6th Annual FALL FRONTIERS

UNDERGRADUATE RESEARCH POSTER EXHIBITION

October 24, 2018
5:00 - 7:00 p.m.
Wilbur Cross North Reading Room
**About Frontiers in Undergraduate Research**

The Fall Frontiers Poster Exhibition is a multidisciplinary research forum showcasing undergraduate research, scholarship, and creative projects at the University of Connecticut. Fall Frontiers complements the longstanding spring Frontiers exhibition, providing an additional opportunity for UConn’s student researchers to share their exciting work. This is the sixth fall event sponsored by the Office of Undergraduate Research (OUR). This year’s exhibition includes 68 students presenting posters for 64 research and creative projects.

Students’ projects span the disciplines and include both independent research and work pursued in collaboration with other undergraduates. The projects presented reflect the invaluable contributions of research mentors, including graduate students, postdoctoral scholars, staff, and faculty members. We hope you enjoy meeting our wonderful students and learning about their innovative projects.

**About the Office of Undergraduate Research**

The Office of Undergraduate Research is a resource for students interested in enriching their undergraduate experience through participation in research, scholarship, and creative activity. The OUR provides information and advising to assist students in identifying relevant opportunities, as well as several funding programs to support the students and their faculty mentors.

Many of the Fall Frontiers presenters have received financial support for their projects from the OUR, which awarded over $500,000 in 2017-18 in support of students’ research and creative endeavors. These awards are funded by the Office of Undergraduate Research with generous support from the Office of the Provost, the Office of the Vice President for Research, the Deans of the schools and colleges, and private donations from alumni, parents, and other friends of UConn and undergraduate research.
6th Annual Fall Frontiers Poster Exhibition

Poster Exhibition
Wednesday, October 24, 2018
5:00 p.m. – 7:00 p.m.

Speaking Program
5:30 p.m.

Welcome and Introductions

Caroline McGuire
Director, Office of Undergraduate Research

Keynote Speaker

Craig H. Kennedy
Provost and Executive Vice President for Academic Affairs

Closing Remarks

Jennifer Lease Butts
Assistant Vice Provost, Enrichment Programs, and Director, Honors Program
Student Posters and Presenters

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 postdoctoral scholars.

1. Food Awareness in an Agriculturally Rich Community
Abigail LaFontan, Political Science
Advisor: Phoebe Godfrey, Associate Professor in Residence, Sociology

2. Bringing Diversity to the Post-Apocalypse: Rethinking Young Adult Fiction
Amelia Bowman, Individualized Major in Young Adult Fiction: Identity and Diversity
Advisor: Victoria Smith, Associate Professor, English

3. "Living History": Why History Matters Today
Rohit Kandala, History
Advisor: Frank Costigliola, Distinguished Professor, History
Advisor: Alan Marcus, Associate Professor, Curriculum and Instruction

4. Controversial Mascots: Sports and Native American Imagery
Rachel Roach, History and Africana Studies
Advisor: Fiona Vernal, Associate Professor, History and Africana Studies

5. A Comparative Study: The Socioeconomic Integration of Second Generation MENA Immigrants
Mateen Karimi, Management – Entrepreneurship
Advisor: Delia Furtado, Associate Professor, Economics

6. Assessing American Teenagers’ Perspectives on the Police
Olivia Sykes, Urban and Community Studies and Human Rights
Advisor: Edith Barrett, Professor and Associate Dean, Public Policy and Urban and Community Studies
7. “Real vs. Reel”: Lessons of Chicago P.D. in the Current Social Climate of Increased Police Brutality
Amy Saji, Political Science and Individualized Major: Inequality, Law and Society
Advisor: Kimberly Bergendahl, Assistant Professor in Residence, Political Science
Advisor: Jennifer Sterling-Folker, Alan R. Bennett Honors Professor and POLS Honors Director, Political Science

Shankara Narayanan, Political Science and History
Advisor: Alexander Anievas, Assistant Professor, Political Science

9. Candidacies and Nominations of Minorities in House Elections
Nicole Lac, Political Science
Advisor: Paul Herrnson, Professor, Political Science

10. Behavioral Biases in People at Risk for Problematic Gambling and Pornography Use
Skyler Sklenarik, Psychological Sciences
Mirella Fernandez, Physiology and Neurobiology
Callista Love, Physiology and Neurobiology
Advisor: Robert Astur, Associate Professor, Psychological Sciences

11. Understanding “Thunder” is More Difficult than “Rainbow” when Performing a Concurrent Auditory Task
Roisin Healy, Psychological Sciences
Advisor: Eiling Yee, Assistant Professor, Psychological Sciences

12. Impact of Sentence Structure on Perception of Prosody
Austin Kern, Psychological Sciences
Advisor: Roeland Hancock, Assistant Research Professor, Psychological Sciences

13. Implementation of a Pharmacy Student-Led Transitions of Care Program
Kaitlyn McCarthy, Pharmacy
Advisor: Stephanie Gernant, Assistant Professor, Pharmacy Practice
14. Psychosocial Factors Influence Pain and Quality of Life in Young Adults with Irritable Bowel Syndrome
Tessa Weidig, Nursing
Advisor: Xiaomei Cong, Associate Professor, Nursing

15. Women Candidate Emergence and Successes in 2018 House Elections
Kyle Adams, Political Science and Economics
Advisor: Paul Herrnson, Professor, Political Science

Erin Dennehy, Political Science
Advisor: Virginia Hettinger, Associate Professor, Political Science

17. Histological Analysis of Brain and Lung Tissue
 Emmalyn Lecky, Psychological Sciences and Biological Sciences
 Alexela Hoyt, Physiology and Neurobiology
 Advisor: Ephraim Trakhtenberg, Assistant Professor, Neuroscience, UConn Health

18. Thioredoxin-1 Engineered Exosome Enhances Cardiac Function Following Myocardial Infarction
Abhishek Gupta, Molecular and Cell Biology and Sociology
Advisor: Nilanjana Maulik, Professor, Surgery, UConn Health
Advisor: Mahesh Thirunavukkarasu, Assistant Professor, Surgery, UConn Health

19. Undergraduate Nursing Students' Perspectives of Witnessed Simulated Cardiopulmonary Resuscitation and Death in a Patient with an Eating Disorder and Opioid Addiction
Justin Pedneault, Nursing
Advisor: Carrie Eaton, Assistant Professor and Director of Simulation Education, Nursing
20. Retrospective Study of Risk Factors and Temporal Trends of Necrotizing Enterocolitis
Darius Javidi, Molecular and Cell Biology and Spanish
Advisor: Naveed Hussain, Associate Professor, Neonatology, UConn Health

21. Defining the Structural Features of VAI RNA Required for PKR Inhibition
Mitchell Godin, Molecular and Cell Biology
Advisor: James Cole, Professor, Molecular and Cell Biology

22. Characterizing the Interactions between Drosophila melanogaster Gut Microbes and Pseudomonas entomophila
Sthefany Calle, Biological Sciences
Advisor: Nichole Broderick, Assistant Professor, Molecular and Cell Biology

23. Impact of Impaired Polyamine Transport and Synthesis on Pneumococcal Growth Under pH Stress
Mirghani Mohamed, Molecular and Cell Biology
Advisor: Bindu Nanduri, Professor, Basic Sciences, College of Veterinary Medicine, Mississippi State University

24. Isolating Compounds that Inhibit EV 71 Virus
Giridhar Murali, Molecular and Cell Biology
Advisor: Simon White, Assistant Professor, Molecular and Cell Biology

25. Indy Reduction Maintains Intestinal Stem Cell Homeostasis and Extends Healthy Lifespan
Michael Li, Exercise Science
Jacob Macro, Biological Sciences
Advisor: Blanka Rogina, Associate Professor, Genetics and Genome Sciences, UConn Health

26. Investigating the Role of Sema3D and KPC Cell Exposure on Dorsal Root Ganglion Neurite Outgrowth
Eric Pan, Biomedical Engineering
Advisor: Lei Zheng, Associate Professor, Oncology, Johns Hopkins University School of Medicine
27. A New Model for Assessing the Role of CDC73 in the Context of wnt/beta-catenin Signaling
Ryan Ramos, Molecular and Cell Biology and Psychological Sciences
Advisor: Jessica Costa, Assistant Research Professor, Center for Molecular Oncology, UConn Health

28. Cerebellar Neurogenesis
Elliott Wilion, Physiology and Neurobiology and Molecular and Cell Biology
Advisor: James Li, Professor, Genetics and Genome Sciences, UConn Health

29. The Distribution of Iodine Nanoparticles in Advanced Human Glioma (U87) in the Mouse Brain
Ferris El-tayyeb, Biological Sciences
Advisor: Henry Smilowitz, Associate Professor, Cell Biology, UConn Health

Caroline Thompson, Biomedical Engineering
Advisor: Carol Pilbeam, Professor, Medicine and Orthopedics and Director, M.D./Ph.D. Combined Degree Program, UConn Health
Advisor: Shilpa Choudhary, Research Associate, Medicine and Orthopedics, UConn Health

31. Histological Features of Small Intestine from Sickle Cell Diseased Mice
Sara Tavakoli, Molecular and Cell Biology
Advisor: Liping Xiao, Assistant Professor, Medicine and Psychiatry, UConn Health

32. Exosomes Derived from Mouse Pituitary Corticotrope Cells Reveal Presence of PAM and V-ATPase
Patrick Cantwell, Molecular and Cell Biology
Advisor: Vishwanatha Rao, Assistant Professor in Residence, Neuroscience, UConn Health
33. Collection of AMFR Data and its Potential Use for the Detection of Tinnitus
Grace Nichols, Molecular and Cell Biology
Advisor: Douglas Oliver, Professor, Neuroscience, UConn Health

34. Comparison of Chitosan Hydrogel Beads Made with Different Crosslinkers
Syed Naqvi, Biological Sciences
Advisor: Yangchao Luo, Assistant Professor, Nutritional Sciences

35. Development and In Vitro Characterization of Enteric Coated Chitosan Microspheres for Crohn’s Disease Management
Craig Mendonca, Physiology and Neurobiology and Molecular and Cell Biology
Advisor: Diane Burgess, Distinguished Professor, Pharmaceutical Sciences

36. The Effect of Itraconazole on Smoothed Localization in the Primary Cilium
Shana Morel, Molecular and Cell Biology
Advisor: Kyle Hadden, Associate Professor, Pharmaceutical Sciences
Advisor: Andrew Wiemer, Associate Professor, Pharmaceutical Sciences

37. Study of Molecular Parasites Using Genetic Data
Ray Guerrero, Structural Biology and Biophysics and Human Rights
Advisor: J. Peter Gogarten, Distinguished Professor, Molecular and Cell Biology

38. The Hunt for Rare Genes in Salty Communities
Marlene Abouaassi, Molecular and Cell Biology and Sociology
Advisor: J. Peter Gogarten, Distinguished Professor, Molecular and Cell Biology

39. The Effect of Hyperbaric Oxygen on the Proliferation and Differentiation of MC3T3-E1 Cells
Katherine Russo, Biomedical Engineering
Advisor: Syam Nukavarapu, Associate Professor, Biomedical Engineering and Orthopedic Surgery, UConn Health
40. Characterization of Bone Phenotype in Proteoglycan-4 Deficient Mice
Paige Woods, Biomedical Engineering
Advisor: Tannin Schmidt, Associate Professor, Biomedical Engineering, UConn Health

41. Characterization of Structural and Mechanical Changes to CD-1 Mouse Femurs Post Diet Induced Metabolic Acidosis
Kathryn Morozov, Biomedical Engineering
Advisor: Alix Deymier, Assistant Professor, Biomedical Engineering, UConn Health

42. Novel Polymer-Nanotube Composites: Small Molecule Drug Delivery Systems for Peripheral Nerve Regeneration
Jiana Baker, Physiology and Neurobiology
Advisor: Sangamesh Kumbar, Associate Professor, Orthopedic Surgery, UConn Health
Advisor: Swetha Rudraiah, Assistant Professor, Pharmacy, University of Saint Joseph

43. Binary Image Classification of X-ray Scattering Diffraction Patterns of Au Nanoparticles via Deep Neural Networks
Roddy Taing, Physics and Mathematics
Advisor: Carlos Trallero, Associate Professor, Physics

44. Experimental Generation and Characterization of Non-Interfering Bessel-like Beams
Richard Sadlon, Physics
Edward McManus, Physics and Mathematics
Advisor: Carlos Trallero, Associate Professor, Physics

45. A Brain Computer Interface to Operate a Boe-Bot Robot via Mono-Channel EEG Signals
I'jaaz Muhammad, Biomedical Engineering
Advisor: Sabato Santaniello, Assistant Professor, Biomedical Engineering
46. Functionally-Grated Apatite Coatings for Percutaneous Implants
Ameen Kalkhoran, Biomedical Engineering
Advisor: Mei Wei, Professor and Associate Dean, Materials Science and Engineering
Advisor: Arash Aslani, Staff Scientist, N2 Biomedical
Advisor: Sujee Jeyapalina, Adjunct Assistant Professor, Surgery, University of Utah

47. Understanding Dielectric Breakdown through Incorporating Defects into Poly-ether-imides
Jeffrey Lockwood, Chemistry
Advisor: Gregory Sotzing, Professor, Chemistry and Institute of Materials Science

48. Synthesis of HaloTag Voltage-Sensitive Dyes for Cell-Specific Imaging
Elyse Estra, Chemistry
Advisor: Ping Yan, Assistant Professor, Center for Cell Analysis and Modeling, UConn Health

49. Metal Binding Motifs in the Antimicrobial Peptide Gaduscidin-1
Kara Heilemann, Pathobiology
Advisor: Alfredo Angeles-Boza, Associate Professor, Chemistry

50. Evaluating the Binding Affinity of Zn2+ to the Antimicrobial Peptide Clavanin A
Richmond Apore, Biological Sciences and History
Advisor: Alfredo Angeles-Boza, Associate Professor, Chemistry

51. Electrochemical Reduction of CO2 Catalyzed by Re(pyridine-thiolate)
Murphy Jennings, Chemistry
Advisor: Alfredo Angeles-Boza, Associate Professor, Chemistry
Advisor: Daniel Rabinovich, Professor, Chemistry, UNC Charlotte
52. Preparation of Electrically Conductive Graphene Emulsions
Ian George, Medical Laboratory Sciences
Advisor: Douglas Adamson, Professor, Chemistry and Institute of Materials Science

53. Software Methods to Track Sleep Behavior of C. Elegans
Liam Connelly, Biomedical Engineering
Advisor: Zhao-Wen Wang, Professor, Neuroscience, UConn Health

54. Instructional Drone Project
Gregory Grasso, Mechanical Engineering
Stephen Price, Mechanical Engineering and German
Advisor: Jason Lee, Assistant Professor in Residence, Mechanical Engineering

55. Road Salt Impact on Carbon Mineralization in Roadside Forested Wetland
Yi Liu, Environmental Sciences
Advisor: Beth Lawrence, Assistant Professor, Natural Resources and the Environment

56. Streamlining Feature Representation Methods in Thunderstorm Power Outage Prediction
Berk Alpay, Computer Science and Mathematics
Advisor: Emmanouil Anagnostou, Professor, Civil and Environmental Engineering

57. Increasing Bridge Lifespan in Rural Areas using Artificial Neural Networks
Xinyu Lin, Civil Engineering
Advisor: Joshua Steelman, Assistant Professor, Civil Engineering, University of Nebraska-Lincoln

58. TreeFix-VP: Phylogenetic Error-Correction for Viral Transmission Network Inference
Samuel Sledzieski, Computer Science
Advisor: Mukul Bansal, Assistant Professor, Computer Science and Engineering
Advisor: Ion Mandoiu, Professor, Computer Science and Engineering
59. Curation, Identification and Sequencing of Tettigadini
Fajar Alam, Molecular and Cell Biology
Advisor: Chris Simon, Professor, Ecology and Evolutionary Biology

60. The Effect of Temperature on Developmental Resistance to Parasitic Nest Flies in Two Species of Bird
Lauren Albert, Ecology and Evolutionary Biology
Advisor: Sarah Knutie, Assistant Professor, Ecology and Evolutionary Biology

61. Comparison of Skull Size in Sympatric and Allopatric Fishers (Martes pennanti) and American Martens (Martes americana)
Matthew Brandt, Ecology and Evolutionary Biology
Advisor: Miranda Davis, Assistant Professor in Residence, Ecology and Evolutionary Biology
Advisor: Tom Harrington, Adjunct Faculty, Ecology and Evolutionary Biology
Advisor: Eric Schultz, Professor, Ecology and Evolutionary Biology

62. Crypsis in Simple Systems: Do Brown Trout Background Match in Controlled Experiments?
Mackenzie Watkins, Ecology and Evolutionary Biology
Advisor: Margaret Rubega, Professor, Ecology and Evolutionary Biology

63. The Effects of Poor Maternal Nutrition on Fetal Brain Development
Lauren Engels, Animal Science
Advisor: Kristen Govoni, Associate Professor, Animal Science

64. The Monster and the Mob: Exploring Otherness through the Art of Horror
Kat Folker, Puppetry
Advisor: Bart Roccoberton, Professor, Dramatic Arts
Advisor: John Bell, Professor and Director, Ballard Institute and Museum of Puppetry
Advisor: Lewis Gordon, Professor, Philosophy
Alphabetical Listing of Presenters with Poster Numbers

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Special Thanks

The Office of Undergraduate Research wishes to thank the deans of the represented schools and colleges, the Office of the Provost, the Office of the Vice President for Research, and the generous donors to the Honors Program for their support of undergraduate research. In addition, we thank the following individuals for their support:

Susan Herbst, President, University of Connecticut

Craig H. Kennedy, Provost and Executive Vice President for Academic Affairs

John Volin, Vice Provost for Academic Affairs

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

Student Volunteers for the Fall Frontiers Poster Exhibition

Office of Undergraduate Research

Caroline McGuire, Director, Office of Undergraduate Research

Melissa Berkey, Assistant Director, Office of Undergraduate Research

Jodi Eskin, Program Coordinator, Office of Undergraduate Research

Rowena Grainger, Health Research Program Advisor, Office of Undergraduate Research

860-486-7939
our@uconn.edu
ugradresearch.uconn.edu