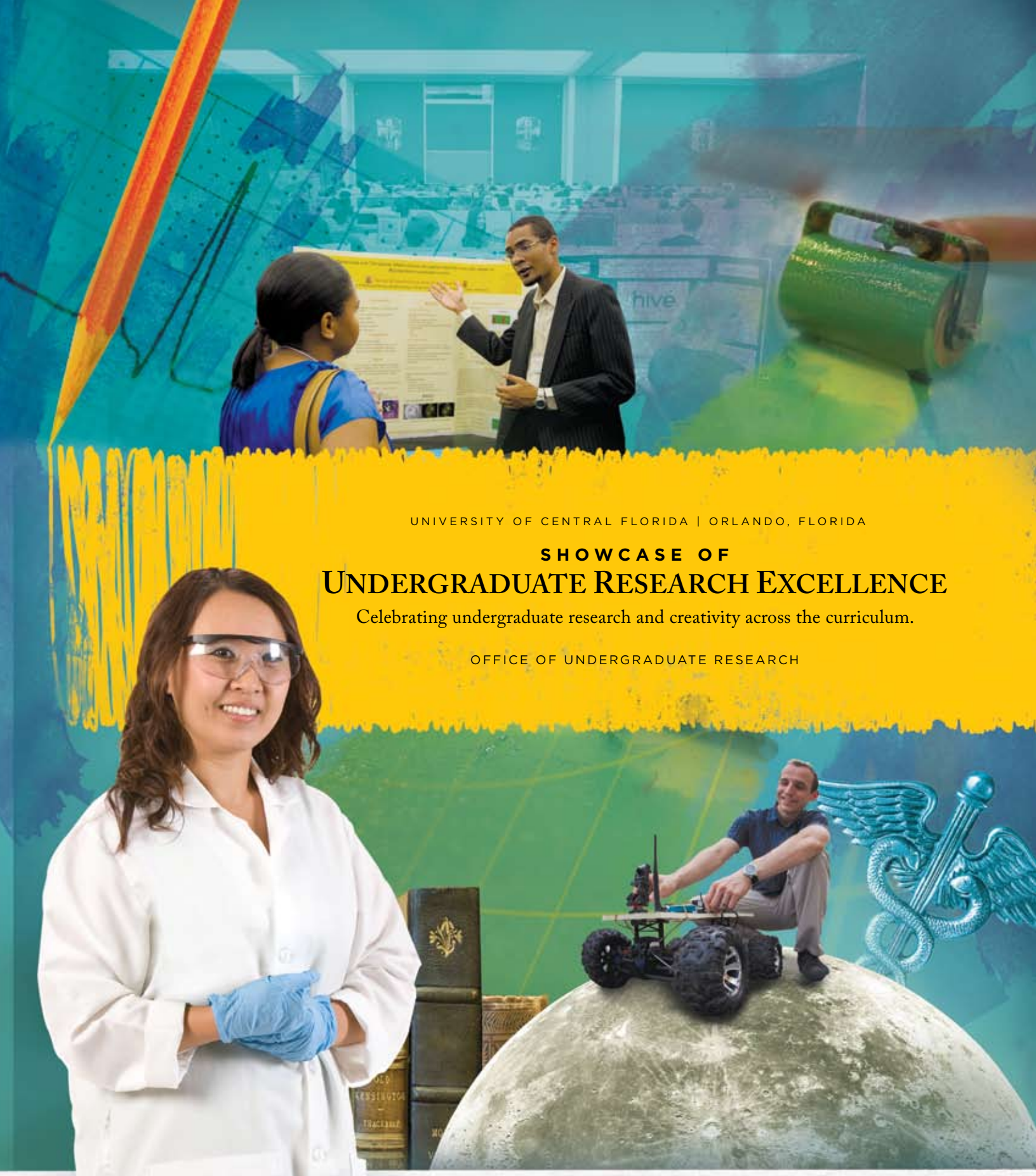

UNIVERSITY OF CENTRAL FLORIDA | ORLANDO, FLORIDA

SHOWCASE OF

UNDERGRADUATE RESEARCH EXCELLENCE

Celebrating undergraduate research and creativity across the curriculum.

OFFICE OF UNDERGRADUATE RESEARCH

THURSDAY, APRIL 1, 2010 • 1:30–5:00 PM

PEGASUS BALLROOM–UCF STUDENT UNION

Welcome to the Seventh Annual Showcase of Undergraduate Research Excellence.

The Showcase is a poster- or display-based forum for University of Central Florida undergraduates to present their research and creative projects to the broader university community. Undergraduates from all disciplines are encouraged to present current or recently completed academic projects showcasing the diversity of topics, approaches, and interests at UCF. The Showcase serves as a resource for undergraduates not yet engaged in research and creative pursuits to learn how fellow students have developed their intellectual interests, current projects, and faculty connections. The Showcase also demonstrates to students, faculty, staff, alumni, and the greater Central Florida community that student research builds upon and enriches the UCF undergraduate experience. The Showcase is sponsored by the Office of Undergraduate Research which is a unit of Undergraduate Studies. For more information about undergraduate research at UCF please visit the Office of Undergraduate Research's Web site at **www.OUR.ucf.edu**.

The Showcase is part of the 2010 Student Research Week at UCF: **www.ResearchWeek.ucf.edu**

www.Showcase.ucf.edu

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ORDER OF EVENTS

ACKNOWLEDGEMENTS . . . . . 1:30 P.M.

Dr. Alison Morrison-Shetlar
Vice Provost and Dean of Undergraduate Studies
Professor of Biology

WELCOME. . . . . 1:35 P.M.

President John C. Hitt
Professor of Psychology

STUDENT PRESENTATIONS . . . . . 1:40-4:15 P.M.

FACULTY MENTOR OF THE YEAR . . . . . 4:15 P.M.

Student Undergraduate Research Council

REMARKS AND PRESENTATION OF SCHOLARSHIPS. . . . . 4:30 P.M.

Dr. Alison Morrison-Shetlar
Vice Provost and Dean of Undergraduate Studies
Professor of Biology

STUDENT RESEARCH WEEK 2010

SHOWCASE JUDGES

The Office of Undergraduate Research is indebted to the following faculty for devoting a substantial amount of their time serving as Showcase judges.

Nancy Ahern
Kathleen Bell
Bill Blank
Manoj Chopra
Jay Corzine
Will Crampton
Tace Crouse
Ali Gordon
Roger Handberg
Eric Hoffman
Jana Jasinski
Bernie Jensen
Bernadette Jungblut
Joo Kim
Barbara Lange
Gary Leavens
John Malala
Nancy Marshall
Rudy McDaniel
Mansooreh Mollaghasemi
Nancy Moore
Sean Moore
Karen Mottarella
Elizabeth Mustaine
Chad Nye
Christopher Parkinson
Phil Peters
Patrick Schelling
William Self
Dinender Singla
Jennifer Sumner
Yaliang Tang
Kerry Welch
Shannon Whitten
Kevin Woo
Peter Yuan
Antonis Zervos
Lei Zhai

SHOWCASE BENEFACTORS

Through the generosity of the following organizations and individuals, substantial scholarships will be awarded to students judged to have the best projects presented at the Showcase. The Office of Undergraduate Research and the planners of Student Research Week are grateful to these benefactors for their encouragement and support of student research at UCF.

Florida High Tech Corridor Council
Kenneth Fedorka
Richard H. Harrison II in memory of Richard H. and Joan Prince Harrison
Progress Energy
John “Rick” Schell
Kimberly Schneider
Alison Morrison-Shetlar and Robert Shetlar
UCF Chapter of Sigma Xi
UCF Faculty Center for Teaching and Learning
UCF Federal Credit Union
UCF Burnett Honors College
UCF Institute for Social and Behavioral Sciences, Department of Sociology
UCF Learning Institute for Elders
UCF Office of Research and Commercialization
UCF Office of Undergraduate Studies
UCF Student Government Association

FACULTY MENTORS

The faculty is a university's paramount asset, and the Office of Undergraduate Research recognizes the following UCF faculty mentors who have advised, counseled, tutored, and encouraged students presenting at today's Showcase.

Hadi Abbas
Eileen Abel
Charles Ahn
Mia Alexander-Snow
Kelly Allred
Thad Anderson
Pamela Ark
Issa Batarseh
Heather Batchelder
Jeffrey Bedwell
Aman Behal
Kathleen Bell
Steven Berman
Aniket Bhattacharya
Robert Bledsoe
Daniel Britt
Patricia Brosnan
Sylvester Butler
Humberto Campins
Mason Cash
Debopam Chakrabarti
Ratna Chakrabarti
Sic Chan
Po-Ju Chen
Manoj Chopra
Alexander Cole
Joshua Colwell
Jane Compson
Kristin Congdon
Maureen Covelli
Libby Cowgill
Andrew Daire
Henry Daniell
Leslie DeChurch
Mark Dickie
Duncan Dickson
Eduardo Divo
Amy Donley
Michael Dunn
Steven Duranceau
Steven Ebert
Ken Fedorka
Terri Fine
Martha Garcia
David Gay
Cherie Geiger
Michael Georgiopoulos
Avelino Gonzalez
Ali Gordon
Mary Guimond
Scott Hall
Joseph Harrington
Stephen Heglund
James Hickman
Ross Hinkle
Eric Hoffman
David Houghton
Rosalyn Howard
Charles Hughes
Gail Humiston
Robert Igarashi
Keith Ireton
Masahiro Ishigami
Jana Jasinski
Florian Jentsch
Kimberly Jentsch
Bernadette Jungblut
Abdelkader Kara
Alain Kassab
Saiful I. Khondaker
Joo Kim
Pappachan Kolattukudy
Alice Korosy
Stephen Kuebler
Ranganathan Kumar
Karen Large
Jacqueline Lamanna
Mark Lanier
Peter Larson
Maria Lavooy
Leslie Lieberman
Kuo-chi Lin
Robb Lindgren
Victoria Loerzel
Kevin Mackie
Matthew Mahutga
Carolyn Massiah
Ty Matejowsky
Ann Maukonen
Lisa Mills
Olga Molina
Michele Montgomery
Brian Moore
Sean Moore
Mike Moshell
Bahman Motlagh
Karen Mottarella
Toshio Murase
Erin Murdoch
Chad Nye
Dawn Oetjen
Fevzi Okumus
Nina Orlovskaya
Christopher Parkinson
Marianna Pensky
J. Manuel Perez
Johnny Pherigo
Philip Pollock
Tison Pugh
Pedro Quintana-Ascencio
Seetha Raghavan
Andrew Randall
Debra Reinhart
Kimberly Renk
Martin Richardson
Marianne Rodgers
Cecelia Rodriguez-Milanes
Houman Sadri
Eduardo Salas
Maria Cristina Santana
Swadeshmukul Santra
Mohtashem Samsam
Kristen Schellhase
Kimberly Schneider
Winston Schoenfeld
Alfons Schulte
William Self
Denver Severt
Kimberly Severt
Bhimsen Shivamoggi
Eileen Smith
Janan Smither
JoAnne Stephenson
Kiminobu Sugaya
Kalpathy Sundaram
Suren Tatulian
Ken Teter
Gregory Thompson
Alexander Tovbis
Mary Vander Heiden
Eleazar Vasquez
Betsy Von Holle
Laurence von Kalm
Parveen Wahid
John Walker
Linda Walters
Lori Walters
Marty Wanielista
Harry Weger
John Weishampel
Shannon Whitten
Bruce Wilson
Cynthia Young
Jiongmin Yong
Kurt Young
Antonis Zervos
Elayne Zorn
Cliff Zou

ARTS AND HUMANITIES

DALE ABOY
Your Life is in Your Hands
Student Co-Authors: Matthew Liebl, Chip Stubbs, Lara Disch
Mentor: Ms. Eileen Smith (Digital Media)
The focus of "Your Life is in Your Hands" was the Web delivery of nutritional information through a video podcast and the effectiveness in educating the audience on how to make informed food selection and purchasing decisions.

JORDAN ANDERSON
Online Portals and Mobile Technologies
Student Co-Authors: Gian Galliani, Justin Rhodes, Sooksan Wongmanee, James Neumayer
Mentor: Ms. Eileen Smith (Digital Media)
We are researching how online portals like the National Science Digital Library (NSDL) can be used with mobile technology. We are also investigating if learners can use online portals to enhance their experience in the real world. We will have created a preliminary mock-up of a mobile application for the NSDL.

JESSICA AUZ
Man vs. Beast: The Human-Animal Boundary in J. K. Rowling's Harry Potter Series
Mentor: Dr. Tison Pugh (English)
The boundary between humans and animals within J. K. Rowling's Harry Potter series will be examined so as to determine the series' relationship to its medieval source material as well as its relationship to the trends of literature in popular culture.

KAYLA CLARK
A Golden Fibonacci Waltz
Mentors: Mr. Thad Anderson, Dr. Karen Large (Music)
By harnessing patterns found in the world around us this research will show an intuitive transfer from nature to music using mathematic formulas and reasoning.

NATALIA DA SILVA
Community Wellness Through Artistic Votive Practices
Mentor: Dr. Kristin Congdon (Philosophy)
Votive offerings are gifts created in thanksgiving for answered prayers. During community art workshops, individuals from the Coalition for the Homeless of Central Florida participated in this practice, communicating their experiences with homelessness, addiction, or violence. Pieces are on display in the exhibition Requesting Miracles at Crealdé School of Art.

AUDRA DARBYSHIRE
A Search for the Ceramic Surface
Mentor: Mr. Hadi Abbas (Art)
Through the process of testing several ceramic raw materials, I am developing surfaces that hold the potential to further enhance my work as an artist.

FRANCISCO DENIS
"Early Start": Youth Care Continuum
Student Co-Authors: David Auguste, Ivelisse Figueroa, Kevin Burrell, Alex Benitez
Mentor: Ms. Eileen Smith (Digital Media)
"Early Start" is an educational interactive Web application that efficiently and accurately informs legislators of the short and long term impact of their decisions on youth programs based in Florida.

CHRISTINA DEPARIS
Long Exposure Photography at UCF
Mentor: Dr. Maria Cristina Santana (Communication)
I researched long exposure photography using library resources, reading Web sites, and through practice. This form of photography, designed for the night, allows cameras to capture frames of movement over a certain time, creating something new with each shot.

KENDYL DRAYER
Ants Attack a Small Child
Mentor: Mr. Scott Hall (Art)
Echoing the old Disney animators, I created this work entirely by hand. As I worked on it, I gained a great appreciation for this method of animation. I learned a surprising amount of acting, math, and observation was involved.

AMBER DUKES
Evolution and the Seven Deadly Sins
Mentors: Dr. Mason Cash (Philosophy), Dr. Bernadette Jungblut (Political Science)
For centuries, scholars have sought to explain morality from various viewpoints. In doing so, certain things have been deemed worthy of condemnation, perhaps most notably, the Seven Deadly Sins. Using these Seven as a starting point, I will explain morality from an angle that is becoming more prevalent: evolutionary psychology.

KATHERINE ELSEA
Norma & Irving: The Steel Butterfly and the Boy Wonder
Mentor: Dr. Tison Pugh (English)
Film actress Norma Shearer and producer Irving Thalberg were plagued with rumors about their marriage. Shearer was accused of marrying for power within the MGM studio, while Thalberg was charged with favoritism. Sadly, they have largely been forgotten by today's audiences, individuals lost in the conglomerate of the film studio.

EMILIE FINNEY
Learn a Foreign Language Through an Interactive Game
Mentor: Dr. Joo Kim (Art)
Learning methods will be researched to come up with the best interactive system to teach a child the fundamentals of a foreign language.

KRYSTAL GILLETTE
Latinos on Broadway: An Analysis of the Representation of Latino Culture and Stereotypes in Major Broadway Musicals
Mentor: Dr. Cecilia Rodriguez-Milanes (English)
The depiction of Latino characters and culture in major Broadway musicals, from *West Side Story* to *In the Heights*, was examined based on characterization, themes, nationality, language, and background research so as to analyze the evolution of Latino stereotypes and their representations on Broadway.

JESSICA KING

The Castration of Peter Abelard: How Male Identity was Shaped in the Middle Ages

Mentor: Dr. Peter Larson (History)

Medieval philosopher Peter Abelard (1079-1142) was castrated against his will in 1118. The following study examines medieval opinions on sexuality and masculinity, focusing primarily on 12th century northern Christian France. Different thoughts on castration are presented, including the views of Abelard's contemporaries, northern French citizens, and the Catholic Church.

KELLEY MACEWEN

Cultural Rhetoric: The Evolution of BMW Advertisements

Mentor: Dr. Kathleen Bell (English)

My research and analysis of BMW advertisements on the Internet, television, and in print yielded insight into how one of the world's most successful automakers is able to tailor advertisements to address the needs of America and Germany: two countries that have parallel admiration but distinct historical connections to automobiles.

DAVID MANDER

Classical Guitar Sitting Position

Mentor: Dr. Johnny Pherigo (Music)

I looked at the sitting position of classical guitar players using a footstool. Many complain of back or shoulder pain. I looked to students to find if they felt the pressure to use a traditional method, and interviewed the guitar professor at UCF.

TAMRA MARTIN

Views of Trojan War Women

Mentor: Ms. Ann Maukonen (Philosophy)

Representations of women of the Trojan War within literature, art, and film will be analyzed in order to discover how they are portrayed by their creators. Helen, Clytemnestra, Penelope, Hecuba, and Cassandra are the characters I will explore.

GREGORY MOORE

Is Folk Art Postmodern?

Mentor: Dr. Kristin Congdon (Philosophy)

Despite an ongoing philosophical debate, the art world has embraced postmodern theory and witnessed the legitimation of folk art forms. By juxtaposing the postmodern aesthetic theory of John Dewey to personal interviews conducted with five folk artists, I will argue that our understanding of folk art is not strictly postmodern.

NATALIE NOVOA

Authenticity of Female Representation in Hispanic Advertisements: A Comparison Between Hispanic and American Methods of Market Segmentation

Mentor: Dr. Martha Garcia (Modern Languages and Literatures)

Examinations of commercial advertisements from regions within the Hispanic world demonstrate levels of misrepresentation of the actual demographic makeup, coupled with its influence on female perception and self-assessment. The marketing techniques utilized in the areas of concentration echo the movement towards more universal advertising as international business continues to prevail.

JULIAN PALHOF

Water's Journey Through the Everglades

Student Co-Authors: Anthony Ferrido, Luis Lugo, Katy Han, Lin Jackson

Mentor: Ms. Eileen Smith (Digital Media)

Our objective is to inform the general public about the environmental factors concerning the Everglades, by creating a compelling online experience that is constructed in a way to inform both children and adults.

BLAIR REMINGTON

***SLICE* Magazine**

Mentor: Dr. Joo Kim (Art)

Produced by a team of students as the focus of an honors interdisciplinary seminar, *SLICE* magazine explores the hidden treasures of Orlando. With no money and raw talent, we wrote, photographed, designed, edited, and sold advertising space to publish a magazine distributed in orientation packets to incoming honors freshman.

RICHARD SCHREINER

World War I: The Trenches and the Sky

Student Co-Authors: Sean Davis, Doug Millett, Alvaro Florez, Kristen Evans

Mentor: Dr. Lori Walters (History)

Our World War I project enhances the relevance of a near century old conflict to today's youth. We intend to examine trench life and period culture through a virtual archeological dig. The research is presented on a Web site, containing production documents, history, and a video depicting the Great War experience.

NICOLE SMITH

Multi-subject Game Demo for Lower-Level Elementary Students: "Frog Dissection"

Mentor: Dr. Joo Kim (Art)

Through research, analysis, and consultation with elementary education majors, the creation of "Frog Dissection" aims to assist lower-level elementary students practice and demonstrate their proficiency in subjects such as phonics, mathematics, geography, and astronomy all the while subtly introducing the student to the advanced science of educational frog dissection.

BRANDON SOLLINS

Concept Albums: The Past, Present, and Future

Mentor: Dr. Lisa Mills (Film)

The concept album is one way that allows musicians to combine music, themes, and stories. This project investigated techniques that past musicians have used to create their concept albums. In addition, these techniques were compared to the techniques that I used to create three of my concept albums.

JAMIE STONE

Carol Mundy Virtual Museum

Mentor: Dr. JoAnne Stephenson (African American Studies)

An African American history archive in the form of a fully 3D virtual museum. All showcased objects are historical documents, antiques, and artifacts from Carol Mundy's archives.

KARI WILBERG

The Social and Linguistic Dynamics of Placement Tests: Assessing the Second and Heritage Language Learner

Mentor: Dr. Gregory Thompson (Modern Languages and Literatures)

To create a valid and feasible placement instrument to better produce optimal learning conditions for both heritage and second language learners.

ENGINEERING, COMPUTER SCIENCE, AND OPTICS & PHOTONICS

CRAIG AMENT

High Numerical Aperture Axial and Transverse Beam Shaping Using Diffractive Optics

Mentor: Dr. Stephen Kuebler (Chemistry)

An optimization algorithm was implemented to design diffractive optical elements (DOEs) that produce a more tightly focused beam resulting in better resolution. The DOEs produced enable methods such as photolithography, optical data storage, and confocal microscopy to be more efficient.

NATHAN BODNAR

Generation of Stable Droplets for EUV Plasma

Mentor: Dr. Martin Richardson (Electrical Engineering and Computer Science)

Characterizing droplet formation allows the ability to construct stable plasma targets for the generation of EUV. The experiment showed that there is a correlation between pressure and velocity for droplet formation. When heavy metals are introduced into the system, this data will help estimate the concentration of these heavy metals.

GISELLE BORRERO

Evolutionary Approaches for Global Optimization of Functions

Mentor: Dr. Michael Georgiopoulos (Electrical Engineering and Computer Science)

I investigated, implemented, and compared two evolutionary optimization approaches to find the global minima of multi-modal functions, the particle swarm approach, and the differential evolution approach.

BRIAN DAUBENSPECK

Extrapolation Techniques for Very Low Cycle Fatigue Behavior of a Ni-base Superalloy

Mentor: Dr. Ali Gordon (Mechanical, Materials, and Aerospace Engineering)

The primary focus of this research is to accurately predict high-stress LCF behavior of IN738LC at high temperatures from available tensile and nominally elastic HCF data without the need for additional testing.

RENE DIAZ

In-Situ Strain Measurements of EB-PVD Thermal Barrier Coatings Using Synchrotron X-Ray Diffraction Under Thermo-Mechanical Loading

Student Co-Author: Mitra Mossaddad

Mentor: Dr. Seetha Raghavan (Mechanical, Materials, and Aerospace Engineering)

Major concerns of jet engines in flight are the failure of EB-PVD thermal barrier coatings (TBC) protecting turbine blades under extreme heat (~2000°F). The mechanisms of stress evolution during flight were examined using Synchrotron X-Ray Diffraction while under simulated flight conditions at the Advanced Photon Source within Argonne National Laboratory.

MARK DONOHUE

Probing Stress Altered Vibrational Properties of ZrB2 – SiC Ultra High Temperature Ceramic Composites by micro-Raman Spectroscopy

Mentor: Dr. Nina Orlovskaya (Mechanical, Materials, and Aerospace Engineering)

The objective of this project was to determine the effects of adding various concentrations of SiC to ZrB2 ceramics. Mechanical properties of the ZrB2-SiC composites were investigated through the use of Raman spectroscopy to examine the residual stresses in the composites in addition to indentation experiments and natural frequency techniques.

BRIAN DRILLING

Mechanics of Re-Torquing in the GUCP

Student Co-Author: Kyle Weichman

Mentor: Dr. Ali Gordon (Mechanical, Materials, and Aerospace Engineering)

The objective of the research is to mechanically characterize the time-dependent response of the Ground Umbilical Carrier Plate (GUCP) assembly by means of an experimental parametric study. This includes optimizing the torquing parameters (i.e., magnitude and frequency) and the thickness of the gasket material.

CHRISTINE DYKSTRA

Decolorization of Structurally Different Textile Dyes by a Mixture of Living and Nonliving *Trametes versicolor* Fungus

Mentors: Dr. Andrew Randall, Dr. Steven Duranceau (Civil, Environmental, and Construction Engineering), Dr. William Self (Molecular Biology and Microbiology)

The ability of a mixture of living and nonliving *Trametes versicolor* fungus to decolorize two structurally different textile dyes will be examined to determine if any interaction takes place between the live and dead biomass that affects dye decolorization capacity.

MATTHEW GOOLSBY

Inlet Protection Devices and Their Effectiveness

Mentors: Dr. Marty Wanielista, Dr. Manoj Chopra (Civil, Environmental, and Construction Engineering)

The purpose of the study is to evaluate the use of inlet protection devices to reduce sediment, debris, and other pollutants present in roadways and swales from entering the storm drainage system. A Curb (Type 5) inlet will be used as typical of FDOT applications.

SHIVA KANGOO

Nafion Proton Conductivity Testing

Mentor: Dr. Marianne Rodgers (Mechanical, Materials, and Aerospace Engineering)

The effects on proton conductivity of putting additives in Nafion® membranes has been tested and compared to the conductivity of standard membranes. These membranes with additives were made with hopes of getting better performance under harsh conditions such as high temperature and low humidity.

ROSS KERLEY

Novel Control Strategies of a Multi-Port, Grid Connected Solar Car Port Charging Station

Mentor: Dr. Issa Batarseh (Electrical Engineering and Computer Science)

This project's objectives are to implement a grid tied solar charging carport, charge electric and hybrid/electric vehicles with solar energy, improve system efficiency through direct DC charging architecture, develop solar carport technology exportable to future locations, and develop DC charging architectures for future industry adoption.

STEVEN KRAFT

The Mechanical Behavior of a Twill Dutch Woven Wire Mesh Under Plane Stress Conditions

Mentor: Dr. Ali Gordon (Mechanical, Materials, and Aerospace Engineering)

The mechanics of SS 316 twill Dutch-woven wire mesh are studied to characterize the elastic-plastic behavior of this class of materials. FEA and tensile experiments are used to develop a failure criterion based on Hill's Analogy, which can be used to design against failure.

COREY MCCALL

A Prototype Device That Implements RFID and Remote Monitoring Technology to Track Medications for Elderly Healthcare Patients

Mentor: Dr. Cliff Zou (Electrical Engineering and Computer Science)

The prototype device developed in this project implements RFID identification and remote monitoring technology to manage complex medication schedules. This allows otherwise unable healthcare patients to live independently while eliminating medication errors and reducing the burden on the healthcare system.

BRITNEY MENDEZ

Integrating Multi-touch Table and DICOM Readers

Mentor: Dr. Charles Hughes (Electrical Engineering and Computer Science)

To program an application for a multi-touch table using TACTICUS that will improve DICOM reader user interface.

NIKOLA NAJDOVSKI

Pervious Pavement System's Porosity Results and Subsequent Design Considerations

Mentor: Dr. Manoj Chopra (Civil, Environmental, and Construction Engineering)

Sustainable porosity tests of both pavement components and systems were conducted on a plethora of samples. A new testing methodology was created to test full pavement systems, and mathematical interpolation was utilized to develop curve numbers which assist greatly with design considerations.

JESUS OZUNA

Use of Polymers for Erosion Control

Mentor: Dr. Manoj Chopra (Civil, Environmental, and Construction Engineering)

The present research is aimed at determining the proper dosage for site specific polymer use for stormwater treatment.

MICHAEL PEFFERS

Optically Transparent Thin Film Antennas

Mentors: Dr. Parveen Wahid, Dr. Kalpathy Sundaram (Electrical Engineering and Computer Science)

Antennas made using optically transparent thin films are being fabricated and tested. The first part of this research project involves the fabrication of zinc oxide (ZnO) thin films on glass substrates. The second part involves the design, fabrication and analysis of patch antennas on the optically transparent thin film.

CHRISTOPHER PENNY

Fabrication of Nano-Alumina Filled Epoxy Composites for Piezospectroscopic Studies

Mentor: Dr. Seetha Raghavan (Mechanical, Materials, and Aerospace Engineering)

The potential of alumina nanoparticles in an epoxy matrix to provide stress and integrity information, through piezospectroscopy, indicates possibilities for stress-sensitive adhesives and coatings. Calibration studies to achieve this requires the fabrication of nano-alumina filled epoxy composites with controlled volume fraction and effective dispersion, the goal of the work described.

LESLEY PETERSON

E-ternally Yours: The Case for the Development of a Reliable Repository for the Preservation of Personal Digital Objects

Mentor: Dr. Bahman Motlagh (Engineering Technology)

As an increasing number of personal materials—photos, documents, music, etc.—are being stored in digital format, the ability to preserve them for future generations is vital. This project examines the feasibility of establishing reliable repositories intended for the long term preservation of such personal digital materials.

RYLEE PIVARNIK

Acute and Chronic Toxicity Testing of Polyacrylamide Using Pimephales Promelas (Fathead Minnow)

Student Co-Author: Jamie Capra

Mentor: Dr. Manoj Chopra (Civil, Environmental, and Construction Engineering)

The intent is to determine the acute (LC50) and chronic (NOEC/LOEC) toxicity of different PAM mixes within the range of doses recommended for effective field application. This information can be used to determine what does is acceptable for use with little to no effect on the surrounding environment.

ADRIANO RAMPOLLA

Correlation Between Surface Energy and the SCC Behavior of Solid-liquid Couples

Student Co-Author: Adriano Rampolla

Mentor: Dr. Ali Gordon (Mechanical, Materials, and Aerospace Engineering)

The surface energy of a material plays a great role in stress corrosion cracking. This energy can be experimentally measured, and then used to mathematically determine how and when a material will fail under corrosive conditions. Calculations from sessile drop experiments correlate strongly with fracture data.

BRANDON REEVES

Quantifying the Naturalness of Autonomous Agents Based Off of Force-Feedback Learning

Mentor: Dr. Avelino Gonzalez (Electrical Engineering and Computer Science)

The researcher examined the human-like qualities of autonomous agents that have been produced by machine learning algorithms that were based on human-trainers. Data was collected from a car simulation where the agent maneuvered the vehicle around track. Analysis software was then used to compare the agents to the human drivers.

RICARDO RODRIGUEZ

Effects on an Optical Wave Propagating through Earth's Atmosphere

Mentor: Dr. Cynthia Young (Mathematics)

The focus of this project is to test a mathematical model that predicts angle of arrival fluctuations on a beam light traveling through random media and over open water. This is an attempt to predict the effects different atmospheric turbulences have on an optical signal.

TALITHA RUBIO

The Multi-Objective Evolutionary Probabilistic Neural Network

Mentor: Dr. Michael Georgiopoulos (Electrical Engineering and Computer Science)

I am designing, implementing, and testing the effectiveness and efficiency of a PNN (probabilistic neural network) classifier whose design relies on an evolutionary multi-objective optimization approach. The effectiveness and efficiency of the classifier will be tested on a variety of benchmark problems and compared with the original PNN.

AMBER SCHEURER

Cubic Oxide Semiconductors for Deep Ultra-Violet Applications

Mentor: Dr. Winston Schoenfeld (Electrical Engineering and Computer Science)

The goal of this project was to characterize fabrication techniques and photoresponse testing methods in regards to ZnMgO and NiMgO thin films, as well as analyze the photoresponse results for further research into use as ultra-violet detectors.

ROBERT SLADE

GFRP Bridge Deck Systems for Skewed Bridges: An Analytical Investigation on Deck Orientation

Mentor: Dr. Kevin Mackie (Civil, Environmental, and Construction Engineering)

The local and macro effects of bridge skew on Glass Fiber Reinforced Polymer (GFRP) bridge decks will be analytically studied and compared to current design standards. The SR-15 Bridge in Belle Glade, Florida, was recently retrofitted with a skewed GFRP deck and will be the basis for comparative evaluation.

SEBASTIAN SOTELO

Fluid-Structure Interaction Analysis of Arterial Compliance

Mentor: Dr. Eduardo Divo (Engineering Technology)

This research focuses on the computational study of fluid-structure interaction on the ascending aorta. The methodology resulting from this study will be incorporated in analysis that entails optimized surgical implantation of cannulae and bypass grafts to both minimize thrombo-embolic events and improve blood distribution in congenitally affected cardiovascular systems.

ELIZABETH STARNES

Gestures for Multi-Touch Applications

Mentor: Dr. Charles Hughes (Electrical Engineering and Computer Science)

Gestures in multi-touch will be analyzed by objective data and subjective measurements. Objective data captured will include speed of performing tasks; subjective metrics will include perceived comfort and intuition. A program will be created for the task of observing and recording these measurements.

PETER TONNER

Adding System Controls and Automated Behavior to Enhance the "TeachMe" Training Experience

Mentor: Dr. Charles Hughes (Electrical Engineering and Computer Science)

"TeachMe" is a mixed reality experience to train teachers in classroom environments. This program is run by an interactor controlling student puppets to present different personalities encountered in teaching experiences. Additions will be implemented to automate the preprogrammed movements (e.g., fidgeting) of uncontrolled avatars and simplify the puppeteering process.

CARLOS VELEZ

Optimization of Alternative Wave Energy Converter

Mentor: Dr. Kuo-chi Lin (Engineering Technology)

Research has been conducted to design, build and test a novel wave energy converter mechanical system. Through the experimental results of the initial mechanical system several conclusions have been made to optimize the performance of the system. These conclusions have developed a theoretical design for a new prototype.

KEON VEREEN

Experiments for Heat Flux and Pressure Dependent Flow Boiling of R-134a

Mentor: Dr. Ranganathan Kumar (Mechanical, Materials, and Aerospace Engineering)

The bubble characteristics of refrigerant R-134a were determined in a vertical flow boiling system. The effect of pressure and heat flux was determined using high speed instrumentation to capture bubble nucleation, growth, and frequency. These results are applicable to electronic cooling and other heat exchangers.

ISABEL VIRAG

Heat Transfer in Porous Tissue Using a Localized Meshless Method

Mentor: Dr. Alain Kassab (Mechanical, Materials, and Aerospace Engineering)

Through this project, we will acquire an understanding of earth materials, plants and animal skin as thermoregulatory systems using the Localized Meshless Method to perform heat transfer analysis. This will ultimately provide scientific basis for developing the use of soils as effective building materials for energy-efficient indoor environments.

ANNE WEEKS

Using Estimated Values of Methane Gas Generation Potential and the Methane Gas Generation Rate to Determine Annual Generated Landfill Gas

Mentor: Dr. Debra Reinhart (Civil, Environmental, and Construction Engineering)

The purpose of this project is to determine how much methane gas a given sample of waste can generate in a particular time period. I will be using the estimated methane gas generation potential and the methane gas generation rate constant to determine the annual generated landfill gas.

HEALTH SCIENCES

RESHMA BALMICK

The Physical, Social, and Financial Implications of Hearing Loss Among the Elderly

Mentor: Ms. Alice Korosy (Modern Languages and Literatures)

Based on the rapid growth of older populations in America, further examination into the aging process identified the commonality of hearing loss. This study serves to highlight and clearly identify the newfound physical demands, social implications, and financial burdens of acquired hearing loss among the elderly.

JAMIE BIGLER
Interventions to Improve Psychosocial Sequelae in Women with Ovarian Cancer
Mentor: Dr. Victoria Loerzel (Nursing)
The objective of this integrative review of literature was to evaluate interventions designed to improve psychosocial well-being in women with ovarian cancer experiencing distress.

MELISSA BLETTE
Location Elements and the Effect on Home Health Care Success
Mentor: Dr. Carolyn Massiah (Marketing)
The marketing of home health care services is unique in its considerable variance in successes across geographic regions in the United States. Through surveys to home health companies, I intend to research questions that will answer whether location and differing marketing techniques affect the success of the companies nationwide.

AUDRIS BOL
The Investigation of the Physician-Patient Relationship in the Hospital Setting
Student Co-Author: Nikki Olson
Mentors: Dr. Denver Severt (Hospitality Services), Dr. Duncan Dickson, Dr. Kimberly Severt (Tourism, Events and Attractions)
The role of the hospitalist, a hospital-managed physician, is a recent addition to patient care in the hospital. The hospitalist model was created to alleviate primary-care physicians from patient care in the hospital for better efficiency. This project aims to investigate factors of hospitalist care that greatly impact patient satisfaction.

CHELSEA BRAMLEY
Distraction Interventions During Invasive Procedures to Improve Quality of Life in Pediatric Oncology Patients
Mentor: Dr. Victoria Loerzel (Nursing)
This integrated literature review examined evidence regarding the effects of distraction interventions used during invasive procedures performed on children with cancer.

JENNIFER CARDEN
Complementary Therapies for Pain Management in Cancer Patients
Mentor: Dr. Kelly Allred (Nursing)
A comprehensive literature review was conducted examining a variety of complementary therapies for pain management among cancer patients with the goal of determining which complementary therapies are the most effective.

MICHELLE CARDONA
Factors that Impact the Perception of Dysfluent Speakers
Mentor: Dr. Chad Nye (Communication Sciences and Disorders)
This research study analyzed how physical attractiveness, stuttering severity, and/or gender, either as individual or interactive factors result in a differential perception of individuals who stutter by non-stuttering observers.

CORRINE CASWELL-RILEY
Nursing Interventions for Adolescent Substance Use
Mentor: Dr. Pamela Ark (Nursing)
Research has shown it is evident that adolescent substance use is a major issue. The purpose of this integrated literature review was to explore current nursing interventions for adolescent substance use. Earlier interventions are needed to target adolescents to prevent initiation and promote cessation of substance use.

ANGELA COLLIER
Nursing Interventions to Improve Initiation and Continuation of Teenage Breastfeeding
Student Co-Author: Angela Collier
Mentor: Ms. Mary Guimond (Nursing)
The purpose of this thesis is to provide a comprehensive review of research findings to describe how support and educational interventions implemented by nurses during the prenatal, intrapartum, and postnatal period may increase the incidence of breastfeeding among teenagers while aiming to attain the current Healthy People 2010 breastfeeding goals.

ALEXA KRYGLOWSKI
Recurrent Anterior Shoulder Instability of a Collegiate Football Athlete
Mentor: Dr. Kristen Schellhase (Health Professions)
The following information is a case study based on a 19-year-old collegiate football athlete who obtained a shoulder injury. He needed diagnostic imaging and an extensive surgical repair. This young athlete's shoulder had degenerative changes comparable to that of an person who would need a total shoulder replacement.

DANIELLE LOVOY
Multiple Areas of Ulnar Nerve Compression in a Division 1, Collegiate Softball Player
Mentor: Dr. Kristin Schellhase (Health Professions)
The purpose of this research study was to present a case of multiple sites of ulnar nerve compression in a collegiate softball player. There was an analysis of the initial injury and its mechanism, the physical signs and symptoms, differential diagnosis, and the surgical and rehabilitative treatment.

FRANCESCA NUTTA
Comparing and Contrasting Hospital Service to Disney Service
Mentors: Dr. Denver Severt (Hospitality Services), Dr. Duncan Dickson (Tourism, Events, and Attractions)
The purpose of this research was to investigate Disney service standards, comparing them to hospital service standards to determine which of Disney's best practices are applicable to the health field. Through interviews with Disney and healthcare managers, I gathered service models information that can be transferred to the hospital environment.

MICHAEL RAPE
The Utility of Hospital Report Cards on Consumer Decision-Making
Mentor: Dr. Dawn Oetjen (Health Management and Informatics)
Consumer-driven healthcare has increased the amount of power consumers have on their care, which led to the creation of this research. The influence on consumer decisions on care is the topic of this research.

SHANNAN SHERMAN
Nursing Interventions to Manage Community-acquired *Clostridium difficile*-Associated Disease
Mentor: Dr. Pamela Ark (Nursing)
A review of literature related to community-acquired *Clostridium difficile*-associated disease was conducted. Findings from this thesis demonstrate a mirroring of to community-acquired *Clostridium difficile*-associated disease to community-acquired Methicillin-resistant *Staphylococcus aureus* (MRSA). Therefore, recommendations for management of community-acquired *Clostridium difficile*-associated disease will be similar to recommendations for community-acquired MRSA.

MARIE SHULTZ

Effectiveness of Mindfulness-Based Practices in Alleviating Perceived Stress in College Students

Mentor: Dr. Jane Compson (Philosophy)

The purpose of this study is to examine the effectiveness of mindfulness-based practices (MBP) in alleviating perceived stress in college students. Utilizing MBP may reduce perceived stress in college students related to semester-based stressors and may improve their ability to perform well in classes or daily life.

KELLY SULLIVAN

Nursing Interventions that Can Improve Coping Strategies of Women Who Miscarry

Mentor: Ms. Jacqueline Lamanna (Nursing)

Nurses who provide care to women following miscarriage must be aware of the potential physical and psychological repercussions of miscarriage. An integrative review of literature will be conducted, to explore evidence-based nursing interventions that promote effective coping following miscarriage, particularly those relative to early involuntary loss of pregnancy.

MELISSA TIMSON

Systematic Review: Assessing the Efficacy of Stuttering Treatments Using Single Subject Design

Student Co-Author: Megan Glancy

Mentor: Dr. Chad Nye (Communication Sciences and Disorders)

The purpose of this study is to determine the efficacy of the many fluency treatments available. This study is a systematic review and meta-analysis of single-subject design type studies focused on children and adults separately.

CATALINA TORRES

How to Reduce Surgical Site Infections (SSIs) in the Operating Room (OR)

Mentor: Dr. Dawn Oetjen (Health Management and Informatics)

This researcher proposes to identify and evaluate the main causes for SSIs in the OR of three hospitals in three different counties in the Orlando area and to develop improved means of implementing surveillance of healthcare workers to ensure compliance of new methods in order to reduce SSIs.

NIKOLAS TURNER

Lisfranc Sprain in a Division I Collegiate Football Player

Mentor: Ms. Mary Vander Heiden (Student Athletics)

The project was done on a collegiate football player who sustained an injury to his midfoot. This led to surgery and rehabilitation. The athlete tried to return to play; however, the weight bearing hardware broke and had to be removed.

LYDIA WATKINS

Improving Nonverbal Communication Between Nurses and Deaf and Hard-of-Hearing Children

Mentor: Mr. Stephen Heglund (Nursing)

Hospitalized deaf and hard-of-hearing children are at an increased risk for misguided treatment of health disorders, especially the under-treatment of pain, due to their inability to communicate verbally. This project describes strategies nurses can use to communicate nonverbally with these children through a variety of simple methods.

MAUREEN WOODMAN

Fertility Awareness-Based Methods of Avoiding and Achieving Pregnancy: An Effective Means of Family Planning and Promoting Women's Empowerment

Mentors: Ms. Mary Guimond, Dr. Maureen Covelli (Nursing)

To determine health care providers' views on fertility awareness-based methods of family planning, the challenges encountered by those who choose to use such methods, and how such methods empower women.

JULIE WUNDERLICH

Nursing Interventions to Promote Coping Strategies in Adolescent Oncology Patients

Mentor: Dr. Pamela Ark (Nursing)

The objective of this research was to review existing literature and research evidence on the topic of coping strategies in adolescents with cancer. Information was gathered from CINAHL, PubMed, and Medline and was analyzed to identify effective nursing interventions and their outcomes.

LIFE SCIENCES I

SABIKHA ALAM

Influence of the Potent Vitamin A Derivative, Retinoic Acid, on Cardiac Rate, Rhythm, and Electrical Conduction Properties During Embryogenesis

Mentor: Dr. Steven Ebert (Biomedical Sciences)

The objective is to test the hypothesis that retinoic acid promotes development of the cardiac electrical conduction system during the embryonic period. We will test this hypothesis by measuring heart rate, rhythm, and conduction speed in isolated embryonic mouse hearts treated with or without retinoic acid receptor blockers.

CARLY BADER

The Role of Host Chaperones in Cholera Intoxication

Mentor: Dr. Ken Teter (Molecular Biology and Microbiology)

The objective of this project is to examine the roles of host chaperones BiP and Hsc70 in cholera intoxication. Determining the role of these host chaperones could allow more precise therapeutics to be created.

JENNIFER BAZEMORE

Effects of 4-Phenylbutyrate and Geldanamyacin in Cholera Intoxication

Mentor: Dr. Ken Teter (Molecular Biology and Microbiology)

The purpose of this project is to determine whether two drugs, 4-phenylbutyrate and geldanamyacin, confer resistance to cholera intoxication.

BRADLEY BELOUS

Identifying the Functions of Conserved, Essential Proteins in *Escherichia coli* in an Effort to Understand Physiological Processes in Higher Organisms.

Mentor: Dr. Sean Moore (Molecular Biology and Microbiology)

The objective of this project is to identify the function of several evolutionarily conserved, essential proteins in *Escherichia coli*. The functions of these proteins may lead to the identification of novel physiological processes that can be targeted to combat infectious disease and uncover new therapeutic strategies.

CHRIS BERNDT

Anti-toxin Therapeutic Effects of Polyphenolic Compounds in Grape Seed and Grape Pomace Extracts

Mentor: Dr. Ken Teter (Molecular Biology and Microbiology)

We will determine which of the specific polyphenolic compounds found in grape seed and grape pomace extracts is responsible for conferring resistance to different bacterial toxins.

SPENCER BEZALEL

Role of the Homocysteine-Inducible ER Stress Protein (Herp) in Cancers

Mentor: Dr. Sic Chan (Biomedical Sciences)

Homocysteinemia is an oncogenic risk factor. Recent evidence suggests that endoplasmic reticulum (ER) stress is a marker for faster-growing tumors. The project objectives are to examine the expression of the homocysteine-inducible-ER-stress protein (Herp) in tumors and to determine whether targeting Herp represents an effective strategy to inhibit tumor growth.

KELLY BRESLIN

Understanding Patterns of Reproduction: A Monthly Field Recruitment Study of an Invasive Bivalve, *Mytella charruana*

Mentors: Dr. Kimberly Schneider, Dr. Linda Walters, Dr. Eric Hoffman (Biology)

Mytella charruana is an invasive species native to South and Central America that has recently colonized the southeastern coast of the United States. This project monitors the arriving individuals per month from reproduction over a year to determine recruitment patterns and the potential for population growth in non-native environments.

SASHA BRODSKY

Cold Temperature Effects on Byssal Thread Production by the Native Mussel *Geukensia demissa* and the Non-Native Mussel *Mytella charruana*

Mentors: Dr. Linda Walters, Dr. Eric Hoffman, Dr. Kimberly Schneider (Biology)

Invasive species can be detrimental to an ecosystem as they can compete with native species for resources. The introduction of the charru mussel, *Mytella charruana*, has raised concern for the native ribbed mussel, Geukensia demissa. Here we investigate differences in these species by examining temperature effects on byssal thread production.

LUZ CASTRO-MORALES

Germination and Early Survival of Carolina Willow (*Salix caroliniana*) Along Gradients of Soil Moisture and Texture.

Mentor: Dr. Pedro Quintana-Ascencio (Biology)

To evaluate the effect of water availability and soil texture on germination and early seedling survival of willow, *Salix caroliniana* to better understand environmental conditions controlling the increasing spread of this species along the St. Johns River, Florida.

KELLY COBAUGH

Bactericidal Effects of Auranofin on *Clostridium difficile*

Mentor: Dr. William Self (Molecular Biology and Microbiology)

To study the mechanism of action of the gold compound Auranofin on *Clostridium difficile*.

OCEAN COHEN

Population Analysis of the Titan Acorn Barnacle, *Megabalanus coccopoma*, throughout the Southeastern United States

Mentors: Dr. Eric Hoffman, Dr. Linda Walters (Biology)

The aim of this study is to assess genetic variation within and between populations of the invasive Titan Acorn barnacle, *Megabalanus coccopoma*. This information can be used to identify source populations and to understand distribution patterns of invasive populations.

JAMIE CONKLIN

Effects of Species Diversity and Nutrient Availability on the Establishment of the Invasive Guinea Grass (*Panicum maximum*)

Mentor: Dr. Betsy Von Holle (Biology)

Florida experiences severe economic and ecological problems by nonnative species. The objective of this study is to explore how the environmental factors of native species diversity and nutrient availability impact the establishment of the invasive guinea grass (*Panicum maximum*), thereby providing direction for protecting Florida's diverse ecosystems.

ALLISON CONNER

Responses of Red Mangroves *Rhizophora mangle* to Sea Level Rise and Changes in Salinity

Student Co-Presenters: Emily Ouelette, Heather Flynn, Violette Gibbs, Brianna Brigandi, Jane Conrad, Gregory Griffin

Mentor: Dr. Linda Walters (Biology)

To determine the effects of water depth and salinity on the net growth and survivorship of the red mangrove (*Rhizophora mangle*) which is indigenous to the Indian River Lagoon, and to provide vital information for future conservation decisions concerning climate change impacts on this keystone species.

TAYLER CROOM

ABCE1: Essential for Ribosome Biogenesis

Mentor: Dr. Robery Igarashi (Chemistry)

Determining where and how the ABC Fe-S protein ABCE1 functions in the synthesis of ribosomes can provide insight into ribosome biogenesis as well as the potential for pharmacological applications and development of novel methods in cancer chemotherapy.

ADAM EL KOMMOS

Altered Numb Protein Expression in Alzheimer's Disease

Mentor: Dr. Sic Chan (Biomedical Sciences)

Numb is an endocytic adapter that exists in four spliced isoforms. We reported that stress increases the expression of Numb isoforms that promote production of the amyloid-Ð peptide, the principle component of senile plaques in Alzheimer's disease (AD). We examined Numb isoforms in brains of AD patients/AD transgenic mice.

HEATHER FLYNN

Interactions Between Native Species Diversity and Mycorrhizal Fungal Associations on Guineagrass (*Panicum maximum*) Invasiveness

Mentor: Dr. Betsy Von Holle (Biology)

Invasive species drastically decrease ecosystem function, biodiversity, and endemic species' habitats. This experiment investigates the role native species diversity and mycorrhizal fungal associations play in facilitating the establishment of the invasive species, guinea grass (*Panicum maximum*), in scrubby flatwoods communities and provides information to develop restoration methods for Florida ecosystems.

DOMINIQUE GHANNAM

Enhancement of Patterned Cardiac Myocytes on Multielectrode Arrays for High-throughput Drug Testing

Mentor: Dr. James Hickman (Biomedical Sciences)

Cardiac side effect testing is required for all developmental drugs prior clinical trials. The common *in vivo* methods are slow and costly. In this project, neonatal rat cardiac myocytes are patterned on multi electrode arrays and *in vitro* high-information content method will be optimized for pharmaceutical side effect testing.

AARON GODWIN

Understanding the Potential Impact of an Invasive Marine Mussel: a Field Study on the Growth and Survival of *Mytella charruana*

Mentors: Dr. Kimberly Schneider, Dr. Eric Hoffman, Dr. Linda Walters (Biology)

Mytella charruana, a bivalve native to South and Central America, has recently been introduced to the southeastern coast of the United States. This project monitors the growth and survival of *M. charruana* under natural field conditions in order to understand the invader's biology and explore its potential for range expansion.

JAMES GROSSO

Altered Expression of Calcium Channel Proteins in Parkinson's Disease

Mentor: Dr. Sic Chan (Biomedical Sciences)

The etiology of neuronal death in Parkinson's disease (PD) still remains unclear. Considerable evidence suggests that oxidative stress and deregulation of calcium homeostasis play key roles in the pathogenesis of PD. Here, we determine the molecular mechanisms whereby intracellular calcium homeostasis is altered in cell and animal models of PD.

JESSICA KENYON

Genetic Relatedness and Parentage in Disney's Animal Kingdom Population of Greater Flamingos

Mentor: Dr. Eric Hoffman (Biology)

We have examined DNA from the population of greater flamingos (*Phoenicopterus rubber roseus*) from Disney's Animal Kingdom. We used microsatellite molecular markers to determine parentage and to find a cause for abnormalities showing up in some of the offspring.

RACHEL KING

The Influence of Intralocus Sexual Conflict on Sex-Specific Immune Investment Strategies

Mentor: Dr. Ken Fedorka (Biology)

I am studying how intralocus sexual conflict influences sex-specific immune investment using hemiclone analysis in fruit flies.

JESSICA LAB

Carbon Dynamics in Rapidly Urbanizing Landscapes—A Pilot Study on the Urban to Rural Gradient in Eastern Orlando, Florida

Mentor: Dr. Ross Hinkle (Biology)

This study of a rural to urban gradient within a 200-square-kilometer area of eastern Orlando, Florida, will evaluate changes in the landscape's capacity to sequester carbon as urbanization has spread over the past 31 years.

JOSEPH LAMATTINA

Characterization of Pre-replication and Replication Protein Complexes in *Plasmodium falciparum*

Mentor: Dr. Debopam Chakrabarti (Molecular Biology and Microbiology)

The goal of this research is to define the molecular architecture of protein complexes regulating the onset of DNA replication in the malaria parasite.

LIFE SCIENCES II

ROBERT LORCH

MicroRNA Regulation of Prostate Cancer Desensitization to Androgen Receptor Antagonist Drugs during Androgen Deprivation Therapy

Mentor: Dr. Ratna Chakrabarti (Molecular Biology and Microbiology)

The involvement of microRNAs in regulating the desensitization of prostate cancer cells to androgen receptor antagonists will be investigated by screening genome-wide microRNA expression levels and validating the expression of the target proteins and mRNAs regulated by the candidate microRNAs.

HOLLY MCARDLE

Pollination Biology of *Polygonella myriophylla*

Mentor: Dr. Pedro Quintana-Ascencio (Biology)

The primary goals of this project are to gather information on the phenology of *Polygonella myriophylla*'s flowers and the effects of differing pollinator species, visitation rates, and local environment on its seed set.

ZACHARY MOYE

A Genetic Screen for Genes Involved in the Epithelial Development of *Drosophila*

Mentor: Dr. Laurence von Kalm (Biology)

The purpose of this project was to identify genes of the model organism *Drosophila melanogaster* that interact genetically with the trypsin-like type II transmembrane serine protease (TTSP) designated Stubble in order to better understand the role of TTSP activity in development and human pathology.

MICHAEL NAPOLITANO

Power Relation and Dominance Hierarchy Correlations in Primates

Mentor: Dr. Libby Cowgill (Anthropology)

To better understand primate power relations and dominance hierarchies and discover possible biological or ecological correlations which may lead to more insight on primate societies and the origins of human social organization patterns.

JAMES NEW

Plant-Made Oral Vaccines: Evaluation of Capsules

Mentor: Dr. Henry Daniell (Molecular Biology and Microbiology)

The effects of lyophilizing vaccine antigens made in lettuce will be evaluated for stability and immunogenicity to develop a prototype formulation for an oral vaccine. The usage of excipients will be investigated, with special consideration to efficacy and durability of the vaccine product.

ALEXANDER NOLL

Hypoxia Indcues Lipid Droplet Accumulation in THP-1 Derived Macrophages

Mentor: Dr. Pappachan Kolattukudy (Molecular Biology and Microbiology)

The two specific aims of this study were to determine if and how THP-1 derived macrophages accumulate lipid droplets under hypoxic conditions as well as to determine if MCP-1 induced protein is involved in triggering lipid droplet accumulation under hypoxia in THP-1 derived macrophages.

DAVIDSON PEREIRA

Preventing Marine Invasions: Disposal Methods for Aquarium Strains of *Chaetomorpha linum*

Student Co-Presenters: Justin Collins, Catherine Jeske, Joshua Solomon, Kali Standorf, Christopher Palmioti, Brittany Gann, Brett Larose

Mentor: Dr. Linda Walters (Biology)

Release of aquarium organisms poses a threat to coastal and estuarine ecosystems. Our goal was to determine the effectiveness of four disposal methods—freezing, boiling, desiccation and desalination—for aquarium strains of the green alga *Chaetomorpha linum* in order to prevent its introduction into natural environments.

MARIO PITA

Neural Stem Cells and a Potential Treatment for Parkinson's Disease: Evaluating the Therapeutic Effects of a Novel Compound

Mentor: Dr. Kiminobu Sugaya (Biomedical Sciences)

Current treatments for Parkinson's Disease lack the ability to fundamentally restore the brain. A small molecular compound has been shown to induce proliferation of endogenous stem cells which naturally restore brain tissue. This project assesses the therapeutic potential of this novel compound using behavioral tests, protein assays, and immunohistochemical analysis.

EMILY PITCAIRN

Colors, Bands, and Scales: Do the Genes Agree?

Mentor: Dr. Christopher Parkinson (Biology)

We investigated the relationships between two species of coral snakes, *Micrurus fulivius* and *Micrurus tener*, using nuclear and mitochondrial data. We evaluated phylogenetic relationships among individuals and the genetic distance between species. We compared our results to the current morphological species designation to determine is species status is warranted.

LANCE RADFORD

Novel Antimalarials from Marine Natural Products

Mentor: Dr. Debopam Chakrabarti (Molecular Biology and Microbiology)

Identification of novel lead antimalarial compounds from marine natural products utilizing SYBR Green-I based high throughput screening and evaluating the potency and efficacy of positive hits.

CHRIS REILLY

Effects of Site Specific Tryptophan Mutations on Human Group IIA Phospholipase A2

Student Co-Presenter: Erica Jackson

Mentor: Dr. Suren Tatulian (Physics)

Our project studies the structural basis underlying interfacial activation of Group IIA PLA2 and two mutants containing tryptophan at close positions within the N-terminal helix. These structural changes will be correlated with the respective activities and thermal stabilities of the enzymes. Potential practical applications of the results will be discussed.

LAUREN RIVERA

Utilization of Viral Vector to Analyze the Neuroprotective Wallerian Degeneration Slow Gene Expression in Neural Stem Cells

Mentor: Dr. Mohtashem Samsam (Biomedical Sciences)

The Wallerian degeneration slow gene (Wlds) has demonstrated significant protection from degeneration of nerve cells in neurodegenerative diseases. By introducing the neuroprotective gene into a viral vector we will be able to transfect neural stem cells and introduce the transformed cells into an animal model to analyze its gene expression.

SARA ROBISON

A Novel K63-Specific Deubiquitinating Complex and Its Potential Involvement in Stress Signaling and Cell Death

Mentor: Dr. Antonis Zervos (Biomedical Sciences)

The objective of this project is to identify potential partners of the protein ABRO1 in order to help characterize the normal function of the BRISC enzyme and its role in stress signaling and/or cell death.

ANGELICA ROMERO

Interaction of a Virulence Factor of the Bacterial Pathogen *Listeria monocytogenes* With a Human Protein Regulating Intracellular Protein Trafficking

Mentor: Dr. Keith Ireton (Biomedical Sciences)

We will examine the interaction of *Listeria monocytogenes* virulence factor InlC with the human protein Sec31 to understand how this interaction might regulate sec31 function and ultimately enhance bacterial virulence.

LOGAN SCHAEFER

Identifying Cellular Targets of *Plasmodium falciparum* CDK-like Kinases

Mentor: Dr. Debopam Chakrabarti (Molecular Biology and Microbiology)

The objective of this study is to understand the physiological function of *Plasmodium* CDKs through their substrate identification and to develop novel malaria therapeutics targeting *Plasmodium* CDK-substrate interactions.

ALLEN SEBA

Epidemiology of Nasal Carriage Strains of *Staphylococcus aureus*: Identifying Genetic Diversity and Putative Genetic Determinants of Carriage

Mentor: Dr. Alexander Cole (Molecular Biology and Microbiology)

The objective of this study was to examine genotypic diversity of nasal carrier strains of *Staphylococcus aureus* from an ethnically diverse cohort of donors. Methicillin resistance and virulence genes were analyzed in concert to differentiate strains of S. aureus and to identify putative genetic determinants for nasal carriage.

SAMANTHA SPINUZZI

Tracking the Invasion of Three Non-native Marine Species, *Mytella charruana*, *Perna viridis*, and *Megabalanus coccopoma*, along the Southeastern United States

Mentors: Dr. Kimberly Schneider, Dr. Linda Walters, Dr. Eric Hoffman (Biology)

Three non-native species, *Mytella charruana*, *Perna viridis*, and *Megabalanus coccopoma*, continue to expand their range along the coast since their recent establishment in the southeastern United States. This project tracks the spread and abundance of these species over 81 locations along the southeastern coast to understand their invasive pattern.

MARTIN STERLICCHI

Function of THAP5 Protein and its Potential Involvement in Heart Disease

Mentor: Dr. Antonis Zervos (Biomedical Sciences)

Apoptosis refers to programmed cell death, and is often the result of environmental stress upon a cell. Omi/HtrA2 is a pro-apoptotic protein found to interact with a novel cardiac-specific nuclear protein, Thanatos associated protein 5 (THAP5). I investigated the function of THAP5 under normal or apoptotic cellular conditions.

MELISSA USSA

Multiplying System Engineers: Does Oyster Restoration Compliment Seagrass Retention?

Student Co-Presenters: Jeb Eubanks, Justina Napoli, John Cunningham, Marc Kemper, Kyle Iketani, Jonathan Winfrey, Cassandra Dickerson, Andrew Howard

Mentor: Dr. Linda Walters

To determine if restored oyster reefs are able to retain fragments of seagrass *Halodule wrightii* more successfully than naturally occurring oyster reefs. *H. wrightii*, an indicator species, has been absent from many regions of the Mosquito Lagoon ecosystem but is now making a comeback.

NEYDA VANBENNEKOM

Identification of Human Signaling Proteins that Promote Entry of the Bacterial Pathogen *Listeria monocytogenes*

Mentor: Dr. Keith Ireton (Molecular Biology and Microbiology)

Human signaling proteins that promote entry of the bacterial pathogen *Listeria monocytogenes* into host cells are being identified in order to lead to a better understanding of host-*Listeria* interactions that contribute to disease.

KORTNI WATKINS

Characterization of Novel Vesicle Transport Proteins in *Plasmodium falciparum*

Mentor: Dr. Debopam Chakrabarti (Molecular Biology and Microbiology)

The aim of the study is to identify the intracellular localizations of the PfVAMPs and determine their role in vesicle-mediated trafficking in the malaria parasite.

WEI YUAN

Where Do We Go From Here? Abiotic Factors Affecting Range Limits of Two Introduced Bivalves, *Perna viridis* and *Mytella charruana*

Mentors: Dr. Linda Walters, Dr. Eric Hoffman, Dr. Kimberly Schneider (Biology)

To examine the interaction between temperature and salinity tolerances of two non-native mussels, *Perna viridis* and *Mytella charruana* in order to determine potential range expansion.

PHYSICAL SCIENCES AND MATHEMATICS

CAROLINA ACEVEDO

Degradation of Chlorinated Aromatics Found in Contaminated Paint and Soil

Mentor: Dr. Cherie Geiger (Chemistry)

The goal of this research is to degrade polychlorinated biphenyls from contaminated paints and soil through the use of activated metal treatment system.

CHRISTOPHER CAMPO

Two Multichannel Spitzer Secondary Eclipses of WASP-18b

Mentor: Dr. Joseph Harrington (Physics)

We studied the secondary eclipse of the exoplanet WASP-18b, resulting in an atmospheric and dynamical analysis of the planetary system.

EMMANUEL CRUZ

Modeling Saturn's Rings to Predict Optical Depth at a Given Geometry

Mentor: Dr. Joshua Colwell (Physics)

To develop a 3D array that takes into account the radial distance from Saturn, a model of the self-gravity wakes, and the viewing geometry, to predict the optical depth of Saturn's rings at any given geometry for use in analyzing images of the rings.

DANIEL FREPPON

Optimization of SU-8 Photoresist for Fabrication of High-Fidelity Nanostructures

Mentor: Dr. Stephen Kuebler (Chemistry)

The objective of this study is to determine how solvent content and oligomer molecular weight distribution affect the performance of SU-8 photoresist as a material for fabrication of three-dimensional nanostructures by multi-photon direct laser writing.

LEON GUERRERO

Optimization of Some Behavioral Portfolio Selection Problems in Mathematical Finance

Mentor: Dr. Jiongmin Yong (Mathematics)

We seek to formulate and analyze a general discrete-time behavioral portfolio selection model, featuring s-shaped utility functions and probability distortion functions used to model inherent human factors in investment decisions. We address the problems of existence, characterization, and computation of optimal solutions, and study possible connections with other existing models.

SANTIAGO GUISASOLA

Integrable Perturbations of the Nonlinear Schrodinger Equation and its Applications to Bose-Einstein Condensation

Mentor: Dr. Alexander Tovbis (Mathematics)

It is accepted that Bose-Einstein condensation is described by the Gross-Pitaevskii equation, a non-integrable equation. Integrability is desired when analyzing a Bose-Einstein condensate because it guarantees an effective method of finding solutions. Perturbing the nonlinear Schrodinger equation in a way that preserves integrability may offer better insight into Bose-Einstein condensation.

RYAN HARDY

On the Precession of the Close-in Exoplanet WASP-12 b

Mentor: Dr. Joseph Harrington (Physics)

We combine transit, eclipse, and radial velocity data to detect and measure the apsidal precession of the short-period exoplanet WASP-12 b and constrain its interior structure.

KELSEY HARGROVE

The First Detection of Ice and Organic Compounds on an Asteroid: A Possible Link to the Origin of Earth's Water

Mentor: Dr. Humberto Campins (Physics)

We are the first to detect water ice and organic compounds on an asteroid. Our rotationally-resolved spectra (data sets taken over time) show that they are not only present, but widespread on the surface. This discovery may provide a link to the bulk source of earth's water.

JUSTIN HODGES

Characteristics of Disks around Stars Explained by Fluid Dynamics

Mentor: Dr. Michele Montgomery (Physics)

The objective of our research is to explain the occasional tilt of accretion disks that surrounded dense matter in space.

WHITNEY KEITH

Simulating the Effects of Rocket Exhaust on Cratering

Mentor: Dr. Brian Moore (Mathematics)

The objective of this research is to numerically approximate the conditions under which a crater will form on the Moon or Mars by using a math model of soil displacement and rocket exhaust pressure.

AARON KOCH

Determining the Heat Capacity of Meteorites through a Non-Destructive Method

Mentor: Dr. Daniel Britt (Physics)

This research is devoted to inventing a new method in which to determine thermal properties of solids, in which the sample is not permanently altered. This method is designed specifically to determine the heat capacity of meteorites due to their limited availability and their value.

KRISTY KORMONDY

High Yield Semiconducting Local-Gated Carbon Nanotube Field Effect Transistors

Mentor: Dr. Saiful I. Khondaker (Physics)

We utilize a semiconducting-enriched single-walled carbon nanotube (SWNT) solution in combination with ac-dielectrophoresis to assemble individual semiconducting SWNTs between electrodes with a 1 um gap with a 100 nm wide local Al/Al2O3 gate in the middle. We present scanning electron micrographs, full electronic characteristics, and statistics on the FET devices.

DAVID LEHMKUHL

Cerium Oxide Nanoparticles as a Sensitive Nanoprobe for Cellular ELISA: Hydrogen Peroxide Independent ELISA

Mentor: Dr. J. Manuel Perez (Chemistry)

I have analyzed and participated in investigating cerium oxide nanoparticles oxidase-like behavior at acidic pH microenvironments. These findings have been applied to creating a practical cellular ELISA.

MICHAEL LODGE

Characterization of Carbon Nanotube Polymer Electrolyte Membranes Using Raman and FTIR Microscopy

Mentor: Dr. Alfons Schulte (Physics)

Investigate the molecular structure of carbon nanotube membranes on a micron scale for applications in fuel cells using micro-Raman and FTIR spectroscopy.

DAVID MAILEY

Dancing the Earth: Full Body Motion

Student Co-Presenters: David Mailey, Brandon Stull, Justin Link

Mentors: Dr. Mike Moshell, Dr. Robb Lindgren (Digital Media)

Our research investigates several methods exploring the utility of full body motion. These methods will implicitly enable the learning process in the field of physical science.

JERONIMO MATOS

Adsorption and Diffusion of Sexithiophene on Ag(110)

Mentor: Dr. Abdelkader Kara (Physics)

We use density functional theory to simulate the adsorption of sexithiophene (6T) molecules on silver surfaces. Our purpose is to analyze this system in various configurations with the goal of gaining an understanding of the electronic properties and energy landscape. This system has applications in organic electronic devices.

SARAH NYMEYER

Two Secondary Eclipses of HAT-P-7b in Four Wavelengths

Mentor: Dr. Joseph Harrington (Physics)

We observed two secondary eclipses of the transiting exoplanet HAT-P-7b using the Infrared Array Camera on the Spitzer Space Telescope. HAT-P-7b is a hot Jupiter that lies approximately 0.04 AU from its parent star. It has a circular orbit and an equilibrium temperature of 2139 K.

RYAN PATRICK

Using LiDAR to Detect Caves Below Rainforest Canopy in the Karst Topography of Caracol, Belize

Mentor: Dr. John Weishampel (Biology)

Mesoamerican caves often have both archaeological and biological importance because they represent sites of rituals and local biodiversity hotspots, respectively. LiDAR, unlike traditional remote sensing methods, pierces the rainforest canopy allowing clear views of sub-canopy features. We wish to assess the prospecting ability of LiDAR to identify these geomorphologic features.

COURTNEY PAULSON

Statistical Analysis of Light Intensity Observations to Determine Areas of Constant Properties in Saturn's Rings

Mentor: Dr. Marianna Pensky (Statistics)

The objective of the project is to use statistical analysis to study the structure of Saturn's rings. To uncover areas in each ring with constant properties like density and composition, the data (light intensity observations in the form of Poisson counts) must be denoised.

KYLE REGER

Numerically Analyzing Hall Magnetohydrodynamics Near an X-type Neutral Line

Mentor: Dr. Bhimsen Shivamoggi (Mathematics)

The Hall magnetohydrodynamic (MHD) model describes fast magnetic reconnection processes. This project focuses on the current sheet formation at X-type magnetic neutral points in Hall magnetohydrodynamics. Numerical and asymptotic solutions are developed for this situation, which are compared against previous analytical results on this problem.

ANTHONY ROBLEDO

Patterned Structures Through Ballistic Growth and Applications to Electroless Deposition of Metals

Mentors: Dr. Aniket Bhattacharya (Physics)

Universal growth models, such as random deposition (RD) and ballistic deposition (BD), are relevant to understanding the evolving morphologies obtained during electroless deposition of metals onto polymeric surfaces (EMPS). We studied these models with several adjustable parameters, such as sticking probabilities and surface diffusion, in the presence of impurities.

ELIOT SILBAR

High Yield Assembly and Transport Properties of Semiconducting Carbon Nanotubes

Mentor: Dr. Saiful Khondaker (Physics)

We studied large scale fabrication techniques of single walled carbon nanotubes (SWNTs) as transistors. With commercially available SWNT solutions it's not typical to have a high yield of gate dependent carbon nanotubes from assembly by AC-dielectrophoresis. We report a yield of up to 87% semi-conducting devices.

CHRISTIAN SMITH
Impact of Coulomb Impurities on Transport Properties of Graphene Nanoribbons
Mentor: Dr. Masahiro Ishigami (Physics)
We have fabricated and performed transport measurements on graphene nanoribbons. Our results shed light on recent predictions that attempt to explain the mechanisms behind transport in graphene nanoribbons. We probe the underlying factors that contribute to the formation of a transport gap seen in similar studies.

CARLOS SOLANO
Atomic Force Microscopy Study of Colossal Magnetoresistive Oxide Thin-Film Surface Roughness
Mentor: Dr. Charles Ahn (Physics, Yale University)
The morphology of the CMR oxide lanthanum strontium manganite (LSMO, La0.65Sr0.35MnO3) has been studied using atomic force microscopy (AFM). Substrate-induced strain was studied by growing the LSMO on different substrates; namely, strontium titanate (STO, SrTiO3) and lanthanum aluminate (LAO, LaAlO3). New thickness vs. roughness information was obtained.

ANDREW TEBLUM
Effects of Alloying and Doping in Semiconductor Nanowires: CdxZn1-xS:Mn, A Case Study
Mentor: Dr. Swadeshmukul Santra (Chemistry)
Fabrication of Mn2+ doped ternary alloy semiconductor CdxZn1-xS nanowires by a simple synthesis route is reported. We have successfully tailored the growth environment to incorporate Mn2+ into these alloy nanowires and bypass self-purification process. Formation of various new morphological and optical phenomena related to alloying and doping was observed.

SOCIAL SCIENCES I

SHAINNA ALI
Contemporary Hijra Identity in Guyana: Colonial and Postcolonial Transformations in Hijra Gender Identity
Mentor: Dr. Elayne Zorn (Anthropology)
This project examines the possible existence of hijra, a third gender status from India in contemporary early twenty-first-century Indo-Guyanese society, as an identity that survived the transatlantic separation from India, colonialism and postcolonial oppression.

GRAHAM ALTAMURA
The Relationship Between Collectivism and Team Performance
Student Co-Author: Kevin Rutherford
Mentor: Dr. Leslie DeChurch (Psychology)
Collectivism and individualism are terms used to describe the level of concern an individual has for group goals over personal goals. This study attempts to explain the relationship between levels of collectivism and team performance by examining the success of teams on tasks given to them in a computer simulation.

KEVIN ALVAREZ
Where Has the Revolution Gone? Gender and Politics in Contemporary Nicaragua
Mentor: Dr. Bruce Wilson (Political Science)
Since the revolution, there has been an overall increase in women's political organization. The priority of women's issues in Nicaragua have been subject to the political goals and ideologies of the administrations in power, and that greater participation in non-governmental organizations have followed these periods of neglect.

JANET RENEA ANDERSON
Consumer Perceptions of Environmentally Friendly Lodging
Mentor: Dr. Po-Ju Chen (Hospitality Services)
The consumer's perceptions of environmentally friendly lodging as well as whether the perceptions differ along generational lines were studied in order to demonstrate continued demand of hotels to engage in sustainable practices. The findings of the study could translate into hospitality and tourism marketing strategies.

AMBERLE ASBELL
The Effects of Birth Order on Transformational Leadership and Effectiveness
Student Co-Authors: Michael Aponte, Kelly Hannahan, Lisa Mortimore
Mentor: Mr. Toshio Murase (Psychology)
Leadership is a real and vastly consequential phenomenon, perhaps the single most important issue in the human sciences. Our goal is to examine prior research and conduct our own research to determine how birth order relates to an individual's effective leadership skill and type.

GHISLAINE ATKINS
The Dichotomy of the African-American Persona: The Progressive vs. The Regressive
Mentor: Dr. Kurt Young (Political Science)
Examining the differences in behavior and social interaction and how the "two types" are perceived. Are African Americans who "act white" better received by mainstream society (those outside their race)? And, are they still able to retain respect by their fellow African Americans?

MICHELLE ATTIA
Homosexuality Career Bias
Mentor: Dr. Amy Donley (Sociology)
This project employed qualitative methodologies to look at how homosexuals are treated in careers and hiring based solely on sexual orientation. Areas researched were hiring preferences, pay, promotions, and workplace treatment.

SHANNON BAILEY
Observations on Modern American Paganism
Mentor: Dr. David Gay (Sociology)
The purpose of this research is to observe Pagan culture, beliefs, and practices to provide a more accurate view of Paganism today. This paper traces the evolution of Paganism in America through literature review, while exploring the current trends in the subculture by observing the Florida Pagan Gathering.

ASHLEY BENNETT
Effects of Pre-Enrollment Efforts on Retaining Low-Income Married Couples with Children in a Marriage and Relationship Education Program
Mentor: Dr. Andrew Daire (Child, Family and Community Sciences)
We will analyze the influence of pre-enrollment efforts on retaining low-income married couples with children as a part of a national experimental design study. This data will provide insight for the best practices in recruiting and retaining low-income married couples with children in a marriage and relationship education program.

ANJELICA BLUM

Leadership Proneness in Students

Student Co-Author: Sarah Nordgren

Mentor: Mr. Toshio Murase (Psychology)

The objective of our research is to examine the relationship between specific personality characteristics and proneness towards careers in leadership-involved fields. We plan to administer a personality scale and a career interest questionnaire to college students attending the University of Central Florida.

STEPHANIE BOOTHBY

A Bird's Eye View: Using Satellite Imagery to Map and Analyze the Forest Islands of the Llanos de Mojos, Bolivia

Mentor: Dr. John Walker (Anthropology)

The imprint of pre-Hispanic modifications on their environment can still be seen today. By mapping natural and artificial landscape features with Google Earth, the spatial data can be analyzed with a GIS program. This information can reveal pre-Hispanic settlement patterns and can be applied to modern issues in the Amazon.

CRISTINA BRYAN

Did Choice of News Media Correlate with Psychopathology and Altruism during the Haitian Earthquake Disaster?

Mentors: Dr. Shannon Whitten, Dr. Karen Mottarella (Psychology)

The hypothesis of this study sustains that certain media patterns correlate with psychopathology. Participants will be asked to provide information about where they obtained information about the Haitian earthquake. Psychopathology and altruism will be dependent measures. It is predicted that patterns of media choices will predict psychopathology and altruism.

AMELIA CAREY

Religious Affiliation and Religiosity: Variations on Perceptions of Domestic Violence

Mentor: Dr. Jana Jasinski (Sociology)

In order to better understand the predispositions to acceptance of domestic violence, this research will use a secondary data analysis to garner an understanding about any possible effect religiosity and religious affiliation may have on the acceptance of myth based verses empirically based statements about domestic violence.

JENNIFER CARTER

The Relationship Between Identity Formation and Interpersonal Aggression

Mentor: Dr. Steven Berman (Psychology)

The relationship between identity formation and interpersonal aggression has been suggested theoretically, but not thoroughly investigated. High school students completed self report surveys on identity, peer conflict, and adjustment. Multiple regression analyses revealed that identity variables predicted aggression while controlling for psychological adjustment. Implications are discussed.

LAUREN CATENACCI

An Examination of College Students' Beliefs and Attitudes Surrounding the Casey Anthony Case

Mentor: Dr. Mark Lanier (Criminal Justice and Legal Studies)

This study will analyze beliefs and attitudes that undergraduates hold about Casey Anthony based on media exposure.

CAITLIN CHASE

Factors of Visual Intelligence and Their Influence on Performance with Unmanned Systems

Mentor: Dr. Florian Jentsch (Psychology)

The objective of this work focuses on discussing the application of specific factors of visual intelligence (VI) including closure speed, flexibility of closure, and perceptual speed in unmanned vehicle (UV) research.

MATTHEW COHN

The Effect of Leader and Follower Performance on Leader's Moods

Student Co-Author: Erika Gordon

Mentor: Mr. Toshio Murase (Psychology)

Participants will rate a past experience where they had to follow someone else's directions, specifically their leader's performance and their performance. Performance is then going to be compared with leader's perceived mood.

DEANN COLLINS

Investigating Predictors of Ageism: Relationship with Older Adult Wanted

Mentors: Dr. Shannon Whitten, Dr. Erin Murdoch, Dr. Karen Mottarella (Psychology)

This study investigated predictors of ageism. Specifically, does exposure to stereotypically negative images of older adults correlate with ageist responses among individuals viewing these images? Results indicate that a supportive relationship with an older adult is more important in reducing ageism than exposure to random positive images of older adults.

KAITLYN CRANDALL

French Colonialism in North Africa: Morocco, Algeria, and Tunisia

Mentor: Dr. Houman Sadri (Political Science)

This project analyzes the effects of French colonialism on the current political stability of the Maghreb countries of Morocco, Algeria, and Tunisia with the goal of gaining an enhanced understanding of the region in order to build more effective Middle Eastern policies.

ARIEL DANSKY

Sderot: Living with Rocket Attacks for Nearly a Decade

Mentor: Dr. Houman Sadri (Political Science)

This project consists of an analysis of the experience of individuals in the Israeli town of Sderot who endured rocket attacks for nearly a decade, the response of the Israeli government to these attacks, and the extent to which the attacks affected the international perspective of the Israel–Palestinian conflict.

LINDSAY DHANANI

Homeless Perception Based on Religious Affiliation

Mentor: Dr. Amy Donley (Sociology)

This study explored how religion impacts the way people perceive the homeless.

AMANDA DIAZ

An Analysis of Personal Content, Contraband, Explicit Photos, and Symbols Indicative of Drug Use on MySpace Between Sexes

Student Co-Author: Moheshwari Nauth

Mentor: Ms. Gail Humiston (Criminal Justice and Legal Studies)

Many young adults share information that could put their safety at risk when using MySpace.com. The research was designed to study personal information MySpace users chose to make public on profiles as well as on inappropriate information: evidence of contraband, evidence of drug use, use of profanity, and explicit photos.

ILEANA I. DIAZ
The Ethnoprimatology of Limón, Costa Rica: A Survey in Conservation
Mentor: Dr. Leslie Lieberman (Anthropology)
This project explored human-nonhuman primate interactions in the eastern region of Costa Rica. The goals of this research are to investigate deforestation phenomena and the impacts of forest clearing for local fruit plantations on *Alouatta palliata*, *Ateles geoffroyi*, and *Cebus capucinus*. This research aims to further encourage nonhuman primate conservation.

KASSANDRA DIXON
Individual's Self-Construal Efficiency of Assertive Versus Aggressive Leadership Style
Student Co-Author: Daniel Martinez
Mentor: Mr. Toshio Murase (Psychology)
Studies have described aggressive leaders negatively; nevertheless, they are goal-oriented. Desirable leaders are assertive where communication is open and interpersonal relationships are developed. The purpose of this study is to examine individual's perception based on their gender on which type of leadership (assertive or aggressive) can produce an effective leader.

SOCIAL SCIENCES II

VANESSA DOMINGUEZ
The Family Adjustment Measure Project: The Norming and Validation of the Family Adjustment Measure
Mentor: Dr. Andrew Daire (Child, Family and Community Sciences)
The purpose of the Family Adjustment Measure Project is to develop an assessment that measures family adjustment specific to parents of children with special needs based on these four possible domains: social support, positive coping skills, family and marital adjustment, and effective parenting.

JENNIFER FELICIANO
The Utilization of Authentic Assessment in Early Childhood
Student Co-Authors: Rosemarie Dunn, Janey Mercadante
Mentor: Dr. Heather Batchelder (Child, Family and Community Sciences)
The objective of this project was to create and pilot an instrument to measure and document levels of student participation and mastery of learning objectives through natural observation for the Mommy and Me Program at the MOTE Marine Laboratory in Sarasota, Florida.

KELIN FLANAGAN
Ethno-Botany in Florida: Seminole Cosmology and Medicinal Plant Use
Mentor: Dr. Leslie Lieberman (Anthropology)
Botanical species used by traditional Seminole healers will be studied for their medicinal properties and compared to the metaphysical constructs assigned to them by the Seminole. A chart comparing these two properties will be composed based on findings within literature, mythology, oral histories, artwork, and possible interviews.

BIANCA FORTIS
Pedagogical Trends in Journalism: Trauma Reporting
Mentor: Dr. Maria Cristina Santana (Communication)
The goal of this project is to design a new journalism course in trauma reporting for schools throughout the United States. Few journalism schools offer courses in trauma reporting, thus not adequately preparing students for the stress or trauma of a career as a reporter or photographer.

CHRISTINE GARNETT
How to Engage and Retain Low-Income Families: Three Practical Factors that Influence Participation in a Marriage Education Program
Student Co-Author: Jennifer Gibson
Mentor: Dr. Andrew Daire (Educational Studies)
In this research, we found three practical factors-orientation attendance, participation in program services within three weeks of random assignment, and ethnicity-that we expect are influential in engagement and retention in marriage education programs. This research has potential implications related to engaging and retaining low-income families in marriage education programs.

ILIANI GIANNONI-MUNIZ
The Perceptions of Hospitality Human Resource Managers on Social Media Networks, Along with Students Awareness
Mentor: Dr. Fevzi Okumus (Hospitality Services)
What I have been researching is information about the perceptions of how social media content is being viewed by HR managers in hospitality companies. My research will bring awareness to privacy laws and case studies as well as provided individuals with suggestions about how to manage their media content.

MICHAEL GIBBY
Cave Diving Risk Perception and Behavior
Mentor: Dr. Mark Dickie (Economics)
Divers' perceptions of the risk of various activities, as well as information about their behavior as reported via surveys was analyzed to better understand cave diving risk perception.

CHRISTIAN GONZALEZ
Perceptual Training with Visual Aids: Their Role in Aviation
Student Co-Author: Steven Estes
Mentor: Mr. Toshio Murase (Psychology)
The effectiveness of training with visual aids to reduce perceptual errors in a visual aviation task will be examined. We predict that the amount of information provided by each visual aid will positively correlate to higher performance during testing.

GARRETT GRAINGER
National and Structural Explanations for Income Inequality: An Exploratory Analysis
Mentor: Dr. Matthew Mahutga (Sociology, University of California-Riverside)
An internal development model was constructed to control for state-level variables that often confound the relationship between systemic factors and income inequality. The model consisted of five variables. The external factors of interest were world-system position and foreign capital penetration.

CHRISTINA GRECO

MediaLab: Implementing Computerized Experimentation

Student Co-Author: Jennifer Luli

Mentor: Dr. Florian Jentsch (Psychology)

The objective of this proposal is to describe how an experiment was transferred from pen and paper based measures to digital measures using MediaLab by Emiprisoft.

MEGAN GREGORY

The Role of Transactive Memory in Work Teams: A Review

Mentor: Dr. Leslie DeChurch (Psychology)

Relevant literature on Transactive Memory (TMS) in work teams will be examined in order to better understand this construct and provide a framework for future research.

JENNIE HAYES

Communication Between America's First Couple: How the First Ladies Have Shaped the World through Pillow Talk

Mentor: Dr. Harry Weger (Communication)

Should the American voter concern him or herself with the communication that exists within the marriage of America's first couple? By examining the marriages of five former first couples through levels of self-disclosure and subsequent intimacy as well as communicative power within the relationship, the answer is "yes."

JUSTIN HEFFERAN

Looking for Angola: The Quest to Locate an Historic Black Seminole Settlement in the Tampa Bay Area.

Mentor: Dr. Rosalyn Howard (Anthropology)

This project is part of an inter-institutional collaborative research project entitled "Looking for Angola" (LFA). Its goal is to assist the LFA research team with data collection, including the organization of historic maps and a review of relevant literature.

ASHLEY HUGHES

Stress and Alcohol Consumption in Different Personality Types

Student Co-Author: Justin Weinstein

Mentor: Dr. Janan Smither (Psychology)

The purpose of this study is to determine a possible existing relationship(s) between alcohol consumption, levels of stress, and neurotic personality trait. Individual differences highlight important strategies in coping with stress and according to copious prior research, alcohol consumption has been strongly related to reduction in negatively arousing emotional stimuli.

WHITNEY JOHNSON

The Effects of Age, Relationship Status, and Pet Ownership on Survivors of Intimate Partner Violence Who Seek Shelter

Mentors: Dr. Eileen Abel, Dr. Olga Molina (Social Work)

The purpose of this study is to investigate common factors that affect women staying in relationships with abusive partners. A comprehensive literature review will be completed. Data collected from selected domestic violence shelters in the state of Florida that focused on shelter residents' experiences with domestic violence will be analyzed.

RUTH JOSEPH

The Relationship Between Homelessness and Incarceration

Mentor: Dr. Amy Donley (Sociology)

The purpose of this research is to understand what role incarceration plays in current homeless status and what could be in place to help prevent people being released from becoming homeless.

BROOKE LAJOIE

Never Too Old, Never Too Young? Exploring Stereotypes in the Mixed-Age College Classroom

Mentor: Dr. Karen Mottarella (Psychology)

In today's mixed-age classroom, negative age-based stereotypes that college students hold of each other have the potential to interfere with an optimal learning environment for all. This study empirically investigates the presence of such stereotypes and serves as a step toward increasing awareness and support within the college classroom.

AMANDA LECHEMINANT

The Changing Political World: How and Why Young People Vote

Mentor: Dr. Philip Pollock (Political Science)

This is a study of the efficacy of voter contact as a method of mobilization for young American voters. Contact as an effective form of mobilization is considered as it relates to Election Day turnout and vote choice. Also studied is the future role of technology in mobilization techniques.

SAMMANTHA LEE

Concepts of Poverty in the Developing World: A Look at the Ladakhi

Mentor: Dr. Ty Matejowsky (Anthropology)

This research project will analyze the effects that the Western concepts of poverty have on cognition and culture in developing contexts specifically rural and small indigenous groups. The project will also examine the Ladakhis in northern India for past recorded effects of changes in a local concept of poverty.

ROBERT MADDENS

Compassion, Self Efficacy, and Morality as Predictors of Transformational Leadership

Student Co-Author: Cody Ott

Mentor: Mr. Toshio Murase (Psychology)

Transformational leadership style and the personality traits of compassion, self efficacy and morality will be examined to understand the relationship between them. Gender will also be explored as a moderator of this relationship.

ABIGAIL MALICK

Views on Gender at UCF

Mentor: Dr. Amy Donley (Sociology)

This study examines views on gender among students at the University of Central Florida. Specifically, the study examines if students believe that gender is primarily constructed by society or is inherent at birth. The study employed both quantitative and qualitative methods through surveys and interviews.

DANIEL MARTINEZ

Personality and Team Performance: Looking at Team Traits and Team Members' Similarity

Student Co-Authors: Kathryn Dalrymple, Thomas Borawski
Mentor: Dr. Leslie DeChurch (Psychology)
Focusing on two popular theories, the five factor model and the similarity attraction theory; team performance was assessed by personality traits evaluated with team motivation, conflict, and cooperation, while team members with similar personality traits are evaluated via team conflict, creativity, strain and likeability.

ALLISON MATOS

Exposing the Maya: Using LiDAR to Identify Hidden Archaeological Features in Caracol, Belize

Mentor: Dr. John Weishampel (Biology)
This LiDAR study represents most ambitious use of this technology in an archaeological context. Identifying below-canopy features will help archaeologists understand the political complexity of the Maya in Caracol, as well as help preserve an important part of Belizean history that has been hidden for centuries.

DAVID MIHM

Screening Out Potentially Aggressive Teammates Using Situational Judgment Tests

Mentor: Dr. Kimberly Jentsch (Psychology)
An SJT (Situational Judgment Test) was created in which a participant was cast in the role of a hospital customer service representative. Aggressiveness was then implicitly assessed based on participant's evaluations of responses to situations in the SJT and compared to peer ratings of the participant's aggressive behavior.

JILLIAN MITCHELL

Native American Portrayal in Textbooks

Mentor: Dr. Amy Donley (Sociology)
This project consists of a content analysis examining how Native Americans are consistently portrayed in current elementary and secondary textbooks used in the Florida public school system and how this may affect the individual's perception of the culture as they grow up.

SOCIAL SCIENCES III

MARTHA MOLFETAS

Resource Conflict in the Caspian Sea Basin

Mentors: Dr. Houman Sadri, Dr. Robert Bledsoe (Political Science)
By examining past and current policies in the Caspian Sea Basin, we can incorporate the successes and failures into other conflicts around the world. This research will add to my discipline a new synthesis of different types of conflict for similarly finite resources.

STEPHANIE PARENTI

The Role of Ideas in History

Mentor: Dr. David Houghton (Political Science)
I have created a model of how the ideas, people, and elite have created our history and are interdependent on one another to have done so. For my research, I have applied this model to the Cold War era to explain the American understanding of it.

JENNIFER PEREIRA

Shared Ethnic Identity with Teammates: The Role of Surface-Level Similarities and Information Sharing

Mentor: Dr. Eduardo Salas (Psychology)
This research aims to improve our understanding of the factors that influence information processing in multicultural teams. Specifically, the purpose is to determine if having a common ethnic identity instead of heterogeneous identity among members within a team can explain the amount of information shared.

ANITA POUSHAN

Approaches to Masculinity in the 2008 Presidential Campaign

Mentor: Dr. Terri Fine (Political Science)
The 2008 presidential candidates presented different perspectives on masculinity. Women outnumber men among eligible voters, and demonstrate higher turnout. This project explores how the female electorate perceived each candidate relative to qualities understood within the context of masculinity as well as how key women spoke of and about these candidates.

MARCUS PRUITT

Impact of High School Setting on College Prep Programs and Student Success at Colleges and Universities

Mentor: Dr. Amy Donley (Sociology)
With this research I performed a quantitative study sampling 500 students from various Central Florida colleges and universities. I also conducted a qualitative study of eight focus groups consisting of six to ten students each. The study examines the impact high school setting has on college success.

JAYME PUFF

Relationships Among Parents' Economic and Parenting Stress, Parenting Behaviors, and Ratings of Young Children's Emotional and Behavioral Functioning

Mentor: Dr. Kimberly Renk (Psychology)
The purpose of this study is to examine the relationships among economic stress, parenting stress, and parenting behaviors to determine which of these variables has the greatest predictive value for children's emotional and behavioral functioning in a time of economic recession.

LIANI RAMOS

Gender Attitudes Toward What is Acceptable Sexual Behavior in Society

Mentor: Dr. Amy Donley (Sociology)
This project studies the relationship between how males and females judge sexual behavior and what their attitudes are about what is acceptable sexual conduct in society. It explores the societal double standard and if people reinforce it in their personal lives.

ANDREA RANIERI

The Backward Masking Red Light Effect and Schizotypy.

Student Co-Author: Diana Hernandez
Mentor: Dr. Jeffrey Bedwell (Psychology)
Previous research has demonstrated a unique effect of red light on visual processing in individuals with schizophrenia. This study explores whether this same effect will be found in a nonpsychiatric sample of adults who report a high level of related personality traits (i.e., "schizotypy").

KAYCEE REESE

Project Reach To Teach

Mentor: Dr. Eleazar Vasquez (Child, Family and Community Sciences)

We evaluated the effectiveness of online tutoring for students at-risk of reading failure. Specifically we examined the overall outcomes of tutoring as measured by the WJ III reading battery, oral reading fluency as measured by the DIBELS and finally assessed the perception of improvement reported by teachers and parents.

CHRISTINA RESTREPO

Assessing Constructivist Teaching and Learning in the Ohio Mathematics Coaching Program

Mentor: Dr. Patricia Brosnan (Educational Studies, The Ohio State University)

This study analyzed the relationship between exposure to the Ohio Mathematics Coaching Program and achievement based on public record data. The program's objective is to improve teacher content knowledge, assessment of student learning and improvement of individualized cognitive based instruction that may lead to student achievement.

JESSICA RIOFRIO

Follow My Lead: Authoritative Parenting and Its Relation to Leadership Style

Student Co-Authors: Kevin Hopkins, Elizabeth Krawiec

Mentor: Mr. Toshio Murase (Psychology)

The examination of the relationship between a parent's use of authoritative parenting and development of a transformational or transactional leadership in their progeny along with an individual's birth order contrasting their leadership style differences. Lastly, there will be an observation concerning an authoritative parenting–birth order interaction and leadership style.

DEANDRA ROBERTS

The Post-SOAR Experience: Determining the Perceived Needs of Students During the Second and Third Years of College

Mentor: Dr. Mia Alexander-Snow (Educational Studies)

This research explores students' academic and social integration, persistence, and retention at UCF. It also seeks to identify the SOAR services in Post-SOAR participants' learning and development; and investigates SOAR participants, faculty and staff perceptions, attitudes, and experiences at UCF.

JACQUELINE ROME

Leadership is Doing the Right Thing: Motivation and Self-Esteem as it Relates to Authentic Leadership

Student Co-Author: Ediana Feliciano

Mentor: Mr. Toshio Murase (Psychology)

Study of present research motivational differences, intrinsic vs. extrinsic, in relation to self-esteem measures to predict authentic leadership methods in organizations.

HEIDI ROSS

The Relationship Between Sexual Orientation and Alcohol Use

Mentor: Dr. Amy Donley (Sociology)

I surveyed 300 students on the UCF main campus to find out if there is a link between sexual orientation and alcohol use.

KEVIN RUTHERFORD

The Effects of Transactive Memory Systems on Team Performance

Student Co-Author: Graham Altamura

Mentor: Dr. Leslie DeChurch (Psychology)

A transactive memory system can be thought of as the unique knowledge of each member of a team, applied collectively to solve a problem. This study examines the common traits amongst individuals that perform highly in transactive memory systems, as well as its effects on team performance using computer simulation.

MARIE SABBAGH

Sexism: Who Will Speak Up?

Student Co-Authors: Tess Hare, Erika Wheelhouse, Holly McFarland

Mentors: Dr. Erin Murdoch, Dr. Maria Lavooy (Psychology)

This study evaluated how willing a female participant was to confront sexist comments and whether she was more likely to verbally respond to the sexist comment after hearing another person confront the speaker. The participants' choices to confront or self-silence were evaluated in terms of condition and questionnaire responses.

MELISSA SMITH

Applying Human Factors Psychology Principles to the Graphical User Interface of an Assistive Robot

Mentor: Dr. Aman Behal (Electrical Engineering and Computer Science)

The MANUS assistive robot is designed to be mounted on a wheelchair and used by persons with limited hand and upper-body dexterity. Human factors psychology principles were applied to the graphical user interface of the system in attempts to find the ideal layout.

SHANNON SMITH

Young America's Perceptions of Homosexuals

Mentor: Dr. Amy Donley (Sociology)

This study analyzed the existing perceptions of homosexuals and homosexuality in America, pertaining to the status of homosexual marriage and other legal rights of homosexuals. It was designed to gauge the level of tolerance towards American homosexuals and determine key indicators for both accepting and non-accepting attitudes towards homosexuals.

SAMANTHA SNYDER

Impact of Sport Participation on Academic Achievement: A Look at Gender and Racial Inequalities

Mentor: Dr. David Gay (Sociology)

This thesis analyzes a nationally representative sample of American high school students to determine if there is a positive relationship between sport participation and average grades. It also examines potential gender and racial differences within this relationship.

MARIA SORI

Perceived Parenting During Adolescence and College Alcohol Use

Student Co-Author: Maria Sori

Mentor: Dr. Michael Dunn (Psychology)

The objective of this research project is to examine the relationship between perceived parenting practices—specifically, parental monitoring and parent authority style—during adolescence and subsequent college alcohol use and alcohol expectancies.

JAZMIN TURK

Parental Bonding and its Effect on Adolescent Substance Use and Sexual Debut

Mentor: Dr. Andrew Daire (Child, Family and Community Sciences)

This study will examine what relationship exists between parental bonding factors and early onset of sexual behaviors and substance use.

MEG TWORKOWSKI

What Undergraduate Students Value Most in Faculty Research Mentors

Mentor: Dr. Karen Mottarella (Psychology)

This study explores what aspects of the research mentor relationship are perceived as most important from the student perspective. The results can be used to help faculty research mentors optimize their students' undergraduate research experience.

ALEXIS VALLAS

The Big Five Personality Factors and Choice of News Outlet

Student Co-Author: Liddon Clare

Mentors: Dr. Shannon Whitten, Dr. Karen Mottarella, Dr. Jeff Bedwell (Psychology)

The present study explored whether personality characteristics are correlated with watching categories of media. Participants were asked to rate how frequently they watched or read 32 different news sources then the NEO personality inventory. Results indicate positive correlations between openness to experience and frequency of watching of comedy news programs.

VICTORIA VAN GAASBECK

Marajoara Ceramic Iconography: Analysis of Ceramic Burial Urns and Associated Burial Goods

Mentor: Dr. John Walker (Anthropology)

This research project will examine social structure and gender roles in Amazonian societies through the analysis of ceramics such as those found on Marajo Island, Brazil. It will test the hypothesis that gender roles in Marajoara culture are expressed through ceramic iconography.

JANELLE WADMAN

Identity and Adjustment in the New Millennium

Mentor: Dr. Steven Berman (Psychology)

This study investigated recent identity development trends among high school students. Data collection occurred in 2004 (n=140) and 2009 (n=133). The recent group had significantly less identity commitment and more psychopathology. Results are interpreted in regard to world changes (i.e., economic downturn, extended war, technological changes, texting, social networking).

ALEXANDRA WOODSIDE

Sexual Abuse as Potential Hindrance to Academic Achievement: A Study of Perception

Mentor: Dr. Sylvester Butler (Child, Family and Community Sciences)

This study investigates the perception of sexual abuse (SA) and its correlation to academic achievement. Sexual abuse may be seen as extremely negative. Do the negative consequences of this traumatic event affect the process of learning? Consequences of SA can be extremely negative, but does that necessarily affect academic achievement?

UNIVERSITY OF CENTRAL FLORIDA LIBRARIES
Annual Award for Excellence in Undergraduate Research Publishing in the
University of Central Florida Undergraduate Research Journal

UCF Libraries is pleased to announce that Antoinette Bazunu,
author of *Are Florida's Children Safe? Evaluating Safety in District 7 Privatized Child Welfare Services*,
has won its 2009 Award for Excellence in Undergraduate Research Publishing.

Congratulations to Antoinette Bazunu and her mentor Dr. Wendell C. Lawther!

The *University of Central Florida Undergraduate Research Journal* encourages, recognizes, and rewards the intellectual scholarship of undergraduate students by providing a peer-reviewed forum to share their research. The journal accepts student articles, essays, and adapted thesis projects from all majors. Students who publish their work gain valuable academic experience, preparing them for future success. Collaborative research is always welcomed.

The *University of Central Florida Undergraduate Research Journal* is on display at **www.URJ.ucf.edu**.

UCF UNDERGRADUATE RESEARCH COUNCIL

The Undergraduate Research Council promotes the involvement of undergraduates in the ongoing activities of the UCF research community and advises the Office of Undergraduate Research as to policies and programs that pertain to undergraduate research at UCF.

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Michael Aldarondo-Jeffries
Kelly Astro
Monifa Beverly
Paul Biscardi
Bill Blank
Ratna Chakrabarti
Kendall Cortelyou-Ward
Niels da Vitoria Lobo
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UCF STUDENT UNDERGRADUATE RESEARCH COUNCIL (SURC)

SURC was formed to promote awareness about undergraduate research for students at UCF. Ten students actively engaged in research are selected each year to serve on this council. Through their support, the Office of Undergraduate Research has greater exposure on campus and gets continuous feedback on undergraduate research programs.
Their help in promoting and running the Showcase of Undergraduate Research Excellence is greatly appreciated.

Paul Biscardi
Melissa Blette
Sasha Brodsky
Natalia Marques da Silva
Amber Dukes
Aaron Godwin
Karen Heine
Rachel King
Mario Pita
Christina Restrepo

SPECIAL THANKS

The Office of Undergraduate Research thanks the following individuals and entities for their time, expertise, and support in the planning of today's event.

Michael Aldarondo-Jeffries
Kelly Astro
Robert Bilic
Patricia Bishop
Sandra Cherepow
Denise Cristafi
Michelle Fuentes
Lauren Haar
Richard Harrison
Jennifer Hartman
Provost Terry L. Hickey
President John C. Hitt
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Carreen Krapf
Nancy Lynch
Alison Morrison-Shetlar
Tom Swanson
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Macarena Torres
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Stands For Opportunity

UCF is the university that seeks opportunities, creates opportunities, and brings them to fruition. The university's culture of opportunity is driven by the diverse people it attracts and serves, its Orlando environment, its history of entrepreneurship, and its youth, relevance, and energy.

UCF SMCA 0911UDS104-03/10