10th Annual Fall Undergraduate Research Festival

Wednesday, November 13, 2019
4:30-6:30 PM

University of Iowa
University Capitol Centre
2nd Floor South Atrium
Iowa City, Iowa
This event is hosted by the Iowa Center for Research by Undergraduates. ICRU promotes undergraduate involvement with faculty and staff in research and creative projects at the University of Iowa.

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**2019-2020 ICRU Events and Opportunities**

Excellence in Undergraduate Research Award
February 4, 2020

Distinguished Mentor Award
February 4, 2020

Summer ICRU Fellowship Apps Due
March 6, 2020

Academic Year Fellowship Apps Due
March 30, 2020

Research in the Capitol
March 24, 2020

Spring Undergraduate Research Festival
April 15, 2020

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ICRU’s Fall Undergraduate Research Festival (FURF) is proud to showcase visual presentations focusing on the research and creative work performed by undergraduates at the University of Iowa. Presenters work in over 40 different departments and major in over 35 different disciplines, representing a broad range of sciences, arts, and humanities.

Odd numbered posters present 4:30-5:30 PM
Even numbered posters present 5:30-6:30 PM

**Please note that at 5:30, all of the boards will be turned around to display even numbered (the second hour presenters’) posters**

Many thanks to all of the people who make both ICRU and FURF a possibility:

- All undergraduates presenting their work
- All poster judges
- All mentors of undergraduate researchers
- The Office of the Provost
- The Office of the Vice President for Research
- ICRU Research Ambassadors.
4:30-5:30 Presenters & Poster Numbers

Click presenter name/number to view abstract

Click here to jump to 5:30-6:30 presenter list

1 - Madison Anae
Understanding Magma Ascension Using Major and Minor Element Diffusion of Olivine, Pupuke Maar, Auckland Field, New Zealand
Major: Geoscience
Mentor: Ingrid Ukstins (Earth and Environmental Sciences)

3 - Angela Benton
Investigating the neural crest gene regulatory network: identification of an enhancer nearby tfap2a
Major: Biochemistry
Mentor: Robert Cornell (Anatomy and Cell Biology)

5 - Maxwell Bernstein
MGF Data and the Angle of Attack of Cassiope-ePOP Against Field Aligned Currents
Major: Journalism
Mentor: David Miles (Physics and Astronomy)

7 - Aimee Butler
Disulfiram induces radio-chemo-sensitization in small cell lung cancer and enhances the toxicity of thioredoxin reductase inhibition and GSH depletion
Major: Microbiology
Mentor: Douglas Spitz (Free Radical and Radiation Biology), Melissa Fath (Free Radical and Radiation Biology)

9 - Kevin Chen
Role of Iron Storage Deficiencies in the Development of Preeclampsia
Major: Human Physiology
Mentor: Mark Santillan (Obstetrics and Gynecology)
11 - Tartil Ali
The Outcome of Epilepsy Surgery in Patients with History of Traumatic Brain Injuries
Major: Psychology
Mentor: Kenneth Manzel (Neurology)

13 - Sydney DeBoer
In Our Schools, In Our Stores, and In Our Homes; The Office of Price Administration, 1941-1947
Major: History, Social Studies Education
Mentor: Colin Gordon (History)

15 - Sarah DeLong-Duhon
Unraveling a taxonomic mystery: Exploring species boundaries within Stereum fungi
Major: Environmental Science
Mentor: Andrew Forbes (Biology)

17 - Alex Dobrila
c-di-GMP: secondary messenger signaling and its importance for surface colonization by Vibrio parahaemolyticus
Major: Microbiology
Mentor: Linda McCarter (Microbiology)

19 - Caroline Fantz
Gender Identity and Expression in Individuals with Intellectual Disability
Major: Nursing
Mentor: Melissa Lehan Mackin (Nursing)

21 - Dustin Fykstra
LJA5: A novel population of itch and pain-suppressing brainstem neurons
Major: Biomedical Sciences
Mentors: Alexander Bassuk (Pediatric Neurology) & Lindsay Agostinelli (Pediatric Neurology)

23 - Maria Greufe
Effects of Cerebellar Activity of Cocaine-Seeking Behavior
Major: Neuroscience
Mentor: Ryan Lalumiere (Psychological and Brain Sciences)
25 - Kinsey Gudenkauf
*Thermal Changes in Ionic Liquid Solutions Probed by Differential Scanning Calorimetry*
Major: Biochemistry
Mentor: Scott Shaw (Chemistry)

27 - Emma Hartke
*Examining the Coincidence of Organic and Carbonate Carbon Isotope Perturbations during the Ireviken Extinction Event (Wenlock, Silurian)*
Major: Geoscience
Mentor: Bradley Cramer (Earth and Environmental Sciences)

29 - Kaleigh Haus
*Quantitative image analysis of cellular structures by fluorescence microscopy*
Major: Biomedical Engineering
Mentor: Charles Harata (Molecular Physiology and Biophysics)

31 - Miranda Henry
*Ethnomusicology Today*
Major: Saxophone Performance
Mentor: Trevor Harvey (Ethnomusicology/Musicology)

33 - Donald Hill
*Revisions of the Leverson-Gerk Pterygometopid trilobites*
Major: Geoscience, Biology
Mentor: Jonathan Adrain (Earth and Environmental Sciences)

35 - Carly Iacullo
*Effects of the timing of infrequent stimuli on motor system suppression*
Major: Psychology
Mentor: Jan Wessel (Psychological and Brain Sciences)

37 - Emma Johnson
*Anti-Catholicism During the Election of 1960*
Majors: History, Criminology
Mentor: Colin Gordon (History)
39 - Korina Justiniani
*Identification of genes necessary for Pseudomonas aeruginosa induced motility in response to interspecies signaling*
Major: Microbiology
Mentor: Dominique Limoli (Microbiology and Immunology)

41 - Joseph Kettelkamp
*Arterial input function and tracer kinetic model driven network for rapid inference of kinetic maps in Dynamic Contrast Enhanced MRI (AIF-TK-net)*
Major: Biomedical Engineering
Mentor: Sajan Lingala (Biomedical Engineering)

43 - Virginia Lamas-Meza
*2,2',3,5',6-Pentachlorobiphenyl (Pcb 95) and its hydroxylated metabolites in adipose tissue*
Major: Chemistry
Mentor: Hans-Joachim Lehmler (Occupational and Environmental Health)

45 - Ricardo Lozano Flores
*Fibronectin-Integrin Signaling Axis is Required for Endoderm Morphogenesis and Craniofacial Development*
Major: Biology
Mentor: Fang Lin (Anatomy and Cell Biology)

47 - Russell Martin
*The effect of joint angle and contraction velocity on measured muscle activation at the elbow and knee*
Major: Biomedical Engineering
Mentor: Laura Frey-Law (Physical Therapy and Rehabilitation Sciences)

49 - Molly Matkovich
*Effects of median raphe serotonergic neuron activation on EEG and seizure-induced death*
Major: Mathematics
Mentor: Gordon Buchanan (Neurology)
51 - Caroline Meek  
*Publishing, International Collaboration, and Creative Leadership: Between the Lines 2019*  
Major: English and Creative Writing  
Mentor: Katie Prout (International Writing Program), Allison Gnade (International Writing Program)

53 - Alissia Milani  
*Lake Michigan Ozone Study: Characterization and Sources of Airborne Particles*  
Major: Chemistry  
Mentor: Betsy Stone (Chemistry)

55 - Jade Miller  
*Interactions of BG4 with G Quadruplex DNA*  
Major: Biochemistry  
Mentor: Maria Spies (Biochemistry)

57 - Tate Neff  
*β-klotho in Glutamatergic Cells is Necessary for FGF21-mediated Weight Loss*  
Major: Biochemistry  
Mentor: Matthew Potthoff (Pharmacology)

59 - Sarah Plock  
*The Role of Cognitive Control in Understanding Speech in Noise*  
Major: Speech and Hearing Science  
Mentor: Bob McMurray (Psychological and Brain Sciences)

61 - Alexander Powers  
*Robust Automatic Multiple Landmark Detection in 3D MRI*  
Major: Computer Science and Engineering  
Mentor: Hans Johnson (Electrical and Computer Engineering)

63 - Prateek Raikwar  
*A Novel Population of Pain-Suppressing Brainstem Neurons*  
Major: Neuroscience  
Mentor: Alexander Bassuk (Pediatric Neurology)
65 - Katlyn Rozovics
Passive Imperialists: Imperial Attitudes in Ryse: Son of Rome
Major: History
Mentor: Rosemary Moore (History)

67 - Clayton Saffran-Johnson
Campaign Finance Reform in the 21st Century
Major: History, Philosophy
Mentor: Alyssa Park (History)

69 - Arshaq Saleem
The role of the mitochondrial microprotein Mitoregulin in Parkinson’s Disease pathogenesis
Major: Neuroscience
Mentor: Ryan Boudreau (Internal Medicine), Colleen Stein (Internal Medicine)

71 - Kimberly Schroeder
Correlating menstrual cycle-associated pulmonary changes with lung structure measures derived from quantitative CT
Major: Biomedical Engineering
Mentor: Jessica Sieren (Radiology and Biomedical Engineering)

73 - Brian Shanahan
Examples of Smart Cities in the US
Major: Civil Engineering

75 - Hannah Shrader
Dissecting the immunological link between intraoperative bacterial contamination and peritoneal metastasis of pancreatic ductal adenocarcinoma
Majors: Biochemistry, Medical Anthropology
Mentor: Carlos Chan (Surgery)

77 - Zachary Silver
Russian Intervention: An Analysis
Major: International Relations
Mentor: Elizabeth Menninga (Political Science)
79 - Abigail Simon  
*Sensitivity to fine-grained phonetic variation in children who use cochlear implants*  
Major: Speech and Hearing Science  
Mentor: Bob McMurray (Psychological and Brain Sciences)

81 - Hannah Slowey  
*Effects of E-Cigarette Exposure on Viability and Proliferation of Placental Cells*  
Major: Human Physiology  
Mentor: Donna Santillan (Obstetrics and Gynecology)

83 - Francesca Spencer  
*Probing the nuclear aggregate proteome using Xenopus oocytes*  
Majors: Biochemistry, Italian  
Mentor: Daniel Weeks (Biochemistry)

85 - Michael Steffen  
*Offensive to the Majority: The Formation, Activism, and Survival of the University of Iowa Gay Liberation Front*  
Major: History  
Mentor: Leslie Schwalm (Gender, Women’s, and Sexuality Studies)

87 - Mary Wille  
*Primary Progressive Apraxia of Speech: A Systematic Review*  
Major: Speech and Hearing Science  
Mentor: Karen Bryant (Communication Sciences and Disorders)

89 - Charlie Wolfe  
*Khaleesi: Breaking The Advertising & Tracking Redirect Chains*  
Major: Computer Science and Engineering  
Mentor: Zubair Shafiq (Computer Science)

91 - Seunghye Yang  
*Rule and Exception Learning in Pigeon Categorization*  
Major: Psychology  
Mentor: Leyre Castro Ruiz (Psychological and Brain Sciences)
93 - Jia Zhao
*Using Dual-Luciferase Assay to Validate the Targets of a Transcription Factor Regulating Stress Response*
Major: Biology
Mentor: Bin He (Biology)

95 - Bennett Zuck
*Position Sense and the Control of a Handheld-Tool*
Major: Human Physiology
Mentor: Warren Darling (Health and Human Physiology)

97 – Allison Kusik
*Geochemistry and Petrology of the Osborne Core (North East Iowa Intrusive Complex)*
Major: Geoscience
Mentor: David Peate (Earth and Environmental Sciences)

5:30-6:30 Presenters & Poster Numbers
Click presenter name/number to view abstract

2 - Sameer Ansari
*Clinical and Imaging Features of Contrast Induced Neurotoxicity*
Major: Human Physiology
Mentor: Santiago Ortega (Neurology), Cynthia Zevallos (Neurology)

4 - Gwen Barnes
*A Bayesian Age-Depth Model for the Silurian Altajme Core, Gotland, Sweden*
Major: Geoscience
Mentor: Brad Cramer (Earth and Environmental Sciences)

6 - Lakyn Belk; Matthew Culver
*Actin capping protein Carmil3 is required for the migration of endodermal cells and KV formation*
Majors: Human Physiology; Biomedical Engineering
Mentor: Fang Lin (Anatomy and Cell Biology)
8 - Angie Benda
Using eye movements to understand variation in gesture sensitivity during a math tutorial
Major: Psychology, Political Science
Mentor: Susan Wagner Cook (Psychological and Brain Sciences)

10 - Ethan Bennett
Curve fitting of the decay phase of postsynaptic currents of mammalian neurons
Major: Computer Science
Mentor: Charles Harata (Molecular Physiology and Biophysics), Hiroyuki Kawano (Molecular Physiology and Biophysics)

12 - Bailey Bergman
Phytoplankton Composition of Caloosahatchee River and Estuary and the Gulf of Mexico
Major: Biology
Mentor: Bradley Cramer (Earth and Environmental Sciences)

14 - Ellie Biebesheimer
Paired organic and carbonate carbon isotope chemostratigraphy of the Mulde Excursion from the Altajme Core, Gotland, Sweden
Major: Geoscience
Mentor: Brad Kramer (Earth and Environmental Science)

16 - Daniel Conway
Structural Predictions of Escherichia Coli Outer Membrane Proteins Using Evolutionary Contact Information
Majors: Biochemistry, Computer Science
Mentor: Adrian Elcock (Biochemistry)

18 - Nathan Cremers
Designing a Modular Driver for Use in Optogenetic Studies
Major: Neuroscience
Mentor: John Freeman (Psychological and Brain Sciences)
20 - Megan Crotts
*A ketogenic diet increases latency to seizure-induced respiratory arrest in the DBA/1 mouse*
Major: Neuroscience
Mentor: George Richerson (Neurology), Frida Teran (Neurology)

22 - Harry Daley-Young
*The Fall of Penn Central and the Rise of Conrail: Corporate Failure and the Politics of Deregulation and Nationalization in the 1970s*
Major: History, Theatre Arts
Mentor: Tyler Priest (History)

24 - Clarissa Dietz
*Investigation of Radiative Transfer Model's Application to VIIRS DNB Images*
Major: Physics
Mentor: Daniel Feldman (Lawrence Berkeley National Laboratory)

26 - Lauren Davis
*Changes in Vasopressin Receptor Expression in Hypertensive Pregnancies*
Major: Human Physiology
Mentor: Eric Devor (Obstetrics and Gynecology)

28 - Alessandra Dutra
*Metal Organic Material Comparison: Uranium and Cadmium Based Syntheses*
Major: Chemistry
Mentor: Tori Forbes (Chemistry)

30 - Samuel Eck
*The Emma Goldman Clinic: From Collectivism to Corporatism*
Major: History, English
Mentor: Lina-Maria Murillo (Gender, Women’s, and Sexuality Studies, History)

32 - Madysen Gilbert
*Nutrient Analyses of the Caloosahatchee River and Estuary of Southwest Florida*
Major: Biomedical Engineering
Mentor: Sajan Lingala (Biomedical Engineering)
34 - Jacob Heffelfing
*In Vitro Metabolism and Enantioselective Enrichment of the Safener Benoxacor*
Major: Public Health
Mentor: Hans-Joachim Lehmler (Occupational and Environmental Health)

36 - Benjamin Howard
*A detrital zircon provenance study of the Marnoso-arenacea Formation, Northern Appennines, Italy.*
Major: Geoscience
Mentor: Emily Finzel (Earth and Environmental Sciences)

38 - Elizabeth Janey
*Swimming in 16p11 mice*
Major: Psychology
Mentor: Mark Blumberg (Psychological and Brain Sciences)

40 - Renato Jensen; Joshua Peterson
*DRP1 Deficiency in Skeletal Muscle Alters Gene Expression of Mitochondrial-endoplasmic Reticulum Contact- and Misfolded Protein Response-related Proteins*
Major: Biochemistry; Biology
Mentor: Marcelo Correia (Internal Medicine), E. Dale Abel (Internal Medicine)

42 - Lillian Jones
*Tracking atmospheric pollen during extreme weather events*
Major: Chemistry
Mentor: Betsy Stone (Chemistry)

44 - Benjamin Kimball
*Severus of Antioch and the Anti-Chalcedonian Movement*
Major: History, Anthropology
Mentor: Michael Moore (History)

46 - Dariya Kozlova
*Changes in Insulin Clearance in PCOS are Driven by Insulin Sensitivity*
Major: Biochemistry
48 - Emily Lefeber
Nothing Comes to Her Who Sits and Waits
Major: History, Political Science
Mentor: Landon Storrs (History)

50 - Tianyi Li
Analysis of Metal in Airborne Particulate Matter in Winter Kathmandu, Nepal
Major: Environmental Science
Mentor: Betsy Stone (Chemistry)

52 - Cole Lotspeich
The Klan in the 1920s: Correlates of Membership in Champaign County, IL
Major: Political Science
Mentor: Douglas Dion (Political Science)

54 - Benjamin Louviere
Beer & Spirit
Major: History
Mentor: Michael Moore (History)

56 - Jack Lynn
Night owl's dilemma: determining the connection between sleep deprivation and seizure-induced death
Major: Chemical Engineering
Mentor: Gordon Buchanan (Neurology), Benton Purnell (Neurology)

58 - Allexis Mahanna
Local and Autonomous Community Migration Responses: Case Study of Barcelona, Spain
Major: Global Health Studies, Ethics and Public Policy

60 - Cameron Moeller
Variably Innate: Inconsistent British Perceptions of Martial Races in the Late-Victorian Indian Army
Major: History, International Relations
Mentor: Paul Greenough (History)
62 - Shaun Morris
Cecina Table Set
Major: 3D Design
Mentor: Monica Correia

64 - Marissa Mueller
Actimetry Analysis Methods Produce Large Differences in Lifestyle Physical Activity Estimates
Major: Biomedical Engineering
Mentor: Laura Frey-Law (Physical Therapy and Rehabilitation Sciences), Ruth Chimenti (Physical Therapy and Rehabilitation Sciences)

66 - Mayra Narvaez
Biotransformation of dichloroacetamide safeners
Major: Chemical Engineering
Mentor: David Cwiertny (Civil and Environmental Engineering)

68 - Megan Schnoebelen
Slipping Away from the "Summer Slide": Reducing Summer Reading Loss in School-Age Students Summer 2019 Honors Internship Project
Majors: Elementary Education, Music Performance
Mentors: Andrew Willard (Honors Program), Sherry Rhineheart (Pomerantz Career Center)

70 - Emily Silich
HaloSat Observations of the Vela and Puppis A Supernova Remnants
Majors: Astronomy, Physics, Mathematics
Mentor: Philip Kaaret (Physics and Astronomy)

72 - Abigail Simon; Mary Wille
Characterizing Primary Progressive Apraxia of Speech: A Case Study of a 76-Year-Old Female
Majors: Speech and Hearing Science
Mentor: Karen Bryant (Communication Sciences and Disorders)
74 - Allison Steger
*Fueling the Future of Preston Station: The creation of a collection management policy and action plan*
Major: History
Mentor: Heidi Lung (Anthropology)

76 - Hanxi Tang
*Genetic Modification of Neurological Phenotypes in a Drosophila Voltage-gated Sodium Channel Mutant*
Major: Biology
Mentor: Toshihiro Kitamoto (Anesthesia), Junko Kasuya (Anesthesia)

78 - Jared Termini
*Analysis of Chandra Data of the Composite Supernova Remnant G310.6-1.6*
Major: Physics and Astronomy
Mentor: Casey Deroo (Physics and Astronomy)

80 - Gabriella Thomsen
*Helper-Dependent Adenovirus Transduces the Human and Rat Retina but Elicits an Inflammatory Reaction When Delivered Subretinally in Rats*
Major: Spanish, Interdepartmental Health Sciences
Mentor: Luke Wiley (Ophthalmology)

82 - Jacob Tinker
*Participant Screening in Dietary Approaches to treat MS Study*
Major: Exercise Science
Mentor: Terry Wahls (Internal Medicine)

84 - Haley Vaughn
*Longitudinal Time-to-Event Analysis of Time-gated Word Recognition in Children who are Hard of Hearing*
Major: Speech and Hearing Sciences
Mentor: Elizabeth Walker (Communication Sciences and Disorders)

86 - Kimberly Vencer
*Effects of low brain activity following seizures on immobility in mice*
Major: Human Physiology
Mentor: Gordon Buchanan (Neurology)
88 - Olivia Westemeier
Pathway to Prevention: Protective Behavioral Strategies Linked to Sexual Assault on College Campuses
Major: Psychology
Mentor: Teresa Treat (Psychological and Brain Sciences)

90 - Lauren Williams
Does Partisanship Affect Everyday Russians' Engagement in Bribery?
Major: Russian, Environmental Policy and Planning
Mentor: William Reisinger (Political Science)

92 - Ashton Woiwood
Characterizing and Modeling Threat Feeds for Patch Management
Major: Informatics
Mentor: Zubair Shafiq (Computer Science)

94 - Mikayla Wymore
Photoredox Studies with Alkyl and Aryl Radicals
Major: Chemistry, Biochemistry
Mentor: Gregory Friestad (Chemistry)

96 - Joshua Yem
Dynamic and Static Position Sense of Body Targets in Three Dimensions
Major: Human Physiology, Music
Mentor: Warren Darling (Health and Human Physiology), Chris Coffman (Health and Human Physiology)