The 13th Annual
Spring
Undergraduate Research Festival

Wednesday, April 19, 2017
4:30pm-6:30pm

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

ICRU Director
Bob Kirby
bob-kirby@uiowa.edu

ICRU Associate Director
Lindsay Marshall
lindsay-marshall@uiowa.edu

www.uiowa.edu/icru
319.335.8336
icru@uiowa.edu
The Spring Undergraduate Research Festival is proud to showcase over **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.
1 - Hassan Ahamed
*Effect of Monoamine Reuptake Inhibitors on Seizures in DBA/1 Mice*
Major: Biomedical Engineering
Mentor: George Richerson (Neurology)

3 - Emily Anderson
*Examining the Role of Mitochondrial Calcium Uniport (MCU) in the Peripheral Nervous System using MCU Knockout Mice*
Major: Human Physiology, Cell and Developmental Biology
Mentor: Yuriy Usachev (Pharmacology)

5 - Alexandra Bess
*Analysis of the Protein Effects on Nanoparticle-Cell Association*
Major: Biochemistry, Chemistry
Mentor: Jennifer Fiegel (Chemical and Biochemical Engineering)

9 - Katelyn Buhman
*Genetic Screen for Seizure Suppressors Using a Fruit Fly Model of Epilepsy*
Major: Biomedical Engineering
Mentor: Toshi Kitamoto (Anesthesia)

11 - Yichong Cao
*Interaction of Supervision and Category Structure of Category Learning in Pigeons*
Major: Psychology
Mentor: Edward Wasserman (Psychology and Brain Sciences)
13 - Akanksha Chilukuri
Mice Exposed to Prenatal Stress Show a Decrease in Neocortex Size and Disrupted Cortical Organization
Major: Neurobiology
Mentor: Hanna Stevens (Psychiatry)

15 - Chris Coudray
Iowa’s New Mammoth with Archaeological Potentials
Major: Anthropology
Mentor: John Doershuk (Anthropology)

21 - Kylie Dolan; Hailey Billings
Decreased Residual Awareness in Older Adults’ Error Detection
Major: Psychology & Psychology; Health and Human Physiology
Mentor: Jan Wessel (Psychological and Brain Sciences, Neurology)

23 - William Fuelberth
HaloSat: The Missing Baryon Problem
Major: Physics and Astronomy, Mathematics
Mentor: Philip Kareet (Physics and Astronomy)

27 - Michelle Grantman
The Research Process: an Undergraduate Perspective
Major: Elementary Education
Mentor: Jessica Jensen (Mathematics Education)

29 - Salma Haider
Preeclampsia Effects on Adult Brain in a Vasopressin-Induced Model
Major: Psychology
Mentor: Hanna Stevens (Psychiatry)
31 - Sydney Hofferber
Effect of a brief educational video on breastfeeding attitudes of undergraduate students
Major: Health and Human Physiology: Health Promotion, Engaged Social Innovation
Mentor: Lucas Carr (Health and Human Physiology)

33 - Mads Hoofnagle
Wrestling with Ceramic Typologies: A Case for Holistic Analysis
18 - Major: Anthropology, Psychology
Mentor: John Doershuk (Anthropology)

35 - Madeline Judisch
Parent perspectives on effectiveness of speech language pathologists during home visits for early intervention
Major: Speech and Hearing Sciences
Mentor: Anu Subramanian (Communication Sciences and Disorders)

37 - Madison Kasparek
Feasibility and Application of ASA 24 in Dental Nutrition Research
Major: Human Physiology
Mentor: Teresa Marshall (Preventative and Community Dentistry)

39 - Elise Kerns
An Ethnographic Study to Understand the Cultures of Art House Cinemas
Major: English
Mentor: Matthew Gilchrist (Rhetoric)
41 - Paige Kies
Specialized Metabolites Affecting the Interspecies Interactions between Myxococcus xanthus and Bacillus subtilis
Major: Microbiology
Mentor: Craig Ellermeier (Microbiology)

43 - Marcy Kreda
Real vs. Imaginary Gambling
Major: Marketing
Mentor: Bill Hedgcock (Marketing)

45 - Evan Lamb
Communication and Chemotaxis in Pathogenic Vibrio parahaemolyticus
Major: Microbiology and Human Physiology
Mentor: Linda McCarter (Microbiology)

47 - Kevin Lin
Ketogenic diet attenuates cardiac hypertrophy but cannot maintain systolic function in pressure overload mice
Major: Human Physiology
Mentor: Dale Abel (Internal Medicine)

49 - Jean Kyung Park
TDA Mapper (Topological Data Analysis)
Major: Mathematics

51 - Carter Madler
Seasonal Variation of Particulate Matter in an Urban Environment
Major: Chemistry
Mentor: Betsy Stone (Chemistry)
53 - Sophia Mallaro
Effect of Modality on Behavior in Virtual Reality Environments
Major: Computer Engineering
Mentor: Joe Kearney (Computer Science)

55 - Dylan Mann
The Reliability and Validity of Hand Function Measures in Patients with CMT
Major: Biomedical Engineering
Mentor: Nivedita Jerath (Neurology)

57 - Russell Martin
Using Zebrafish to Test Drugs for Their Efficacy Against Epileptic Seizures
Major: Biomedical Engineering
Mentor: Robert Cornell (Anatomy and Cell Biology)

59 - Amy Meehleder
“Gothic” Historiography: Notes on Aesthetics and the Sublime
Major: Art History, Anthropology
Mentor: Robert Bork (Art History)

61 - Sam Mraz
Provenance of Upper Jurassic to Lower Paleocene strata near the Black Hills Uplift, South Dakota
Major: Geoscience
Mentor: Emily Finzel (Earth and Environmental Sciences)

63 - Jeffrey Nassif
A Method for Sensing Uranium on Polymeric Nanofibers in Combination with Surface Enhanced Raman Spectroscopy (SERS)
Major: Exercise Science
Mentor: Tori Forbes (Chemistry)
65 - Gocale Nicoue
Assessing Electronic Data Collection System for Public Health Surveillance Work in Limited Resource Settings
Major: Environmental Policy and Planning
Mentor: Kelly Baker (Occupational and Environmental Health)

67 - Taryn Nishimura
Maternal Plasma Leptin and Activity during Pregnancy
Major: Biology, Human Physiology
Mentor: Donna Santillan (Obstetrics and Gynecology)

69 - Claire O’Connell
Accelerating Computational Protein Design via Advanced Thermodynamic Paths
Major: Biomedical Engineering
Mentor: Michael Schnieders (Biochemistry)

73 - Alexandra Pagano
Segmentation of Air Force ROTC Cadets
Major: Marketing
Mentor: Mark Winkler (Marketing)

75 - Madeline Peters
Do Parasites Help Drive Life History Variation in Natural Populations?
Major: Human Physiology
Mentor: Maurine Nieman (Biology)

77 - Mackenzie Phillips
Analyzing Impacts of Short-Term Service Learning Abroad in Belize
Major: Marketing
Mentor: Bob Walker (John Pappajohn Entrepreneurial Center)
79 - Alexandra Redfern
Exploring Depth of Vocabulary Knowledge in Children who are Hard of Hearing
Major: Speech and Hearing Sciences
Mentor: Elizabeth Walker (Communication Sciences and Disorders)

81 - Jade Rivera
Effect of pH on mucus behavior
Major: Human Physiology
Mentor: Mahmoud Abou Alaiwa (Internal Medicine)

83 - Emma Robertson; Mikaela Mallin
Dance as an agent of political, economic, and social change
Major: Dance; Biomedical Science, Dance
Mentor: Rebekah Kowal (Dance)

85 - Sharon Serper
The Case of the Boy with Anomia: Contribution of Visual Processing in Naming Errors
Major: Speech and Hearing Science
Mentor: Alison Lemke (Communication Sciences and Disorders)

87 - Cole Toovey
Chronic Stress-Induce Alterations of Dendritic Spines in Female Rats
Major: Psychology
Mentor: Jason Radley (Psychological and Brain Sciences)

89 - Akshaya Warrier
p53 mutation status is a primary determinant of placenta-specific protein 1 expression in serous ovarian cancers.
Major: Microbiology, Human Physiology
Mentor: Eric Devor (Obstetrics and Gynecology)
Second Hour Presenters
5:30-6:30PM
(even numbers only—boards will be turned around)

2. Aparna Ajjarapu
Assessing the Potential Role of Vasopressin in Intrauterine Growth Restriction (IUGR)
Major: Biochemistry
Mentor: Mark Santillan (Obstetrics and Gynecology)
4 - Terryl Bandy
High Resolution Topographic mapping of active faults in Southern California with Satellite optical imagery
Major: Geoscience
Mentor: William Barnhart (Earth and Environmental Sciences)

6 - Christina Blomquist
Lexical Competition During Spoken Word Recognition by School-Aged Children
Major: Speech and Hearing Science, Psychology
Mentor: Bob McMurray (Psychological and Brain Sciences, Communication Sciences and Disorders)

8 - Christine Buchanan
Analyses of Quality of Life Survey of patients and parents with Pediatric Brain Tumor
Major: Spanish and Human Physiology
Mentor: Mariko Sato (Hematology/Oncology)

10 - Aaron Buelow
Investigation into the factors for the modification of PLGA nanoparticles
Major: Biomedical Engineering
Mentor: James Ankrum (Biomedical Engineering)

12 - Mallory Carr
Child and parent perspective of effective and ineffective therapeutic alliance during treatment for stuttering
Major: Speech and Hearing Science
Mentor: Patricia Zebrowski (Communication Sciences and Disorders)

14 - Gina Chieffo
Trauma Informed Care: Screening and Referral Process in the University of Iowa Emergency Department
Major: Psychology, Engaged Social Innovation
Mentor: Charles Jennissen (Emergency Medicine)
16 - Yiwen Chu
*Design and Office Art: The Egg Family*
Major: 3D Design
Mentor: Monica Correia (Art and Art History)

18 - Alexis Brannan
*How do Diets of Individuals with Multiple Sclerosis Measure Up?*
Major: Human Physiology, Psychology
Mentor: Catherine Chenard (Internal Medicine)

20 - Liam Crawford
*The 3Cs and StoryCarnival: Constructively Integrating Technology into Early Childhood Environments*
Major: Computer Science, Philosophy
Mentor: Juan Pablo Hourcade (Computer Science)

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

24 - Monica Derby
*Impact of friends’ and family members’ experiences with cancer on patients’ expectations and self-management in advanced cancer*
Major: Nursing
Mentor: Stephanie Gilbertson-White (Nursing)

26 - Caroline Emory
*Effect of neurofeedback training for auditory selective attention on speech in noise performance.*
Major: Speech and Hearing Science, Psychology
Mentor: Inyong Choi (Communication Sciences and Disorders)
28 - Katherine Giles
Shining a Light on the Irradiance and Wavelength Properties of Light Emitting Diodes in Dental Applications
Major: Chemical Engineering
Mentor: Julie Jessop (Chemical and Biochemical Engineering)

30 - Jesse Gray
Activation of the infralimbic cortex using a SSFO attenuated cocaine seeking during reinstatement only following extinction training
Major: Human Physiology
Mentor: Ryan Lalumiere (Psychological and Brain Sciences)

34 - Lauren Schutz
Identifying and Understanding Risk Factors for Dance Injury: A Biomechanical Analysis and Comparison of the Foundation Demi-Plie to Functional Movement
Majors: Biomedical Engineering, Dance
Mentor: Salam Rahmatalla (Civil and Environmental Engineering)

36 - See Tsun Joey Ho
Roots: The Origins of Hong Kong's Being
Major: English and Creative Writing
Mentor: Donna Brooks (International Writing Program)

38 - Emma Husar
Research and Writing for the Digital Humanities: The Peoples' Weather Map
Major: English, Creative Writing
Mentor: Barbara Eckstein (English)

40 - Dylan Jones
Industry Life Cycle and Acquisition Performance
Major: Finance and Management
Mentor: Amrita Nain (Finance)
42 - Clarice Kelling
The Role of Research and Librarians in Preparing Primary and Secondary Grade Students for National History Day
Major: Theatre Arts, Elementary Education
Mentor: Janalyn Moss (Library Administration and Studies)

44 - Heather Kemp
Developing an Interactive Statistics Learning Environment Using Computer Simulations
Major: Computer Science
Mentor: Sheila Barron (Statistics)

46 - Rachel Kessler; Sarah Small
Mechanisms Regulating FGF21 Sensitivity in Adipose Tissue During Obesity
Major: Chemical Engineering; Human Physiology
Mentor: Matthew Potthoff (Pharmacology)

48 - Michael Klemme
High-Throughput Assay Analysis of Monoclonal Antibodies Provides Possible Alternative Cancer Drug Therapy
Major: Biology
Mentor: Daniel Lusche (Biology)

50 - Stephen Kruse
Norepinephrine and Serotonin in the Reduction of Seizure-Induced Respiratory Arrest
Major: Biomedical Engineering
Mentor: Gordon Buchanan (Neurology)
52 - Olivia Lewis
*Effect of prenatal stress on mouse embryonic neural and placental redox biology*
Major: Human Physiology
Mentor: Hanna Stevens (Psychiatry)

54- Sirui Li, Yijie Xu
*Tax rates forecast by TDA mappers*
Major: Finance; Mathematics
Mentor: Isabel Darcy (Mathematics)

56 - Morgan Lohr
*The Role of Nrf2 Signaling in Seizure-like Phenotypes of the Drosophila Voltage-gated Sodium Channel Mutant, Shudderer (Shu)*
Major: Biology, Health and Human Physiology
Mentor: Toshi Kitamoto (Anesthesia)

58 - Mikaela Mallin
*Investigating the roles of Tfap2 and Kctd15a in melanocyte differentiation*
Major: Biomedical Science, Dance
Mentor: Robert Cornell (Anatomy and Cell Biology)

60 - Ashley Morris, Solomon Wilharm, Oliver Stroh
*Hospital Scheduling: Improving Communication between Physicians and Nurses to Reduce Patient Delirium*
Major: Industrial Engineering
Mentor: Priyadarshini Pennathur (Industrial Engineering)

64 - Austin Moss
*Does management’s tone reveal information about their confidence in earnings forecasts?*
Major: Accounting and Finance
Mentor: Samuel Melessa (Accounting)
66 - Madison Owen
Blocking D1 receptors in the agranular insular cortex reduces cued and cocaine-prime reinstatement in rats
Major: Psychology
Mentor: Ryan Lalumiere (Psychological and Brain Sciences)

68 - Yanyu Zhang
Manufacturing Tax in the U.S and China
Major: Accounting
Mentor: Kevin Markle (Accounting)

70 - Pooja Patel
Analysis of non-homologous end joining pathway through the use of rpa-2, polq-1, and ku-70 mutants in C. elegans
Major: Biomedical Sciences, Human Physiology
Mentor: Dr. Sarit Smolikove (Biology)

72 - Danielle Pellack
Does energy insufficiency influence size-selective cell loss in glaucoma?
Major: Human Physiology
Mentor: Michael Anderson (Physiology)

74 - Makenzie Putz
Declare Yourself To Be: Word Reclamation in 1970's Iowa City
Major: International Studies
Mentor: Katie Hassman (University of Iowa Libraries)

76 - Apoorva Raikwar
HIV/AIDS advocacy and awareness through art and narrative
Major: Anthropology
Mentor: Jon Winet (Art and Art History)
78 - Alexandra Redfern
*Effects of Medial Olivocochlear Reflexes on Basilar Membrane Vibration*
Major: Speech and Hearing Sciences
Mentor: Shawn Goodman (Communication Sciences and Disorders)

80 - Kiara Rivera
*Do Illustrations Influence Reading Comprehension in Adults with Intellectual or Developmental Disabilities?*
Major: Speech and Hearing Sciences
Mentor: Meredith Saletta (Communication Sciences and Disorders)

82 - Ben Soll
*A Novel Strategy to Normalize Cancer Cells and Cure Cancer.*
Major: Ethics, Public Policy, and Political Science
Mentor: David Soll (Biology)

84 - Amanda Solomon
*Infusing Innovation and Entrepreneurial Thinking into the STEM Classroom*
Major: Environmental Science, Science Education
Mentor: Leslie Flynn (Science Education)

86 - McKinzee Steve
*Word Learning in Preschool Aged Spanish L1-English L2 Bilinguals*
Major: Speech and Hearing Science, Spanish
Mentor: Katherine Gordon (Speech and Hearing Science)

88 - Maja Sunleaf
*Digitizing a Museum’s History*
Major: Anthropology
Mentor: Heidi Lung (Anthropology - Museum Studies)
90 - Rebekah Truhan
Fire-Cracked Rock: A Technological Approach to FCR
Major: Anthropology
Mentor: James Enloe (Anthropology)

92 - Ashten Sherman
Effects of Age and Cognition on Investment Decisions
Major: Biomedical Engineering
Mentor: Natalie Denburg (Neurology)

94 - Maegan Tyrrell
The Passport Project Colloquium: Teaching Students How to Teach Students
Major: Health and Human Physiology - Health Promotion
Mentor: Jon Winet (Art and Art History)

96 - Nathaniel Weger
Gasification and Combustion of Miscanthus
Major: Mechanical Engineering
Mentor: Albert Ratner (Mechanical Engineering)

100 - Freya Yu
Documentary film: “Take it to the Streets”
Major: Cinematic Arts, minor: Theatre Arts
Mentor: Teresa Mangum

102 - Christian Zvokel
Fabrication of Spincoated Epoxy Membranes for the Separation of Organic Molecules
Major: Biochemistry
Mentor: Ned Bowden (Chemistry)
Again, a huge “Thank You” to all of our wonderful student presenters, mentors, judges, and supporting departments. Together, we are shaping the future of research one project at a time.