2014 Program

University of Missouri-St. Louis

Follow this and additional works at: https://irl.umsl.edu/urs

Recommended Citation
Available at: https://irl.umsl.edu/urs/138

This Program is brought to you for free and open access by the UMSL Undergraduate Works at IRL @ UMSL. It has been accepted for inclusion in Undergraduate Research Symposium by an authorized administrator of IRL @ UMSL. For more information, please contact marvinh@umsl.edu.
URS

Undergraduate Research Symposium

research • scholarship • creative works

2014

GOLDEN KEY INTERNATIONAL HONOUR SOCIETY
UNIVERSITY OF MISSOURI-ST. LOUIS
Mission Statement

The members of the University of Missouri-St. Louis chapter of Golden Key International Honour Society are committed to the creation of educational opportunities and the development of leadership skills. As leaders, we are dedicated to formulating a paradigm for student activism that preserves and advances the interests and reputation of our campus and its faculty.

In 2002, Golden Key members designed the Undergraduate Research Symposium (URS) to furnish a venue for undergraduate students to present their research, scholarship, and creative works as they would at a professional conference. This multidisciplinary event is intended to help students achieve their educational and professional goals by presenting students an opportunity to refine their communication skills and network with scholars. The URS also provides an opportunity for faculty and the broader academic community to express support for the undergraduate scholars in furthering their research and graduate studies.

What is Golden Key?

Golden Key International Honour Society is an academic honor society that recognizes and encourages scholastic achievement and excellence among college and university students from all academic disciplines. In an effort to reflect the Society's diversity and international presence, Golden Key uses the globally accepted spelling of "honour" in its name.
Chapter Officers 2013–2014
Siinya Edmondson, President
Anela Krijestorac, Vice President
Jeffrey Brayton, Treasurer
Kanisha Collie, Secretary
Jessica Corson, SGA Representative
Loc Nguyen, Webmaster
Jodi Heaps, PhD, Co-Advisor
Kathryn A. Walterscheid, PhD, Advisor

The mission of Golden Key:
To enable members to realize their potential by connecting individual achievement with service and lifelong opportunity

The values of Golden Key:
Integrity, Collaboration, Innovation, Respect,
Diversity, Excellence, Engagement
The URS Committee

Eric’el Johnson, Committee Chair
Megan Smith, Editor
Siinya Edmondson, Catering Coordinator
Jodi Heaps, PhD, Poster Editor

Kathryn A. Walterscheid, PhD, Faculty Director

URS Crew

Grace Derda
Jeffrey Brayton
Joe Sanders
Katie Walterscheid
Loc Nguyen
Yanlin Huang

Jenifer Stokes
Kaycee Williams
Melaney Walterscheid
Sara Gerberding
Tabitha McCullers
Jenise Davie

Nikki Long

Many URS crew members volunteered after this book went to press and could not be included in this list.
Thanks to the URS Sponsors

Primary Sponsors
Golden Key International Honour Society
College of Arts and Sciences
Student Affairs
Pierre Laclede Honors College

Co-Sponsors
Sigma Xi: The Scientific Research Society
Writing Lab, Department of English
Psi Chi
University of Missouri-St. Louis Graduate School

Acknowledgments
The members of Golden Key would like to thank all of the dedicated administrators, faculty, and staff who have inspired and helped us. In particular, we wish to express our appreciation to the following individuals:

Tanika Busch
Manager of Business, Fiscal Operations
College of Arts and Sciences

Jay Frey
Printing Services

We would also like to thank all the mentors who supervised the research, reviewed abstracts countless times, edited posters, coached oral presenters, and were there when they were needed.
Presentations

Biochemistry & Biotechnology 1
Biology 1
Chemistry 4
Computer Science 5
Criminology & Criminal Justice 5
Economics 5
English 6
Nursing 6
Physics 6
Psychology 7
Spanish 9
Women's and Gender Studies 9

The URS ends at 3:00 pm. Shortly thereafter, the awards will be presented at a brief ceremony in the Millennium Student Center, on the third floor, in Century Room C.
Awards

The UMSL chapter of Sigma Xi, The Scientific Research Society, will present three awards for posters. Faculty judges will assess the posters on content and style, the abstracts on content and clarity, and the presenters on their interaction with the audience. These awards are made possible by Dr. Patricia Parker through her Des Lee Endowed Professorship Grant.

Psi Chi, the International Honor Society in Psychology, encourages, stimulates, and maintains excellence in scholarship and research. One of its goals is to advance, specifically, the science of psychology; therefore, UMSL's chapter of Psi Chi will present awards to the top three psychology presentations.

Graduate School Application-Fee Waivers

The Graduate School is awarding application-fee waivers to URS Participants.

The URS Committee will be sending a list of URS participants to the graduate school. To use the waiver, put "URS fee waiver" under comments or statement of purpose when you register.
Biochemistry & Biotechnology

Aggregation Properties of the Alzheimer’s Amyloid-Beta Protein
Richard Davenport, Biochemistry and Biotechnology
Shana Terrill-Usery, Chemistry
Sanjib Karki, Chemistry
Mentor: Michael Nichols, PhD

Rapid Transcription of Messenger RNA during the Microglial Proinflammatory Response to the Alzheimer’s Amyloid-Beta Protein
Eleni Goranitis, Biochemistry and Biology
Shana Terrill-Usery, Chemistry
Sanjib Karki, Chemistry
Mentor: Michael Nichols, PhD

ELISA-Based Methods for Alzheimer’s Disease and Inflammation Research
Laura Janks, Biochemistry and Biotechnology
Shana Terrill-Usery, Chemistry
Ben Colvin, Chemistry
Mentor: Michael Nichols, PhD

Biology

Hummingbird Displacement Competition and Butterfly Species Diversity in a Mixed Species Pollinator Assemblage on Lantana camara
Sabah Baig, Biology
Mentor: Godfrey Bourne, PhD
Noisy City Slickers and Quiet Country Kin: Urbanization Selects for Higher Frequencies in Loud Songs of the Great Kiskadee, *Pitangus sulphuratus*
Serene Darwish, Biology
Mentor: Godfrey Bourne, PhD

**Pit Viper Research**
Joshua Higgins, Biology
Mentor: Aimee Dunlap, PhD

**Year-Two Biotic and Physicochemical Measurements of Water Quality in the Rupununi River Basin at Karanambu**
Christina Leahy, Biology
Kenneth Butler
Felix Holden
Leon Moore
Mentor: Godfrey Bourne, PhD

**Postman Butterflies Maintain Relatively Stable Temperatures during Fluctuating Circadian Ambient Temperatures at an Equatorial Site**
Chineze Obi, Biology
Mentor: Godfrey Bourne, PhD

**Leaf-Cutter Ants, *Atta cephalotes*, Already Transporting Crop Leaves Tend to Ignore Forest Plant Leaves in Smorgasbord Trials**
Robert Perks, Biology
Leon Moore
Mentor: Godfrey Bourne, PhD
Indole-3-acetic Acid Response in TAA Mutants
Matthew Richard, Biology
Gretchen Spiess, Biology
Mentor: Bethany Zolman, PhD

Inter-Island Dispersal Dynamics of the Galápagos Hawk
Lauren Sage, Biology
Mentor: Patricia Parker, PhD

Hot Males, Cooler Females: Sexual Differences in Thermoregulatory Behaviors by Dimorphic Red Copper Butterflies
Hannah Stowe, Biology
Mentor: Godfrey Bourne, PhD

Second Year of Sampling Suggests that Aquatic Macroinvertebrate Species and Richness at Karanambu Trust Indicate High Water Quality
Brian Waldrop, Biology
Mentor: Godfrey Bourne, PhD

Frequency Distributions of the Shy-Bold Personality Phenotype in the Pentamorphic Livebearing Fish Poecilia Parae
Riam Yousif, Biology
Mentor: Godfrey Bourne, PhD
Comparative Study of the Resolution of Allylic a-hydroxylphosphonates by HPLC with Chiral Stationary Phases

Michael Mannino, Chemistry
Mentor: Bruce Hamper, PhD

Inhibition of Cholinesterases by O,S-Diethylphenylphosphonothioate (DEPP)

Ahmed Mohamed, Chemistry
Mentor: Cynthia Dupureur, PhD

Propargylic Ethers: A Direct Synthesis Using a Ruthenium Based Catalyst

Jordan Rabus, Chemistry
Mentor: Eike Bauer, PhD

Analysis of the (0,0) and (1,1) bands of the A2Π1/2 - X2Σ+ transitions of ZrN

Jessica Spencer, Chemistry
Mentors: James Chickos, PhD; James O'Brien, PhD

The Vaporization Enthalpies and Vapor Pressures of Two Insecticide Components, Muscalure and Empenthrin, by Correlation Gas Chromatography

Jessica Spencer, Chemistry
Mentors: James Chickos, PhD; James O'Brien, PhD
The Synthesis and Characterization of Novel Chemical Methods of DNA Transformations
Ryan Stanton, Chemistry
Mentor: George Gokel, PhD

Computer Science

Track Tracker
Garett Bynum, Computer Science
Mentor: Sanjiv Bhatia, PhD

Criminology & Criminal Justice

Explaining the Onset of Mass Incarceration in the Show-Me State
Gwen Smith, Criminology & Criminal Justice
Mentor: Michael Campbell, PhD

Economics

The Determinants of Terrorism: A Quantitative Cross Sectional Analysis of Terrorist Activity Globally in 2010
Jonathan Omvig, Economics
Mentor: Anne E. Winkler, PhD
English

Ivy's Modern Women
Hali Flintrop, English
Mentor: Ann Torrusio, MA

Sensual Beauty and Violent Beasts:
Sexuality in Beauty and the Beast
Alicia Jessmon, History
Mentor: Daniel Gerth, MA

Nursing

Hypertension Assessment and Management of African Americans: A Community Based Approach
Renee St. Vrain, Nursing
Mentor: Margaret Barton-Burke, PhD, RN, FAAN

Physics

RGB Analysis of Wedge Angles around a Perforation in Silicon
Jamie Daugherty, Physics
Mentor: Phil Fraundorf, PhD
Light Metal Hydrides as Cathode Materials in Lithium-Ion batteries
Alyssa McFarlane, Physics
Waruni Jawawardana, Physics
Chriss Carr, Physics
Dongxu Zhao, Physics

Mentor: Eric Majzoub, PhD

Study of Volatile Organics in Comet C/2002 T7
Christopher Milliano, Physics

Mentor: Erika Gibb, PhD

Study of OH Absorption in AA Tau
Nathan Roth, Physics
Logan Brown, Physics

Mentor: Erika Gibb, PhD

Psychology

The Effects of Victim-Perpetrator Relationship in PTSD
Julianne Altmann, Psychology & Criminal Justice

Mentors: Michael Griffin, PhD; Brittany Preston, MA

Are Men's Reports of Sexual Risk Influenced by Social Desirability? A Bogus Pipeline Study
William Dement, Psychology
Emily Strang, Psychology

Mentor: Zoe Peterson, PhD
Preserved Visual Word Recognition in a Patient with Alexia Sine Agraphia
Elizabeth Eades, Psychology
Mentor: Suzanne Welcome, PhD

Sense of Belonging Mediates the Effects of Identity Integration on Social and Academic Outcomes among Women in STEM
Anna Glushko, Psychology
Mentor: Bettina Casad, PhD

Emotional Expression in a Mock Interview
Michael Harris, Psychology
Mentor: Bettina Casad, PhD

Sentence Completion Among Skilled Readers
Melanie Jett, Psychology
Mentor: Suzanne Welcome, PhD

Women's Representation in STEM: The Role of Female Faculty
Evan Loveless, Psychology
Breanna R. Wexler, Psychology
Jessica L. Eastin, Psychology
John S. Slifka, Psychology
Mentor: Bettina Casad, PhD

Neural Correlates of Spelling-sound Interaction in Adult Readers
Remington Mallett, Psychology
Mentor: Suzanne Welcome, PhD
Effects of Posttraumatic Stress Disorder Symptom Severity and Major Depressive Disorder History on Psychophysiological Reactivity
Karin Meeker, Psychology
Mentors: Michael Griffin, PhD; Tara Galovski, PhD; Brittany Preston, MA

The Influence of Variable Length Cognitive Processing Therapy on Perceived Health and Sleep Impairment
Brian Wilkinson, Psychology
Mentors: Tara Galovski, PhD; Courtney Chappuis, MA

Spanish

Perceived and Actual Gains in Fluency after Study Abroad
Courtney Gummersheimer, Liberal Studies
Mentor: Lauren Schmidt, PhD

Women’s and Gender Studies

Sexual Objectification in Anime: The Female Body
Anita Fike, Modern Languages
Mentor: Ann Torrusio, MA

The Hunger Games, Divergent, and Foucault: The Role of Gaze in Young Adult Dystopias
Roberta Gordon, English
Mentor: Ann Torrusio, MA