthew Butchbach, Biology  
*Regulation of SMN2 Expression by Novel Small Molecules*

44:  
**Michael Hoffman, Susanna Trost**  
Biology  
Anjana Bhat, Physical Therapy  
*Differences in fNIRS-Based Cortical Activation During Motor Planning/Praxis Tasks Between Children with and without Autism*

45:  
**Katie Holland**  
Biological Sciences with a Concentration in Cell & Molecular Biology and Genetics  
Michele Lobo, Physical Therapy  
*Examining the Effect of the Playskin LiftTM Exoskeletal Garment on Reaching Space in a Toddler with Arthrogryposis Multiplex Congenita*
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<td>47:</td>
<td>Guanyu Hou: Numerical Simulation of Waves in Viscoelastic Media</td>
<td>Guanyu Hou</td>
<td>Francisco J Sayas, Mathematical Sciences</td>
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<tr>
<td>49:</td>
<td>Benjamin Jenkins: Run Size Estimates of Atlantic Sturgeon (Acipenser oxyrinchus oxyrinchus) in the Delaware River</td>
<td>Benjamin Jenkins</td>
<td>Dewayne Fox, Delaware State University Agriculture and Natural Resources</td>
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<td>50:</td>
<td>Zachary Jones: Chemoenzymatic Synthesis of Bioorthogonal Peptidoglycan Derivatives: Tools to Remodel Bacterial Cell Wall</td>
<td>Zachary Jones</td>
<td>Catherine Leimkuhler Grimes, Chemistry and Biochemistry</td>
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<td>51:</td>
<td>Maya Kassoff and Andrea Miller: Water Quality Monitoring in the White Clay Creek Wild and Scenic River Watershed</td>
<td>Maya Kassoff and Andrea Miller</td>
<td>Gerald Kauffman, Delaware Water Resources Center</td>
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<td>52:</td>
<td>Simran Kaur: The Effect of Zebularine on Maternal Caregiving in a Rodent Model of Caregiver Maltreatment</td>
<td>Simran Kaur</td>
<td>Tania Roth, Psychology</td>
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<td>53: Malak Kawan</td>
<td>Neuroscience</td>
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<td>Jeffrey Rosen, Psychological and Brain Sciences</td>
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<td><em>Differential Expression of Immediate Early Genes of Juvenile Rats After Contextual Fear Conditioning</em></td>
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<td>54: Benjamin Kelly</td>
<td>Chemical Engineering</td>
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<td>Michael Klein, Chemical Engineering</td>
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<td><em>Modeling the Production of Deoxygenated Biomass Fast Pyrolysis Oils via Product Recycling</em></td>
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<td>55: Kelley Kempski</td>
<td>Biomedical Engineering</td>
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<td>Jill Higginson, Mechanical Engineering</td>
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<td><em>Interlimb Comparison of Joint Angle Variability Post-Stroke</em></td>
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<td>56: Nathaniel Kim</td>
<td>Mathematics and Economics</td>
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<td>Mahya Ghandehari, Math</td>
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<td><em>Creation of a Four Dimensional Frame using the Fourier Transform</em></td>
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<td>57: Grant Knappe</td>
<td>Chemical Engineering</td>
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<td>Christopher Kloxin, Chemical &amp; Biomolecular Engineering</td>
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<td><em>Novel Mechanophores for Self-Healing and Strengthening Polymer Systems</em></td>
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<td>58: Nicole Kreuzberger</td>
<td>Biomedical Engineering</td>
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<td>Emily Day, Biomedical Engineering</td>
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<td><em>Synthesis of Polyethylenimine (PEI)-Coated Spherical Nucleic Acids for Enhanced siRNA Delivery</em></td>
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<td>59: Varsha Kripalu</td>
<td>Biology</td>
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<td>Freda Patterson, Behavioral Health and Nutrition</td>
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<td><em>A Systems-Approach to Promote Smoking Cessation in Food Pantry Recipients</em></td>
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<td>60: Alexander Kulyk</td>
<td>Biomedical Engineering</td>
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<td>Curtis Johnson, Biomedical Engineering</td>
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<td><em>Quantification of Brain Tumor Stiffness and Heterogeneity from MRE Images</em></td>
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61:
**Mark LaRue**  
Biomedical Engineering  
April Kloxin, Chemical & Biomolecular Engineering  
*Mimicking the Structure of the Extracellular Matrix Using Collagen-Mimetic Peptides*

62:
**Sean Lein**  
Biochemistry  
Ramona Neunuebel, Biology  
*Identification of Phosphoinositide Binding Regions of Legionella pneumophila Effector Proteins*

63:
**Sarah Leung**  
Biomedical Engineering  
Dave Burris, Mechanical Engineering  
*Polyvinyl Alcohol Hydrogels: Interstitial Fluid Pressurization*

64:
**Daniel Liang**  
Computer Science  
Sunita Chandrasekaran, Computer Science  
*Enhancing Performance of Physics Simulations and Linear Algebra Programs Using OpenACC & OpenMP*

65:
**Maria Limmina**  
Biological Sciences  
Fidelma Boyd, Biological Sciences  
*Investigating the Role of Bacterial Cell Wall Modifications in Fitness and Survival*

66:
**Yifeng Liu**  
Computer Engineering  
Chengmo Yang, Electrical & Computer Engineering  
*Complier Based Fault Injection Experiment*

67:
**Jing Luo**  
Dietetics  
Sheau Ching Chai, Behavioral Health and Nutrition  
*Dietary Fatty Acids and Associated with Anxiety and Depression in Older Adults*

68:
**Priyha Mahesh**  
Biological Science  
Melinda Duncan, Biological Sciences  
*Canonical Wnt Signaling In The Developing Eye*
12:45 PM—2:00 PM in the Rodney Room

69:  
Alex Manders  
Chemistry  
Mary Watson, Chemistry and Biochemistry  
*Enantiospecific Allylic Arylations to form Quaternary Stereocenters*

70:  
Grace McIlvain  
Biomedical Engineering  
Curtis Johnson, Biomedical Engineering  
*The Mechanical Properties of the Adolescent Brain*

71:  
Nicole Moylett  
Mechanical Engineering and Japanese  
Joseph Feser, Mechanical Engineering  
*Laser System Spot Size Variance and Optical Enhancement*

72:  
Natalie Muneses  
Biomedical Engineering  
Chandran Sabanayagam, Biotechnology Institute  
*Developing a Micro-fraction Collector Using Fluorescence Microscopy*

73:  
Hallye Rosenbloom  
Biology and Psychology  
Jaclyn Schwarz, Psychology  
*Impact of Sex and Neonatal Infection on Novel Object Recognition and Location at the Onset of Spatial Learning in Juvenile Rats*

74:  
Justin Terr  
Chemical Engineering  
Wilfred Chen, Chemical & Biomolecular Engineering  
*Elastin-Like Peptides (ELPs) for the Simple Purification of Snake Antivenom Peptides*

75:  
Christian Thompson  
Biomedical Engineering  
Curtis Johnson, Biomedical Engineering  
*Stiffness of White Matter Lesions in Multiple Sclerosis*

76:  
Qile Wang  
Mathematics and Economics  
Dominique Guillot, Mathematics  
*Paleoclimate Reconstruction via Modern Data Science*
2:15 PM—3:30 PM in the Rodney Room

1: \textbf{Marisa Bisram}  
Mechanical Engineering  
X. Lucas Lu, Mechanical Engineering  
\textit{The Chondro-Protective Effect of Zoledronate on In Situ Chondrocytes Damaged by Interleukin-1}

2: \textbf{Jesse Bloecker}  
Mechanical Engineering  
Guoquan Huang, Mechanical Engineering  
\textit{Visual-Inertial Navigation with Crazyflie 2.0 Nano-Quadcopter}

3: \textbf{Marc Christian}  
Mechanical Engineering  
Xinqiao Jia, Materials Science and Engineering  
\textit{Vocal Fold Bioreactor Fabrication and Characterization}

4: \textbf{Stephanie Clampitt}  
Mathematics and Economics; Women and Gender Studies  
Sebastian Cioaba, Mathematical Sciences  
\textit{Applications of Mathematics to Economics}

5: \textbf{Collin Clark}  
Computer Engineering / Computer Science  
Sunita Chandrasekaran, Computer Science  
\textit{Parallelizing Bioinformatics and Medical Imaging Applications - A Directive Based Approach}

6: \textbf{Natale DePase, Shailja Gangrade, Cate Medlock}  
Environmental Science (DePase, Medlock)  
Environmental Engineering & Marine Science (Gangrade)  
Gerald Kauffman, Delaware Water Resources Center  
\textit{Fairfield Run Watershed Implementation Plan: UD Arboretum}

7: \textbf{Michael DiMercurio}  
Mechanical Engineering  
Herbert Tanner, Mechanical Engineering  
\textit{Autonomous Quadrotor Control and Stationary Radiation Detection}

8: \textbf{Nicole DiPasquale}  
Statistics  
Sebastian Cioaba, Mathematics  
\textit{Investigations in Network Medicine}
2:15 PM—3:30 PM in the Rodney Room

9:
**Lauren Glinko**  
Geography  
Afton Clarke-Sather, Geography  
*Causes of Change of Irrigation in the Eastern United States*

10:
**Kevin Hrubik**  
Mechanical Engineering  
Liyun Wang, Mechanical Engineering  
*Effects of Perlecan Deficiency on Intervertebral Discs*

11:
**Matthew Hurlock**  
Biochemistry  
Catherine Grimes, Chemistry and Biochemistry  
*Investigation of the ATPase Activity of the Innate Immune Receptor Nod2*

12:
**Christopher Kitson**  
Mechanical Engineering  
Ajay Prasad, Mechanical Engineering  
*Self-Healing Proton Exchange Membrane Electrolyzers for Asteroid Mining Applications*

13:
**Jennifer Lawrence**  
Biological Sciences  
Jaclyn Schwarz, Brain and Psych Sciences  
*An Investigation of Sex Difference in Microglia Morphology and Function*

14:
**Lizzy Marano**  
Psychology  
Julie Hubbard, Psychological & Brain Sciences  
*Gender Differences in Children’s Conversations with Peers*

15:
**Elizabeth Marcin**  
Neuroscience  
Jason Gleghorn, Biomedical Engineering  
*Exploring Myofibroblast Contractility and Protein Expression in Fetal Lung Development*

16:
**Aris Mardirossian**  
Mechanical Engineering  
Erik Thostenson, Mechanical Engineering  
*Mechanism of Carbon Nanotube Film Growth by Electrophoretic Deposition*
2:15 PM—3:30 PM in the Rodney Room

17:
Andrew Mason  
Pre-Veterinary Medicine and Animal Biosciences  
Ryan Arsenault, Animal and Food Sciences  
*Comparison of Immunometabolic Response in Macrophages Infect with Salmonella enteritidis or Salmonella heidelberg*

18:
Naiim Mason  
Linguistics, Cognitive Science, Computer Science  
Irene Vogel, Linguistics and Cognitive Science  
*Systematic and Computational Quantification of Language Differences*

19:
Alex Matachieri  
Marine Science  
Patrick Gaffney, Marine Biosciences  
*Exploring the Different Trematodes Found in the Eastern Mudsnail, Tritia obsoleta, Through DNA Profiling Techniques*

20:
Abraham McIlvaine  
Computer Engineering and Computer & Information Sciences  
Chengmo Yang, Computer Engineering  
*FPGA State Encoding*

21:
Ryan McNulty  
Chemical & Biomolecular Engineering  
Maciek Antoniewicz, Chemical & Biomolecular Engineering  
*Elucidating Synergistic Interactions in Microbial Communities Consisting of Complementary E. coli Auxotrophs*

22:
Rachel Metzgar  
Neuroscience and Biological Sciences  
James Hoffman, Psychological and Brain Sciences  
*How does Emotion Interfere with Attention?*

23:
Lauren Miller  
Neuroscience  
Mark Stanton, Psychological and Brain Science  
*The Ontogeny of Postshock and Retention Freezing Across Variants of Contextual Fear Conditioning*

24:
Alissa Moritz  
Pre-veterinary Medicine and Animal Biosciences  
Eric Benson, Animal and Food Sciences  
*Testing the Efficacy of Several Foam Applied Disinfectants to Inactivate Infectious Bronchitis Virus in the Presence of an Organic Load*
25: 
Emily Moulton  
Neuroscience  
Dayan Knox, Psychological and Brain Sciences  
Glucocorticoid Receptor Function in the mPFC and Amygdala in the Single Prolonged Stress Model 

26: 
Kassandra Moyer  
Animal and Food Science & Agriculture and Natural Resources  
Tanya Gressley, Animal and Food Science  
Characterization of Urea Release Rates from Slow Release Urea Products 

27: 
Laura Mumper  
Chemical and Biomolecular Engineering  
Christopher Kloxin, Chemical and Biomolecular Engineering  
Kinetic Analysis of Thiol-Ene Photo-Polymerization Reactions Incorporating Charged Monomers 

28: 
Clare Murphy  
Dietetics  
Kristin Wiens, Behavioral Health and Nutrition  
Cooking Confidence, Nutrition Behavior and Dietary Intake among College Students Enrolled in an Experiential Cooking Class 

29: 
Kayla Neiderfer  
Pre-Veterinary Medicine and Animal Biosciences  
Tanya Gressley, Animal and Food Sciences  
Impact of Different Buffers on Hindgut Fermentation 

30: 
Jaspal Nijjar  
Physics and Applied Mathematics  
John Clem, Physics and Astronomy  
Radio Emissions from Jupiter and the Galactic Plane 

31: 
John Nixon  
Biomedical Engineering  
Erica Selva, Biological Sciences  
Examining the Dynamic Oligomerization of Wntless 

32: 
John Pfreundschuh  
Mechanical Engineering  
Valery Roy, Mechanical Engineering  
Engineering Analysis of a Torsional Galloping Wind Energy Harvester
2:15 PM—3:30 PM in the Rodney Room

33:
Jacob Piane
Chemistry
Mary Watson, Chemistry
Development of a Nickel-Catalyzed Suzuki Coupling via C-N Bond Activation of Alkyl Amines

34:
Kyle Plusch
Biological Sciences
Deni Galileo, Biological Sciences
Determining the Relationship Between L1CAM and Malignant Glioblastoma Stem Cells

35:
Joseph Rea
Pre-Veterinary Medicine & Animal Biosciences
Ryan Arsenault, Animal and Food Science
Kinome Profiling of Gene Knockout Mutants of Salmonella typhimurium

36:
Courtney Rempfer
Environmental Science
Rodrigo Vargas, Plant and Soil Sciences
Water Property Trends for St. Jones Reserve Salt Marsh in Dover, DE.

37:
Austin Roadarmel
Biological Sciences
David Colby, Chemical and Biomedical Engineering
Implications of Pathological Tau Protein Conformation in Neurodegenerative Disease

38:
Celine Robinson
Environmental Engineering
Rachel Davidson, Civil and Environmental Engineering
Voluntary Home Acquisition to Reduce Hurricane Risk: A Multivariate Analysis

39:
Eric Rouviere
Physics
Ed Lyman, Physics and Astronomy
Automated Identification of Cholesterol Interaction Sites on G-protein Coupled Receptors
2:15 PM—3:30 PM in the Rodney Room

40:  
**Jack Saltwick**  
Chemical Engineering  
Thomas Epps, III, Chemical and Biomolecular Engineering,  
Materials Science and Engineering  
Combining Solvent Swelling and Shear Alignment to Direct Block Polymer Thin Film Self-Assembly

41:  
**Dominic Santoleri**  
Biochemistry & Quantitative Biology  
Sharon Rozovsky, Chemistry and Biochemistry  
Creating Peptide Hydrazides via Intein Splicing for Native Chemical Ligation and Protein Labeling

42:  
**Lakshmi Sastry**  
Pre-veterinary Medicine and Animal Biosciences  
Mark Parcells, Animal Science  
Gibson Assembly of Zika Virus

43:  
**Matt Schmittle**  
Computer Science  
Christopher Rasmussen, Computer & Information Sciences,  
and Dustyn Roberts, Mechanical Engineering  
Drone Navigation using Deep Learning

44:  
**Ilana Schnaufer**  
Chemistry and Environmental Science  
Delphis Levia, Geography  
Variations in the Residence Time and Isotopic Signature of Stemflow Along an Edge-to-Interior Transect

45:  
**Tyler Seidel**  
Chemical Engineering  
Paul Imhoff, Civil and Environmental Engineering  
Examining the Effect on Water Retention of Soils Amended with Biochar

46:  
**Amanda Seiwell, Erin Tellup**  
Secondary Mathematics Education  
Michelle Cirillo, Mathematics  
Proof in Secondary Classrooms

47:  
**Jesse Semmel, Andrew Kacmarcik**  
Electrical Engineering  
Dennis Prather, Electrical Engineering  
Design and Demonstration of a Wireless Communication System
2:15 PM—3:30 PM in the Rodney Room

48:
Zachary Sexton
Biomedical Engineering
Jason Gleghorn, Biomedical Engineering
Developing Microfluidic Models for Fluid Stresses in Complex Epithelial Networks

49:
Connor Shannon
Biomedical Engineering
Millicent Sullivan, Chemical and Biomolecular Engineering
Covalent Crosslinking H3 tails and PEI for Gene Delivery Purposes

50:
Jacob Shapiro
Chemical Engineering
David Colby, Chemical and Biomolecular Engineering
Using cDNA Libraries to Find Prion Protein-Protein Interactions with Body Tissue

51:
Jacob Shelton
Environmental Studies
Maria Pautler, Plant and Soil Sciences
Sustained Water Quality Monitoring of Possum Creek and Noxontown Pond, Delaware

52:
Emily Smith
Biological Sciences
Michele Lobo, Physical Therapy
Upper Extremity Exoskeletons and Their Effects on the Mobility of Toddlers with Arthrogryposis Multiplex Congenita

53:
Joseph Spohn
Biomedical Engineering
April Kloxin, Chemical Engineering
Understanding Fibroblast Response to Cell Polarization Using Layered Hydrogels

54:
Joshua Sporre
Mathematics
Tobin Driscoll, Mathematics
Dimension Reduction for Stochastic ODEs Using Active Subspaces

55:
Peter Spurrell
Biology
Thomas Kaminski, Kinesiology and Applied Physiology
A Comparative Analysis of CAIT and BESS Outcomes
2:15 PM—3:30 PM in the Rodney Room

56: Morgan Spurrier
Cognitive Science
Joshua Neunuebel, Psychological and Brain Sciences
Sex Differences in the Acoustic Structure of Mouse Ultrasonic Vocal Signals

57: Benjamin Steenkamer
Computer Engineering
Fouad Kiamilev, Electrical and Computer Engineering
Designing a New Amplifier for the SLEDS Projection System

58: Jason Stevens
Mechanical Engineering
Dustyn Roberts, Mechanical Engineering
This Machine Kills Fascists: A Guitar Playing Robot

59: Alexander Stubbolo
Biological Sciences
Deni Galileo, Biological Sciences
Does L1CAM Provide Chemotactic Signals That Instruct Migrating Glioblastoma Cells?

60: Laura Sturgill
Biomedical Engineering
John Slater, Biomedical Engineering
Antibody Treatment of Endothelial Cells to Inhibit Circulating Tumor Cell Docking

61: Megan Tessier
Dietetics
Kristin Wiens, Behavioral Health and Nutrition
Eating Away from Home Frequency Before and After an Experiential Cooking Class

62: Junius Thomas
Biochemistry
John Koh, Chemistry & Biochemistry
Design & Synthesis of Potential NSD1 Inhibitors for Pediatric Leukemia

63: Tyler Tice
Athletic Training
Karin Silbernagel, Physical Therapy
Changes In Gait Pattern and Triceps Surae Activity in Immobilization Boots
2:15 PM—3:30 PM in the Rodney Room

64:
**Dunia Tonob**  
Anthropology  
Melissa Melby, Anthropology; Behavioral Health and Nutrition  
*Patient Satisfaction and Use of Complementary and Alternative Medicine in China and the United States*

65:
**Amy Trask, Emily Wunsch**  
Exercise Science  
Nancy Getchell, Kinieseology and Applied Physiology  
*Contextual Interference Effect: Motor Learning in Adults vs. Children*

66:
**Alison Treglia**  
Environmental Engineering & Music  
Julia Maresca, Civil Engineering  
*Role of Carotenoid Compounds in Oxidative Stress Response in Bacteria Isolated From Concrete*

67:
**Abi Vanover**  
Energy and Environmental Policy, Economics  
John Byrne, Center for Energy and Environmental Policy  
*The Case for Alternatives: Movement Beyond the Car in the U.S.*

68:
**Wenxin Wang**  
Chemical Engineering  
Douglas Buttrey, Chemical and Biomolecular Engineering  
*Synthesis and Characterization of Mo-V-Nb-Te-O M1 Catalysts*

69:
**Hannah Wastyk**  
Biochemistry  
Catherine Grimes, Chemistry and Biochemistry  
*Critical Contact Region of Hsp70 Stabilizes Crohn’s Disease Variants of Nod2*

70:
**Alexis Webb**  
Physics  
Edward Lyman, Physics and Astronomy  
*Computational Calorimetry and the Martini Force Field*

71:
**Nicole Wenzell**  
Biochemistry  
Neal Zondlo, Chemistry and Biochemistry  
*Steric and Electronic Control of an n → n*⁺* interaction: α-Helix and Polyproline Helix Conformations in Dipeptides*
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<td>72:</td>
<td>Tribologically Induced Articular Cartilage Recovery</td>
<td>Michael Whiting, Mechanical Engineering; David Burris, Mechanical Engineering</td>
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<td>73:</td>
<td>Synthesis and Characterization of Bio-based Polymers</td>
<td>George Wieber, Chemical Engineering; Thomas Epps, Chemical Engineering</td>
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<td>74:</td>
<td>Purinergic Signaling in Bone as a Potential Mechanism in Prostate Cancer Proliferation and Cancer-Induced Bone Pain</td>
<td>Michael Wilson, Biological Sciences; Mary Boggs, Biological Sciences</td>
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<td>75:</td>
<td>Variable Regulation of Silicon Transporter Gene Expression in Rice</td>
<td>Patrick Wise, Biology, History; Angelia Seyfferth, Plant &amp; Soil Sciences</td>
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<td>76:</td>
<td>Determining the Electron Storage Capacities of Black Carbon and Other Geochemical Constituents through Chemical Redox Titration</td>
<td>Minghan Xian, Chemical Engineering; Pei Chiu, Civil and Environmental Engineering</td>
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<td>77:</td>
<td>E. coli Endotoxin Activates Proinflammatory Cytokine Secretion in Immune Cells of Bovine Spleen and Mesenteric Adipose Tissue</td>
<td>Natalie Zelenky, Pre-Vet and Animal Biosciences; Robert Dyer, Animal and Food Sciences</td>
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12:45 P.M.—2:00 P.M.
Location: Ewing Room
Moderator: Dr. Jason Gleghorn

Liz Racca
Mechanical Engineering
Dustyn Roberts, Mechanical Engineering
Transportation Networks and How Pathfinding Algorithms Can Inform Public Policy

Cameron Mertz
Chemical Engineering
Norman Wagner, Chemical Engineering
An Experimental Study on the Viscosity of Multimodal Suspensions

Peter Sariano
Biomedical Engineering
Jason Gleghorn, Biomedical Engineering
Engineering a 3D Model of the Airway with Contractile Smooth Muscle
12:45 P.M.—2:00 P.M.
Location: Williamson Room
Moderator: Dr. Kristen Poole

Rebecca Glinn
Women and Gender Studies, Public Policy
Jennifer Naccarelli, Women and Gender Studies
The Role of Pornography in Understanding Consent

Sam Katz
Psychology
Jared Medina, Psychological and Brain Sciences
Integrating Proprioceptive, Visual, and Tactile Information in the Mirror Box Illusion

Mengzheng Yao
Sociology, Asian Studies, Geography
Ivan Sun, Sociology and Criminal Justice
The Impact of Socialization Preferences on Perceptions of Generalized Social Trust in China

Alexa Meinhardt
Biological Sciences
Allison Karpyn, Human Development and Family Sciences
Understanding the Social Determinants of Health in Underserved Communities: A Community Needs Analysis
**Biology**

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| 2:15 P.M.—3:30 P.M. | Location: Ewing Room  
Moderator: Judi Smith  

**Shelby Roseman**  
Chemistry  
John Koh, Chemistry and Biochemistry  
*AF4-AF9 Protein-Protein Interaction Inhibitor: Synthesis and Biological Evaluation*

**William Keilsohn**  
Entomology and Marine Science  
Doug Tallamy, Entomology and Wildlife Conservation  
*The Effects of Roadside Habitat on Insect Traffic Mortality*

**Arvind Annamalai**  
Chemistry and Biology  
Neal Zondlo, Chemistry and Biochemistry  
*Probing the Structural Effects of Ser/Thr OGlcnAcylation and Phosphorylation on Alpha Helical Stability*
Technology & Economics

2:15 P.M.—3:30 P.M.
Location: Williamson Lounge
Moderator: Matthias Seisay

Margaret Mary Rilling
Accounting
David Jenkins, Accounting & MIS
Beyond the Spreadsheets: An Analysis of Undergraduate Accounting Education in America

Xingguo Wang
Economics
Simulation Study (Monte Carlo) on the Different Types of Property Taxes in Matlab

Zachary Senzer
Computer Science
Lori Pollock, Computer Science
Automatically Identifying Goals and Symptoms from Software Developer Q&A Forums
The Celebration of Undergraduate Engaged Scholarship would not have been possible without the following people at the Undergraduate Research Program:

Dr. Kristen Poole, Faculty Director,
Dr. Lauren Barsky, Associate Director,
Mary Ann Null, Coordinator,
Judi Smith, Program Coordinator,
Victoria Sunnergren, Graduate Assistant,
Krysta La Bruna, Program Assistant.

A special thank you to the undergraduate researchers who participated in today’s program, and to all the University of Delaware faculty who make this work possible.

Program designed, organized, and edited by Victoria Sunnergren.