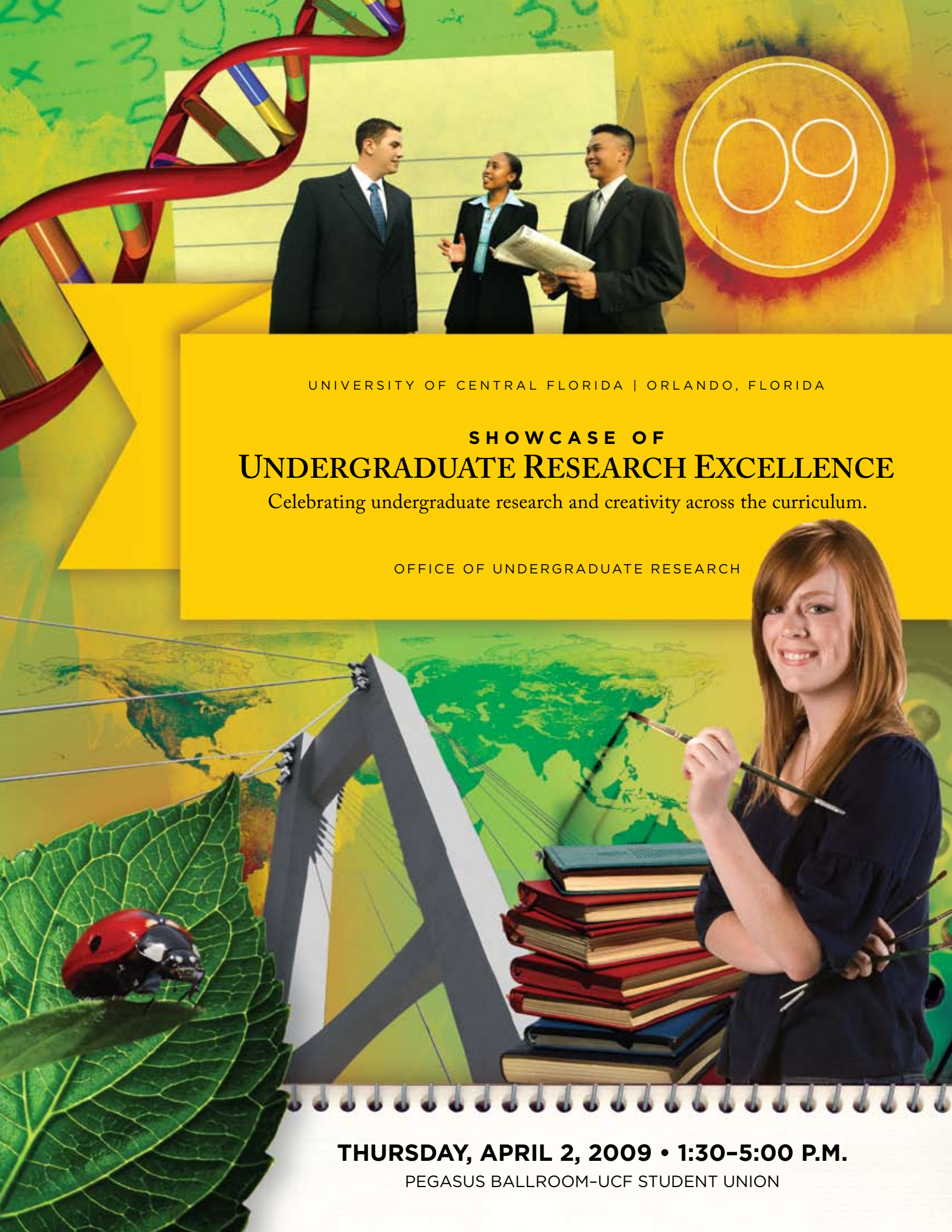

UNIVERSITY OF CENTRAL FLORIDA | ORLANDO, FLORIDA

SHOWCASE OF
UNDERGRADUATE RESEARCH EXCELLENCE

Celebrating undergraduate research and creativity across the curriculum.

OFFICE OF UNDERGRADUATE RESEARCH

THURSDAY, APRIL 2, 2009 • 1:30–5:00 P.M.

PEGASUS BALLROOM–UCF STUDENT UNION

Welcome to the Sixth 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 part 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 2009 Student Research Week at UCF.
www.ResearchWeek.ucf.edu

www.Showcase.ucf.edu

During the Showcase the ***University of Central Florida Undergraduate Research Journal*** will be on display at **www.URJ.ucf.edu**. The *Journal*, established in 2005, facilitates faculty and undergraduate student interactions through research and a mentored publication process.

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UNDERGRADUATE RESEARCH EXCELLENCE

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OFFICE OF UNDERGRADUATE RESEARCH

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.

Dr. John C. Hitt
President
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 2009

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
Bill Blank
Kathleen Bell
William Crampton
Tace Crouse
Kenneth Fedorka
Ali Gordon
Roger Handberg
Eric Hoffman
Jana Jasinski
Bernadette Jungblut
Gary Leavens
Rudy McDaniel
Karen Mottarella
Ali Mehrabian
Sean Moore
Pedro Patino
Richard Peppler
Swadeshmukul Santra
Patrick Schelling
William Self
Denver Severt
Jamie Schwartz
Nancy Stanlick
Lori Walters
Shannon Whitten
Wade Winterhalter
Kevin Yee
Antonis Zervos
Lei Zhai

We also appreciate the support of the judges from the Learning Institute for Elders (LIFE @ UCF).

Francisco Burgos
Sondra Braun
Winston Donnellon
Sandra Goldstein
Jack Gresham
Edward Haddad
Maggie J. Harris
Kermit James
Pat James
Beth Keifer
Ian King
Orion Kline
Norman Sandhaus
Roy Scherer
Rhoda Spang
Pat Peppler
Eva Walsh

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.

PREMIER DONORS

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UCF Student Government Association

EVENT DONORS

Florida High Tech Corridor Council
UCF Office of Research and Commercialization

FRIENDS OF STUDENT RESEARCH WEEK

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Richard H. Harrison II in honor of Dr. John F. Schell
Learning Institute for Elders (LIFE @ UCF)
Alison Morrison-Shetlar and Robert Shetlar
Kimberly R. Schneider
UCF Faculty Center for Teaching and Learning
UCF Federal Credit Union
UCF Institute for Social and Behavioral Sciences, Department of Sociology
UCF Office of Undergraduate Studies
UCF Chapter of Sigma Xi

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.

Eileen Abel
Nancy Ahern
Kelly Allred
Janet Andreasen
Vicky Arnold
Issa Batarseh
Deborah Beidel
Steve Berman
Richard Blair
David Bowie
Humberto Campins
Jeffrey Cassisi
Debopam Chakrabarti
Sic Chan
Po-Ju Chen
Hyoung-Jin Cho
Christian Clausen III
Sheryl Needle Cohn
Kristin Congdon
James Cooney
Kendall Cortelyou-Ward
Henry Daniell
Kristin Davis
Leslie DeChurch
Diego Diaz
Eduardo Divo
Paul Dombrowski
Amy Donley
Megan Duesterhaus
Steven Duranceau
Ron Eaglin
Steven Ebert
Costas Efthimiou
Kenneth Fedorka
Cristina Fernandez-Valle
Terri Fine
Randy Fisher
Mingui Fu
Martha Garcia
Michael Georgiopoulos
Andre Gesquiere
Ali Gordon
Michael Hampton
Joseph Harrington
Keith Harrison
Christopher Hawkins
Eric Hoffman
David Houghton
Masahiro Ishigami
Peter Jacques
David Jenkins
Florian Jentsch
Hyung-il Jung
Bernadette Jungblut
Alain Kassab
Anna Koufakou
Keith Kovach
Stephen Kuebler
Ranganathan Kumar
Joseph LaViola
Maria Lavooy
Kuo-Chi Lin
Mary Macklem
Dan Mapes
Francis Martin, Jr.
Cecilia Milanes-Rodriguez
Peter Molnar
Eurípides Montagne
Michelle Montgomery
Karen Mottarella
Mustapha Mouloua
Mark Muller
Erin Murdoch
Elizabeth Mustaine
Jeanette Nadeau
Saleh Naser
Charles Negy
Dominic Nuciforo, Sr.
Chad Nye
Dawn Oetjen
Christopher Parkinson
H. G. Parsa
David Patrick Houghton
Marianna Pensky
Otto Phanstiel
Ronald Piccolo
Martin Quigley
Pedro Quintana-Ascencio
Seetha Raghavan
Robert Reedy
Kimberly Renk
Houman Sadri
William Safranek
Mohtashem Samsam
Maria Christina Santana
Swadeshmukul Santra
Kristen Schellhase
Kimberly Schneider
Constance Schober
Susan Schott
William Self
Valerie Sims
Dinender Singla
Eileen Smith
Kimberly Smith-Jentsch
Kiminobu Sugaya
Stella Sung
Padmavathy Tallury
David Taylor
Ken Teter
Gregory Thompson
Kristina Tollefson
Alexander Tovbis
Rani Vajravelu
Mary Vander Heiden
Paul Varcholic
Betsy Von Holle
Laurence von Kalm
John Walker
Linda Walters
Lori Walters
Yan Wang
Jane Waterman
John Weishampel
Shannon Whitten
Chengying Xu
Kevin Yee
Kurt Young
Antonis Zervos
Lei Zhai

ARTS AND HUMANITIES

AMANDA C. BANACKI
Spiritual Seascapes: Finding God in the Waters of John Frederick Kensett

Mentor: Francis Martin, Jr. (Art)

This project aims to elucidate the unique method of ocean depiction used by John Frederick Kensett in his paintings to further the moral and religious agenda of the Hudson River School, America's first cohesive art movement.

ALEKZANDER P. CASTELAIN
REMI-D

Student Co-Authors: Neil Jensen, Michael Falk

Mentors: Robert Reedy (Art), Keith Kovach (Art), Stella Sung (Digital Media), Paul Dombrowski (English)

The focus of our research is to develop a new form of pain management for chronic sufferers and explore how we as visual artists can improve upon conventional treatment methods. Our goal is to develop an immersive environment of visual and auditory stimuli which will reduce the patient's perceived level of pain.

SAMANTHA M. CLUCK
Classroom of the Future

Student Co-Authors: Carolyn Luke, Shannon Watson, Ashley Focer, Sean Maio, Steve Clarke

Mentor: Eileen Smith (Institute for Simulation & Training)

Additional Co-Author: Paul Varcholic

We plan to explore and simulate the uses and benefits of multi-touch technology in a classroom environment. We will show ways that these technologies can be used by designing the interface of the student's desk with a focus on third- and eighth- grade curricula.

NATALIA M. DA SILVA
Brazilian Ex-Votos

Mentor: Kristin Congdon (Film)

Votive offerings have been around since the beginning of religion itself and exist in virtually every culture. I am particularly interested in medical sculptural ex-votos from Brazil, as well as their origin, history, and aesthetics. This ongoing research project includes the study of 250 wooden ex-votos and future field work.

RYAN M. EMENS
***Jake's Women* Theatrical Scenic Design**

Mentor: Kristina Tollefson (Theatre)

The scenic design I created for Neil Simon's play, *Jake's Women*, is based on visual research as well as the production concept that came from the director. My goal was to create an abstract world of the main character's mind so the audience could understand his thoughts and emotions.

OMID J. ESMAILZADEGAN
The Geographical Distribution of a Young Variety of English

Mentor: David Bowie (English)

This study provides an explanation for the cause of dialect variation within Utah. Northern Utah is an important case study for this line of research because it is a recently developed variety of English.

TREVOR T. FAULKNER
Promoting Environmental Conservation in Impoverished Communities

Student Co-Authors: Jesse Baguchinsky, Sam Retteen, Shaun Wade

Mentor: Eileen Smith (Institute for Simulation & Training)

Additional Co-Author: Mike Carney

We researched what factors of life most influence non-conservative energy practices among communities in poverty. We adapted this research to current educational techniques and are developing a monthly community event to educate participants and end the harmful psychology that promotes waste and propagates the cycle of poverty.

CHRISTIE E. FIERRO
Developing User-Interface Applications for the Adolescent User

Student Co-Authors: Paul Stratton, Charlie Bogatescu, Lara Contreras, Jonathan Sayago

Mentors: Lori Walters (History), Eileen Smith (Institute for Simulation & Training)

Our goal is to inspire young adolescents to contribute to and experience the World's Fair virtually through user-generated content, games, and interactive design presented on a Web site with demonstrations and virtual tours based on the principles of science, technology, engineering, and mathematics (STEM), as well as the arts and humanities.

RONALD JACKSON II
Linking Struggles: Malcolm X and Stephen Biko

Mentor: Kurt Young (Political Science)

This study seeks to examine commonalities in expressions of Black Nationalism in the messages of Stephen Biko and Malcolm X. It addresses the following question: What tenants of Black Nationalism did Biko and Malcolm express in similar language? This study also explores the commonalities of Jim Crow and apartheid.

ANDREW Z. JACOBSOHN
In Photographs: The UCF Equestrian Team

Mentor: Maria Christina Santana (Journalism)

The images made of the UCF Equestrian team represent the emotional relationship of horse and rider, along with the rider's partnership to the sport that lives within the rider every second of every day.

RICKEY KALIKAPERSAUD
Rehab Underwater Adventure

Student Co-Authors: Daniel Redlied, Devin Smetzer, Greg Gibson, Alex Acosta

Mentor: Dan Mapes (Institute for Simulation & Training)

The objective of this work is to create an entertaining game using motion capture and tracking that aids in upper body rehabilitation.

GREGORY E. MOORE
Folk Artists of the 20th Century

Mentor: Kristin Congdon (Film)

Additional Co-Author: David Restrepo

The research conducted focuses on acclaimed and obscure folk artists in the United States in the 20th century. The work has been executed utilizing library and online databases to gather pertinent biographical information, shedding light on the cultural and personal significance of artistic expression.

NATALIE A. NOVOA

The Female Image in the Hispanic Advertisement World: A Comparison Within Various Spanish-Speaking Countries

Mentor: Martha Garcia (Modern Languages & Literatures)

This study seeks to examine the portrayal of Hispanic women through the means of media and advertisements, in correlation with the actual role of women in Hispano-America and Spain. A focus will be made on the importance of the female consumers and their attitudes about their representation in the media.

CONSTANCE N. ODOM

Planet Teens: The Interactive Environmental Experience

Student Co-Authors: Jacob Lasorso, Danielle Cohen, Jason McMaster, Kathy Pinckney

Mentor: Eileen Smith (Institute for Simulation & Training)

The objective of this work is to educate adolescents on environmental issues through an interactive interface on the Web. Different parts of the world will be analyzed to provide a fuller spectrum of modern day problems. Each location has a different game with various objectives.

DANIEL W. PARKER

Exploring the 1964 New York World's Fair Through Multi-Touch Technology

Student Co-Authors: Isaac Morhaim, Amie Mills, Franklin Elefritz, Melissa Cafcules, Gloria Morales

Mentor: Eileen Smith (Institute for Simulation & Training)

Additional Co-Author: Paul Varcholik

The objective of this work is to educate the user about the 1964 New York World's Fair with a public, wall-sized multi-touch display. Utilizing a user-friendly interface, the display will allow the user to access a virtual presentation of the 1964 New York World's Fair via Google Earth.

GRACE M. RICHARDSON

***Antigone*: A Scenographical Study**

Mentor: Kristina Tollefson (Theatre)

Through my scenographical study of *Antigone* by Sophocles, I demonstrate, through research and emotional inspirations for each design element, how the classical transcendent text may be translated into Greece, where its ancient characters parallel those of Greece's 1950s militaristic state post-World War II.

SARAH N. ROGERS

Chances: The Documentation of the Process of a Student Film

Mentor: Maria Christina Santana (Journalism)

While most films have a designated "set photographer," as a photojournalist, my focus was to capture the essence of the cast and crew of the student film "Chances" and to bring light to the cast, crew, effort, drama, and skill that goes into the making of a film.

JARED A. SERFOZO

iTour: Exploring the Space Coast

Student Co-Authors: John Gyory, Austin Burns, Jonathan Rodat, Joy Rodriguez, Eryn Gruber,

Mentor: Lori Walters (History)

iTour is an interactive mapping system application, enabling a user to be guided around a location using a PDA. By visiting a town or city using GPS, iTour will direct a user and give historical facts and trivia through an interactive scavenger hunt via media, images, and video.

NIGEL F. SMITH

Health Through YoMedics and the Web

Student Co-Authors: Mike Santini, Frank Ray, William Sellinger

Mentor: Eileen Smith (Institute for Simulation & Training)

Our objective is to build a Web site to educate children about health and health-related activities for children ages seven to 12. We will be implementing the YoMedics activity workbook in a Flash-based online Web site.

CARISSA R. VANDALEN

Theological Reform and Protestant Sacred Music: Case Studies of Luther, Calvin, and Modern Baptists

Mentor: Mary Macklem (Music)

This project evaluates the impact of theological debates on sacred musical traditions and styles. Case studies of 16th century Lutheran and Calvinist traditions, as well as contemporary 21st century modern Baptists, demonstrate different resolutions to the problem of the role of music in worship.

NICOLE M. WALSH

IGMO Toy Company

Student Co-Author: Gabriel Gonzalez

Mentor: Robert Reedy (Art)

As a group of visual artists, our goal was to develop an all-inclusive toy company. Through our research and collaboration we have developed IGMO, a functional company and a line of marketable toys. We aspired to disband the barrier between the business and creative environments.

KARI L. WILBERG

Understanding the Heritage Language Student: Proficiency and Placement

Mentor: Gregory Thompson (Modern Languages & Literatures)

Research objectives were to transcribe and analyze heritage language placement exams looking for a correlation between sociolinguistic features and linguistic ability. In addition, we studied the different features of heritage learners at varying levels of proficiency to determine new ways to study and place learners.

LESLIE M. YOCCA

Sano Pain Management Spa: A Study in Pain Management and Environmental Design for Chronic Pain Patients

Student Co-Authors: Allie Sheldon, Graham DiGuiseppi

Mentor: Robert Reedy (Art)

The interdisciplinary Honors Advanced Design Lab class created Sano, a pain management and research cooperative that aims to provide a healing environment, equipped with traditional, holistic, and alternative practices. Patients with chronic pain will be given the opportunity to explore cutting-edge treatments within the medical field.

ENGINEERING AND COMPUTER SCIENCE

JONATHAN M. BAKER
Wind Turbine Energy Maximizing Battery Charger

Student Co-Authors: Christopher Hamilton, Anthony Wertz, James Ramsey

Mentor: Issa Batarseh (Electrical Engineering and Computer Science)

We are researching and developing energy maximizing algorithms and controlling techniques for a three-phase AC/DC converter. The converter will take the energy from the wind turbine to charge lead-acid batteries in an efficient manner.

LAUREN C. CAVETTE
Measuring and Teaching Creativity to Improve Engineering Curriculum

Mentor: Yan Wang (Industrial Engineering and Management Systems)

I am currently researching a method to measure creativity from its proposed source, the right side of the brain. With the objective measurement of creativity, I will find a way to incorporate and teach a way to develop creative thought processing in engineering curriculum, a logic left brain discipline.

SCHADRICK A. COLLINS
Operation and Precision Optimization of the ALSARM Robotic System for Lunar Applications

Mentor: Chengying Xu (Mechanical, Materials and Aerospace Engineering)

The colonizing of space is foreseen to be humankind's next milestone technological advancement. The project involves the evaluation of the current robotics actuator/sensor system and more advanced adaptation to improve the accuracy and controllability of the system for use of lunar applications in NASA.

BRIAN R. DAUBENSPECK
Methods for Attempting to Accurately Characterize Low Cycle Fatigue from Pre-Existing Data with Limited Plastic Strain

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

A combination of extrapolation and estimation techniques from both past and present were experimented with in trying to find methods to accurately characterize low cycle fatigue of IN738LC, a dual-phase Ni-based super alloy, from a pre-existing data set with limited plastic strain.

KENNETH P. ETCHEVERRY
Development of a Flow-Through Layer-by-Layer Deposition Method for a Smart Capillary Tube

Student Co-Author: Bennedict Vani

Mentors: Hyoung-Jin Cho (Mechanical, Materials and Aerospace Engineering), Lei Zhai (NanoScience Technology Center)

Our objectives are to (1) develop an automated instrument for flow-through deposition, (2) optimize the deposition sequence, rate, and duration for the coating process, and (3) create a smart capillary tube which changes its wetability upon the application of an external stimulus.

MICHELLE S. FOX
Detecting Outliers in Dense Data Sets Using Non-Derivable Itemsets

Mentor: Michael Georgiopoulos (Electrical Engineering and Computer Science)

Additional Co-Author: Anna Koufakou

Detection of irregularities, or outliers, in a data set becomes challenging when faced with large high-dimensional data. Our approach uses a condensed or summarized model that is representative of the knowledge in the data. This leads to significant runtime performance and scalability gains compared to previously existing outlier detection methods.

ERICA GILBERT
Influence of Social Networks on Collaborative Engineering in a Product Lifecycle Management Environment

Mentor: Yan Wang (Industrial Engineering and Management Systems)

Additional Co-Author: Ola Batarseh

The objective of the project is to study the influence of social networks on collaborative engineering. Particularly, we would like to explore the potential of social networks that facilitate the product lifecycle management process.

PATRICK J. GOERGEN
System Software for Reactive/Embedded Systems: Educating the CS Student to Break the EE/CS Barrier

Mentor: Eurípides Montagne (Electrical Engineering and Computer Science)

For a computer science student wanting to learn embedded system software, is it better to first take a system software course for transformational systems, or to start by taking a course tailored to embedded system software? The particular disadvantages and benefits are weighed and an embedded system software course is proposed.

ERIK A. HOGAN
The Development of a Streamlined Process for Optimizing Material Constants in the Miller Constitutive Model

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

A robust method for determining material parameters in the Miller constitutive model was developed and analyzed. The objective was to reduce the large number of experimental tests which are typically used to determine these parameters. The methodology was implemented into a custom software program.

ADONAY R. JIMENEZ
Photoluminescence Spectra of Single-Walled Carbon Nanotubes for Stress Measurements of Aerospace Structures

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

This work is being conducted to develop a model for the measurement of mechanical and thermal stresses on single-walled carbon nanotubes using spectroscopy. The focus is on effects, in the photoluminescence spectra, of the carbon nanotube paper under varying laser excitation wavelengths.

JESSE M. KELLY

GPU-Accelerated Modeling of Two-Phase Incompressible Fluid Flow Problems Using a Robust Level-Set Method Approach

Mentors: Eduardo Divo (Engineering Technology), Alain Kassab (Mechanical, Materials and Aerospace Engineering)

A two-phase incompressible fluid flow solver that tracks fluid interfaces using the level-set method has been implemented as a parallel solver on programmable graphics hardware. The solver is programmed using the Compute Unified Device Architecture (CUDA) language for general-purpose graphics-processing-unit programming.

ANAMARY LEAL

Exploring the Effectiveness of 3-D File Browsing Techniques for File Searching Tasks

Mentor: Joseph LaViola (Electrical Engineering and Computer Science)

We present an analysis of existing 3-D file browsing techniques that aims to identify important file layout characteristics and determine user preferences in file searching tasks.

JEFF K. LOCHNER

Removal of Iron and Color from Industrial Wastewater with Coal Derived Fly Ash

Mentor: Steven Duranceau (Civil, Environmental, and Construction Engineering)

This research investigated the treatment of industrial wastewater with coal derived fly ash as an absorption medium for the removal of dissolved iron, magnesium, total organics, color, change in pH, alkalinity, and hardness.

ZACHARY A. MARIMON

The Use of Native Vegetation to Reduce Pollutants in Campus Water Bodies

Mentor: Martin Quigley (Biology)

Additional Co-Author: Alaina Bernard

This research provides the rationale for use of vegetation and biological engineering for cost-efficient methods to aid in satisfying the NPDES Stormwater Management permit at the University of Central Florida. Using natural, sustainable practices has been tested with positive results, but requires additional education for implication and to continue research.

KANIEL V. MARTIN

Simple Bayesian Classifier

Mentor: Michael Georgiopoulos (Electrical Engineering and Computer Science)

Additional Co-Author: Anna Koufakou

The first goal was to understand the theory of the Simple Bayesian Classifier (SBC), one of the frequently used classifiers. The second goal was to implement and experiment with the SBC on classification problems, from a variety of application domains, in order to better understand its functionality.

ROBERTO A. MIGUEZ

Optimization of the Grand Solar Belt of America

Mentor: Issa Batarseh (Electrical Engineering and Computer Science)

The objective of this work is to demonstrate the innate potential that the United States has to generate 50 percent of its power through an array of solar collectors stationed from coast-to-coast.

MICHAEL MIXA

Approximation of Critical Speeds for Shafts with Thermal Gradients

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

Since Rayleigh's method assumes that the system is isothermal, the critical speed calculation of a shaft with a thermal gradient is not possible. It was the goal for this research to develop a model that will take into account the thermal gradient.

NATHAN J. MUTTER

Correlations Between Simple and Axisymmetric Bending of a Notched Thermoplastic

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

This research focuses on the fracture behavior of axisymmetrically loaded, v-notched plates. We employed finite element analysis, parametric shape optimization, and mechanical testing to create a computational model able to predict the stresses facilitating failure in thin circular thermoplastic plates with machined stress raisers.

ANDRES F. OSORIO

Computational Analysis of Alternative Aortic Bypass for Left Ventricle Assistant Device (LVAD)

Mentors: Eduardo Divo (Engineering Technology), Alain Kassab (Mechanical, Materials and Aerospace Engineering)

The project studies the performance of an alternative aortic bypass as a way to reduce the occurrence of blood clot flow in the upper circulatory system for patients with Left Ventricle Assistant Device (LVAD) implants.

ULKA PATEL

Composite Nanoparticles for Solar Energy Conversion

Mentor: Andre Gesquiere (NanoScience Technology Center)

Additional Co-Author: Daeri Tenery

We studied the fundamental photophysical and optoelectronic study of blended materials for solar energy conversion. We aim to understand and relate material composition, morphology, and electronic structure with light absorption, energy transfer, and interfacial charge transfer processes and mechanisms at the molecular level.

KEVIN J. SCHILLO

The Design of a Future Supersonic Commercial Airliner

Mentor: Eduardo Divo (Engineering Technology)

The Concorde was one of only two supersonic commercial airliners ever built. Since it was phased out, a successor has yet to be built, marking the first time in the history of commercial aviation in which aircraft development has taken a step backward. The objective was to design a supersonic commercial airliner for potential future use.

SEBASTIAN R. SOTELO

Oscillatory Flow as a Means of Enhanced Species Separation

Mentor: Eduardo Divo (Engineering Technology)

The objective of this research is to explore the effects of modifying the cross-section distribution of the connecting duct between the reservoir tanks of an oscillatory species separation device through the use of a time-accurate CFD analysis. The optimization will provide guidance for the design and miniaturization of such devices.

CARLOS A. VELEZ

The Capturing and Optimization of Energy from Ocean Wave Motion

Student Co-Authors: Chris Panayotti, Steven Helkin

Mentor: Kuo-Chi Lin (Institute for Simulation & Training)

The ocean's wave motion is a source of nearly-infinite, clean, safe energy. Although methods to extract this energy already exist, they are often inefficient and not implemented. This project seeks to improve these designs by using a buoy's motion to generate power through a unique mechanical system.

KEON L. VEREEN

Optical Measurements in Nucleate Boiling in a High-Pressure Refrigerant Flow

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

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

LIFE SCIENCES I

JILL M. BARAT

The Evolution of the TMM Gene and the Role It Plays in the Development of *Arabidopsis thaliana* and *Physcomitrella patens*

Mentor: Jeanette Nadeau (Biology)

The objective of this project is to study the evolutionary divergence and function of the *TOO MANY MOUTHS* (TMM) gene in the distantly related *Arabidopsis thaliana* and *Physcomitrella patens* in order to gain a better understanding of its evolutionary significance and determine how well the gene has been conserved throughout time.

DANIEL BARRERA

Roles of Mitochondrial Uncoupling Proteins in Glioblastoma Multiforme

Mentor: Sic Chan (Biomolecular Science Center)

Hypoxia has been shown to direct tumors towards a malignant state. We found that hypoxia increases the expression of mitochondrial uncoupling proteins (UCPs) and that knockout of UCPs inhibits malignant growth. We propose that targeting UCPs may be a promising therapeutic strategy to overcome tumor aggressiveness and drug resistance.

MALIHA M. BEG

Effects of Seed Density and Habitat on Seedling Emergence of *Chamaecrista fasciculata*

Mentor: Pedro Quintana-Ascencio (Biology)

Additional Co-Author: Elizabeth Stephens

Our work aims to increase the knowledge of Florida scrub restoration. We examined the effect of seed densities (0,1,3,7,13 and 20) and habitat on seedling germination and establishment on the plant species, *Chamaecrista fasciculata*, using two habitats with contrasting human disturbance: disturbed scrub at the Reserve and protected scrub of Archbold Biological Station.

PAUL G. BISCARDI

Use of Remote Sensing to Depict Recent Urbanization Patterns of Central Florida

Mentor: John Weishampel (Biology)

By using satellite data, we are studying recent urbanization trends in Central Florida. These trends are being compared to an existing "business as usual" model. Our results provide context to Florida's current and future growth and potential threats to biodiversity.

MEAGHAN P. BORELLO

Multiple Knee Injuries of a Professional Water Skier

Mentor: Kristen Schellhase (Health Professions)

This clinical case study presents a unique injury from a common mechanism. From this study, a person will learn that an array of injuries can occur from compression and lateral rotation of the knee.

SASHA A. BRODSKY

Examining a Recently Invasive Species Along the Southeastern United States Coast—Temperature Tolerances of the Marine Mussel *Mytella charruana*

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

Introductions of invasive species can be devastating to ecosystems and regional economies. *Mytella charruana*, a mussel native to South America, has recently been reported in United States waters along the southeastern Atlantic coast. Our goal was to predict dispersal ability of this species based on its water temperature limits.

BRIAN R. BURTON

A Deficiency Screen for Genetic Interactors with the Stubble Protease

Mentor: Laurence von Kalm (Biology)

Research was carried out with the fruit fly *Drosopholia melanogaster*. The organism was used in a series of genetic experiments with the objective of finding genes involved in an incompletely characterized signal cascade.

EMILY T. CAMPBELL

Changing Dynamics: Has the Behavior and the Use of Space of Polar Bears Changed in the Past 30 Years?

Student Co-Authors: Alexa Trujillo, Juliana Chang

Mentor: Jane Waterman (Biology)

Additional Co-Author: Kayla Egbert

The objective of this work was to compare the behavior and use of space of polar bears now with those of 30 years ago.

DANIEL CARLYLE

Elucidating SNARE Complex Formation in *Plasmodium falciparum*

Mentor: Debopam Chakrabarti (Molecular Biology and Microbiology)

My study aim is to identify the interacting partners of all PfSNAREs and to elucidate the subunit structure of the complexes in the Malaria parasite, *Plasmodium falciparum*. To identify the interacting partners, we have cloned and expressed PfSNAREs, both the R- and the Q- for use in far-western analyses.

OCEAN R. COHEN

An Investigation of the Genetic Relatedness of Marabou Storks (*Leptoptilos crumeniferus*) and Greater Flamingos (*Phoenicopterus roseus*) at Disney's Animal Kingdom

Mentor: Eric Hoffman (Biology)

Within captive-bred populations, animal keepers cannot always visually identify breeding pairs within the zoo population. The objective of our study was to determine parentage of captive-bred populations of the Greater Flamingo, *Phoenicopterus roseus*, and the Marabou Stork, *Leptoptilos crumeniferus*, at Disney's Animal Kingdom.

AARON L. CROSS

A Possible New Host Identified for the Sexual Parasite *Wolbachia*

Student Co-Author: Carolina Arana

Mentors: Laurence von Kalm (Biology), David Jenkins (Biology)

This study was designed to determine if a link exists between the preference for sexual or asexual reproduction within populations of the crustacean *Daphnia* and infection with the reproductive parasitic bacterium *Wolbachia*. *Wolbachia* has been observed to cause many reproductive alterations in closely related organisms.

LORRAINE CUADROS

Doxorubicin-Induced Cardiomyopathy in Mouse Heart

Mentor: Dinender Singla (Biomolecular Science Center)

Doxorubicin (DOX) is an effective antineoplastic agent used in the treatment of numerous cancers. Unfortunately, its use is limited, as this drug induces cardiomyopathy as a side effect. We designed this study to understand the acute and chronic cardiotoxicity induced by DOX.

SAMMER M. ELWASILA

Bactericidal and Therapeutic Effects of Pure Non-Pasteurized Bee Honey with Respect to the Bacterium *Mycobacterium avium* Subspecies *paratuberculosis*.

Mentor: Saleh Naser (Molecular Biology and Microbiology)

The objective of this study was to observe and test the potency of a variety of unpasteurized bee honey sources against the suspected pathogen of Crohn's Disease, *Mycobacterium avium* subspecies *paratuberculosis*, with hopes of developing a possible remedy for the ailment.

KEVIN A. FUNK

Stomatal Stem Cell Regulation by a Novel Protein in *Arabidopsis*

Mentor: Jeanette Nadeau (Biology)

The objective of this research was to dissect the function of the protein encoded by the gene *at5g60880* using genetic and transgenic approaches. This protein plays a role in regulating stomatal stem cell activity and pattern formation.

STEPHANIE K. GARVIS

Effects of Brazilian Pepper Allelopathy on Native Salt Marsh Plants

Mentor: Linda Walters (Biology)

Additional Co-Author: Melinda Donnelly

The objective was to determine the allelopathic effects of invasive Brazilian pepper, *Schinus terebinthifolius*, fruits on native plant species from the Indian River Lagoon, Florida.

DOMINIQUE D. GHANNAM

In Vitro Drug Testing Using Human Embryonic Stem Cell Derived Cardiomyocytes

Mentor: Peter Molnar (NanoScience Technology Center)

Cardiac side effect testing is required for all developmental drugs prior to clinical trials. The common *in vivo* methods are slow, costly and have low predictive value. Human embryonic stem cells will be used to generate functional cardiac myocytes and *in vitro* methods will be developed for pharmaceutical side effect testing.

BRIANA R. GIBSON

A Kit for Detection of *Mycobacterium avium* Subspecies *paratuberculosis* DNA in a Clinical Setting for Use in Crohn's Disease Diagnosis

Mentor: Saleh Naser (Molecular Biology and Microbiology)

The objective was to develop a rapid and simple protocol and reagent kit for extraction, amplification, and detection of *Mycobacterium avium* subspecies *paratuberculosis* (MAP) directly from patient blood and tissue samples. This kit is designed for use in a clinical setting, where MAP detection can be a useful tool for physicians in diagnosing Crohn's Disease.

AARON J. GODWIN

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

Student Co-Author: Aaron Way

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

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

KEVIN GYSLING

Identification of Lichen Genus *Trebouxia* Using Polymerase Chain Reaction and Restriction Fragment Length Polymorphism

Mentors: William Safranek (Molecular Biology and Microbiology), Saleh Naser (Molecular Biology and Microbiology)

We are developing a rapid, cost-effective method to identify Lichen Genus *Trebouxia*. We are using a technique commonly known as DNA fingerprinting. Our method will lower the time and cost significantly compared to common methods already employed in identification.

ELIZABETH M. HAYNES

Unilamelar Vesicles as a Tool to Understand the Mechanism of Action of Anti-Cancer Immunotoxin/ Lipopolyamine Treatment

Mentor: Ken Teter (Molecular Biology and Microbiology)

We seek to develop a novel anti-cancer therapy by showing that a lipopolyamine/immunotoxin (ITx) combination will kill cancer cells more effectively than the ITx alone. To strengthen this work, we are using *in vitro* models of the endosome to confirm the mechanism of lipopolyamine/ITx action.

ALICIA F. HENRIQUEZ

Analysis of the Growth Properties of SID-1, DsRNA Channel—Depleted Mouse Embryonic Fibroblast Cells

Mentor: Jeiwook Chae (Harvard University)

The objective of our research is to gain insight on the endogenous function of the vertebrate homolog of the transmembrane protein SID-1.

JENNIFER K. HEPPERT

Evolution of *TOO MANY MOUTHS* and Stomatal Patterning Mechanisms in the Monocot *Dioscorea bulbifera*

Mentor: Jeanette Nadeau (Biology)

In order to place the contrasting stomatal installation pathways of monocot grasses and dicot species into evolutionary perspective, the basic features of stomatal development in *Dioscorea bulbifera* (a broad-leafed monocot) will be characterized, and an ortholog of *TOO MANY MOUTHS*, a gene shown to control stomatal spacing, will be identified.

MEGHAN A. HOWLEY

Presenting Identification of Embryonic Stem Cell Markers within Tumor Cells

Mentor: Kiminobu Sugaya (Biomolecular Science Center)

Many embryonic stem cell markers such as Nanog, Oct4, and Sox2 are also found in cancer cells. We are going to identify the presence of these genes in a cancerous cell line, as well as disprove their existence in non-cancerous cells and in differentiated adult stem cells.

JAD M. JAFFAL

MS-818 Increases the Proliferation Rate of Human Neural Stem Cells in a Dose-Dependent Manner

Mentor: Kiminobu Sugaya (Biomolecular Science Center)

My research shows that MS-818 increases the proliferation rate of human neural stem cells growing as a monolayer in a dose-dependent manner.

CAMERON N. JONES

Binding Ability of GADD45α with Methylated DNA

Mentor: Mark Muller (Molecular Biology and Microbiology)

DNA methylation, an epigenetic modification of DNA, can cause inappropriate silencing of tumor suppressor genes, which can be linked to some cancers. The binding affinity of the Growth Arrest and DNA Damage protein (GADD45α) to methylated DNA was determined in order to understand the basic mechanisms behind inappropriate epigenetic silencing.

HUMA KHAN

***Enterococcus faecalis*: A Model System for Synthesis of Labile Selenoenzymes**

Mentors: William Self (Molecular Biology and Microbiology)

Enterococcus faecalis is a nosocomial pathogen, identified to contain SelD with no hints of using selenium for selenocysteine nor tRNA modification. NifS is found in an important genome cluster linked to the utilization of SelD. This study focuses on the cloning, expressing, characterizing, and kinematics of the nifS gene.

LIFE SCIENCES II

RACHEL L. KING

Genetic Variation in Male Quality Has a Direct Influence on Female Physiology and Fitness

Mentor: Kenneth Fedorka (Biology)

By creating and assessing male hemi clone *Drosophila melanogaster* fruit fly lines, we have found that the male lines vary in genetic quality. We will now investigate how different quality males affect the physiology, immune function, reproductive effort, and overall survivability of females through mating experiments.

DAVID A. KRAZEISE

Bilateral Lateral Compartment Syndrome in a Collegiate Football Player

Mentors: Mary Vander Heiden (Athletics), Kristen Schellhase (Health Professions)

After witnessing an athlete undergo two surgeries for acute lateral compartment syndrome with insidious onset in opposite legs, this case study was developed to further research the causes of lateral compartment syndrome and highlight the rarity of such occurrences.

ANGELA MARTINEZ

Biolistic Gene Delivery: An Effective Non-Viral Gene Transfer Strategy

Mentor: Steven Ebert (Biomolecular Science Center)

The objective of this project is to study biolistic gene transfer ("gene gun") as an effective alternative to viral methods for delivering genetic material to target cells *in vivo*.

ZINEB MASHAK

Isolation and Characterization of a Novel Gene Involved in Cell Death and Cardiac Injury

Mentor: Antonis Zervos (Biomolecular Science Center)

The objective of this project is to investigate the function of a novel gene involved in cell death and cardiac injury which could bring new therapeutic interventions for heart disease.

HOLLY L. MCARDLE

Pollination Biology of *Polygonella myriophylla*

Mentor: Pedro Quintana-Ascencio (Biology)

The primary goal of this project is to determine the phenology of *Polygonella myriophylla* and the effects of differing pollinator species, visitation rates, and local environment on its seed set.

JHESSYE A. MOORE-THOMAS

Quantifying Forest Canopy Architecture 15 Years After a Simulated Hurricane

Mentor: John Weishampel (Biology)

The objective of this research is to investigate the volumetric structure of a northern hardwood forest canopy that was subjected to a simulated hurricane. Heights to canopy surfaces were collected using a portable canopy LiDAR (Light Detection and Ranging) system. Various spatial pattern analysis techniques were used to compare this disturbed forest to a controlled stand.

BRITTANY L. MOSCATO

Adrenergic Hormone Deficiency Leads to Cardiac Arrhythmias

Mentor: David Taylor (Biomolecular Science Center)

The objective of the project is to study the role of adrenergic hormones in pacemaking and conduction system in the developing mouse heart.

MARISA NGUYEN

The Pecking Order of Cape Ground Squirrels

Mentor: Jane Waterman (Biology)

Additional Co-Author: Mary Beth Manjerovic

The objective of this research is to determine if a dominance hierarchy exists in the male Cape Ground Squirrel found in South Africa. I will also determine if post-copulatory competition coincides with this dominance hierarchy.

VIPIN PHILIP

Invasive Species of Mussels and Pink Barnacles: Can We Observe New Introductions?

Mentor: Eric Hoffman (Biology)

Three invasive species of marine mollusk have recently been observed in the Indian River Lagoon. Here, we sought to determine whether genetic variation within populations of these species changes over time or remains constant. Within-population genetic changes would indicate that new propagules are still entering the population.

TALIB M. PIRMOHAMED

Nanoceria Exhibit Redox-State Dependent Catalase Mimetic Activity

Mentor: William Self (Molecular Biology and Microbiology)

This study investigated the potential of cerium oxide nanoparticles (nanoceria) to act as antioxidants by breaking down reactive oxygen species (ROS), specifically hydrogen peroxide. The role of the redox state of the cerium atom in its catalytic activity was also examined.

KATHERINE L. RILEY

Weighing In: Using Photographs to Estimate Polar Bear Body Condition

Mentor: Jane Waterman (Biology)

The objective of this project was to use measurements from digital photographs of polar bears to calculate an index of body condition for polar bears and test the statistical validity of alternative methods to determine body condition non-invasively.

JESSICA L. ROBERTS

Drug Delivery Via the Polyamine Transporter

Mentor: Otto Phanstiel (Chemistry)

A new fluorescent polyamine probe was synthesized and characterized for understanding polyamine transport in cells, which will further research in drug treatment that is selective for cancer cells.

LOGAN M. SCHAEFER

Subcellular Distribution of *Plasmodium* Cell Cycle Regulation

Mentor: Debopam Chakrabarti (Molecular Biology and Microbiology)

The goal of this study is to understand physiological functions of *Plasmodium* CDKs and to understand the novel features that can be exploited for therapeutic development.

PHILIP L. SENGER

The Effects of Soil Compaction and Soil Disorder on Non-Native Plant Species within the UCF Arboretum

Mentor: Betsy Von Holle (Biology)

Studying soil disturbance provides insight into what affects a seed's success in germinating. I analyzed three non-native plant species and how they were able to adapt in disturbed conditions. Soil compaction and soil disorder (loosening) were analyzed to see if the species were able to successfully germinate under these conditions.

NICKLAUS A. SPARROW

Activity Levels of Intracellular Signaling Proteins in Murine Schwann Cells That Lack Functional Merlin

Mentor: Cristina Fernandez-Valle (Molecular Biology and Microbiology)

The objective of this project is to determine acute differences in expression levels of prolific, intracellular signaling proteins in murine Schwann cells deficient in Merlin, a tumor suppressor, compared to those with functional Merlin in hopes of elucidating novel drug targets to treat individuals with Neurofibromatosis Type II.

JARED R. STEES

Stomatal Development in the Basal Monocot *Acorus americanus*

Mentor: Jeanette Nadeau (Biology)

Studying *TOO MANY MOUTHS* (TMM), a protein involved in stomatal spacing, in *Acorus americanus* will help us to better understand the evolution of signaling mechanisms that are involved with stomatal patterning within monocotyledon epidermal cells.

LAUREN E. STROUD

Effects of Predation on Mangrove Propagule Survival in Mosquito Lagoon, Florida

Mentor: Linda Walters (Biology)

Additional Co-Author: Melinda Donnelly

To understand mangrove propagule predation by terrestrial and aquatic predators and to understand the effects of this damage on propagule growth and survival, we examined three different mangrove species, *Rhizophora mangle* (red mangrove), *Avicennia germinans* (black mangrove), and *Laguncularia racemosa* (white mangrove) from Mosquito Lagoon, Florida.

KATHLEEN N. TELUSMA

Discovery of Novel Distribution Patterns for Adrenergic Cells in the Developing Heart and Lungs: Role for Innervation?

Mentor: Steven Ebert (Biomolecular Science Center)

The objective of this project is to determine what relationship exists between adrenergic cells and sites of neural innervation.

GREGORY P. TERRITO

Molecular Systematics, Niche Modeling, and Morphometrics: Delimiting Species in the Neotropical Genus *Leptodeira* (Serpents: Colubridae)

Mentor: Christopher Parkinson (Biology)

We designed a study in which morphological characters from the neotropical snake genus *Lepodeira* were analyzed using multivariate statistics to identify lineage boundaries recovered with phylogenetic analyses. The data were used to suggest taxonomic changes to the current classification of these species.

TIFFANY P. THOMPSON

Growing Up Fast: Differences in the Movement of Juvenile Cape Ground Squirrels, *Xerus inauris*, Prior to Dispersal

Mentor: Jane Waterman (Biology)

African Ground squirrels' movement patterns in the arid environment of Namibia and the more temperate environment of central South Africa were compared to determine if differences seen in later dispersal stages are reflected at an early age.

ANDRE L. TORRES

A Low-Cost Plant-Derived Rotavirus Vaccine

Mentor: Henry Daniell (Molecular Biology and Microbiology)

Two cultivars of tobacco expressing CTB-NSP4 were grown and sampled under varying conditions. The expression levels under different lighting conditions, within leaves of varying age, and with regard to the overall age of the plants were quantified in order to determine optimal recombinant protein production.

GAIL H. TROMP

Genome-Wide Survey and Expression Profiling of CCCH-Zinc Finger Family Reveals a Functional Module in Macrophage Activation

Mentor: Mingui Fu (Biomolecular Science Center)

Additional Co-Author: Jian Lian

Activated macrophages play an important role in many inflammatory diseases, such as atherosclerosis. It is very important to understand the exact mechanisms of macrophage activation to develop novel drug therapies against it. The objective of this study is to understand these mechanisms so they can be better controlled.

MELISSA USSA

Cost-Effective Container Garden—Organic Herbs

Mentor: Rani Vajravelu (Biology)

Through the herb garden project, students will learn how to easily and inexpensively cultivate their own organic herbs in their apartment within a limited space such as a windowsill or patio. The project also aims to introduce the methods of making environmentally friendly organic compost utilizing left-over kitchen wastes.

BRIAN M. WARE

Sperm Competition Risk and Ejaculate Investment in *Drosophila melanogaster*

Mentor: Kenneth Fedorka (Biology)

The objective of this project is to determine if certain factors in a surrounding mating environment can affect Acp gene regulation in *Drosophila melanogaster.*

ZACHARY P. WILLIAMS

Potential Drug Targets for the Treatment of Malignant Peripheral Nerve Sheath Tumors

Mentor: Cristina Fernandez-Valle (Molecular Biology and Microbiology)

The objective was to identify proteins within malignant peripheral nerve sheath tumors which may yield therapeutic benefits if their activity is disrupted or controlled.

PHYSICAL SCIENCES & MATHEMATICS

JUAN F. ALARCON

Mechanochemical Approach to Alkyne Synthesis

Mentor: Richard Blair (Chemistry)

Additional Co-Author: David Restrepo

Mechanochemistry provides an alternative pathway to traditional organic synthesis. In this study, the kinetics and mechanism of formation of long chain alkynes are investigated. Alkyne synthesis from inorganic carbide sources and alkyl halides presents a foundation for further mechanochemical organic synthesis.

CRAIG A. AMENT

Design of Variable Phase and Transmission Diffractive Optical Elements Using Particle Swarm Optimization

Mentor: Stephen Kuebler (Chemistry)

Additional Co-Author: Toufic Jabbour

In this work, a particle swarm optimization algorithm is implemented to reverse-engineer axially superresolved diffractive optical elements having variable phase and amplitude gratings.

PAUL M. BREMNER

Extreme Waves

Mentor: Constance Schober (Mathematics)

This project is aimed at mathematically understanding the physical processes responsible for the generation of rogue waves, including the effects of real conditions. We examine the connections between rogue waves and homoclinic solutions by examining the development of wavefront dislocation and phase singularities in solutions of the nonlinear Schrodinger equation.

MATTHEW V. BRYANT

Coupled Monolayer-Protected Cluster Exhibit Near-IR Fluorescence

Mentor: Diego Diaz (Chemistry)

My research was based on the characterization and optical properties of linked gold monolayer-protected clusters for their use in bioanalytical and bioimaging. I used multiple techniques such as UV-Vis Absorption, Transmission Electron Microscopy, and Near-IR fluorescence.

LOGAN M. BYRNE

Synthesis and Characterization of Fluorescent Chitosan Nanoparticles

Mentors: Swadeshmukul Santra (NanoScience Technology Center), Padmavathy Tallury (NanoScience Technology Center)

NanoParticles (NP) are popular imaging probes being developed for various bioimaging applications such as diagnostic imaging of cancer cells, labeling of stem cells, and imaging of pathogenic cells. We present a method of synthesizing ultra small size water soluble fluorescent NPs of biocompatible and biodegradable chitosan polymer.

KATHERINE FERSTADT

Hydrogen Sensor Based on Palladium-Catalyzed Manganese Dioxide

Student Co-Authors: Brandan Wormsbacher, Shawn Newmann

Mentor: Michael Hampton (Chemistry)

Additional Co-Author: Tonguc Oztek

The primary objective of this project was to study the exothermic reaction of hydrogen with palladium-catalyzed manganese dioxide in the presence of air with the purpose of developing a hydrogen sensor.

MICHAEL J. GITTINGS

Development of a Bimetallic Treatment System for the Remediation of Polychlorinated Biphenyls

Mentor: Christian Clausen III (Chemistry)

This presentation involves the removal and degradation of polychlorinated biphenyls from painted surfaces. Optimized characteristics of a removal system used in the remediation of polychlorinated biphenyls will also be discussed.

CHRISTOPHER N. GRABILL

Chemical System for Fundamental Study of Electroless Metallization

Mentor: Stephen Kuebler (Chemistry)

Additional Co-Authors: Henry Williams, Aniket Bhattacharya, Helge Heinrich, Abdelillah Y. Quazzani, Aniruddha Dutta

The objective of this work is to study the fundamental chemistry of a model system of electroless metalization and to determine how resulting physical properties can be altered by varying concentrations, type and size of nucleation seeds, and the presence of stabilizing agents.

MARK H. GUASCH

Interpreting Data from Smoothed Particle Hydrodynamics Simulations of Accretion Disks in CV Systems

Mentor: Michelle Montgomery (Physics)

In binary star systems classified as cataclysmic variables (CVs), we attempt to identify the source of periodic light curve modulations called negative superhumps. We compare 3-D smoothed particle hydrodynamics (SPH) simulations of artificially tilted and non-tilted accretion disks in CVs to identify the portion of disk that is the source.

KELSEY D. HARGROVE

Low Perihelion Near-Earth Asteroids: A Study of Thermal Processing

Mentor: Humberto Campins (Physics)

Our team has studied the thermal processing of 19 low-perihelion near-Earth asteroids (NEAs). Our goal is to understand how asteroid surfaces change as a result of exposure to temperatures in the range of 500K to 1300K, which will help constrain current formation models for the parent bodies of these NEAs.

KRISTINA N. KRAAKMO

Calculating Stokes Constants for Measuring Agreement Between the Numeric Approximation and the Exact Solution to a Differential Equation

Mentor: Alexander Tovbis (Mathematics)

Solutions to differential equations are rarely available in explicit form. Certain accuracy is always lost when approximating a solution. We will calculate the Stokes constants for a given differential equation, which measure the agreement between an actual solution and its numerical approximation over long time ranges.

SARAH B. NYMEYER

A Representative Sample of Exoplanetary Secondary Eclipses

Mentor: Joseph Harrington (Physics)

We have observed and analyzed secondary eclipses of the extrasolar planets GJ 436b, HAT-P-1b, HD149026b, TrES-2, WASP-1b, and WASP-2b using the 8.0-micron channel of Spitzer Space Telescope's IRAC instrument.

COURTNEY L. PAULSON

Statistical Methods for Detecting Kuiper Belt Objects

Mentor: Marianna Pensky (Mathematics)

This project examines statistical methods for detecting Kuiper Belt Objects (KBOs) through the analysis of stellar occultations. We review multiple testing procedures and demonstrate how to take dependence between hypotheses into account (e.g. observations from multiple telescopes).

JARRAD W. POND

Perturbation Analysis of Matter Density and Velocity Fluctuations in the Universe on Large Scales, Including Decaying Solutions and Rotational Velocities

Mentor: James Cooney (Physics)

This study focuses on linear perturbations to the average density and average velocity of matter in matter-dominated and cosmological constant-dominated universes on large scales. The decaying and rotational velocity terms, usually ignored to facilitate the mathematics, are retained in this study, and their effects on the perturbations are investigated.

KRISIA I. ROSARIO

Novel Precipitation Agents for the Rapid Identification of Pharmaceuticals

Mentor: Richard Blair (Chemistry)

Additional Co-Author: Sandra Hick

One of the biggest challenges in forensic science is the fast and accurate identification of pharmacologically active substances. This project aims to produce precipitation reagents for the identification of pharmacologically active substances; of particular interest are reagents that distinguish chiral drugs such as dextromethorphan and levomethorphan.

CHRISTIAN W. SMITH

Synthesis and Devices Made from Mono-Layer Boron Nitride Sheets

Mentor: Masahiro Ishigami (Physics)

The focus of my research is to synthesize mono-layer sheets of hexagonal boron nitride (mh-BN) and to fabricate high performance electronics based on this novel two-dimensional material with high field effect mobility and on/off ratio.

CARLOS A. SOLANO

Hydrothermal Synthesis of Valence State Engineered Ultra Small Ceria Nanoparticles

Mentor: Swadeshmukul Santra (NanoScience Technology Center)

The objective of this project is to provide a low-cost, high-yield, facile procedure to synthesize monodispersed and water soluble ceria nanoparticles, for which demand is rapidly growing in the biomedical field due to many unique properties, especially its autocatalytic and free radical scavenging properties.

BRANDON M. SOLLINS

Who Is Better: Liberals or Conservatives?

Mentor: Susan Schott (Statistics and Actuarial Science)

The focus of this research was to see if it is better to play in a liberal or conservative fashion in 2/4 Limit Texas Hold 'Em.

BINH T. TRAN

Metal Nanoparticles in Carbon Nanotube Aerogels for Fuel Cell Applications

Mentor: Lei Zhai (NanoScience Technology Center)

This approach is a versatile and convenient way to functionalize the surface of carbon nanotubes. Highly dispersed carbon nanotubes decorated with metal nanoparticles using a conjugated block copolymer is demonstrated. The stabilization of metal nanoparticles in a microporous aerogel is studied to enhance methanol decomposition in fuel cells.

RYUICHI TSUCHIKAWA

Absorption Enhancement of Carbon Nanotube Mat by Dye Aggregate

Mentor: Masahiro Ishigami (Physics)

Squarylium dye forms π-π bonding J-aggregate, which has an intense absorption peak different from that of dye itself. The electron transport properties of the mixture of conducting and semiconducting carbon nanotubes (nanotube mat) were enhanced by the formation of non-covalent π-π bonding between carbon nanotubes and squarylium dye.

CALEB W. WIESE

Nonrelativistic Limit of Certain Models in Quantum Field Theory

Mentor: Costas Efthimiou (Physics)

Integrable models in quantum field theory give analytic solutions to the asymptotic states of scattering. We studied the scattering of these integrable models in the nonrelativistic limit of quantum mechanics, and using the scattering solutions we can determine the classical scattering potential.

BRANDAN M. WORMSBACHER

First Steps to Exploring Mars: Extraction of Oxygen from Martian Soil

Student Co-Author: Katherine Ferstadt

Mentor: Michael Hampton (Chemistry)

Additional Co-Author: Tonguc Oztek

The objective is to study the separation of oxygen from hematite and silica in Martian soil in order to safely produce water and an oxygen-rich atmosphere for possible applications in Mars exploration.

SOCIAL SCIENCES, EDUCATION AND BUSINESS I

EDA ABOLFATHI
Acculturation Experiences of Bulgarian Émigrés in Orlando
Mentor: Amy Donley (Sociology)

The objective of this research is to learn how Bulgarian émigrés in Central Florida acculturate to local culture and society; to uncover their barriers and gateways to integration; and to identify salient acculturation patterns that characterize this unique group.

AMBER AHERN
Driver Distraction: A Bio-Behavioral Analysis
Mentor: Mustapha Mouloua (Psychology)

This study was designed to examine the effects of cell phone devices on driver distraction. Participants were required to perform a driving simulation task while text messaging. It was hypothesized that while text messaging, participants would commit more driving errors and display higher levels of theta frequency, associated with distractibility.

MOHAMMED J. AHMED
Individuals' Perception of Freedom of Choice Based on Knowledge of Institutions
Mentor: David Houghton (Political Science)

This study investigates individual perceptions of freedom of choice based on knowledge of being institutionalized. It is expected that individuals who have greater knowledge will also have a greater range of freedom of choice and less separation among other institutions.

CHRISTALY ALBARRACIN
The Impact of Gender on Perceptions of Distributive and Procedural Justice in the Public Sector
Mentors: Elizabeth Mustaine (Sociology), Megan Duesterhaus (Sociology)

I am investigating what differences or similarities there are between men and women's responses to the fairness of distributive and procedural justice displayed in the public sector.

SHAINNA R. ALI
How to Teach the Holocaust: Cornerstones for Educators of Holocaust Curricula K-12
Student Co-Authors: Kelda Senior, Erik Horne
Mentor: Sheryl Needle Cohn (Teaching and Learning Principles)

This study investigates teaching practices in Holocaust education, grades K-12. The purpose of this research is to identify qualitative teaching practices for educators of grades K-12 and to furthermore distinguish such practices from inappropriate teaching methods.

LUISA F. ALVAREZ
Hispanic Consumers' Perception of Green Hotels
Mentor: Po-Ju Chen (Hospitality Services)

This research study aims to investigate consumers' perceptions (attitudes and their intention to select) of green hotels. Due to significant increases in the Hispanic population and consequently their purchasing power, the study will focus on Hispanics' attitudes.

SOPHONIE BELVAL
A Study of Multi-Stakeholder Perceptions of Satisfaction with Continuing Care Retirement Communities
Mentor: Dawn Oetjen (Health Services Administration)

We will investigate the resources and facilities available for Continuing Care Retirement Communities (CCRCs). CCRC is a housing option to accommodate seniors who can no longer live alone. We will explore CCRCs as an alternative to traditional nursing homes in the United States.

JENNA N. BENYOUNES
Interventions to Prevent Perineal Trauma During Childbirth
Mentor: Nancy Ahern (Nursing)

Perineal trauma affects many women, is a major concern for them during childbirth, and can lead to many complications. The objective of this research is to synthesize all available research studies and examine interventions that decrease the occurrence and severity of perineal trauma during childbirth.

DEBORAH M. BERNACETT
Feminism, Identifying as a Feminist, and Views of Gender Roles Among Male and Female College Students
Mentor: Amy Donley (Sociology)

There is little research available concerning the relationship between gender roles, support for feminism, and willingness to consider oneself a feminist. This study focuses on how college students relate their perception of feminism, if they identify as feminist, and their attitudes toward traditional or non-traditional gender roles.

GISCARD E. BERROUET
Racial and Ethnic Differences in Classroom Performances by College Athletes: Stereotype Threat and Stereotype Reactance Theories Applied
Mentor: Keith Harrison (DeVos Sport Business Management)

It is well-documented that negative stereotypes can impact students when they interact with someone who holds a negative stereotype about their group's potential. This study examines factors that moderate the experience of academic stereotype threat among college athletes who represent a stigmatized group on most college campuses.

KATIE M. BISHOP
College Students' Use of Prescribed Stimulants
Mentor: Amy Donley (Sociology)

The purpose of this study is to determine if there is a relationship between one's gender, grade point average, and involvement/noninvolvement in Greek life and his or her decision to misuse any of the following prescribed stimulants: Adderall, Ritalin, and Dexedrine.

KELCI A. BLOCK
The Gray Wolf and Native American Self-Determination
Mentor: Peter Jacques (Political Science)

By comparing and contrasting the involvement of the Nez Perce and White Mountain Apache tribes in wolf reintroduction, I explore the possible implications these programs have on Native American sovereignty. State and federal governments' opinions and involvement are also explored.

MICHELLE B. CARDONA
Factors That Impact the Perception of Dysfluent Speakers
Mentor: 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-stutterers.

JENNIFER CARTER

Identity and Attachment in Taiwan

Mentor: Steve Berman (Psychology)

This study examined identity formation and its relationship to romantic attachment style in a Taiwanese college sample. Identity commitment was found to be significantly and negatively correlated with relationship avoidance (r = -0.19; p =0 .016). Results are compared to previous research on American youth.

AARON J. CHILELLI

The Paradox of United States Foreign Policy Towards Revolutionary States

Mentor: Houman Sadri (Political Science)

The objective of this research is to determine the effectiveness of U.S. interventionism as a major foreign policy strategy and provide a possible alternative for future interaction with developing nations.

MICHELLE M. CHIN

The Portrayal of Overweight Characters in Children's Literature and the Social Influence

Mentor: Dominic Nuciforo, Sr. (Teaching and Learning Principles)

Reading is an intricate part in the development of children's brains. When negative stereotypes are learned from literature intended to promote equality, it becomes a serious problem. This project focuses on the depiction of overweight characters in children's books, and whether the characters are portrayed in a negative connotation.

AMBER L. DUKES

Differences Between Persons Exhibiting High Versus Low Attraction to Individuals with Psychopathic Traits

Mentors: Charles Negy (Psychology), Randy Fisher (Psychology)

The objective of my research is to determine what, if any, personality variables correlate with attraction to a potentially psychopathic individual. The purpose is to identify factors that would lead some individuals to become involved in a potentially dangerous romantic relationship, while others would not.

CHRISTOPHER F. ESTOCH

Nuclear Deterrence: Insecurity and the Proliferation of Nuclear Weapons

Mentor: Houman Sadri (Political Science)

This work explores the relationship between insecurity experienced by a nation and the proliferation of nuclear weapons. South Africa, Pakistan, and North Korea are used as case studies.

LISA J. FEDROWITZ

Stalking Advice by Law Enforcement Agencies: An Examination of Police Department Web Sites

Mentor: Elizabeth Mustaine (Sociology)

For this project, a simple random sample of 750 police departments was analyzed to evaluate Web information availability for victims of stalking.

LOGAN FIORELLA

Training Across Factors and Sub-Dimensions of Spatial Ability

Mentor: Florian Jentsch (Psychology)

Additional Co-Author: Thomas Fincannon

Research has shown that the relationship between spatial ability and performance depends on which test is being used. To account for this, we propose an approach to training that is guided not only by factors of spatial ability, but also the classifications of tests within a given factor.

AMANDA L. FORTIER

The Effects of Islam on the Governmental Policies of Britain, France and the Netherlands

Mentors: Houman Sadri (Political Science), Kristin Davis (Interpersonal/Organizational Communication), Kurt Young (Political Science)

Using textual analysis, I look at the events that have caused changes in governmental policies in Britain, France and the Netherlands that are discriminatory towards Muslims. I also use the research to formulate a solution to help end discriminatory practices by these states.

SAMANTHA L. FRAZIER

Dramaturgy in the Hospitality Service Industry

Mentor: Hyjung-il Jung (Hospitality Services)

This project explores the dimensions of dramaturgical interaction in relation to hospitality service and front-line personnel.

SOCIAL SCIENCES, EDUCATION AND BUSINESS II

JENNIFER K. HALL

Low Self-Confidence as a Motivational Factor for College Students' Alcohol Consumption

Mentor: Amy Donley (Sociology)

The project quantitatively studies data that might illuminate any relationship between college students' drinking habits and the self-confidence of those students. This study focuses on the correlation with low self-confidence levels and heavy drinking practices of some undergraduate college students.

KAREN M. HEINE

Diagnosing the Growth Management Disconnect Between Policy and Practice in the Greater Orlando Metropolitan Area

Mentor: Christopher Hawkins (Public Administration)

This thesis seeks to diagnose the growth management disconnect between policy and practice in the greater Orlando metropolitan area by looking at two factors: (1) lack of citizen participation, and (2) ambiguity in purpose at both the state and the local level in enacting and enforcing growth management policies.

ANA G. IRIZARRY

Using Financial Literacy to Impact Academic Success in African-American and Latino Youth

Mentor: Cecilia Milanes-Rodriguez (English)

This project seeks to increase the academic and financial success of African-American and Latino students using a mentoring program that provides financial readiness workshops, safe technological skills, and cultural awareness activities. The program intends to increase financial literacy and educational motivation.

JESSICA E. JOHNSON

Determining What Has an Effect on a College Students' Grade Point Average

Mentor: Amy Donley (Sociology)

This study examines whether college students' living situation and their involvement with extracurricular activities has an effect on their grades throughout their college experience.

WHITNEY JOHNSON

Domestic Violence and Animal Maltreatment: Does Concern for the Safety of Pets Prevent Battered Women from Seeking Shelter?

Mentor: Eileen Abel (Social Work)

The purpose of this study is to investigate the relationship between maltreatment of pets and domestic violence. 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 pet abuse will be analyzed.

CAITLIN A. KENNY

The Effects of Field of View on Unmanned Vehicle Operator Performance

Mentor: Florian Jentsch (Psychology)

This project introduces and discusses previous research done on the positive and negative effects of differing sizes of field of view on unmanned vehicle operator performance. Further research is needed to define the proper field-of-view range to achieve optimal performance in unmanned vehicle operators.

JAVED KHAN

A Tale of Two Countries: Ghana and Malaysia's Divergent Development Paths

Mentor: Bernadette Jungblut (Political Science)

This project investigates the political and economic development of Ghana and Malaysia. Although both countries had similar economic conditions at independence, over the course of 40 years they have experienced very different economic and political development. This study aims to identify patterns for successful development using Malaysia and Ghana as archetypes.

SAARAH D. KISON

Understanding the Inspirational Motivation of Transformational Leadership and Followers' Psychological Mechanisms

Student Co-Author: Courtney Randolph

Mentor: Leslie DeChurch (Psychology)

Additional Co-Author: Toshio Murase

This project explores the process of inspirational motivation, a main component of transformational leadership. The authors examine the ability of a leader to influence the psychological state of his followers, causing the leader to believe that the mass action of people is needed to achieve certain goals.

SANCHI LUNAWAT

What is in a Name?

Student Co-Author: Jitka Perutkova

Mentor: H. G. Parsa (Food Services and Lodging Management)

This study deals with the properties of natural language that are best accounted for combinations of simple elements and complex ones, which finds the names and trends that yield better understanding of the popularity of a restaurant. Consequently, the similarities/differences of restaurant names can be understood for a restaurant's success/failure.

KRISTINA A. MAY

Nursing Utilization of Sensory Stimuli on the Impact of Infant Cognition

Mentors: Mohtashem Samsam (Molecular Biology and Microbiology), Nancy Ahern (Nursing)

The development of the infant's brain can be easily influenced by the outside environment within the first six months of life. To positively utilize this period of time, sensory stimulation such as light, sound, and touch can be applied to clinical nursing practice in order to increase infant cognition.

DANA R. MOONEY

Effects of Communication Mode on Perceived Extraversion: Possible Application and Implications

Student Co-Authors: Joycelyn Reyes, Hilary Slover

Mentor: Kimberly Smith-Jentsch (Psychology)

Additional Co-Author: Julia Fullick

The various modes of communication have been proven to have an impact on the perceived extraversion of the communicators. We found that individuals are perceived as being more extraverted on the phone rather than video teleconferencing.

MICHAEL J. NAPOLITANO

Archaeological GIS Project of El Beni

Student Co-Authors: Sara Scott, Jordan Munizzi, Trent McRae, Lourdes Villalta

Mentor: John Walker (Anthropology)

This project is developing a GIS system to search for earthworks and create more accurately updated maps of the northeastern Bolivian Amazon known as El Beni, as well as bring together a broader range of archaeological thought by involving locals who offer a distinctive non-Western approach to understanding the past.

MICHAEL PANELLA

A Comparative Analysis of Political Efficacy Across Seven Democracies

Mentor: Terri Fine (Political Science)

This research investigates how citizens living across a spectrum of democracies experience political efficacy. Political efficacy, or the public's perception of whether and how their views are respected by government, and their personal contentment with their government, plays an important role in institutional support.

JESSICA L. PEREZ

Aggressive Driving Behavior: An Experimental Analysis

Mentor: Mustapha Mouloua (Psychology)

The goal of this study is to empirically examine the effect of aggressive driving behavior and other psychological variables on driving performance.

JITKA PERUTKOVA

Relationship Between Consumers' Willingness to Pay and Restaurant Attributes

Mentor: H. G. Parsa (Food Services and Lodging Management)

This research will clarify: (1) how much are consumers willing to pay (WTP) for each major restaurant attribute, (2) what is the magnitude of the change in consumers' WTP when major restaurant attributes are manipulated, and (3) what is the nature of relationships between the major restaurant attributes and the consumers' WTP—linear or non-linear.

SOPHIA QURESHI

The Factors That Instigate Abusive Workplace Behavior Across Cultures

Mentor: Ronald Piccolo (Management)

Most research on abusive workplace behavior has been conducted in the United States, but this study focuses on the factors that instigate workplace abuse in cultures that are non-Western (e.g., Arabic countries) and consider the extent to which different cultural orientations shape reactions to abusive behavior.

STEPHANIE A. RASH

Development and Stability in Sub-Saharan Africa: Making the Case for Education in the Developing World

Mentor: Houman Sadri (Political Science)

The relationship between the quality/availability of secular education and political/economic/social development and stability in sub-Saharan Africa is examined.

LINDSAY E. REESER

The Relationship Between a Woman's Childbirth Method and Her Perceptions of New Mothers with Different Birthing Methods

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

Social support for new mothers is important for post-partum adjustment. Yet the amount of social support that a new mother receives from other mothers may be influenced by unseen biases regarding childbirth methods. This study explores whether mothers hold more negative perceptions of other mothers when their childbirth methods differ.

CHRISTINA RESTREPO

Consumers' Perceptions of Green Hotels in Colombia

Mentor: Po-Ju Chen (Hospitality Services)

Tourists perceptions of green hotels in Colombia were analyzed using the Zoltman Elicitation Metaphoric Technique (ZMET). In this case study, nine participants elicited personal related constructs associated with choosing a green hotel for their vacation.

CYNTHIA RHOTON

Student Evaluation of Online Instructors: Does Gender Matter?

Student Co-Authors: DeAnn Collins, Alicia Glass, Sara Green, Ashley Harper, Lisa Rangel, Chelsea Strunk, Bridie Wilkie, Sandy Zackeroff

Mentors: Terri Fine (Political Science), Karen Mottarella (Psychology), Shannon Whitten (Psychology), Erin Murdoch (Psychology), Maria Lavooy (Psychology)

This study explores whether the reduced social cues of a Web-based learning environment minimize the influence of instructor gender on students' perceptions and evaluations. Participants evaluated an online module, which varied on instructor gender. Results indicate the female instructor was rated as having significantly greater respect and concern for students.

SOCIAL SCIENCES, EDUCATION AND BUSINESS III

MARY E. ROBINSON

Examining the Critical Issues of IFRS Implementation in the United States

Mentor: Vicky Arnold (Accounting)

The purpose of this thesis is to examine several key topics that must be considered by accounting professionals regarding the potential adoption of International Financial Reporting Standards (IFRS) in the United States. Such topics include: political relations, education, audit methodology, technology, taxation effects, and overall costs for companies.

KARLA M. RODRIGUEZ

The Influence of Mentoring Functions on Protégé's School Self-Efficacy

Student Co-Authors: Nicole Rivera-Hudson, Kristin Juliano

Mentor: Kimberly Smith-Jentsch (Psychology)

Additional Co-Author: Julia Fullick

Using peer-to-peer online mentoring, we studied how the career development and psychosocial support given by the mentor affected the protégé's feelings of self-efficacy. We discovered a main effect for mentoring functions on protégé self-efficacy. In addition, mentor learning was found to be related to protégé self-efficacy.

DAVID J. ROHRER

Effects of Personality Congruence on Leadership Perceptions

Student Co-Author: Saarah Kison

Mentor: Leslie DeChurch (Psychology)

We examined the effects of leader-follower personality congruence on followers' perceptions of a leader's effectiveness. The study employed polynomial regression to analyze the intricacies of personality congruence on leadership perceptions while giving theoretical explanations for the significant relationships that were found.

CYNTHIA L. ROMERO

Elementary School Teachers' Beliefs About Developmentally Appropriate Tasks in Mathematics

Mentor: Janet Andreasen (Teaching and Learning Principles)

This study sought to examine differences between elementary (K-5) school teachers' beliefs regarding when certain topics should appear in the curriculum and the Florida Department of Education's Next Generation Sunshine State Standards.

NOMARA SANTOS

Loneliness in Children with High-Functioning Autism

Mentor: Deborah Beidel (Psychology)

Using data collected from self-report questionnaires, loneliness ratings by children with high-functioning autism were compared to ratings by normally developing children and children diagnosed with social phobia. The relationship between parent reports of their child's loneliness and child self-reports was also examined.

JONATHAN R. SCHNEIDER

Combating the Lack of Physicians in the Rural Workplace: The "Why's" and "How's"

Mentor: Kendall Cortelyou-Ward (Health Services Administration)

Additional Co-Author: Sara Alfonso

We seek to provide new, innovative approaches to combat the need for more physicians in the rural areas across America and present detailed explanations on why we have an increase in demand and how we strategize to repair it.

ANTHONY R. SELKOWITZ

Mental Rotation of a Complex Object After a Drawing-Based Interactive Training Session

Mentor: Valerie Sims (Psychology)

Twenty-nine undergraduates completed either an interactive drawing-based training regiment or mental arithmetic problems before performing a mental rotation task. The mental rotation task included two figures: one that was drawn during the training exercise and one not drawn. Drawing training yielded sex differences for accuracy and reaction time.

STEPHEN M. SILBER

Students' Awareness of Alternative Music

Mentor: Amy Donley (Sociology)

The objective of this project is to analyze the student body of the University of Central Florida in their music selection. This will be done to try to figure out how aware students are of the industry of music and its practices that are just as unethical as other industries.

LINDSEY B. SINGER

What is the Effect of Celebrity Endorsements on College Students' Political Views

Mentor: Amy Donley (Sociology)

The objective of this study is to understand the extent of celebrity influence as it pertains to college students' political views.

CAROLINE D. STAMPS

Social Constructivism in an On-Demand 21st Century Collegiate Environment

Mentor: Ron Eaglin (Engineering Technology)

The objective of this work is to show that involving students in the curriculum decision-making process will provide many benefits to students and the universities they attend. These benefits include developing better critical thinking skills, fostering a greater sense of ownership and investment, and matriculating students better able to excel.

SABRINA STEIN

Empowerment Through Reform: the United Nations Organization

Mentor: Houman Sadri (Political Science)

This research addressed the difficulties faced by the United Nations in today's world and how reform to the budget, the Secretariat and the Security Council would better allow it to function more efficiently. These reforms would invigorate and promote a healthy organization capable of carrying out its mandate.

COURTNEY E. STRUBLE

Domestic Violence Perceptions, Occurrences, and Reporting Characteristics

Student Co-Author: Erin Frank

Mentor: Amy Donley (Sociology)

The purpose of this study is to collect information on the views of domestic violence among college students. The project gives an in-depth look at how domestic violence is perceived differently between male and female University of Central Florida students and whether these perceptions affect the reporting statistics.

KEVIN H. THOMAS

Fighting Wrong Beliefs

Mentor: Costas Efthimiou (Physics)

I hope to help develop courses and methods to educate society about the importance of Science vs. Pseudoscience.

LAURA TRAD

Clicker Technology Meets "Choose Your Own Adventure": How to Engage Students Through Non-Linear Story and Technology

Mentor: Kevin Yee (Faculty Center for Teaching and Learning)

Students in large lecture classrooms often need encouragement to stay engaged. "Choose your own adventure" meets technology in this interactive "click your own adventure" presentation. A comparison of a non-linear lecture with a traditional lecture may prove that the new format increases the likelihood of meeting learning outcomes.

THERESA N. TROMBLY

Psychophysiology of Selective Mutism

Mentors: Deborah Beidel (Psychology), Jeffrey Cassisi (Psychology)

Selective mutism (SM) is a disorder in which children capable of normal speech withhold it in certain situations. It is commonly assumed (subjectively) that SM children have severe anxiety that renders them physiologically unable to speak. This study challenges that assumption with the use of psychophysiological assessment (objectively assessing distress).

TINA M. TRUNZO

Do College Women Know What Rape Is?

Student Co-Author: Hilda Remh

Mentor: Amy Donley (Sociology)

Sexual violence against women on college campuses is a very serious problem in our society. This project looks at understanding if University of Central Florida college women can identify rape and sexual violence in a series of scenarios.

STEVEN M. VAGNINI

The Keys to Student Engagement in Rosen College of Hospitality Management Studies

Mentor: Hyjung-il Jung (Hospitality Services)

What can best engage the Rosen College of Hospitality Management student in the classroom? Using extensive surveys of Rosen College students and faculty members as a springboard, this study determines the links between teaching methodology, style, and student interest.

KARINNA O. VAZQUEZ

The Effects of Attachment Development in Emerging Adults' Romantic Relationships and Friendships

Mentor: Kimberly Renk (Psychology)

The purpose of this study is to examine the relationships among attachment to parents throughout individuals' lives, their perceptions of the individuals who are important in their lives, and their attachment to significant others during emerging adulthood, this will include romantic relationships and friendships.

SEAN E. WALSH

Hive Learning

Student Co-Authors: Jessica Perry, Channing Werth, Blair Sligar, Judith Keeter, Wendy Agudo, Dominique Sandoval

Mentor: Robert Reedy (Art)

Additional Co-Author: Julia Dodd

The reconstruction of the three-dimensional design program has led us to research topics such as Bloom's Taxonomy, pedagogy, leaderless organizations and peer-to-peer learning.

LAUREN T. YON

Integrating Mobility into the Plan of Care in the Intensive Care Unit

Mentor: Kelly Allred (Nursing)

Immobility in an Intensive Care Unit (ICU) patient can be extremely detrimental to a person who suffers from a plethora of morbidities. This literature review discusses what hazards of immobility could occur due to the lack of mobilization and different mobility interventions which are utilized in the ICU.

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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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.

Suzanne Adornetto
Michael Aldarondo-Jeffries
Kelly Astro
Robert Bilic
Sandra Cherepow
Denise Cristafi
Michelle Fuentes
Lauren Haar
Jennifer Hartman
Provost Terry Hickey
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INDEX OF STUDENT PRESENTERS

UCF

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.

0810UDS035-03/09