The 10th Annual
Spring
Undergraduate
Research
Festival

Celebrating undergraduate involvement in research & creative projects at the University of Iowa

Wednesday, April 9, 2014
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.

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93—Automated Axon Counting in the Optic Nerve of Mice for Glaucoma Research
Presenter: Kasra Zarei
Major: Biomedical Engineering
Mentor: Michael Abramoff (Ophthalmology)

94—Muscle Fiber Directionality Within the Ventricular Folds
Presenter: Melissa Zemke
Major: Speech and Hearing Sciences
Mentor: Jerald Moon (Communication Sciences and Disorders)

95—Acid-Sensing Ion Channels (ASICs) are required for Maximal Exercise Capacity in Mice
Presenter: Mara Zuckerman
Major: Spanish
Mentor: Christopher Benson (Internal Medicine)
The role of N-linked glycans on Ebola virus GP2  
Presenter: Madeline Walkner  
Major: Health and Human Physiology  
Mentor: Wendy Maury & Nicholas Lennemann (Microbiology)

88 – The Effects of Exercise on Cognitive Function in Prodromal Huntington Disease  
Presenter: McKenzie Wallace  
Majors: Nursing & International Studies  
Mentor: Nancy Downing (Nursing)

Damage to the ventromedial prefrontal cortex increases leniency of prison sentencing towards individuals who commit violent crimes  
Presenter: Kelsey Warner  
Majors: Psychology, Speech and Hearing Sciences  
Mentor: Daniel Tranel (Psychology, Neurology)

CaMKII is Essential for the Development of Lung Fibrosis after Injury  
Presenter: Christopher Winters  
Major: Biomedical Engineering  
Mentor: Isabella Grumbach & Mark Anderson (Internal Medicine)

Individual Difference and Self-framing in the Sunk Cost Bias  
Presenter: Haoyang Yan  
Majors: Economics, Psychology  
Mentor: Gary Gaeth (Marking) & Irwin Levin (Psychology)

Good things come in small packages: Fruit fly models of muscle and heart disease  
Presenter: Grant Young  
Major: Biochemistry  
Mentor: Lori Wallrath (Biochemistry)

The Spring Undergraduate Research Festival is proud to showcase poster presentations given by the University of Iowa’s student researchers. These students work in over 30 different departments and represent each of the freshman, sophomore, junior, and senior classes.

Students have been asked to stand by their posters for either the first or second hour, and then are free to visit fellow presenter’s posters during the other hour.

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

We hope that you enjoy talking with these outstanding students and will see you again in December 2014 for the Fall Undergraduate Research Festival!

The full SURF program, which includes the presenter’s abstracts, is available on the ICRU website.

Many thanks to the over 100 graduate students who have volunteered their time to serve as poster judges for this event. Their commitment to the undergraduate research community at the University of Iowa is largely what makes these festivals so successful.
List of Presenters

1 - Oil and Water: A Sephardic Christian’s Search for Spirituality
Presenter: Sophie Amado
Majors: English (Creative Writing) and Spanish
Mentor: Inara Verzemnieks (English)

2 - Discovery of Unique 3D Behaviors in Human Melanoma: New Targets for Anti-Cancer Drug Treatments
Presenter: Joseph Ambrose
Major: Biology
Mentors: David Soll & Deborah Wessels (Biology)

3 - Text Messaging to Improve Sexual Assault Care Follow Up: A Feasibility Study
Presenter: Eleanor Andersen
Major: Nursing
Mentors: Nancy Downing (Nursing)

4 - What Favorite Words Reveal
Presenters: Robin Anderson & Lauren Suhl
Majors: Speech and Hearing Sciences
Mentor: Karla McGregor (Communication Sciences and Disorders)

5 - Evaluation of APCs and Tregs in Lesions from Patients with the Autoimmune Blistering Disease, Bullous pemphigoid
Presenter: Samantha Aust
Majors: Biology and Psychology
Mentors: Kelly Messingham & Janet A. Fairley (Dermatology)

6 - Improving Patient Safety: Understanding Door Openings in a Cesarean Section Operating Room
Presenter: Brennan Ayres
Major: Biomedical Engineering
Mentors: Priyadarshini Pennathur (Mechanical & Industrial Engineering) & Loreen Herwaldt (Internal Medicine, Public Health)

80 - Energy Harvesting in the Wake of a Bluff Body
Presenter: Karlin Stutzman
Majors: Mechanical Engineering
Mentor: James Buchholz (Mechanical and Industrial Engineering)

81 - Effects of maternal responsiveness on infants’ attention and play behavior
Presenter: Fanya Sun
Major: Psychology
Mentor: Zhen Yu & Julie Gros-Louis (Psychology)

82 - Pseudo-Arithmetic Super Sets in the Hamilton Quaternions
Presenter: Keshav Sutrave
Majors: Mathematics and Physics
Mentor: Peter Blanchard

83 - Lower soluble RAGE and higher aortic stiffness in African American adolescents: possible protective effect of higher sRAGE in white youth
Presenter: Ericka Tank
Major: Health and Human Physiology
Mentor: Gary Pierce (Health and Human Physiology)

84 - Global vs. local control of contextual cueing in pigeons
Presenter: Yuejia (Mandy) Teng
Major: Psychology
Mentor: Edward Wasserman (Psychology)

85 - Pigeons use Connectivity to Solve Patterned-String Problems
Presenter: Keara Turkington
Major: Psychology
Mentors: Edward Wasserman & Leyre Castro Ruiz (Psychology)

86—Dancing to Destabilize Discrimination: Charles H. Williams and the Hampton Creative Dance Group
Presenter: Lauren Vanchina
Majors: Dance and Psychology
Mentor: Rebekah Kowal (Dance)
74 - Extinction of Conditioned Fear in Developing Rats
Presenter: Jonathan Schacherer
Major: Psychology
Mentors: John Freeman & Kevin Brown

75 - Myxococcus xanthus Secondary Metabolite Production Involved in Predation
Presenter: Sarah Strack
Major: Microbiology
Mentor: John Kirby (Microbiology)

76 - The effect of discourse elicitation protocol on reported speech use in healthy participants
Presenter: Madeline Strange
Major: Speech and Hearing Science
Mentor: Melissa Duff (Communication Sciences and Disorders)

77 - Infant feeding decisions by first-time mothers: Great expectations, mixed experiences
Presenter: Katherine Strickland
Majors: Psychology & Anthropology
Mentor: Erica Prussing (Anthropology)

78 - A Fire Cracked Puzzle: using experimental methods to determine the integrity of an archaeological site
Presenter: Luke Stroth
Major: Anthropology
Mentor: James Enloe (Anthropology)

79 - Characterization of the fibroblast growth factor 10 alleles in Xenopus laevis
Presenter: Kyle Strouse
Majors: Biochemistry & Microbiology
Mentor: Dan Weeks (Biochemistry)

7 - Modeling Skin Blistering Disease in Drosophila
Presenter: Gabriel Baccam
Major: Biochemistry
Mentor: Lori Wallrath (Biochemistry)

8 - Hybrid Artificial Blood Vessels
Presenter: Rebecca Barrett
Major: Biomedical Engineering
Mentor: Ibrahim Ozbolat (Mechanical and Industrial Engineering)

9 - Chitosan Wound Dressings to address deadly Superbugs
Presenter: Alexandra Bartlett
Majors: Chemical Engineering and Finance
Mentor: Allan Guymon (Chemical Engineering)

10 - Multiplication on the Punctured Torus
Presenter: Wade Bloomquist
Major: Mathematics
Mentor: Charles Frohman

11 - Visual Attention is Affected by Uncertainty
Presenter: Frank Bowers
Major: Psychology
Mentor: Shaun Vecera (Psychology)

12 - Examining the function of akir-1 in C. elegans development
Presenter: Rich Bowman
Major: Biology – Comprehensive
Mentor: Sarit Smolikove (Biology)

13 - Factors that Predict Theory of Mind in School-Aged Children Who Are Hard of Hearing
Presenter: Lauren Bricker
Major: Speech and Hearing Sciences
Mentors: Elizabeth Walkner (Communication Sciences and Disorders)
14 - Daisy Bates: The Mayor of Ninth Street
Presenter: Maddie Bro
Majors: Journalism & Mass Communication and Gender, Women's & Sexuality Studies
Mentor: Stephen Berry (Journalism & Mass Communication)

15 - Coarse Grain Modeling of DNA and RNA Duplexes
Presenter: Reid Brown
Majors: Biochemistry and Spanish
Mentor: Adrian Elcock (Biochemistry)

16 - All-Atom Molecular-Dynamics Simulations of DNA-Amino Acid Interactions
Presenter: Brady Campbell
Major: Biochemistry
Mentor: Adrian Elcock (Biochemistry)

17 - Popular Music in Musical Theatre: The Evolution of the Showtune
Presenter: Kayla Caryl
Majors: Political Science, Pre-law
Mentor: Donna Parsons (Music, Honors)

18 - Temporal Discounting, Risk Aversion and Dental Decisions
Presenter: Yanting Chen
Major: Microbiology
Mentor: Michelle McQuistan (Preventive & Community Dentistry)

19 - Proton NMR Studies of Functionalized Mesoporous Silica Nanoparticles in Aqueous Solution
Presenter: Stephanie Chin
Major: Chemistry
Mentor: Sarah Larsen (Chemistry)

68 - Modeling Iowa Water Quality based on Animal Feeding Operation Density and Land Cover
Presenter: Emily Pettit
Majors: History & Geography
Mentor: Heather Sander (Geographical and Sustainability Sciences)

69 - The Role of Perceptual Ambiguity in Cognitive Flexibility
Presenter: Daniel Plebanek
Major: Psychology and Linguistics
Mentors: Larissa Sameulson and Sammy Perone

70 - Do exotic species have traits that are similar or distinct from resident common species?
Presenter: Tyler Pokoski
Major: Biology
Mentor: Tiffany Knight & Erynn Maynard (Washington University Biology Department)

71 - Narrative Performance of Children who are Deaf and Hard of Hearing
Presenter: Rachel Raupp
Major: Speech and Hearing Science
Mentors: Elizabeth Walker (Communication Sciences and Disorders)

72 - Characterization of the Zebrafish FOXE1 Gene Function
Presenter: Christine Roenitz
Major: Evolutionary Biology
Mentor: Robert Cornell & Amanda Decker (Anatomy and Cell Biology)

73 - Smoking and Chronic Pain: Effects of persistent inflammatory injury on α4β2 nicotinic acetylcholine receptor number and binding affinity in the periaqueductal gray
Presenter: Christopher Sande
Major: Biology
Mentor: Donna Hammond (Anesthesia, Pharmacology)
62 - Using Nostalgic Design in Facebook Advertising: When is it effective?
Presenter: Yuefeng Pan
Majors: Marketing and Finance
Mentor: Jing Wang and Catherine Cole (Marketing)

63 - Effects of meiotic drive on chromosomal differences within the Drosophila virilis subgroup
Presenter: Dzavid Pandzic
Majors/Minor: Neurobiology & Human Physiology/Chemistry
Mentor: Bryant McAllister (Biology)

64 - Cytokinin Stimulates Asexual Reproduction in the Fern Ceratopteris richardii
Presenter: Dzevida Pandzic
Major: Biology, Human Physiology
Mentors: Chi-Lien Cheng (Biology)

65 - The Effect of GFP on Ciliary Motor
Presenter: Tyler Pecora
Major: Biology
Mentor: Daniel Eberl (Biology)

66 - Measuring listening effort: The paradoxical effect of noise on listening effort
Presenter: Joanna Perkins
Major: Speech and Hearing Sciences
Mentor: Yu-Hsiang Wu (Communication Sciences and Disorders)

67 - The Value of Resistance to Power Use
Presenter: Colin Peterson
Majors: Sociology and Philosophy
Mentor: Michael Lovaglia (Sociology)

20 - Use of emotion words by dementia caregivers in an disclosure task: handwriting versus typing
Presenter: Jun Young Cho
Major: Speech and Hearing Sciences
Mentor: Jean Gordon (Communication Sciences and Disorders)

21 - Enhancing the Accuracy of Undergraduates’ Perceptions of Women’s Sexual-Interest Cues
Presenter: Erin Church
Major: Psychology
Mentor: Teresa Treat (Psychology)

22 - Identifying the Devonian-Carboniferous Boundary in the Mid-Continent of North America
Presenter: Christopher Coble
Major: Geosciences
Mentor: Bradley Cramer (Earth and Environmental Sciences)

23 - Microwear Analysis of Stone Tool Scrapers
Presenter: Delaney Cooley
Major: Anthropology
Mentor: Matthew E. Hill (Anthropology)

24 - Substance P Receptor Antagonist Inhibition of Neurogenic Inflammation
Presenter: Taylor Dalsing
Major: Health and Human Physiology
Mentors: Andrew Russo (Molecular Physiology and Biophysics)

25 - Determining Handedness From Flake Production
Presenter: Chloe Daniel
Majors: Anthropology and Psychology
Mentor: Shelby Putt (Anthropology)
26 - Effects of Caffeine on the Circadian Activity in K+ Channel Drosofila Mutants
Presenter: Andre DeGroot & Andrew Metzger
Majors: Biomedical Engineering & Physics
Mentor: Chun-Fang Wu (Biology)

27 - A controlled study to test the effect of verbal and nonverbal instruction on experimental handaxe symmetry
Presenter: Emma Delopoulos
Major: Anthropology
Mentor: Robert Franciscus & Shelby Putt (Anthropology)

28 - Evolution of Meiosis Genes in Lichens
Presenter: Joseph Drum
Major: Biology
Mentor: John Logsdon (Biology)

29 - The Aftermath of Alcohol Exposure: A Survey of Glial Activity in a Mouse Model of Fetal Alcohol Syndrome
Presenter: Jacqueline Dunning
Majors: Neuro-Biology and Philosophy
Mentors: Michael Dailey & Kate Ahlers (Biology)

30 - Can Hypothetical Scenarios Be Used to Predict Actual Dental Treatment Decisions?
Presenter: Callie Espanto
Majors: Pre-Dentistry, Human Physiology
Mentor: Michelle McQuistan (Preventive and Community Dentistry)

31 - Withstanding Physical, Cognitive, and Emotional Distress: Toward a Unified Model of Distress Tolerance
Presenter: Emma Evanovich
Major: Psychology
Mentor: Michael O’Hara (Psychology)

56 - Beyond the Bomb: Uranium and Amino Acid Chemistry
Presenter: Samuel Miller
Major: Chemistry
Mentor: Tori Forbes (Chemistry)

57 - Synthesis of Manzacidin B
Presenter: Jason Mixdorf
Major: Chemistry
Mentor: Hien Nguyen (Chemistry)

58 - Butchering Meat with Oldowan and Acheulian Cores
Presenters: Christina Moscatel, Seraphina Carey, Rylee Kerper
Majors: Anthropology
Mentor: Shelby Putt (Anthropology)

59 - Red Blood Cell Volume and Blood Volume Measurements in Premature Babies
Presenter: Sam Mueting
Major: Biochemistry
Mentor: John Widness (Pediatrics)

60 - The Role of the Dorsal Agranular Insular Cortex on Reinstatement of Drug-Seeking
Presenter: Erin Naffziger
Major: Psychology
Mentor: Ryan LaLumiere (Psychology)

61 - Timeliness of Follow-Up Following a Failed Newborn Hearing Screening in Iowa
Presenter: Michelle O’Brien
Major: Speech and Hearing Science
Mentor: Lenore Holt (Pediatrics - Audiology)
50 - Breaking the Cycle: Meth in the Heartland
Presenter: Katherine Kuntz
Majors: Economics & Journalism and Mass Communication
Mentor: Charles Munro (Journalism and Mass Communication)

51 - When You Fail to Keep Your Eyes on the Prize: The Influence of Non-numeric Social Comparative Information on Judgments and Decisions
Presenter: Shuqi (Ariel) Li
Major: Psychology & Communication Studies
Mentors: Paul Windschitl (Psychology)

52 - Sick and tired: cytokines and symptoms in patients with advanced cancer
Presenter: Xiaoyue Liu
Major: Nursing
Mentors: Stephanie Gilbertson-White (Nursing)

53 - Influence of intraoral air pressure and auditory feedback on velopharyngeal closure during normal, whispered, pantomime, and electrolarynx speech
Presenter: Nicole Martin
Major: Speech and Hearing Sciences
Mentor: Jerald Moon (Communication Sciences and Disorders)

54 - The effectiveness of a group voice therapy approach to improve loudness in individuals with Parkinson's disease
Presenter: Marietta Mathis
Major: Speech and Hearing Science
Mentor: Ann Fennell (Communication Sciences and Disorders)

55 - Determining the Impact of IRS / Akt Signaling in Pressure Overload Hypertrophy and Human Heart Failure
Presenter: Nicholas McCarty
Major: Biochemistry
Mentors: E. Dale Abel (Internal Medicine, Biochemistry)

32 - You Are What You Eat: The Wahls™ Diet Improves Fatigue in Patients with Multiple Sclerosis
Presenter: Hanan Fadel
Major: Health and Human Physiology
Mentors: Cathy Chenard (Internal Medicine)

33 - Give Peace A Chance: How Music Shaped the 1960's Counterculture
Presenter: Taylor Finch
Major: History
Mentor: Donna Parsons (Music, Honors)

34 - Trends in Secondary Organic Aerosol (SOA) Formation in Iowa City
Presenter: Kevin Frey
Major: Chemistry
Mentor: Elizabeth Stone (Chemistry)

35 - A Role for TRAF3 in the Extended Survival of LMP1 Transformed B Cells
Presenter: Brett Hanson
Major: Microbiology
Mentor: Gail Bishop (Microbiology)

36 - Evaluating Aggregation Kinetics of Gold Nanoparticles using SERS
Presenter: Thomas Heiderscheit
Major: Chemistry
Mentor: Amanda Haes (Chemistry)

37 - U-Pb ages of detrital zircons from the Dakota Formation, western Iowa and Eastern Nebraska: Evidence for mid-Cretaceous transcontinental fluvial systems
Presenter: Brittany Hendrix
Majors: Geoscience & Art History
Mentor: Emily Finzel (Earth and Environmental Science)
38 - Investigating the Role of Cdc42 and Arf1 in GPIHBP1-mediated Transport of LPL Across Endothelial Cells  
**Presenters:** Alex Hjelmaas & Hannah Shows  
**Majors:** Biochemistry  
**Mentor:** Brandon Davies (Biochemistry)

39 - Valuation of Ecosystem Services: Simultaneous Autoregressive Estimation of a Hedonic Price Function  
**Presenter:** Cody Hodson  
**Majors:** Geography and Japanese  
**Mentor:** Heather Sander (Geographical and Sustainability Sciences)

40 - Determinants of Preferential Binding of Apo Calmodulin to the IQ Motif of Neuronal Sodium Channel NaV1.2  
**Presenter:** Liam Hovey  
**Majors:** Physics and Chemistry  
**Mentor:** Madeline Shea (Biochemistry)

41 - Impact of Severe Life Adversity on Physiological Pathways and Symptoms in Interstitial Cystitis/Painful Bladder Syndrome: Early Findings From the Multidisciplinary Approach to Pelvic Pain (MAPP) Study.  
**Presenter:** Lucille Howard  
**Major:** Psychology, Pre-Medicine  
**Mentor:** Susan Lutgendorf (Psychology)

42 - Expanding Europe and the Globe, 1350-1700  
**Presenter:** Julia Jessen  
**Majors:** Art History, Journalism, Studio Arts  
**Mentor:** Julie Hochstrasser (Art History)

43 - "This is my song!": Music-evoked autobiographical memories are less vivid in individuals with medial prefrontal cortex damage  
**Presenter:** Brett Karlan  
**Majors:** Biology (Neuro track), Philosophy  
**Mentor:** Daniel Tranel (Neurology)

44 - Are there specific anatomical foci that trigger seizures in Drosophila? (Maybe?)  
**Presenter:** Tanzeh Khan  
**Majors:** Biomedical Engineering, Pre-Medicine  
**Mentor:** Chun-Fang Wu (Biology)

45 - Measuring Listening Effort: Developing Adaptive Testing Procedures for the Dual-Task Paradigm  
**Presenter:** Sieon Kim  
**Major:** Speech and Hearing Science  
**Mentor:** Yu-Hsiang Wu (Communication Sciences and Disorders)

46 - Nutritional Modification Allays Seizure-like Phenotype in Shudderer, a Mutant of the Voltage-Gated Sodium Channel Gene in Drosophila  
**Presenter:** Tyler Klenske  
**Majors:** Music and Health and Human Physiology  
**Mentors:** Junko Kasuya and Toshi Kitamoto (Anesthesia)

47 - Phonological Development and Vocabulary in Bilingual Children  
**Presenter:** Rebecca Koerner  
**Major:** Speech and Hearing Sciences  
**Mentor:** Christine Shea (Spanish and Portuguese)

48 - Examining the effects of fluid shear stress on cells through micropipette aspiration  
**Presenter:** Benjamin Krog  
**Major:** Biomedical Engineering  
**Mentor:** Michael Henry (Molecular Physiology and Biophysics)

49 - The Role of Self-Presentation in Greco-Roman Generalship  
**Presenter:** Ryan Kunkle  
**Majors:** History  
**Mentor:** Rosemary Moore (History)