The 7th Annual
Fall
Undergraduate
Research
Festival

Wednesday, November 30, 2016
4:30pm-6:30pm

University of Iowa
University Capitol Centre
2nd floor South Atrium
This event is hosted by the Iowa Center for Research by Undergraduates.

ICRU promotes undergraduate involvement in research and creative projects at the University of Iowa, serving students, staff, and faculty.

ICRU Director
Bob Kirby
bob-kirby@uiowa.edu

ICRU Coordinator
Melinda Licht
melinda-licht@uiowa.edu

www.uiowa.edu/icru
319.335.8336
icru@uiowa.edu
The Fall Undergraduate Research Festival is proud to showcase nearly **100 visual presentations** given by the University of Iowa’s student researchers. Presenters work in over **40 different departments**, representing each of the senior, junior, sophomore, and freshman classes.

**Odd numbered posters will present from 4:30-5:30PM**

**Even numbered posters will present from 5:30-6:30PM**

***Please note that at 5:30, all of the boards will be turned around to show the even numbering and the second hour presenters’ posters***

We hope that you enjoy talking with these outstanding students and will see you again in for the 7th Annual Fall Undergraduate Research Festival!

**Programs with full abstracts are available on the ICRU website.**

Many thanks to the over 100 graduate and professional students and postdocs who have volunteered their time to serve as poster judges for this event.
First Hour Presenters
4:30-5:30PM
(odd numbers only)

1 - Noelle Alkhawaja
*Identity Claims Project*
Major(s): Journalism, French
Mentor(s): Sarah Mitchell (Political Science)

3 - Alexandra Bess
*Effect of BALF Proteins on Polystyrene Nanoparticle Properties and Cell Adherence*
Major(s): Biochemistry
Mentor(s): Jennifer Fiegel (Chemical and Biochemical Engineering)

5 - Cormac Broeg
*Killing Butler’s Bloodhounds: Iowa Soldiers and an Act of Political Violence in Reconstruction South Carolina*
Major(s): History & Political Science
Mentor(s): Leslie Schwalm (History)

7 - Katherine Boyd
*Partial Suffrage in Iowa: 1894*
Major(s): History
Mentor(s): Landon Storrs

9 - Grace Coleman & Todd Johnson
*Society for Ethnomusicology Podcast*
Major(s): Music and International Studies
Mentor(s): Trevor Harvey (Music)

11 - Frank De Stefano
*Positron Emission Tomography (PET) for the Assessment of Malignancy in Neurofibromatosis Type 1*
Major(s): Biochemistry
Mentor(s): Jessica Sieren (Radiology)
13 - Patrick Dey  
*Effect of Thin Layer Sonoelectrochemistry on Palladium Hydride Storage*  
Major(s): Chemistry  
Mentor(s): Johna Leddy (Chemistry)

15 - Caroline Emory  
*Neurofeedback Training of Auditory Selective Attention*  
Major(s): Speech and Hearing Science, Psychology  
Mentor(s): Inyong Choi (Communication Sciences and Disorders)

17 - Laura Fischer  
*Using Cross-species Protein Hybrids to Elucidate the Role of Replication Protein A in the Development of Huntington’s Disease*  
Major(s): Biochemistry  
Mentor(s): Marc Wold (Biochemistry)

19 - Caroline Garske  
*Crack in the System: The Racially Based Intentions and Consequences of the Anti Drug Abuse Act of 1986*  
Major(s): History & Political Science  
Mentor(s): Keisha Blain (History)

21 - Ashley Gilbert  
*Indonesian Peat Burning Tracers*  
Major(s): Chemistry  
Mentor(s): Betsy Stone (Chemistry)

23 - Callie Ginapp  
*Dorsal Raphe 5HT2A receptors in acidosis induced arousal from sleep*  
Major(s): Neurobiology  
Mentor(s): Gordon Buchanan (Neurology)

25 - Elizabeth Helfenberger  
*Evaluating High Granularity Timing Detector (HGTD) at Large Hadron Collider*  
Major(s): Physics & Mathematics  
Mentor(s): Usha Mallik (Physics & Astronomy)
27 - Titus Hou
*Defining the Binding Mechanism between the Scribble PDZ1 and an Internal Modif in SGEF*
Major(s): Biochemistry
Mentor(s): Ernesto Fuentes (Biochemistry)

29 - Holly Isbell
*Structural Analysis of Calmodulin Binding to Sodium Channel NaV1.7 A Key Protein in Pain Perception and Weight Regulation*
Major(s): Chemistry
Mentor(s): Madeline Shea (Biochemistry)

31 - Forest Johnson
*The Uncrowned King: Axel Oxenstierna and the Rise of Sweden as a World Power in the 17th Century*
Major(s): Ancient Civilization & History
Mentor(s): Michael Moore (History)

33 - Kallin Khan
*Characterizing Solar Wind Hydrogen Precipitation in the Martian Atmosphere*
Major(s): Computer Science & Mathematics
Mentor(s): Jasper Halekas (Physics & Astronomy)

35 - Eric Knapp
*Evaluating the absorption spectra of cationic protoinitiators*
Major(s): Chemical Engineering
Mentor(s): Julie Jessop (Chemical and Biochemical Engineering)

37 - Aishwarya Kothapalli
*Development of a Visually Guided Assay for Mice Models of Eye Disease*
Major(s): Human Physiology
Mentor(s): Arlene Drack (Ophthalmoogy)
39 - Evan Lamb
*Characterization of Visual Defects of Bardet-Biedl Syndrome Mutations Using the Zebrafish Model System*
Major(s): Microbiology, Human Physiology
Mentor(s): Diane Slusarski (Biology)

41 - Olivia Lewis
*Effect of prenatal stress on placental redox biology and long-term telomere length in offspring brain and blood cells*
Major(s): Human Physiology
Mentor(s): Hanna Stevens (Psychiatry)

43 - Sheng Hao Lu
*What Predicts Dental Students’ Willingness to Treat Underserved Populations?*
Major(s): Microbiology
Mentor(s): Michelle McQuista (Dentistry)

45 - Zachary Luppen
*Hawkeyes in Space Exhibit*
Major(s): Physics & Astronomy
Mentor(s): Cornelia Lang (Physics & Astronomy)

47 - Carter Madler
*Diurnal Variation of Anthropogenic Activity in an Urban Environment*
Major(s): Chemistry
Mentor(s): Elizabeth Stone (Chemistry)

49 - Mikaela Mallin
*Tfap2 is essential for normal melanocyte differentiation: Potential Relevance to melanoma*
Major(s): Biomedical Science & Dance
Mentor(s): Robert Cornell (Anatomy and Cell Biology)
51 - Amy Meehleder
*Tea Time in the Digital Age: An Exhibition Catalogue Publishing Project for the Digital Humanities*
Major: Art History
Mentor: Julie Hochstrasser (Art History)

53 - Alexandria Miller
*A Musical Melody’s Impact on Learning and Memory*
Majors: Psychology, Music
Mentor: Leyre Castro-Ruiz (Psychology)

55 - Camille Mumm
*On the hunt for missing heritability of orofacial clefting: zebrafish reporter screens in the periderm.*
Majors: Biology, Informatics
Mentors: Rob Cornell (Anatomy and Cell Biology), Albert Erives (Biology)

57 - Jane Nguyen
*Diverse Interactions of the Multi-functional, Regulatory Domain of Replication Protein A*
Major: Biochemistry
Mentor: Marc Wold (Biochemistry)

59 - Claire O’Connell
*Protein Design: Accelerating the Search Through Large Chemical Spaces*
Major: Biomedical Engineering
Mentor: Michaels Schneiders (Biochemistry)

61 - Maureen O’Connor
*Mislocalization of mutant lamins associated with muscular dystrophy*
Major: Biochemistry
Mentor: Lori Wallrath (Biochemistry)
63 - Janel Orton
The Financial and Tax Implications of the Affordable Care Act on United States Lower and Middle Class Residents
Major: Accounting
Mentor: Amy An (Accounting)

65 - Margaret Preigh
Investigating the regulation of sox10 expression in the neural crest
Major: Biology
Mentor: Rob Cornell (Anatomy and Cell Biology)

67 - Alexandra Redfern
Individualized Education Program Goals and Academic Need Congruence in Children who are Hard of Hearing
Major: Speech and Hearing Sciences
Mentor: Elizabeth Walker (Communication Sciences and Disorders)

69 - Ravan Ross
Arts and Icons
Major: Art
Mentor: Loyce Arthur (Theatre)

71 - Andrey Sazonov
Examining Russian Foreign Policy Attitudes
Major: International Relations
Mentor: Brian Lai (Political Science)

73 - Callie Shannon
Comparing rural, high-potential middle-school students’ self-efficacy and psychosocial outcomes
Major: Psychology
Mentor: Susan Assouline (Psychological and Brain Sciences)

75 - Carley Stewart
Goblet Cell Metaplasia in Human Airways
Major: Biomedical Engineering
Mentor: Alejandro Pezzulo (Internal Medicine)
77 - Ryan Theis
*Ceramic Body Sherd Thickness Analysis: Investigations at a Woodland Period Rock Shelter*
Major: Anthropology
Mentor: Jim Enloe (Anthropology)

79 - Sevantha Thenuwara
*Vinculin Activators Sensitize Melanoma Cells to Chemotherapeutics*
Major: Biology
Mentor: Kris DeMali

81 - Tracy Vo
*The effectiveness of cloth filtration in the removal of fecal coliforms in drinking water in rural Gambian villages*
Majors: Biology, Anthropology
Mentor: Kelly Baker (Occupational and Environmental Health)

---

**Second Hour Presenters**

5:30-6:30PM
(even numbers only—boards will be turned around)

---

2 - Brittany Allendorf
*Epidermal Autoantibody Modulation of Keratinocyte Function*
Major: Health and Human Physiology
Mentor: Kelly Messing (Dermatology)

4 - Emily Belts
*Activity in the prefrontal cortex influences extinction learning and cocaine-seeking behavior*
Major: Psychology
Mentor: Ryan LaLumiere (Psychological and Brain Sciences)

6 - Christina Blomquist
*On-line processing of spoken words predicts written word recognition in children*
8 - Trevor Cline, Gustav Lundberg
*Intergroup Visual Perspective-Taking: Evidence for Enhanced Egocentrism with Ingroup Members*
Majors: Psychology; Psychology, Sociology
Mentor: Andrew Todd (Psychology)

10 - Kaitlyn Daugherty
*Emission of Water-Soluble Organic Carbon from Biomass Burning Sources in Kathmandu, Nepal*
Majors: Chemistry, Biochemistry
Mentor: Elizabeth Stone (Chemistry)

12 - Sophie Deam, Tyler Streacula, Erin Maier
*Determining Stellar Coronal Properties from Radio Spectrum Modeling*
Majors: Physics and Astronomy, French; Physics and Astronomy; Physics and Astronomy
Mentor: Robert Mutel (Physics and Astronomy)

14 - Riley Deutsch
*A web based data collection tool to track system use and parameter settings for a shared resource micro-CT imaging system*
Major: Biomedical Engineering
Mentor: Jessica Sieren (Radiology)

16 - Joshua Dunigan
*Separable Roles of 4-Helix Bundle that Activates Calcineurin*
Major: Genetics and Biotechnology
Mentor: Madeline Shea (Biochemistry)

18 - Fidel Estrada
*Classifying Land Cover in the Aravalli Hills of Rajasthan, India*
Major: Geography
Mentor: Marc Linderman (Geography)
20 - Eastyn Fitzgibbon
The polymerization of highly crosslinked urethane-acrylate films was controlled using a reversible-addition
Major: Chemical Engineering
Mentor: Allan Guymon (Chemical and Biochemical Engineering)

22 - Lander Geadelmann
Expression of WOX Genes in Ceratopteris Richardii
Major: Biology
Mentor: Chi-Lien Cheng (Biology)

24 - Katherine Giles
Molecular Weight Distributions in Five Monomer Series
Major: Chemical Engineering
Mentor: Julie Jessop (Chemical and Biochemical Engineering)

26 - Katherine Hauck
Effects of Tornados on Midwestern Towns, 1880-1940
Major: Economics
Mentor(s): Nicholas Ziebarth (Economics)

28 - Emma Hawk
Constrained Channel Estimation Methods in Underwater Acoustics
Major: Electrical Engineering
Mentor: Ananya Sen Gupta (Electrical and Computer Engineering)

30 - Jonah Heskje
Native-Space Lesion Mapping Using Nonlinear Registration
Major: Biology
Mentor: Daniel Tranel (Neurology)

32 - Emma Husar
The Peoples’ Weather Map: researching and writing the history of severe weather in Iowa
Major: English
Mentor: Barbara Eckstein (English)
34 - Claire Jacobson
*Translating an Arabic Short Story*
Majors: French, Arabic
Mentor: Natasa Durovicova (International Writing Program)

36 - Kathleen Kiesewetter
*Pop! Goes the Beatles: Pop Art, Peter Blake, & Sgt. Pepper*
Majors: English, Studio Art (Graphic Design)
Mentor: Donna Parsons (Music/Honors Program)

38 - Alexis Koch
*Gene Fusion Analysis of Pdr1-Regulated Gene Expression in Anti-Fungal Drug Resistance*
Major: Human Physiology
Mentor: W. Scott Moye-Rowley (Molecular Biology and Biophysics)

40 - Stephen Kruse
*Norepinephrine and Serotonin in Seizure-Induced Respiratory Arrest and Death*
Major: Biomedical Engineering
Mentor: Gordon Buchanan (Neurology)

42 - Tomas Lence
*Neuronal activity in the Dorsal Striatum during levodopa-induced dyskinesias*
Major: Neurobiology
Mentor: Kumar Narayanan (Neurology)

44 - Zesen Lin
*Regulation of Voltage-Dependent Sodium Channel NaV1.1: How Calcium Controls Calmodulin-IQ Motif Binding*
Major: Chemistry
Mentor: Madeline Shea (Biochemistry)

46 - Olivia Ray
*Co-Crystals of Aspirin*
Majors: Chemistry, Biochemistry
Mentor: Leonard MacGillivray (Chemistry)
48 - Maren McNees
*Sexual Health Knowledge in Young Adults with Intellectual and Developmental Disabilities*
Major: Nursing
Mentor: Melissa Lehan-Mackin (Nursing)

50 - Eric Mittauer
*G12/G13 interacts with fibronectin to promote embryonic organogenesis*
Major: Human Physiology
Mentor: Fang Lin (Anatomy and Cell Biology)

52 - Elissa Monteiro
*CogMed Working Memory Training*
Major: Psychology
Mentor: Megan Foley Nicpon (Psychology)

54 - Aaron Nessler
*Timing Impairments and cerebellar abnormalities in Prickle2 mice: Implications for autism*
Major: Biomedical Engineering
Mentor: Krystal Parker (Neurology)

56 - Paige Noble
*Role of CaMKII in Reactive Oxygen Species Production by Vascular Smooth Muscle Cells*
Major: Biochemistry
Mentor: Isabella Grumbach (Internal Medicine)

58 - Vincent Parra
*Synthesis and Categorization of Ni(II) and La(III) Metal-Organic Crystals*
Major: Chemistry
Mentor: Ashini Jayasinghe (Chemistry)

60 - Alyssa Ray
*Vasopressin Release is Enhanced Before the Development of Preeclampsia in Humans Despite Exaggerated Suppression of Plasma Osmolality*
Majors: Chemistry, Biochemistry
Mentor: Donna Santillan (Obstetrics and Gynecology)
62 - Angela Schab
The Role of a Novel Tumor Suppressor, NIAM, in Myc-Driven B-Cell Malignancies
Major: Cell and Developmental Biology
Mentor: Dawn Quelle (Pharmacology)

64 - Mary Elizabeth Snell
Norms of Bureaucratic Corruption in Russia, Ukraine, and Georgia
Major: International Relations
Mentor: William Reisinger (Political Science)

66 - Brittany Stoll
Mother-Child Agreement on Adolescent Impulsivity Ratings
Major: Human Physiology
Mentor: Jatin Vaidya (Psychiatry)

68 - Maja Sunleaf
Curation and Installation: Renovating Exhibitions in Trowbridge Hall
Major: Anthropology
Mentor: Tiffany Adrain (Geoscience)

70 - Sarah Thao
Release of Leishmania infantum derived chemoattractant that attracts human neutrophils to the site of infection
Major: Microbiology
Mentor: Mary Wilson (Internal Medicine)

72 - Rebekah Truhan
Burning Down the House: Technological Approach to Fire Cracked Rock
Major: Anthropology
Mentor: James Enloe (Anthropology)

74 - John Walsh
ACE Inhibitors on the Microbiome and Host Energy Balance
Major: Human Physiology
Mentor John Kirby (Microbiology)