

UNDERGRADUATE RESEARCH POSTER EXHIBITION

October 24, 2018

5:00 - 7:00 p.m.

Wilbur Cross North Reading Room

Sponsored by the University of Connecticut

Office of Undergraduate Research Enrichment Programs

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

8. American Imperium: The Rise and Decline of U.S. Global Power

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

16. Justice in the Dark: How Secretively Funded Campaign Advertisements Shape Judicial Campaigns

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

30. Serum Amyloid A3: The What, Why, and Where

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 Nagvi, 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 Smoothened 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

l'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(pyridinethiolate)

Murphy Jennings, Chemistry

Advisor: Alfredo Angeles-Boza, Associate Professor, Chemistry Advisor: Daniel Rabinovich, Professor, Chemistry, UNC Charlotte

52. Preparation of Electrically Conductive Graphene Emulsions

lan 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

Abouaassi, Marlene – 38 Adams, Kyle - 15 Alam, Fajar – 59 Albert, Lauren – 60 Alpay, Berk – 56 Apore, Richmond – 50 Baker, Jiana – 42 Bowman, Amelia – 2 Brandt. Matthew – 61 Calle, Sthefany – 22 Cantwell, Patrick – 32 Connelly, Liam – 53 Dennehy, Erin – 16 El-tayyeb, Ferris – 29 Engels, Lauren – 63 Estra, Elyse – 48 Folker, Kat – 64 George, lan – 52 Godin, Mitchell - 21 Grasso, Gregory – 54 Guerrero, Ray – 37 Gupta. Abhishek – 18 Healy, Roisin – 11 Heilemann, Kara – 49 Hoyt, Alexela – 17 Javidi, Darius – 20 Jennings, Murphy – 51 Kalkhoran, Ameen – 46 Kandala, Rohit – 3 Karimi, Mateen - 5 Kern, Austin – 12 Lac. Nicole - 9 LaFontan, Abigail - 1 Lecky, Emmalyn – 17 Li, Michael – 25 Lin, Xinyu – 57 Liu, Yi – 55 Lockwood, Jeffrey - 47 Macro, Jacob – 25 McCarthy, Kaitlyn - 13

McManus, Edward – 44 Mendonca, Craig – 35 Mohamed, Mirghani – 23 Morel, Shana – 36 Morozov, Kathryn - 41 Muhammad, l'jaaz – 45 Murali, Giridhar – 24 Nagvi, Syed – 34 Narayanan, Shankara – 8 Nichols, Grace – 33 Pan, Eric – 26 Pedneault, Justin – 19 Price, Stephen – 54 Ramos, Ryan – 27 Roach, Rachel – 4 Russo, Katherine – 39 Sadlon, Richard – 44 Saji, Amy - 7 Sklenarik, Skyler - 10 Sledzieski, Samuel – 58 Sykes, Olivia – 6 Taing, Roddy – 43 Tavakoli, Sara – 31 Thompson, Caroline – 30 Watkins, Mackenzie – 62 Weidig, Tessa – 14 Wilion, Elliott – 28 Woods, Paige – 40

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:

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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

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