TUESDAY, APRIL 17
IOWA STATE UNIVERSITY MEMORIAL UNION

SYMPOSIUM ON UNDERGRADUATE RESEARCH & CREATIVE EXPRESSION

SCHEDULE OVERVIEW

8:30 - 9:00   REGISTRATION AND REFRESHMENTS, PIONEER ROOM

9:00 - 9:30   OPENING REMARKS & RECOGNITION OF NATIONAL SCHOLARSHIP CANDIDATES

9:30 – 10:45 PRESENTATION SESSION I

SESSION I.A   BIOLOGY & BIOSYSTEMS
Room 3505   Moderator: David Oliver, Genetics, Development & Cell Biology

I.A.1 Uncovering Novel Signaling Interactions in Regulation of the Plant Metabolic Network
Le Song (Biochemistry, College of Liberal Arts and Sciences)
Mentor: Ling Li, Genetics, Development & Cell Biology

I.A.2 Oxygen Demand of Bruchids
Jeff Askey (Agriculture Engineering, College of Engineering)
Mentor: Carl Bern, Agricultural & Biosystems Engineering

I.A.3 Environmental Effects on QQS’ Regulating Starch Metabolism in Arabidopsis Leaves
Xiaoran Shang (Biology and Microbiology, College of Agriculture and Life Sciences)
Mentor: Ling Li, Genetics, Development & Cell Biology

I.A.4 Characterizing Global Recombination Rates in Maize Inbreds
Mischa Olson (Biology and Spanish, College of Liberal Arts and Sciences)
Mentor: Wojciech Pawlowski, Cornell University

SESSION I.B   BIOLOGY & BIOLOGICAL ENGINEERING
Room 3512   Moderator: Jeff Essner, Genetics, Development & Cell Biology

I.B.1 Analysis of Cell Proliferation and Differentiation in a Zebrafish Model for Retinoblastoma
Pavel Brodskiy (Chemical Engineering and Biology, Colleges of Engineering and Liberal Arts & Sciences)
Mentor: Donald Sakaguchi, Genetics, Development & Cell Biology

I.B.2 Effect of Mesenchymal Stem Cells on Adult Hippocampal Progenitor Cells in vitro co-culture
Sagar Chawla (Global Resource Systems and Biology, College of Agriculture and Life Sciences), Michael Khan (Microbiology, College of Agriculture and Life Sciences)
Mentor: Donald Sakaguchi, Genetics, Development & Cell Biology

I.B.3 Phenotypic Characterization of Retinal Tumor Cells in Zebrafish
Jessica Kincheloe (Biology, College of Liberal Arts and Sciences)
Mentor: Maura McGrail, Genetics, Development & Cell Biology

I.B.4 How Cells Think: The Influence of Collagen in Cell Migration
Carin Lightner (Chemical Engineering, College of Engineering)
Mentor: Ian Schneider, Chemical & Biological Engineering
SESSION I.C  DESIGNING THE ENVIRONMENT  
Room 3534  Moderator: Brenda Jones, Art & Design

I.C.1  Robotronics  
Aaron Hewitt (Integrated Studio Arts, College of Design), Eric Ensey (Integrated Studio Arts, College of Design)  
Mentor: Anson Call, Art & Design

I.C.2  Good and Bad Lighting: How It Affects Users in a Public Space  
Olachi Anaemereibe (Interior Design, College of Design)  
Mentor: Cigdem Akkurt, Art & Design

I.C.3  State of Iowa Creative Collaborative  
Sarah Lokenvitz (Integrated Studio Arts, College of Design), Chris Smith (Pre-Architecture, College of Design), Justin Winkel (Integrated Studio Arts, College of Design) Chad Powell (Integrated Studio Arts, College of Design)  
Mentor: Chris Martin, Art & Design

I.C.4  Illuminating Numbers  
Isabelle Leysens (Architecture, College of Design), Zach Sunderland (Architecture, College of Design) Mentor: Ulrike Passe, Architecture

SESSION I.D  ENERGY DESIGN & ENGINEERING  
Room 3538  Moderator: Ross Morrow, Mechanical Engineering

I.D.1  Desiccant System for the Interlock House  
Nick Hulstrom (Architecture, College of Design), Jessica Bruck (Architecture, College of Design)  
Mentor: Ulrike Passe, Architecture

I.D.2  Developing a User-Friendly GUI to Characterize Organic Solar Cell Morphologies  
Shaun VanWeelden (Mechanical Engineering, College of Engineering)  
Mentor: Baskar Ganapathysubramanian, Mechanical Engineering

I.D.3  Understanding How the Final Morphology after Spin Coating Effects the Overall Efficiency of a Bulk Heterojunction Photovoltaic Cell  
Shane Gerkin (Mechanical Engineering, College of Engineering)  
Mentor: Baskar Ganapathysubramanian, Mechanical Engineering

SESSION I.E  HEALTH & LEARNING  
Room 3558  Moderator: Deb Satterfield, Art & Design

I.E.1  Learning Techniques Used to Detect Disease in Wildlife  
Alejandra Navarro (Animal Ecology, College of Agriculture and Life Sciences)  
Mentor: Julie Blanchong, Natural Resource Ecology & Management

I.E.2  Developing a Methodology for Designing and Evaluating Medical Decision Aids: A Research Collaboration with Mayo Clinic.  
Brandon Alvarado (Graphic Design, College of Design), Leah Willadsen (Graphic Design and Advertising, College of Design)  
Mentor: Debra Satterfield, Art & Design

I.E.3  The Impact of Exercise on Immunity to Infectious Disease  
Josie Redman (Kinesiology, Pre-Health, College of Human Sciences)  
Mentor: Marian Kohut, Kinesiology

I.E.4  Decision-Making in Children based on Snack Packages  
Whitney Farrell (Graphic Design, College of Design), Katelyn Oswald (Pre-Graphic Design, College of Design), Alyssa Lauer (Pre-Graphic Design, College of Design)  
Mentor: Sunghyun Kang, Art & Design
SESSION I.F  HEALING & RELATIONSHIPS  
Room 3219  Moderator: Shana Carpenter, Psychology

I.F.1  Spirituality and Forgiveness  
*Tiara Mays* (Psychology, College of Liberal Arts and Sciences)  
Mentor: Nathaniel Wade, Psychology

I.F.2  Stigma, Re-Entry and Help-Seeking Behaviors among Black American Parolee Populations  
*Jessica Tate* (Psychology & Sociology, College of Liberal Arts and Sciences)  
Mentor: David Vogel, Psychology

I.F.3  Hooking Up, Alcohol Use and Emotional Responses Among Undergraduates  
*Autumn Thompson* (Psychology and Sociology, College of Liberal Arts and Sciences)  
Mentor: Teresa Downing-Matibag, Sociology

I.F.4  Exploring Internal Barriers to Help-Seeking in Military Personnel  
*Amanda Thill* (Psychology, Child Adult and Family Services, College of Liberal Arts and Sciences)  
Mentor: Nathaniel Wade, Psychology

10:45 - 11:00  BREAK & REFRESHMENTS, PIONEER ROOM

11:00 – 12:15  PRESENTATION SESSION II

SESSION II.A  GENDER & SOCIETY  
Room 3505  Moderator: Valerie Hennings, Political Science

II.A.1  Informed Consent and Sex Differences in Perceived Privacy Risk From Participation in Behavioral Genetic Research  
*Cassandra Anglade* (Psychology, College of Liberal Arts and Sciences)  
Mentor: Norman Scott, Psychology

II.A.2  Recent Leadership Trends in the Iowa General Assembly: A Gendered Analysis  
*Sawyer Baker* (Political Science, Sociology, College of Liberal Arts and Sciences)  
Mentor: Valerie Hennings, Political Science

II.A.3  Serving Latinas Who are Victims of Domestic Abuse: Perspectives of Service Providers in Iowa  
*Ruth Cardenas* (Child, Adult Family Services, College of Human Sciences)  
Mentor: Brenda Lohman, Human Development & Family Studies

II.A.4  Advancing Rural Women's Land Rights in Kamuli District, Uganda  
*Neo Mazur* (Global Resource Systems, French, Sociology, College of Agriculture and Life Sciences)  
Mentor: Carmen Bain, Sociology

SESSION II.B  MATHEMATICS & APPLICATIONS  
Room 3512  Moderator: Wolfgang Kliemann, Mathematics

II.B.1  Graphical Exploration of Effectiveness of State Regulations on Fatal Accident Rate  
*Sijing Shao* (Statistics and Mathematics, College of Liberal Arts and Sciences), *Xinu Ma* (Statistics, College of Liberal Arts & Sciences), *Yenchih Lin* (Statistics, College of Liberal Arts & Sciences), *Yiting Li* (Statistics and Accounting, Colleges of Liberal Arts and Sciences and Business), *Yuanrong Xu* (Statistics, College of Liberal Arts and Sciences)  
Mentor: Heike Hofmann, Statistics

II.B.2  Exploring the Effects of Losing Na in NaFeAs  
*Nicholas Spyrlson* (Statistics, College of Liberal Arts and Sciences)  
Mentor: Ruslan Prozorov, Physics & Astronomy

II.B.3  The Invariant Measures for Hybrid Stochastic Systems  
*Sijing Shao* (Math and Statistics, College of Liberal Arts and Sciences)  
Mentor: Wolfgang Kliemann, Mathematics

II.B.4  Event Type Polymorphism  
*Rex Fernando* (Computer Science and Math, College of Liberal Arts and Sciences)  
Mentor: Hridesh Rajan, Computer Science
SESSION II.C  ENVIRONMENTAL STUDIES  
Room 3534  Moderator: Kristie Franz, Geological and Atmospheric Sciences

II.C.1  Hickory Grove Water Quality Improvement Project  
Conrad Brendel (Environmental Engineering, College of Engineering), Nicholas Terhall (Aerospace Engineering, College of Engineering)  
Mentor: Michelle Soupir, Agricultural & Biosystems Engineering

II.C.2  Decay of Chlorophyll a During Freezing: Implications for Recommended Holding Times  
Casey Johnson (Environmental Science, College of Liberal Arts and Sciences)  
Mentor: Christopher Filstrup, Ecology, Evolution & Organismal Biology

II.C.3  Variability of E. coli Concentrations within the Squaw Creek Watershed  
Andrew Paxson (Environmental Science and Environmental Studies, College of Agriculture and Life Sciences)  
Mentor: Michelle Soupir, Agricultural & Biosystems Engineering

II.C.4  Transpiration at the Transition: Climatic Drivers of Tree Water Use in the Sierra de las Minas  
Nate Looker (Agronomy and Global Resource Systems, College of Agriculture and Life Sciences)  
Mentor: Richard Schultz, Natural Resource Ecology & Management

SESSION II.D  ANIMAL SCIENCE & ECOLOGY  
Room 3538  Moderator: Matthew Ellinwood, Animal Science

II.D.1  The Use of Multilocus Sequence Typing (MLST) to classify levels of virulence in Mycoplasma hyopneumoniae strains  
Thiara Aleman (Animal Science, College of Agriculture and Life Sciences)  
Mentor: Erin Strait, Veterinary Diagnostic & Production Animal Medicine

II.D.2  Evolutionary Rates and Patterns of Sexual Shape Dimorphism in the Shells of Emydid Turtles  
McKenna Hansel (Animal Ecology, College of Agriculture and Life Sciences)  
Mentor: Gabe Rivera, Ecology, Evolution & Organismal Biology

II.D.3  Sensitivity and Efficiency Testing of Real-Time PCR Assay for Mycoplasma hyopneumoniae  
Sarah Hart (Animal Science, College of Agriculture and Life Sciences)  
Mentor: Erin Strait, Veterinary Diagnostic & Production Animal Medicine

SESSION II.E  BUSINESS: TRENDS & DECISIONS  
Room 3558  Moderator: Sue Ravenscroft, Accounting

II.E.1  Analysis of On-Farm Decision Support Tools (DSTS) for Ecosystem Service Management  
Robert Manatt (Forestry, College of Agriculture and Life Sciences)  
Mentor: John Tyndall, Natural Resource Ecology & Management

II.E.2  Downward Trend in Representation of Women across the Information Technology (IT) Fields: Effect of Intervention Programs and Education Policies.  
Ana Ramos Gonzalez (Management Information Systems, College of Business)  
Mentor: Sree Nilakanta, Supply Chain & Information Systems

II.E.3  REALice - Implications towards Energy Savings in Ice Arenas  
Tim Kise (Mechanical Engineering, College of Engineering)  
Mentor: Alan Murdoch, Kinesiology

II.E.4  Effects of U.S. GAAP and IFRS Convergence  
Morgan Wickersham (Accounting, Marketing, College of Business)  
Mentor: Jan Duffy, Accounting

SESSION II.F  GENETICS  
Room 3219  Moderator: Stephan Schneider, Genetics, Development & Cell Biology

II.F.1  Use of Red Fluorophores to Study Cell Migration and Programmed Cell Death in Living Drosophila Embryos  
Danielle Pohl (Biology, College of Liberal Arts and Sciences)  
Mentor: Clark Coffman, Genetics, Development & Cell Biology
II.F.2 Tol-2 Transposon Mutagenesis in Zebrafish  
*Autumn Marsden* (Genetics, College of Liberal Arts and Sciences)  
Mentor: Jeff Essner, Genetics, Development & Cell Biology

II.F.3 Tradeoff Between Immune Evasion & Fitness: Replication Phenotypes of Equine Infectious Anemia Virus  
*Kody Waldstein* (Genetics, College of Liberal Arts and Sciences)  
Mentor: Susan Carpenter, Animal Science

II.F.4 The Sequencing and Function of Zebrafish line Tol-2 GFP CW5  
*Neal Campbell* (Biology, College of Liberal Arts and Sciences)  
Mentor: Maura McGrail, Genetics, Development & Cell Biology

12:15 – 12:45 BREAK & REFRESHMENTS FEATURING 2012 FOCUS EXHIBIT & ARTISTS  
PIONEER ROOM

12:45 – 2:00 PRESENTATION SESSION III

SESSION III.A  
Room 3505  
Moderator: *Stephanie Madon, Psychology*

III.A.1 The Measurement of the Relationship between Self-Efficacy Beliefs and Performance in a General Chemistry Course  
*Solomon Hughes* (Chemistry and Psychology, College of Liberal Arts and Sciences)  
Mentor: Thomas Holme, Chemistry

III.A.2 Perceived Discrimination, Social Connectedness and Depression among Ethnic Minority Students in a Predominantly White College in the U.S.  
*Yuk Pang* (Psychology, College of Liberal Arts and Sciences)  
Mentor: Meifen Wei, Psychology

III.A.3 Emotional Intelligence as a Negative Predictor of Trait Aggression  
*Desirae Runyon-Weaver* (Psychology and Child, Adult & Family Services, Colleges of Liberal Arts and Sciences and Human Sciences), *Carrie Sporrer* (Psychology, College of Liberal Arts & Sciences)  
Mentor: Sara Prot, Psychology

III.A.4 Does Shared Leisure Time and Marital Satisfaction Matter Less for the Marital Stability of Couples with Frequent Sexual Activity?  
*Matthew Brinkley* (Political Science, College of Liberal Arts and Sciences)  
Mentor: Clinton Gudmunson, Human Development & Family Studies

SESSION III.B  
Room 3512  
Moderator: *Tim Derrick, Kinesiology*

III.B.1 The Effects of Internal and External Rotation of the Foot During Stair Ascent And Descent  
*Melissa DeGraaf* (Kinesiology, Health, College of Human Sciences)  
Mentor: Jason Gillette, Kinesiology

III.B.2 Estimating Age at Death of Humans  
*Shannanh Johnson* (Anthropology, College of Liberal Arts and Sciences)  
Mentor: Kaila Folinsbee, Anthropology

III.B.3 The Effect of Different Lifting Techniques on Trunk Kinematics on a Moving Ground Surface  
*Deirdre Green* (Industrial Technology, College of Agriculture and Life Sciences)  
Mentor: Gary Mirka, Industrial & Manufacturing Systems Engineering

III.B.4 Comparison of Ergonomic Risk Ratings by Three Different Assessment Tools  
*Elease McLaurin* (Industrial Engineering, College of Engineering)  
Mentor: Richard Stone, Industrial & Manufacturing Systems Engineering

SESSION III.C  
Room 3534  
Moderator: *Mickael Muecke, Architecture*

III.C.1 Conceptualizing, Designing, and Producing  
*Mark Jongman-Sereno* (Architecture, College of Design)  
Mentor: Mikesch Muecke, Architecture

III.C.2 The Built: Rhythm
Jasmine Brown (Architecture, College of Design)
Mentor: Chiu Shui Chan, Architecture

III.C.3 Modular Emergency Medical Edifice (M.E.M.E)
Andrew Dickman (Architecture and Philosophy, Colleges of Design and Liberal Arts & Sciences), Lindsay Morris (Architecture and Religious Studies, Colleges of Design and Liberal Arts & Sciences)
Mentor: Cameron Campbell, Architecture

SESSION III.D
Room 3538
CLIMATE, STORMS & SUN
Moderator: Xiaoqing Wu, Geological and Atmospheric Sciences

III.D.1 Case Study of the Monona County-Mapleton, IA EF3 Tornado that Occurred on 9 April 2011
Laura Hoaglund (Meteorology, College of Liberal Arts and Sciences)
Mentors: William Gutowski and Christopher Karstens, Geological & Atmospheric Sciences

III.D.2 Validation of Hail Detection in the 26 May 2010 Denver, CO Hailstorm Using Dual-Polarization Radar
Samantha Santeiu (Meteorology, College of Liberal Arts and Sciences)
Mentor: Patrick Kennedy, Colorado State University

III.D.3 An Estimation of Water Use Efficiency of Crops Using Carbon Dioxide and Water Vapor Exchanges
Amanda Black (Meteorology, College of Liberal Arts and Sciences)
Mentor: Brian Hornbuckle, Agonomy

III.D.4 Maize and Soybean Albedo Variations with Zenith Angle over Ames, IA
Lyndee Clark (Meteorology, College of Liberal Arts and Sciences)
Mentor: Brian Hornbuckle, Agonomy

SESSION III.E
Room 3558
BIOLOGY & DISEASE
Moderator: Chris Minion, Vet Microbiology & Preventive Medicine

III.E.1 Repair of IsrR in Yersinia pestis
Courtney Nelson (Animal Ecology, College of Agriculture and Life Sciences)
Mentor: Chris Minion, Vet Microbiology & Preventive Medicine

III.E.2 Understanding Gene Expression Networks in Mouse Retinal Ganglion Cells (RGCs)
Brock Pope (Genetics, College of Liberal Arts and Sciences)
Mentor: Jeff Triamarchi, Genetics, Development & Cell Biology

III.E.3 Virichip™: a Sensitive Solid Phase Immunoadsay for the Specific Capture and Identification of Viruses by Atomic Force Microscopy
Nathan Sage (Agronomy, College of Agriculture and Life Sciences)
Mentors: Eric Henderson and Curtis Mosher, Genetics, Development & Cell Biology; James C. Johnson and Asrun Kristmundsdottir, Aspera Corporation

III.E.4 Evaluation of the Specificity of Monoclonal Antibodies Against Mycoplasma hyorhinis
Joshua Moline (Microbiology, College of Agriculture and Life Sciences)
Mentor: Erin Strait, Veterinary Diagnostic & Production Animal Medicine

SESSION III.F
Room 3219
CHEMISTRY, ENGINEERING & THE ENVIRONMENT
Moderator: Timothy Ellis, Civil, Construction & Environmental Engineering

III.F.1 Directed Evolution of Ethanologenic E. coli for Bio-oil Tolerance
Mark Deaton (Chemical Engineering, College of Engineering)
Mentor: Laura Jarboe, Chemical & Biological Engineering

III.F.2 Static Granular Bed Reactor Modeling Study
Yuxin Hou (Civil Engineering, College of Engineering)
Mentor: Timothy Ellis, Civil, Construction & Environmental Engineering

III.F.3 Synthesis Of Mixed Monoanionic Cyclopentadienyl Bis(Oxazoline) Ligands To Support A Titanium Nitrogen Triple Bond
Megan Wiley (Chemistry, College of Liberal Arts and Sciences)
Mentor: Aaron Sadow, Chemistry

2:00 – 2:15 BREAK & REFRESHMENTS, PIONEER ROOM
2:15 – 3:30 PRESENTATION SESSION IV

SESSION IV.A ART & DESIGN
Room 3505 Moderator: Michael Martin, Landscape Architecture

IV.A.1 Style Tribes: Fashions from the 1960s
Carissa Drake (Apparel Merchandising & Design, College of Human Sciences), Hanna Mosley (Apparel Merchandising & Design, College of Human Sciences), Kelsey Feldmann (Apparel Merchandising & Design, College of Human Sciences)
Mentor: Janet Fitzpatrick, Apparel, Events & Hospitality Management

IV.A.2 Representing La Vie Quotidienne: The Purpose of Bonnard’s Photographs in the Montval Garden
Allison Gumpert (Art History and English, Colleges of Design and Liberal Arts & Sciences)
Mentor: Emily Morgan, Art & Design

IV.A.3 Garden Design in Time: 1750-1950
Jacqueline Kolpek (Landscape Architecture, College of Design)
Mentor: Lisa Orgler, Horticulture

IV.A.4 Live Green Lights
Andrew Dickman (Architecture and Philosophy, Colleges of Design and Liberal Arts & Sciences)
Mentor: Ulrike Passe, Architecture

SESSION IV.B FOOD & DIET
Room 3512 Moderator: Ruth MacDonald, Food Science & Human Nutrition

IV.B.1 Effect of Resistant Starches on Colorectal Cancer
Carter Roberts (Nutritional Science, College of Human Sciences), Hannah Nicholson (Dietetics, College of Human Sciences), Stephanie Rupp (Dietetics, College of Human Sciences)
Mentor: Diane Birt, Food Science & Human Nutrition

IV.B.2 A Survey of the Experiences and Needs of Food Allergy Sufferers in College and University Dining Establishments
Matthew Monaco (Hotel, Restaurant, and Institution Management, College of Human Sciences)
Mentor: Lakshman Rajagopal, Apparel, Events & Hospitality Management

IV.B.3 "Baked Bliss" Photo and Recipe Calendar
Lauren Mitchell (Dietetics, College of Agriculture and Life Sciences)
Mentor: Erica Beirman and Howard Haase, Food Science & Human Nutrition

SESSION IV.C CHEMICAL ENGINEERING
Room 3534 Moderator: Eric Cochran, Chemical & Biological Engineering

IV.C.1 Structural Prediction of Acyl Carrier Protein (ACP)
Michael Forrester (Chemical Engineering, College of Engineering)
Mentor: Peter Reilly, Chemical & Biological Engineering

IV.C.2 Hunting for “Obese Yeast”: Mutagenesis and Identification of Yeast Cells with Increased Oil Content
Kelly Markham (Chemical Engineering, College of Engineering)
Mentor: Basil Nikolau and Marna Yandeau-Nelson, Biochemistry, Biophysics & Molecular Biology

IV.C.3 Nonlinear Dynamic Coupled Physiological Modeling of Blood Glucose Level in Type 1 Diabetes Mellitus
Shana Matthews (Chemical Engineering, College of Engineering)
Mentor: Derrick Rollins, Chemical & Biological Engineering

IV.C.4 Synthesis of a Novel Photopolymerized Nanocomposite Hydrogel for Treatment of Acute Mechanical Damage to Cartilage
Christian Tormos (Chemical Engineering, College of Engineering)
Mentor: Surya Mallapragada, Chemical & Biological Engineering
SESSION IV.D  BIOCHEMISTRY, MEDICINE & PATHOLOGY  
Room 3538  Moderator: Catherine Logue, Vet Microbiology & Preventive Medicine

IV.D.1  Functional Characterization of the Diterpene Synthase Family in *Ricinus communis*
Alana Jackson (Biochemistry, College of Liberal Arts and Sciences)
Mentor: Reuben Peters, Biochemistry, Biophysics & Molecular Biology

IV.D.2  The Effect of PTB Protein on RNA Processing
Mariah Lawler (Biochemistry, College of Liberal Arts and Sciences)
Mentor: Ravindra Singh, Biomedical Sciences

IV.D.3  Uncovering and Modeling DNA Methylation Dependence
Benjamin Mulaosmanovic (Bioinformatics, Mathematics, College of Liberal Arts and Sciences)
Mentor: Karin Dorman, Statistics, Genetics, Development & Cell Biology

SESSION IV.E  ECOLOGY & EVOLUTION IN THE WILD  
Room 3558  Moderator: Lori Biederman, Ecology, Evolution & Organismal Biology

IV.E.1  Genetic Variation and Population Structure of *Emydoidea blandingii* in the Midwest
Morgan Becker (Biology, College of Liberal Arts and Sciences)
Mentor: Fred Janzen, Ecology, Evolution & Organismal Biology

IV.E.2  Identifying What Cues Predators Exploit to Locate Turtle Nests
Brooke Bodensteiner (Biology, College of Agriculture and Life Sciences)
Mentor: Fred Janzen, Ecology, Evolution & Organismal Biology

IV.E.3  Do Environmental Events Such as Flooding Distribute the Population of Females during Key Times?
Abigail Jergenson (Kinesiology, College of Human Sciences)
Mentor: Fred Janzen, Ecology, Evolution & Organismal Biology

SESSION IV.F  ENGINEERING TECHNOLOGIES  
Room 3219  Moderator: Ambar Mitra, Aerospace Engineering

IV.F.1  Incorporating an Artificially Intelligent Decision Support Apparatus into Systems Diagnostics
Shaun Humes (Aerospace, College of Engineering)
Mentor: Douglas Gemmill, Industrial & Manufacturing Systems Engineering

IV.F.2  The Yarkovsky Effect and Its Influence on Small Orbiting Bodies
Erik Goetzke (Aerospace Engineering, College of Engineering)
Mentor: John Basart, Aerospace Engineering

IV.F.3  Applying Tele-presence Technology to Construction Management Practices
Duong (Ocean) Van (Civil Engineering, Construction Engineering, College of Engineering)
Mentor: Tim Becker, Civil, Construction & Environmental Engineering

3:30 – 3:45  BREAK & REFRESHMENTS, PIONEER ROOM

3:45 – 5:00  PRESENTATION SESSION V

SESSION V.A  COGNITIVE PSYCHOLOGY  
Room 3505  Moderator: Rhonda Bonett, Psychology

V.A.1  The Effects of Word Orientation on the Stroop Effect
Emily Johnson (Psychology, College of Liberal Arts and Sciences)
Mentor: Shana Carpenter, Psychology

V.A.2  The Neural Correlates of Encoding in Ancestral Paradigms
Kaci McCleary (Psychology, College of Liberal Arts and Sciences)
Mentor: Robert West, Psychology

V.A.3  Neural Correlates of Task Switching: Adaptive Processing
Emmanuel Ukpan (Psychology, College of Liberal Arts and Sciences)
Mentor: Robert West, Psychology

SESSION V.B  ENERGY & EFFICIENCY  
Room 3512  Moderator: Vinay Dayal, Aerospace Engineering
V.B.1  **USGBC’s Research to Practice Program**  
*Sarah Schmerbach* (Mechanical Engineering, Architecture, College of Engineering, College of Design), *Lucas Mutti* (Mechanical Engineering, College of Engineering)  
Mentor: Ulrike Passe, Architecture

V.B.2  **Improving the Light-Induced Degradation of Amorphous Silicon Solar Cells with High Temperature Annealing of the Intrinsic Layer**  
*Brian Modtland* (Electrical Engineering, College of Engineering)  
Mentor: Vikram Dalal, Electrical & Computer Engineering

V.B.3  **Tunable Bicycle and Shape-Shifting Shifting**  
*Ryan Krafka* (Aerospace Engineering, Mathematics, College of Engineering)  
*Vinay Dayal*, Aerospace Engineering

**SESSION V.C**  
**MECHANICAL ENGINEERING**  
Room 3534  
Moderator: Theodore Heindel, Mechanical Engineering

V.C.1  **Manufacturing and Testing of Metal Composites**  
*Nicholas Orlowsky* (Mechanical Engineering, College of Engineering)  
Mentor: Gap-Yong Kim, Mechanical Engineering

V.C.2  **Terfenol-D Micro-forming Transducer Validation**  
*Hiep Tran* (Mechanical Engineering, College of Engineering)  
Mentor: Gap-Yong Kim, Mechanical Engineering

V.C.3  **kHz-Rate Interference-Free Thermometry at High Pressure Using fs/ps CARS**  
*Chloe Dedic* (Mechanical Engineering, College of Engineering)  
Mentor: Terrence Meyer, Mechanical Engineering

**SESSION V.D**  
**ENGINEERING MECHANICS & MATERIALS**  
Room 3538  
Moderator: Ludovico Cademartiri, Materials Science & Engineering

V.D.1  **Temperature Effects on the Measurement of Fuel Dilution of Oil in a Diesel Engine using Laser-Induced Fluorescence Spectroscopy**  
*Daniel S. Diaz* (Mechanical Engineering, College of Engineering)  
Mentor: Maggie Connatser, Oak Ridge National Laboratory

V.D.2  **Construction of Multifunctional Structural Composites Using Modified Bisphenol E Cyanate Ester and Fiberglass**  
*Danielle Carda* (Materials Engineering, College of Engineering)  
Mentor: Michael Kessler, Materials Science & Engineering

V.D.3  **Thermal Studies on Sodium Ion Conducting Amorphous Solid Electrolytes**  
*Maxwell Marple* (Materials Engineering, College of Engineering)  
Mentor: Steve Martin, Materials Science & Engineering

**SESSION V.E**  
**ANIMAL DISEASE & BEHAVIOR**  
Room 3558  
Moderator: Jesse Hostetter, Veterinary Pathology

V.E.1  **Formalin – Fixed, Paraffin-Embedded Tissue Samples for Diagnosis of Leishmaniasis via qPCR**  
*Rachel Juelsgaard* (Biology, College of Liberal Arts and Sciences)  
Mentor: Christine Petersen, Veterinary Pathology

V.E.2  **Violence Inside the Fig**  
*Christine Lim* (Biology, College of Liberal Arts and Sciences)  
Mentor: John Nason, Ecology, Evolution & Organismal Biology

V.E.3  **In vitro Role of Surface Oligosaccharides in Pathogenicity of Leishmania**  
*Raeann Shimak* (Biochemistry and Genetics, College of Liberal Arts and Sciences)  
Mentor: Christine Petersen, Veterinary Pathology

**SESSION V.F**  
**COMMUNICATION & COMMUNITY**  
Room 3219  
Moderator: Dawn Sweet, Communication Studies

V.F.1  **The Importance of Education on Economic Growth**  
*Yiting Li* (Accounting, College of Business)
V.F.2  Gender Differences in Interpreting Emotion from Facial Expressions: Do the Eyes Have It?
Krista Klocke (Speech Communication, College of Liberal Arts and Sciences), Molli Butler (Chemical Engineering, College of Engineering), Terry Lund (Biology, College of Agriculture and Life Sciences)
Mentor: Shana Carpenter, Psychology

V.F.3  A Systemic Functional Analysis of Instructional Discourse
Jeremy Lockwood (Russian Studies and Linguistics, College of Liberal Arts and Sciences)
Mentor: Tammy Slater, English

V.F.4  Stability of Corn Prices as a Function of Monetary Systems
Liam Vincent (Agricultural Business, Agronomy, College of Agriculture and Life Sciences)
Mentor: Kevin Kimle, Economics