2015 Program

University of Missouri-St. Louis

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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 2014–2015

Eric’el Johnson, President
Aaron Kravish, Treasurer
Anna Glushko, Secretary
Michael Baryo, Campus & Community Outreach Director
Megan Smith, Public Relations Director
Stephany Lakey, SGA Representative
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
Mark E. Stone, Committee Chair
Eric'el Johnson, Oral Presentation Coordinator
Jodi Heaps, PhD, Poster Editor
Kathryn A. Walterscheid, PhD, Faculty Director

URS Crew
Teresa Helms
Melissa Somerdin
Hannah Read
Melaney Walterscheid
Karlyne Killebrew
Stefanie Paige
Addy Lai
Aaron Kravish

We also want to recognize the many URS members
who volunteered after this book went to press.
Thanks to the URS Sponsors

Primary Sponsors

Gold Key
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Student Affairs

Co-Sponsors

University Program Board (UPB)
UMSL Student Government Association (SGA)

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, and the presenters on their interaction with the audience. The URS gratefully acknowledges the support of the Des Lee Collaborative Vision and the E. Desmond Lee Endowment of Professor Patricia Parker for providing the poster awards and to Sigma Xi for providing judges.

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.
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:

Christopher Schott, Writing Center Coordinator
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Sherry Gerrein, Pierre Laclede Honors College
Dr. Margo-Lea Hurwicz, Assistant Professor
Dr. Keith Stine, Professor

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.

New “I Chose UMSL” Master’s Scholarships

URS participants who are graduating soon can contact their advisor and the graduate department of their choosing and ask to be nominated for the new “I Chose UMSL” scholarships. The program provides $500 to selected UMSL grads who return to pursue their first Master’s degree.
Presentations

Anthropology 1
Archaeology 2
Biochemistry and Biotechnology 2
Biology 2
Business Administration 6
Chemistry 7
Economics 7
Liberal Studies 7
Literature 8
Physics 8
Political Science 9
Psychology 9

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

Immigration in South City
Elizabeth Bryan, Anthropology
Mentor: Margo-Lea Hurwicz, PhD

Cahokia’s Influence: The Trade of Pottery West of the Mississippi
Anthony Farace, Anthropology
Mentor: Patti Jo Wright, PhD

Evidence of Fighting in Early 19th-Century U.S. Culture
Rachel Indelicato, Anthropology
Mentor: Sarah Lacy, PhD

Modifying Caissons for Nautical Archaeology
Alex Leo, Anthropology
Mentor: Margo-Lea Hurwicz, PhD

Feminism Through the Use of Nonverbal Communication
Adam Mann, Anthropology
Mentor: Margo-Lea Hurwicz, PhD

Educational Strategies for Zoo Conservation
Michelle McCormack, Anthropology
Mentor: Margo-Lea Hurwicz, PhD
Archaeology

Historical Inaccuracy in History Channel's Vikings
Courtney Hayden, Archaeology
Mentor: Margo-Lea Hurwicz, PhD

Biochemistry & Biotechnology

Characterization of Novel Cyanobacteria Strains
Rahmah Ghazal, Biochemistry and Biotechnology
Sara Abramowski, Biochemistry and Biotechnology
Erica Nelson, Biochemistry and Biotechnology
Mentor: Teresa Thiel, PhD

Genomic Sequencing and Characterization of the Cyanobacterium Anabaena sp. PNB
Christopher Harper, Biochemistry and Biotechnology
Mentor: Teresa Thiel, PhD

Biology

Development of an Effective Immunofluorescence Protocol for Drosophila melanogaster Tissue Culture Cells and Embryos
Kaylyn Bauer, Biochemistry and Biotechnology
Mentor: Mindy Steiniger, PhD
Characterization of the Cyanobacteria N2B and Its Potential Use for Biofuel Production
Kaylyn Bauer, Biochemistry and Biotechnology
Mentor: Teresa Thiel, PhD

Simulating Natural Light Environments to Examine Niche Differences in the Federally Endangered Astragalus bibullatus & a Widespread Common Congener, Astragalus crassicarpus var. crassicarpus
Rachel Becknell, Biology
Mentor: Peter Stevens, PhD

Detection of Yellow-crowned Parrot Repertoire Using Human Analysis
Jessica Brown, Biology
Leon P. Moore
Mentor: Godfrey R. Bourne, PhD

Synthetic Anion Transporters Alter Arabidopsis thaliana Root Architecture
Evan Garrad, Biology
Mentors: George W. Gokel, PhD; Mohit B. Patel, MS

Malaria Parasites (Order Haemosporida) Infecting Avian Host Populations in Eastern Cuba
Lindsey Gray, Biology
Mentors: Robert Ricklefs, PhD; Leticia Soares, Doctoral Student
Leaf-Cutter Ant Cast Sizes Are Related to Leaf Fragment Sizes Transported to Their Nests
Lauren Kincade, Biology
Mentor: Godfrey R. Bourne, PhD

Christina Leahy, Biology
Mentor: Godfrey R. Bourne, PhD

Chimera States in a Neural Model
Scott Lewis, Biology
Tera Glaze
Kenneth Showalter
Mentor: Sonya Bahar, PhD

Promotion of nifV in Anabaena variabilis
Kent Morgan, Biochemistry and Biotechnology
Mentor: Teresa Thiel, PhD

Characterization of the 2RC and BAI Cyanobacteria
Kent Morgan, Biochemistry and Biotechnology
Rajesh Dhimal, Biochemistry and Biotechnology
Mentor: Teresa Thiel, PhD

Investigating the Role of Puf Proteins and miRNAs on Parkinson’s Disease Gene Regulation
Christine Noto, Biology
Mentor: Wendy Olivas, PhD
Do Galapagos Birds Share Parasites with Their Neighbors?

Sage Rohrer, Biology
Mentors: Patricia Parker, PhD; Mari Cruz Jaramillo, M.Sc.

Interaction of Double Mutants in Indole-3-Butyric Acid Metabolism

Amanda Shurzinske, Biology
Mentor: Bethany Zolman, PhD

Classification of the Cyanobacteria Strains ARAD and FSR

Thomas Smith, Biochemistry and Biotechnology
Abigail Eaker, Biochemistry and Biotechnology
Mentor: Teresa Thiel, PhD

Arabidopsis thaliana and the Classification of Peroxisome Mutations

Marlee Thomas, Biology
Ying Li, Biology
Mentor: Bethany Zolman, PhD

Heliothermic Butterfly Activity, Abundance, and Species Diversity are Highest in the Late Morning and Early Afternoon

Ashley Venker, Biology
Mentor: Godfrey R. Bourne, PhD

Giant Water Lily, Victoria amazonica, Size Classes Are Not Related to the Number of Visiting Scarab Beetle, Cyclocephala hardyi, Pollinators

Samantha Villiare, Biology
Leon P. Moore
Mentor: Godfrey R. Bourne, PhD
Third Year of Sampling Suggests That Aquatic Macroinvertebrate Species and Richness at Karanambu Trust Indicate Low Water Quality During a Drought

Brian Waldrop, Biology
Susan George
Kenneth Butler
Leon P. Moore

Mentor: Godfrey R. Bourne, PhD

Arabidopsis Thaliana ibr3-1 Double Mutants Provide Insight to IBA to IAA

Marisa Yoder, Biology
Vanessica Jawahir

Mentor: Bethany Zolman, PhD

Lizard Species Diversity in an Abnormally Dry Month and Comparisons with a Month in a Normal Rainfall Year

Ari Zakroff, Biology
Audwin Anthony

Mentor: Godfrey R. Bourne, PhD

Business Administration

Marketing Gender Roles in the Japanese and American Cultures

Kathryn Bewig, Business Administration

Mentor: Ann Torrusio, MA
Chemistry

In-vitro Screening of Various Compounds for Potential NAD⁺-mediated DNA Ligase Inhibitors

Hyung Park, Chemistry
Mentor: Cynthia M. Dupureur, PhD

Economics

An Econometric Investigation of the Determinants of Public Transportation Use

Brandon Giesegh, Economics
Mentor: Anne E. Winkler, PhD

Liberal Studies

Auto Ethnography: Exploration of a Black Mother's Challenge to Save Her Sons

Sharon Williams, Liberal Studies
Mentor: Margo-Lea Hurwicz, PhD
Literature

Flannery O'Connor & Lady Gaga: Unorthodox Catholicism & Subversive Texts

Katryn Dierksen, English
Mentor: Kimberly Baldus, PhD

Physics

Diffraction Effects in Energy-Filtered Electron Mapping of Specimen Thickness

Brigid Costello, Physics
Mentor: Phillip Fraundorf, PhD

Ice Abundances in Comet C/2002 T7

Warren Li, Physics
Mentor: Erika Gibb, PhD

Investigation of Electrode Materials in Lithium-ion Batteries: Improving Capacity and Cycling Performance

Alyssa McFarlane, Physics
Mentor: Eric H. Majzoub, PhD
Real Time Sheet Music
Stephen Wedekind, Physics
Mentor: Phillip Fraundorf, PhD

Accretion in Young Stellar Objects
Matthew Wentzel, Physics
Mentor: Bruce Wilking, PhD

Political Science

Effects of Economic Perception on Voter Turnout
Hagen Montano, Economics
Mentor: David C. Kimball, PhD

Policy Innovation and the Dynamic Court
Devon Roberson, Public Policy and Administration
Mentor: Richard Middleton, PhD, JD

Psychology

Fathers’ Occupation and Sense of Belonging Predict Personal Outcomes among Women in STEM
Jordan Farhat, Biochemistry and Biotechnology
Mentor: Bettina Casad, PhD
The Role of Perceived Difficulty in Women's Commitment to Science
Heather Chiang, Psychology
Richard Currie, Psychology
Bradley Morlock, Psychology
Mentor: Bettina Casad, PhD

The Effects of Previous Childhood Sexual Assault and Current PTSD Status on Heart Rate Reactivity During Interpersonal Trauma Cues
Meg Cloud, Psychology
Rebecca Delgado, BS
Brittany Preston, MA
Mentor: Michael Griffin, PhD

Orthographic-Phonographic Integration in Adults with Varying Reading Skill
Sarah Gill, Liberal Studies
Mentor: Suzanne Welcome, PhD

Dehydroepiandrosterone Anxiety Effects on Older Adult Male Rats
Gina Hart, Nursing
Meg Cloud, Psychology
Jamie Gunn, Psychology
Brittany Preston, BA
Mentor: George Taylor, PhD

Implicit and Explicit Alcohol Attitudes
Veronica High, Psychology
Mentor: Jeffrey Noel, PhD
Self-Efficacy Mediates Effects of Stereotype Threat on Academic Outcomes

Lauren Kanyuck, Psychology
Evan Blechle, Psychology
Sarah Mitchell, Psychology

Mentor: Bettina Casad, PhD

The Effect of Emotional Stimuli on Stomach Contractions

Amanda Lococo, Psychology

Mentor: Sandra Langeslag, PhD

Observations on Environmental Accuracy of Lucidly Dreamed Content

Remington Mallett, Psychology

Mentor: Suzanne Welcome, PhD

Event-Related Potentials Associated with Word Prediction During Reading

Kaitlyn May, Psychology
Katy Fox, Biology

Mentor: Suzanne Welcome, PhD

Distracting Effect of Beloved-Related Information on Working Memory

Kaylyn Moore, Psychology

Mentor: Sandra Langeslag, PhD
Changes in Distress as a Mediator Between Guilt Cognitions and PTSD in Treatment of Trauma Survivors

Cameron Richter, Psychology
Mentor: Tara E. Galovski, PhD

Complex Trauma Exposure in Children: Investigating a Dimensional Conceptualization and Perpetrator Attachment

Cazzie Steinzor, Psychology
Mentors: Jerry H. Dunn, PhD; Rachel Ann Wamser-Nanney, PhD

Regulation of Love Feelings

Kruti Surti, Psychology
Mentor: Sandra Langeslag, PhD

Can You Read This: A Study of Orthographic Priming

Emma Trammel, Psychology
Mentor: Suzanne Welcome, PhD

Early Life Stress, Depression, and Cognitive Ability in Adults with Congenital Heart Disease

Brian Wilkinson, Psychology
Mentor: Kamila S. White, PhD

How Power Poses Affect Self-Efficacy and Sexual Interest

Kristen Woodhall, Psychology
Mentors: Jennifer Siciliani, PhD; Margo-Lea Hurwicz, PhD