

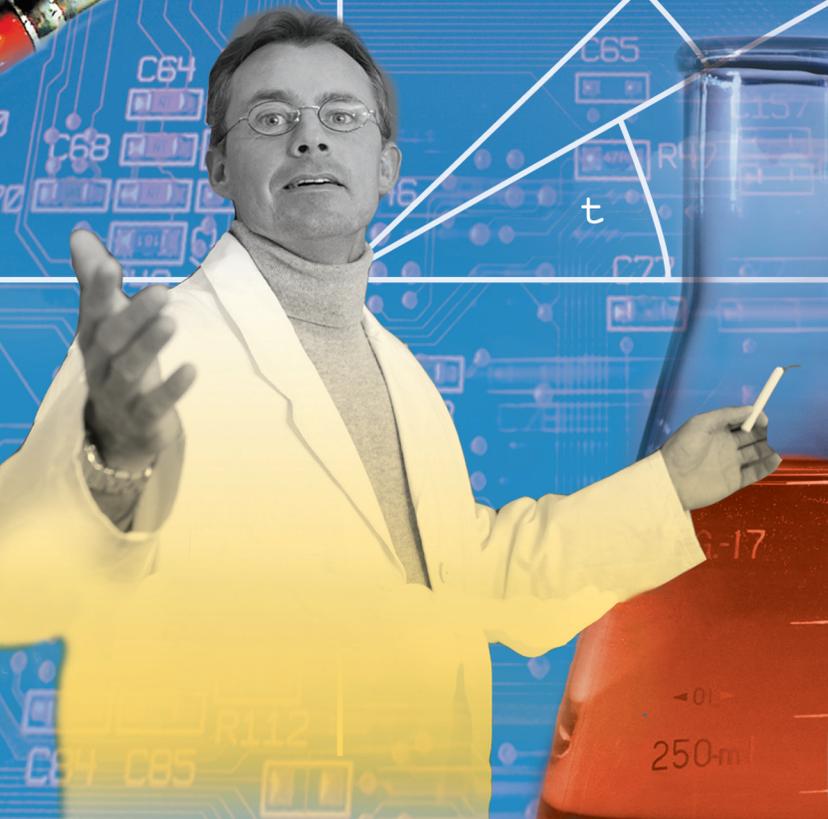
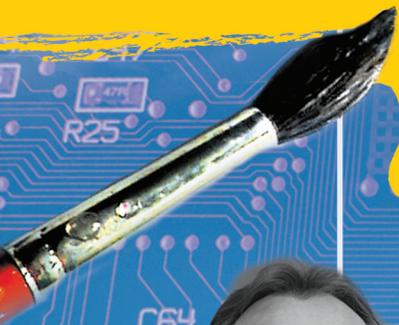


SHOWCASE OF
UNDERGRADUATE RESEARCH EXCELLENCE

Celebrating undergraduate research and creativity across the curriculum.



UNIVERSITY OF CENTRAL FLORIDA
UNDERGRADUATE STUDIES



THURSDAY, APRIL 5, 2007 • 2-5 P.M.
EDUCATION COMPLEX GYMNASIUM

SHOWCASE OF UNDERGRADUATE RESEARCH EXCELLENCE

Celebrating undergraduate research and creativity across the curriculum.



UNIVERSITY OF CENTRAL FLORIDA
UNDERGRADUATE STUDIES

ORDER OF EVENTS

ACKNOWLEDGEMENTS..... 2:00 P.M.

Dr. Alison Morrison-Shetlar

Interim Dean of Undergraduate Studies

Professor of Biology

WELCOME 2:10 P.M.

Dr. John C. Hitt

President

Professor of Psychology

STUDENT PRESENTATIONS..... 2:00-5:00 P.M.

REMARKS AND PRESENTATION OF SCHOLARSHIPS..... 4:15 P.M.

Dr. John F. Schell

Vice Provost for Academic Affairs

Professor of English

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

2007
UCF RESEARCH WEEK

SOCIETY IN RESEARCH
RESEARCH IN SOCIETY

SHOWCASE JUDGES

The Office of Undergraduate Studies and the Showcase Coordinators are indebted to the following UCF faculty for devoting a substantial amount of their time serving as Showcase Judges.

Tarig Ali

Manoj Chopra

Tace T. Crouse

Martin Dupuis

Costas Efthimiou

Kenneth Fedorka

Michael D. Hampton

Roger B. Handberg

Kevin Haran

Jana L. Jasinski

Bernard J. Jensen

Jeffrey S. Kaplan

Robert F. Kenny

Frank B. Kujawa

Ana M. Leon

Connie L. Lester

Ralph Llewellyn

Wilfredo Lopez-Ojeda

Ali Mehrabrian

Olga Molina

Elizabeth Rash

Patrick Schelling

J. Blake Scott

David M. Segal

James Turkson

Jun Wang

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 Studies is grateful to these benefactors for their encouragement and support of undergraduate research at UCF.

Randolph E. Berridge and the Florida High Tech Corridor Council

Steven David and WELBRO Building Corporation

Mark Engwall and A. Duda & Sons, Inc.

Richard H. Harrison II, in memory of Dr. Howard B. Altman

Leslie Sue Lieberman and the UCF Women's Research Center

Kimberly R. Schneider

Alison Morrison-Shetlar and Robert Shetlar

Sandra Saft and Window Interiors, Inc.

UCF Chapter of Sigma Xi: The Scientific Research Society

UCF Federal Credit Union

UCF Institute for Social and Behavioral Sciences, Department of Sociology

UCF Office of Research and Commercialization

UCF Office of Undergraduate Studies

UCF Office of Undergraduate Research

UCF Student Government Association

FACULTY MENTORS

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

Pamela D. Ark

Jeffrey S. Bedwell

Steven L. Berman

David Bowie

Ryan Burkhart

John F. Butler

Cristina Calestani

Anna Campbell

Humberto Campins

Debopam Chakrabarti

Ratna Chakrabarti

Sic L. Chan

Ruey-Hung Chen

Manoj Chopra

Annabelle Conroy

Maureen M. Covelli

Richard C. Crepeau

Enrique del Barco

J. Rodney Dickerson

Eduardo Divo

Aristide Dogariu

Steven N. Ebert

Raj Echambadi

Costas Efthimiou

Jill Ehling

Seth Elsheimer

Terri S. Fine

Keith Folse

Barbara Fritzsche

Keith Garfield

David Gay

Michael Georgiopoulos

Richard Gilson

Avelino J. Gonzalez

Ali P. Gordon

Peter Hancock

Carlton Keith Harrison

Florencio Hernandez

Eric A. Hoffman

Rosalyn Howard

Peter Jacques

David G. Jenkins

Bernadette M.E. Jungblut

Jay S. Kapat

Alain Kassab

Jennifer Kent-Walsh

Annette Khaled

Edward M. Kian

Joo H. Kim

Ranganathan Kumar

R. Jane Lieberman

Karol Lucken

Martha S. Lue

Weili Luo

Eduardo Martin

Artem Masunov

Rudy McDaniel

Kevin Meehan

Cecilia Rodríguez Milanés

Peter Molnar

Eugene Montague

Michele M. Montgomery

Mustapha Mouloua

Sandra Naipaul

Charles Negy

Dawn M. Oetjen

Eugene A. Paoline

Sumanta N. Pattanaik

Marianna Y. Pensky

Eric L. Petersen

Janice Peterson

Otto Phanstiel

Lucille Ponte

Robert D. Pritchard

Andrew A. Randall

Babar Rao

Kimberly Renk

Kenyatta O. Rivers

Beatriz Roldán Cuenya

Bari Hoffman Ruddy

Houman A. Sadri

Hari P. Saha

John J. Schultz

Jamie Schwartz

David Segal

William T. Self

Denver Severt

Mubarak Shah

Bhimsen K. Shivamoggi

Michael Sigman

Valerie K. Sims

Eileen Smith

Frances B. Smith

Janan Smither

Yong-Ho Sohn

Christopher Stapleton

Kiminobu Sugaya

Kristina Tollefson

Alexander Tovbis

Dawn Trouard

James Turkson

Raj Vaidyanathan

Ezekiel Walker

Linda J. Walters

Alvin Y. Wang

Jane M. Waterman

Earl D. Weaver

Arthur R. Weeks

Daniel R. Williamson, Jr.

Cynthia Y. Young

Antonis S. Zervos

Lei Zhao

ARTS AND HUMANITIES

Jessica L. Achberger

A Legacy of Instability: Western Influences on the Democratic Republic of Congo

Mentor: Ezekiel Walker (History)

Project Objective: *This project seeks to prove that Western influences, from Belgium colonialism as well as the United States and the United Nations, were critical in promoting the instability of the Democratic Republic of Congo immediately following its independence, a condition that continues today.*

William H. Boles

A Study in Scenic Design: *Fish Eyes*

Mentor: Kristina Tollefson (Theatre)

Project Objective: *Through the production of Fish Eyes, by Ted Suartz and Lee Elshmann, I demonstrate my design process from emotional connection, through detailed research and analysis, to development of the design idea, culminating in the final stage design.*

Michael A. Carney

Design and Production Innovations in Experiential Media for Education

Co-Author: Travis Janzen

Mentor: Eileen Smith (Film and Digital Media)

Project Objective: *The History of Travel engages its audience and unfolds the importance of transportation through history. Using motion-based technology, live and computer generated graphics, riders are taken on an interactive trip that spans time and space across land, sea, and air. This project shows the importance of experiential education.*

Mariana Chao

Patterns of Coronal Stop Deletion in the United States West

Mentor: David Bowie (English)

Project Objective: *Coronal stop deletion, a linguistic feature in which the consonants "t" or "d" are deleted from speech, has previously only been examined in Eastern United States and British Englishes. This study contributes findings from Western United States speech to investigate whether previous results can be applied more generally.*

Andres Citeli

Design and Production Innovations in Experiential Media for Entertainment

Mentor: Christopher Stapleton (Institute for Simulation and Training)

Project Objective: *This research was done to create a tool to transform a theme park designer's ideas into a shared simulated experience. A miniature set that would represent a park attraction, Theme Park Pre-Visualization will transform this mock up into a virtual theme park attraction, allowing a designer to experience a theme park ride before it is built.*

Stephanie E. Colombo

Do You Realize Who You /r/ Differently As You Age? An Acoustic Analysis of the Realization of American /r/

Mentor: David Bowie (English)

Project Objective: *This study quantitatively analyzes /r/ as produced by 10 candidates, using recordings made between 1940 and 2000. It was found that all speakers varied in rhoticity significantly throughout the lifespan. These data points to flaws in many methodological assumptions in linguistics, underscoring the need for better sampling protocols.*

Shanett L. Dean

Reading Society: Exploring the Relationship Between Social Literacy and Agency in Antebellum Slave Narratives

Mentor: Kevin Meehan (English)

Project Objective: *Using antebellum slave narratives as a base, the researcher's objective is to provide sufficient evidence for the presence of social literacy among the enslaved. Furthermore, the project will explore social literacy's relationship to the agency of the enslaved.*

Steven D. Gatewood

The History of British Music Hall

Mentor: Earl D. Weaver (Theatre)

Project Objective: *I researched the history of British Music Hall and how it affects The Mystery of Edwin Drood and American vaudeville. My research also includes information on specific performers, venues, and the acts performed.*

Stephanie Gonzalez
Making a Place for Latino/a Writers

Co-Author: *Indiana de la Cruz*

Mentor: *Cecilia Rodriguez Milanés (English)*

Project Objective: Making a Place for Latino/a Writers was created to expose users to unfamiliar Latino/a writers and enhance their experiences with established writers. We provide a place where authors are more than just a book jacket photo; they become real and relatable people via biographies, country profiles, and media clips.

Jennifer N. Goodin
Women Abroad: Alienation Connects Eudora Welty's "Going to Naples" and Henry James's Daisy Miller: A Case Study

Mentor: *Dawn Trouard (English)*

Project Objective: The purpose of this project is to show the effects of alienation overseas for the main characters of "Going to Naples" by Eudora Welty and Daisy Miller: A Case Study by Henry James. The characters strive to remain true to themselves despite others' expectations, rejection from society, and unrequited love.

Ethel F. Green
Wash Your Chicken

Co-Author: *Richard T. Green*

Mentor: *Joo H. Kim (Graphic Design)*

Project Objective: "Wash Your Chicken" is to be a public service announcement to make the public aware of a chicken's life and processing, and health concerns, with improper handling.

Jessica N. Green
Inspirational and Influential African American Women in Musical Theatre History

Co-Author: *Earl D. Weaver*

Mentor: *Earl D. Weaver (Theatre)*

Project Objective: This project peers into the lives of the very influential African American women that help shape the art form of musical theatre. All from an array of backgrounds and experiences, the lives of these women have been examined to educate and inspire all who get to hear their story.

Amber L. Hand
Flying Horse Editions: Merging Technology and Traditional Printmaking

Mentor: *Ryan Burkhart (Art)*

Project Objective: Flying Horse Editions (FHE) is a publisher of limited edition books and prints. The artists and authors that FHE has had the chance to work with are internationally recognized. Our objective is to combine the traditional hand printing process with the latest technology UCF has to offer.

Justin Hendrix
What's With the Water?

Mentor: *Joo H. Kim (Art)*

Project Objective: My objective is to show what exactly is happening to the water at UCF. Everyone knows that it has not met certain requirements, and I want to show people what exactly that is, and if it could cause a problem in the future.

Bryan D. Kaschube
Anna in the Tropics Lighting Design

Mentors: *Kristina Tollefson, Bert Scott (Theatre)*

Project Objective: This play revolved around the Cuban heritage in Tampa during the 40s. It is necessary to create this world through the use of photographic and historical research from the time. The use of light is to complement the other designs as well as staying true to the time.

Kyle J. Leavitt
Alternative Ideas to be Environmentally Sound

Mentor: *Joo H. Kim (Art)*

Project Objective: I will provide new ideas on how teens can be environmentally conscious on a reasonable level. Too often environmentalists seek too drastic of a change, but I will suggest and support ideas that will help the average person preserve our natural resources.

Brenna M. Martin
Sexual Health and Disease Prevention Awareness

Co-Author: *Ellicia Zitsman*

Mentor: *Joo H. Kim (Art)*

Project Objective: This video will educate teens about the issues concerning sexually transmitted infections and sexual safety issues facing them today.

Brittany J. Miller
Media: Measuring Ethics Developed in Advertising

Mentor: Dawn Oetjen (Health and Public Affairs)

Project Objective: *Because advertising is ubiquitous, consumers are aware that they cannot escape it. However, often times they have not thoroughly thought about the ethical messages present in the advertisements they see or hear so frequently. For this reason, I will expose ethics present in various mediums of advertising.*

Stephanie M. Piccino
“Rated E for Everyone”: Evaluating Cognition in Relation to the Nintendo Wii’s Accessibility for Older Gamers

Mentor: Rudy McDaniel (Film and Digital Media)

Project Objective: *This project investigates cognitive theory in relation to video game players forty-five years of age and over. This report also focuses on the Nintendo Wii console, its games, and its claim that anyone of any level of ability can play it.*

Holly A. Pinheiro
The National Football League

Mentor: Richard Crepeau (History)

Project Objective: *The objective is to create a general text on the historical background of the NFL, discussing its origins and growth over the decades.*

Gary J. Plather
Homeless without a home

Co-Author: Ashley N. Murphy

Mentor: Joo H. Kim (Art)

Project Objective: *Using video and multiple digital effects, we delve into the social conscience of what homeless means. The film shows viewers the reality of homelessness and conditions associated with it. We want to give understanding to the public and exhibit the problem that exists outside our very doors where we live.*

Kelly D. Pratt
Global Warming Hysteria and the History of Recorded Weather

Mentor: Joo H. Kim (Art)

Project Objective: *The objective of this research is to explore the public outcry regarding global warming and compare this to factual evidence regarding the history of the earth’s climate recorded by humanity and prehistoric climates suggested by paleontologists.*

Ricardo Rodriguez
Bilingual Anti-Drug PSA

Mentor: Joo H. Kim (Art)

Project Objective: *Create a bilingual English-Spanish anti-drug use public service announcement (PSA) for a pre-teen to teenage audience. By providing the content and information in both languages, the PSA will be functional for both English and Spanish-speaking groups, and widening the effectiveness of the message.*

Emily J. Scott
Bridging the Gap: Erik Satie, Sonic Youth, and “High” and “Low” Art

Mentor: Eugene Montague (Music)

Project Objective: *My research concerns common threads between two very different musical artists whose breakthrough compositions premiered exactly one century apart (1888-1988): Erik Satie and Sonic Youth. Their work gives us a foundation to examine what moves music forward and bridges the gap between popular and art music.*

Adam D. Wilson
The Word of God to All Nations

Mentor: Joo H. Kim (Art)

Project Objective: *No book in history has crossed cultural and linguistic barriers like the Bible. It has been translated into more than 2,000 languages, but an enormous task remains. This project will promote awareness of more than 3,000 people groups who do not have God’s Word in the language of their heart.*

Yelitza Zarraga
Ana & Mia: Goddesses of a False Cult

Mentor: Joo H. Kim (Art)

Project Objective: *Ana & Mia: Goddesses of a False Cult is intended to be a short Public Service Announcement geared towards high school girls that dispels some of the false ideas and trendiness of popular eating disorders, anorexia and bulimia, and emphasizes their seriousness as true disorders.*

Brian C. Becker
Automatically Determining Consequences of Unexpected Events

Mentors: *Avelino J. Gonzalez (Electrical Engineering and Computer Science), Keith Garfield (Institute for Simulation and Training)*

Project Objective: *This research project investigated the development of the ADCUE model (Automatically Determining Consequences of Unexpected Events), which provides intelligent software agents with the cognitive reasoning abilities to understand how the occurrence of unanticipated events will affect various parts of the upcoming plan.*

Catherine N. Bewerse
In Situ Neutron Diffraction Measurements at Stress and Temperature in NiTiPd Shape Memory Alloys

Mentor: *Raj Vaidyanathan (Mechanical, Materials, and Aerospace Engineering)*

Project Objective: *Shape memory alloys actuate against external loads as a result of a temperature-induced phase transformation. The temperature at which NiTiPd transforms is of interest to NASA for use in debris-less and spark-free separation mechanisms. NiTiPd was subjected to neutron diffraction at Los Alamos National Laboratory to monitor deformation mechanisms.*

Benjamin A. Corbin
Laminar Flame Speed Measurements in a New Constant-Volume Vessel

Mentor: *Eric Petersen (Mechanical, Materials, and Aerospace Engineering)*

Project Objective: *A constant-volume, cylindrical bomb was built to study the spherically expanding flames of gases of various stoichiometric mixtures used in gas turbine power generation systems under high temperatures and pressure. The data from this experiment will contribute to the design of fuel-flexible power systems and improve overall efficiency.*

Nicole S. Donato
Reduced Combustion Time Model for Syngas in Gas Turbine Flow Fields

Mentor: *Eric L. Petersen (Mechanical, Materials, and Aerospace Engineering)*

Project Objective: *The objective of this project is to create simplified chemistry models that accurately portray the complex combustion processes of CO/H₂, or syngas, that occur within a gas turbine engine.*

Sandra Feliciano
Should Influent BODs Samples Be Inhibited for Nitrification?

Co-Authors: *Andrew A. Randall, Daniel R. Williamson, Jr., J. Rodney Dickerson*

Mentor: *Andrew A. Randall (Civil and Environmental Engineering)*

Project Objective: *The objective of this project is to determine if it is necessary to inhibit nitrification when measuring the BOD in Raw Influent Samples.*

Zachary B. Haber
Studies on New Anchorage Designs for Strengthening RC Beams with FRP Composite Material

Mentor: *Lei Zhao (Civil Engineering)*

Project Objective: *This research investigates RC members strengthened with externally bonded FRP systems. Two new anchorage mechanisms are employed to prevent the debonding phenomenon that commonly causes premature failure in RC members. Both global and local behaviors of anchorage components are the focus of examination.*

Reuvani D. Kamtaprasad
Autonomous Underwater Vehicle: The Design of a Light-Frequency Sensor System

Mentor: *Arthur R. Weeks (Electrical Engineering and Computer Science)*

Project Objective: *This project was to design and build a system that could detect a specific colored light flashing at a given frequency underwater. The sensors were built to assist UCF's Autonomous Underwater Vehicle (AUV) in completing obstacles for the annual AUV Competition sponsored by AUVSI.*

Stephanie M. Kersten
Study on Film Cooling Effectiveness Near Airfoil Stagnation Region

Mentor: Jay Kapat (Mechanical, Materials, and Aerospace Engineering)

Project Objective: This study of the effects near the stagnation region of an airfoil on film cooling effectiveness in the absence and presence of wake utilizes an obstacle upstream simulating wake and an airfoil downstream simulating a stagnation region to understand these influences on film cooling for gas turbine engines.

Ananda Leon
Phase Field Simulation of Ni-Al Diffusion Couples

Mentor: Yongho Sohn (Advanced Materials Processing and Analysis Center)

Project Objective: The objective of this project is to predict the interdiffusion microstructure of Ni-Al solid-to-solid diffusion couples as a function of variable chemical mobility, by implementing phase-field modeling, mathematical modeling, and experimental observations.

Alexander R. LePage
Combustion Product Analysis of HTPB/AP Composite Propellants Using Emission Spectroscopy

Mentor: Eric L. Petersen (Mechanical, Materials, and Aerospace Engineering)

Project Objective: HTPB/AP propellant can be classified as a smokeless propellant for its highly reduced soot formation and has been of particular interest for ongoing research. Emission spectroscopy was used to identify the characteristic electromagnetic emission signature given off by the vaporized molecules of the combustion products.

Wilcley B. Lima
Acoustical Detection of Submicron Particles

Mentor: Ruey-Hung Chen (Mechanical, Materials, and Aerospace Engineering)

Project Objective: Particle detection systems are an important component of clean room systems, but precise particle detection devices are bulky and expensive. One alternative is an acoustical detection method. This research concentrates on finding out how particles smaller than one micron can be acoustically detected.

William J. McDonald
Estimation of TMAC Using a 3-D Molecular Dynamics Simulation

Mentor: Jay Kapat (Mechanical, Materials, and Aerospace Engineering)

Project Objective: This project involved improving upon an existing Molecular Dynamics simulation by modifying the simulational code to better calculate the Tangential Momentum Accommodation Coefficient, which is used to quantify the amount of "slip" experienced by a gas molecule reflecting off of a metal surface under specific impact conditions.

Denitsa M. Milanova
Heat Transfer Enhancement in Single-Walled-Carbon Nanotube (SWNTs) Nanofluids

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

Project Objective: Single-Walled-Carbon Nanotubes (SWNTs) are known for their great physical, mechanical, material, and electronic properties. The practical applications of nanotubes have been slowed due to insolubility in liquids and lack of individual tube dispersion. Thermal conductivity and Critical Heat Flux results are presented at different concentrations and pH value.

Andrew E. Miller
Vision-Based Control and Navigation of a UAV

Mentor: Mubarak Shah (Computer Science)

Project Objective: The objective of this project is to develop a complete computer-vision navigation-and-autopilot system for an Unmanned Aerial Vehicle (UAV). The experimental apparatus consists of a remote control airplane, a wing-mounted video camera, radio communications, and a ground-station computer. The software can maintain stable flight, perform basic maneuvers, and follow a road by processing visual cues.

Mario C. Mistretta
Composition Dependence of Transformation Temperatures in Low Temperature NiTiFe Shape Memory Alloys

Mentor: Raj Vaidyanathan (Mechanical, Materials, and Aerospace Engineering)

Project Objective: NiTi based shape memory alloys are used as actuators because of their ability to undergo a temperature induced phase transformation. NiTiFe alloys with varying compositions were fabricated and subsequently characterized using differential scanning calorimetry and dilatometry to determine composition vs. transformation temperature correlations.

Matthew R. Montgomery
Measurement of Mono and Bi-Static Distribution of Backscattering Pathlengths

Mentor: *Aristide Dogariu (Optics and Photonics)*

Project Objective: *We evaluate the inherent limitations of classical optical pathlength interferometry and present a new experimental geometry that can more readily be used to evaluate the diffusion coefficient.*

Kareem F. Moslehy
Burning Rate of Composite Solid Propellants Containing Nanoparticle Additives

Mentor: *Eric L. Petersen (Mechanical, Materials, and Aerospace Engineering)*

Project Objective: *The research is geared toward exploring the effects of the burning rate of composite solid rocket propellants through the use of different nanoparticle additives.*

Enrique G. Ortiz
Experimental Comparison of Strategies for Detecting Outliers in Categorical Data

Co-Author: *Anna Koufakou*

Mentor: *Michael Georgiopoulos (Electrical Engineering and Computer Science)*

Project Objective: *While data mining has lately received much attention in applications, such as credit card fraud detection, research has mostly focused on numerical data. We review and experiment with current algorithms for categorical data in an attempt to evaluate them and possibly improve on them in terms of efficiency and accuracy.*

Andres F. Osorio
Preliminary Thermal Distribution of a New Bearing System

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

Project Objective: *The purpose of this project was to analyze the behavior, with special attention to the temperature distribution of the components and lubricant for a new bearing. The bearing has potential for numerous implementations and results from this project will allow the manufacturers to identify the best possible use for their design.*

Shatra C. Reehal
Reflected-Shock Ignition of Syngas at Engine Pressures and Comparison to Chemical Kinetics Models

Mentor: *Eric L. Petersen (Mechanical, Materials, and Aerospace Engineering)*

Project Objective: *This study presents shock tube research on synthesis gas mixtures at engine pressures, a region for which not much data are currently available and is important because syngas is used as an alternative fuel in power generation applications.*

Omar R. Rodriguez
Image Processing Algorithms

Mentor: *Arthur R. Weeks (Electrical Engineering and Computer Science)*

Project Objective: *The research project consisted of adapting advanced image processing algorithms to enhance images. The approach to develop algorithms for image processing so far has been an artistic one, so the aim of this project was to develop advanced algorithms to make similar functions using a scientific approach.*

Frederick Shamieh
Precipitate Particle Transformations in Directionally Solidified Ni-Based Superalloy

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

Project Objective: *The objective of this project is to investigate the activity of precipitate particles in a directionally-solidified Ni-base superalloy, DS GTD-111, after cyclic tensile loading and to demonstrate the high temperature creep rafting phenomenon and its contribution to creep behavior, enhancing the susceptibility of failure after cyclically applied stress.*

Kamran A. Siddiqui
Biomedical Visualization

Mentor: *Sumanta N. Pattanaik (Computer Science)*

Project Objective: *The objective of this project is to develop a way to provide 3D visualization of medical data that provides a solution/features that currently do not exist.*

Erik S. Stuart

E.R.I.K. (Embedded Ring Infiltrometer Kit)

Mentor: *Manoj Chopra (Civil and Environmental Engineering)*

Project Objective: *The E.R.I.K. (Embedded Ring Infiltrometer Kit) is a device developed to measure the infiltration rate (in/hr) through a dual media system pervious concrete. Pervious concrete is a pavement that is permeable, allowing stormwater to pass through its interconnected voids preventing stormwater runoff.*

Brandyn A. White

Automatically Tuning Background Subtraction Parameters Using PSO

Mentor: *Mubarak Shah (Computer Science)*

Project Objective: *The goal of my research is to automate the task of tuning object detection algorithms used in surveillance applications. These algorithms have many parameters, each of which must be set to a scene-specific range of usable values for optimal performance.*

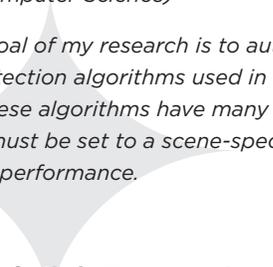
Eric P. Williams

Numerical Simulation of High Temperature Low Cycle Fatigue of a Ni-Base Turbine Material

Co-Authors: *Justin Karl, Michael Schulist*

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

Project Objective: *For this reseach project, multiple constitutive fatigue models were studied and applied to simulate a Ni-Base alloy undergoing the same conditions found in turbine blades. This new approach, using a mathematical model to ascertain the life of turbine blade, may one day be the preferential choice of industrial turbine design.*



Emad M. Abdalla

The Role of Norepinephrine and Epinephrine in the Early Development of Embryonic Hearts

Mentor: *Steven N. Ebert (Burnett College of Biomedical Sciences)*

Project Objective: *The objective is to determine if the expression of connexin-43 (CX-43), the major cardiac gap junction protein which is responsible for efficient conduction of signals through myocardium, is altered in norepinephrine and epinephrine deficient (mutant) embryonic hearts in relation to its levels in wild type (normal) embryonic hearts.*

Khaled T. Abu-Ihweij

Phosphorylation of NHE-1 Via P38 MAPK Occurs on the C-terminal Domain

Mentor: *Annette Khaled (Molecular Biology and Microbiology)*

Project Objective: *Four possible phosphorylation sites of the sodium hydrogen exchanger (NHE) protein were determined using an in vitro p38 MAPK assay and confirmed by deletion analysis. Using mutant cell lines with a mixture of null sites, the activation sites of the NHE protein were discovered.*

Pamela A. Bagsiyao

Regulation of Neuronal Energy Metabolism by Brain Mitochondrial Uncoupling Protein

Mentor: *Sic Lung Chan (Biomolecular Science Center)*

Project Objective: *The main objective of my project is to elucidate the mechanism whereby UCP4 promotes anaerobic glycolysis. I will determine whether the salutary effects of UCP4 expression are mediated by Hif-1 and/or AMPK. Hif-1 and AMPK both mediate response that augments non-oxidative synthesis of ATP in response to energy stress.*

Angelica M. Barrero-Tobon

Characterizing the Unusual Protein Trafficking Pathways of *Plasmodium falciparum*

Co-Author: *Lawrence Ayong*

Mentor: *Debopam Chakrabarti (Molecular Biology and Microbiology)*

Project Objective: *Plasmodium falciparum, the causative agent of malaria, resides within a vacuole in human red blood cells yet exports hundreds of virulent proteins to the host cell surface. Our study aims at understanding the protein trafficking mechanisms in the parasite that could be exploited for novel drug discovery against human malaria.*

Alexis T. Crawford

Breathing Pressure Measures: Generating a Norm to Provide Comparison with Disordered Breathing

Mentor: *Bari Hoffman Ruddy (Communication Disorders)*

Project Objective: *Breathing pressure measures for healthy African American and Caucasian males and females ranging from 18 to 80 years of age so that a norm may be determined and compared to ascertain to what extent breathing might be impaired in cases such as Parkinson's Disease.*

Nick Davies

Characterizing MHC Variation in Natural Frog Populations

Mentor: *Eric A. Hoffman (Biology)*

Project Objective: *The objective of this project was to analyze and characterize variation in the genetic sequences of the major histocompatibility complex in different populations of the Northern leopard frog, *Rana pipiens*. This data will then be used to look for evidence of positive selection at the MHC locus.*

Nancy K. Gillis

Genetic Diversity within and among Populations of *Mytella charruana*, an Invasive Mussel

Mentors: *Linda J. Walters, Eric A. Hoffman (Biology)*

Project Objective: *We used molecular techniques to characterize the genetic variation within and between populations of *Mytella charruana*, an invasive mussel found along the Atlantic coast of Florida and Georgia. Moreover, we sought to determine whether invasive populations are comprised of a single successful invasion, multiple initial invasions, or multiple ongoing invasions.*

Mercedes Gonzalez

Neuroscience and Nanoscience Technology: A Different World or Is It A Small World After All?

Mentor: *Peter Molnar (Nanoscience Technology Center)*

Project Objective: *Neuroscience and nanoscience technology have come together to study surface-cell interactions, cell attachment via integrin activation, and the study of the components that enhance the functional integration of stem cell-derived motoneurons in the spinal cord.*

Danielle M. Green
The Effects of the Brazilian Pepper Seed Plant on the Mangrove's Plant Mass Rate, Salinity, and Growth Rate

Co-Authors: *Melinda Donnelly, Julia Leissing, Nicole Martucci*

Mentor: *Linda J. Walters (Biology)*

Project Objective: *My research project consisted of the observation of mangroves that were subjected to the harmful toxins of the Brazillian pepper seeds. Mangroves are becoming extinct in our eco-system because of the intercoastal plants that are subject to these harmful toxins.*

Mary E. Hardy
Characterization of Physiological Substrates of PfPK5, a Potentially Essential Cell Cycle Regulator of *Plasmodium falciparum*

Co-Authors: *Lawrence Ayong, Angelica Barrero-Tobon*

Mentor: *Debopam Chakrabarti (Molecular Biology and Microbiology)*

Project Objective: *Very little is known about the intraerythrocytic developmental cycle of the malaria parasite. This study is aimed at characterizing a potential cell cycle regulator of Plasmodium falciparum, PfPK5.*

Daniel A. Hernandez
Using and Comparing JAVA Programs for the Study of Metapopulation Dynamics

Mentor: *David G. Jenkins (Biology)*

Project Objective: *ISLANDS is a research and educational tool for understanding metapopulation dynamics. ISLANDS v2.0 uses the Ricker Model, and will be compared to ISLANDS v1.0, which uses a Logistical Model. Both models will be tested to reveal advantages or disadvantages associated with each as it pertains to studying metapopulation dynamics.*

Kearstin L. Kelley
Dietary Ways to Prevent Breast Cancer

Mentor: *Jill Ehling (LEAD Scholars Program)*

Project Objective: *The purpose of this research project was to outline the important role that an individual's diet plays in preventing breast cancer, through sources such as books, articles, case studies, and interviews with medical professionals and breast cancer survivors.*

Usman J. Khan
Squamous Cell Carcinoma Developing in a Tattoo

Mentor: *Babar Rao (Division of Dermatology, UMDNJ-Robert Wood Johnson Medical School)*

Project Objective: *Decorative tattooing has become one of the most prevalent fashion statements in our present genre. This study examines the possible link between tattooing and various dermatologic disorders, systemic reactions, and malignant neoplasms.*

Cassandra Korsvik
Free Radical Scavenging Activities of Ceria Nanoparticles

Mentor: *William T. Self (Molecular Biology and Microbiology)*

Project Objective: *Ceria oxide nanoparticles were tested for antioxidant properties. In vitro nanoceria protected bovine serum albumin from tyrosylation by nitric oxide. In addition ceria nanoparticles catalyzed the decomposition of superoxide.*

Raquel L. Lyn
A New Player in the Molecular Process Determining the Life or Death of Mammalian Cells

Mentor: *Antonis S. Zervos (Biomolecular Research Annex)*

Project Objective: *The aim of this project is to study the ability of HAX-1 protein to protect mammalian cells against cell death resulting from chemical or oxidative injury. Although many proteins are known to be involved in the regulation of cell death, the contribution of HAX-1 in this process is unknown.*

Binal K. Maharaja
Directed Differentiation of Adult Human Mesenchymal Stem Cells Towards Corneal Cells

Mentors: *Angel Alvarez, Kiminobu Sugaya (Biomolecular Science Center)*

Project Objective: *The forced expression of KLF4 and Pax6, two transcription factors expressed early in corneal differentiation, in human mesenchymal cells will upregulate functional proteins and initiate a developmental cascade to invoke corneal differentiation.*

Celines Martinez
Identify and Map Adrenergic Cells in the Developing Mouse Heart

Mentor: *Steven Ebert (Burnett College of Biomedical Sciences)*

Project Objective: *The objective of this project is to identify Pnmt expression in the developing mouse heart after replacement of the Pnmt allele with EGFP for the purpose of creating a spatial and temporal map of Pnmt expression in the developing mouse heart.*

John W. Mizell
Do You Hear What I Hear: Do African Ground Squirrels Benefit from Meerkat Alarm Calls?

Mentor: *Jane M. Waterman (Biology)*

Project Objective: *I did a test to see if African ground squirrels gain antipredator information from meerkat alarm calls. By video recording the play back of alarm calls, I could look at durations of vigilant behaviors by the squirrels.*

Andrew W. Myers
Inhibition of *Clostridium difficile* Growth by Proline Derivatives and Gold Compounds

Mentor: *William T. Self (Molecular Biology and Microbiology)*

Project Objective: *Two proline derivatives were found to inhibit growth of Clostridium difficile at micromolar concentrations: alpha-methyl proline and cis-4-fluoroproline. A gold salt, auronofin, which is already in use in the clinic, was also found to inhibit C. difficile growth.*

Nickisha Pierre-Pierre
Study of the Reproductive Biology of *Mytella charruana*, a New Invasive Mussel in the Indian River Lagoon

Mentor: *Cristina Calestani (Biology)*

Project Objective: *We are studying the new invasive mussel in the Indian River Lagoon, Mytella charruana. We are collecting mussels in the Indian River Lagoon and analyzing the salinity levels the adult and larvae can withstand. We are analyzing gamete production and monitoring embryo development.*

Michael J. Roumanos
Determination and Analysis of Aurora Kinase A Protein Expression in Benign and Malignant Prostate Cancer Cells

Mentor: *Ratna Chakrabarti (Molecular Biology and Microbiology)*

Project Objective: *Expression levels of Aurora kinase A will be measured and analyzed to validate its correlation with the expression of LIM kinases and prostate cancer cell malignancy.*

Diana M. Silva
Genetic Variation throughout the Species Range of *Pseudacris ornata*, the Ornate Chorus Frog

Mentor: *Eric A. Hoffman (Biology)*

Project Objective: *In this study, we sequenced 600 base pairs of the mitochondrial cytochrome b gene from 15 individuals from 5 populations sampled from throughout the species range of the ornate chorus frog. We used standard techniques to compare levels of genetic variation within and between these populations.*

Ashley Startzman
Inhibition of STAT3 Protein as an Approach to Sensitizing Ovarian Cancer Cells to Cisplatin

Mentor: *James Turkson (Molecular Biology and Microbiology)*

Project Objective: *To investigate the responsiveness of ovarian cancer cells to the chemotherapeutic drug Cisplatin and the role of STAT3 in Cisplatin resistance, in order to determine the potential for the inhibition of persistent STAT3 activity to sensitize ovarian cancer cells to Cisplatin.*

Ruth Strakosha
Inner Ear Hair Generation from Differentiation of Adult Human Neural Stem Cells

Mentor: *Kiminobu Sugaya (Biomolecular Science Center)*

Project Objective: *The objective of this project is to analyze the effects of Hath1 transfection on the differentiation of neural stem cells.*

Rebecca J. Tarrien
**Toxin Regulation and Stickland Fermentations
in *Clostridium difficile***

Mentor: *William T. Self (Molecular Biology and Microbiology)*

Project Objective: *The molecular mechanisms of toxin regulation in *Clostridium difficile* are poorly understood. This study examines the role of Stickland fermentations in toxin regulation.*

Justin H. Trotter
**Reelin-Mediated Regulation of Protocadherin
Alpha Receptor Signaling**

Co-Author: *Kiminobu Sugaya*

Mentor: *Kiminobu Sugaya (Biomolecular Science Center)*

Project Objective: *Generally, we sought to elucidate the biochemical signaling mechanisms of Reelin, a secreted brain protein important for normal brain development and adult brain function. Specifically, we defined a novel mode of Reelin signaling that regulates cell-cell adhesion, which may be required for normal neuronal migration during development.*

John J. Zoshak
**Determining the Change Over Time of the Height
of Dead Margins on Intertidal Oyster Reefs
Affected by Heavy Recreational Boating Activity
in Mosquito Lagoon, Florida**

Mentor: *Linda Walters (Biology)*

Project Objective: *The objective of this project was to determine if leveling oyster reef dead margins was effective in controlling their growth. Also, monitoring the three treatments (impacted leveled, impacted unleveled, and control) over 16 weeks provides basic knowledge on dead margin dynamics.*

Pontus Ahlqvist
Modified Einstein-Hilbert Action and the Resulting Field Equations

Mentor: *Costas Efthimiou (Physics)*

Project Objective: *The Einstein-Hilbert action, when varied with respect to the metric, produces the standard field equations of general relativity. We propose a modification to this action by replacing the scalar curvature with an arbitrary function thereof and derive the modified field equations. We also discuss some implications of this modification.*

Jonathan P. Arnold
Using a Modified Simple Pendulum to Find the Variations in the Value of “g”

Mentor: *Costas Efthimiou (Physics)*

Project Objective: *This is about the study of using a simple pendulum to find variations in the value of “g” at different locations on the earth.*

Julie L. Bitter
Explosive Recovery Off of Solid Matrices Over Time

Mentor: *Michael Sigman (Chemistry)*

Project Objective: *The goal of this research was to test the residence times of three explosives, TNT, RDX, and PETN, on three different matrices, glass, low density polyethylene, and aluminum, to determine feasible sample holding and to determine recovery efficiencies for successful analysis of explosives.*

Monica F. Bonadies
Theoretical Investigation of Photo-Excitation and Photoionization Processes in the Upper Atmosphere

Mentor: *Hari Saha (Physics)*

Project Objective: *I calculated what happens to upper-atmosphere carbon when it is hit with photons from sun rays. This investigation used the theoretical equations known as the Hartree-Fock Method.*

Naomi C. Brownstein
Estimation in the Stress-Strength Model

Mentor: *Marianna Pensky (Mathematics)*

Project Objective: *The objective of this project is estimation of the probability that one random variable, X , is larger than the other, Y . This is very important in reliability where X is the strength of the device and Y is stress applied to it. There are many other applications of this model.*

Ivan K. Chi
Theoretical and Computational Studies of Photoexcitation and Photoionization Processes Occurring in the Upper Atmosphere

Mentor: *Hari P. Saha (Physics)*

Project Objective: *This project is a theoretical investigation of the photoexcitation and photoionization of atoms from the neutral to the excited or the ionized states of the atoms in the upper atmosphere.*

Lauren E. Cooper
Magnetic Hydrodynamics and the X Type Neutral Point

Mentor: *Bhimsen K. Shivamoggi (Mathematics)*

Project Objective: *During the past two school years I have researched plasma physics with a focus on magnetic reconnection at the X type neutral point and the governing equations of an overall plasma system.*

Richard A. Day
Cluster DFT Simulations of Oxygen Vacancy in Ceria Nanoparticles

Mentor: *Artem Masunov (Chemistry)*

Project Objective: *The purpose and main objective of this experiment is to understand how and why ceria is able to capture harmful free radicals.*

Hanoy Estrada
Synthesis of Size Selected Gold Nanoprisms by Nanosphere Lithography

Mentor: *Beatriz Rolánd Cuenya (Physics)*

Project Objective: *The significance of nano-sized elements in today's technology has encouraged me to innovate fabrication techniques to create size- and shape-selected nanoparticles. A self-assembly technique known as nanosphere lithography has allowed me to fabricate 2D well-ordered arrays of triangular nanoprisms with potential applications in the fields of catalysis and optics.*

Jonathan D. Fraine
Magnetic Body Force Enhanced Thermal Gradient in a Magnetic Nanocolloid

Mentor: *Weili Luo (Physics)*

Project Objective: *A theoretical model was proposed to introduce a non-uniform driving force to control the heat transfer in fluid with appreciable magnetic susceptibility, which has diverse applications in heat transfer, crystal growth, and heat devices. Our experimental results show quantitative agreements with the model.*

Juan C. Gonzalez
Ferromagnetic Resonance on Ultra-Thin Films

Mentor: *Enrique del Barco (Physics)*

Project Objective: *This project focused on the study of magnetic and quantum properties of ultra-thin layers of Co deposited over silicon wafers.*

Katelyn J. Grayshan
A New Marine Atmospheric Spectrum

Mentor: *Cynthia Y. Young (Mathematics)*

Project Objective: *A new atmospheric index of refraction power spectrum specifically tailored to the marine environment is presented with expressions for plane and spherical wave scintillation. Through theoretical scintillation comparisons between marine and terrestrial theory, the necessity of a new marine model is discussed.*

John M. Ketcham
Synthesis and Exploration of Fluorinated Derivatives of Sulfonic Acids

Mentor: *Seth Elsheimer (Chemistry)*

Project Objective: *I have personally searched through many literature articles on this topic to help find the best synthetic steps to use throughout the project. The first step in a long synthesis has been run and characterization of the products are now in progress.*

Simon Mostafa
Effect of the Catalyst Support on Methanol Decomposition Over Size-Selected Platinum Nanoparticles

Mentor: *Beatriz Roldán Cuenya (Physics)*

Project Objective: *The catalytic properties of size-selected platinum nanoparticles deposited on a variety of metal oxides were studied in order to better understand how metal nanoparticle/support interactions influence the catalyst's activity and selectivity. The industrially-relevant catalytic decomposition of methanol for the production of hydrogen has been used as model reaction system.*

Christine T. Nguyen
Theoretical Investigation of Elastic Scattering of the Oxygen Atom by Low-Energy Electrons

Mentor: *Hari P. Saha (Physics)*

Project Objective: *The objectives are to theoretically investigate the scattering of atomic oxygen atoms by low-energy electrons and to understand the emission spectra generated from the excited states of oxygen atoms in the Earth's atmosphere. Conditions of electron density and temperature in the atmosphere are further calculated by cross sections of oxygen.*

Rachel L. Odom
Synthesis of New Anticancer Drug Based on Histone Deacetylase Inhibition

Mentor: *Otto Phanstiel (Chemistry)*

Project Objective: *A polyamine-hydroxamic acid molecule was synthesized and evaluated for its anticancer properties and use as a histone deacetylase inhibitor.*

Adrienne F. Rowe

Age of the Gliese 569 Multiple System

Mentors: *Michele Montgomery, Humberto Campins, Eduardo Martin (Physics)*

Project Objective: *Characteristics of the dwarf multiple system Gliese 569 ABab, including absolute magnitude in the H and K bands and dynamical masses, will be examined and fit to evolutionary models in order to produce an independent estimate of the system's age.*

Albert J. Steppi

Semiclassical Solutions for the Focusing NLS with Compactly Supported Data

Mentor: *Alexander Tovbis (Mathematics)*

Project Objective: *Analytic and Numerical techniques are used to study the Focusing Nonlinear Schrodinger Equation in the semiclassical (zero dispersion) limit. The previously unstudied case of compactly supported initial data is considered.*

Arthur J. Thibert III

Exploiting the Properties of Gold Nanorods for the Potential Development of Mercury Filters

Mentor: *Florencio Hernandez (Chemistry)*

Project Objective: *I researched the reduction potentials of different metals' abilities to reduce ionized mercury to elemental mercury. This was monitored using plasmonic resonance principles of gold nanorods, which elucidated a possible design for filters that could remove Hg from the environment.*

Julian Abich IV

Driver Reaction to Work Zone Onset in Visual Occlusion Situations

Co-Authors: Aaron Duley, Justin F. Morgan, Jingjing Wang

Mentor: Peter Hancock (Psychology)

Project Objective: Driver response behavior to the onset of work zones in visually occluded situation will be examined so as to inform the Florida Department of Transportation (FDOT) on safer and more efficient work zone designs.

Jonathan D. Adams

Good to Great: A Detailed Look at NFL Franchises

Mentor: Raj Echambadi (Marketing)

Project Objective: We have researched NFL teams over the past twenty years and separated them into the following three distinct categories: bad, good, and great. We have analyzed the data to find common characteristics/factors that are found in each of the three categories.

Vanessa A. Appoo

You Cannot Fit a Square Peg in a Round Hole—How to Ensure the “Best Fit” Between Employees and Positions

Mentor: Dawn Oetjen (Health and Public Affairs)

Project Objective: Certain positions require specific personality types in order for success to occur. My objective is to determine the best fit between employees and positions within their organizations by studying the personality traits of employees and reviewing various job descriptions within an organization to find that perfect match.

Meagan C. Arrastia

Perceptions about HPV, the HPV Vaccine, and Condom Usage on a College Campus

Mentor: David Gay (Sociology)

Project Objective: To investigate students' perceptions of HPV, its prevalence, contraceptive measures taken, and their susceptibility to the virus.

Ariel T. Baruch

The Effects of Gift Giving on Romantic Relationships

Mentor: Valerie Sims (Psychology)

Project Objective: The proposed research seeks to qualify why gift giving has such large effects on the strengthening or deterioration of a relationship. By creating a gift giving questionnaire pertaining to a significant other, family, and friends, I will conduct an experimental analysis on appropriate gift giving and social reactions.

Dana E. Baugh

“Touching Each Patient”—The Case of the Patient Advocacy Program.

Mentor: Denver Severt (Hospitality Management)

Project Objective: Using the case study method, the Dr. P. Phillips Hospital patient advocacy program will be examined. In an effort to touch every hospital guest, the patient advocacy plan offers visitors to all patients in an effort to diagnose any needs of the patient or just to extend the hand of hospitality.

Sarah J. Berner

Disaster in Cote D'Ivoire: A Case Study on Hazardous Waste Agreements and Their Weaknesses

Mentor: Peter Jacques (Political Science)

Project Objective: In August of 2006, Trafigura Beheer BV contracted for disposal of oil waste in Cote D'Ivoire, an event which resulted in over 80,000 people seeking medical treatment. This research focuses on the applicable international agreements and the possibilities for their enforcement.

James B. Bohnsack

Relationships Among Self Esteem, Sexual Esteem, and Erotophobia/Erotophilia

Co-Authors: Sean McCarthy, Jessica Wiley, Mike LaFleur, Jessica Varley, Anita Fields

Mentor: Mustapha Mouloua (Psychology)

Project Objective: A large sample of anonymous undergraduate psychology majors attending the University of Central Florida will be given a packet of surveys regarding self-esteem, sexual-esteem, and erotophobia/erotophilia. Response data will be statistically analyzed to determine if there exists a strong correlation among the three variables.

Evelyn M. Botero
**The Effects of Distress on Motivation
in the Police Force**

Mentors: Robert D. Pritchard (Psychology), Jeffrey Bedwell (Psychology), Eugene A. Paoline (Criminal Justice)

Project Objective: The purpose of this study is to determine how various stressors affect the levels of motivation within different individuals in the police force. Stress results from a transaction between the individual and the environment. When the individual experiences negative stress then distress occurs, ultimately affecting the individual's motivational level.

Kimberly C. Burke
Prison Homosexual Activity

Mentor: Karol Lucken (Criminal Justice)

Project Objective: I have researched the history and current literature of homosexual activity in prisons throughout the U.S. (1824-Present). This research is a reflection of the urgency surrounding a growing problem in prison. I aim to show the causes and effects of prison homosexual activity, and also what is being done to prevent/control it.

Nathan L. Burns
**The Caspian Region: Arena for Clashing
Civilizations?**

Mentor: Houman Sadri (Political Science)

Project Objective: I use historical data analysis to examine the interaction of states in the Caspian region. Then, I analyze this data and compare it to the theoretical assumptions that political scientist Samuel P. Huntington has made about international relations.

Alesa E. Courson
**Affirmative Action in Education:
The Difference Between Quotas and Goals**

Mentor: Dawn Oetjen (Health and Public Affairs)

Project Objective: The focus of this research is to explore the use of affirmative action practices in higher education, specifically at the University of Central Florida, and to examine the role of ethics in differentiating between racial quotas and racial goals.

Charles S. DaPra
**Action Video Game Skill Level Predicts
Performance on Target Detection and
Identification**

Mentor: Valerie K. Sims (Psychology)

Project Objective: New research has suggested that visual and attentional mechanisms are modified by playing action video games. This research updated specific visual search tasks by creating a more realistic task with simulated combat environments. The objective was to investigate if video game skill would generalize to a visual search task.

Courtney A. Douglass
**Improving U.S.-Cuba Relations: Economic and
Social Benefits of Removing Barriers to Tourism**

Mentor: Sandra Naipaul (Hospitality Management)

Project Objective: I investigated the role of tourism in improving U.S.-Cuba relations, by researching the economic and social impacts of lifting the travel bans set forth in the U.S-Cuba Embargo.

Kimberly L. Evangelista
**Factors Associated with Depression in Adult
Cardiac Surgery Patients**

Mentors: Frances B. Smith (Nursing), Maureen Covelli (Nursing), Janice Peterson (Nursing), Kimberly Renk (Psychology)

Project Objective: The purpose of this thesis was to identify and synthesize current research findings related to factors associated with depression in adult patients undergoing cardiac surgery. Findings are presented under the two main categories of factors associated with the development of depression and complications associated with depression in these patients.

Shalanda L. Faulk
**The Organization of African Unity and
The Diaspora Question**

Mentor: Kurt Young (Political Science)

Project Objective: This research examines the Organization of African Unity (OAU) and the African Union's current and historical dealings with the diaspora question, which are the struggles of people of African descent outside of the African continent. It also specifically examines Malcolm X's role in the OAU's confrontation with the diaspora question.

Julie A. Gaskins

Efficacy of a Parent-Centered Intervention Model to Improve the Communication Skills of Young Children with Autism

Mentor: *Jamie Schwartz (Communication Sciences and Disorders)*

Project Objective: *This project, which is one component of a larger research study, evaluates the communication skills of children with autism before and after their parents participate in a parent training called The Hanen Program®-“More than Words.”*

Heather L. Heffernan

Parents’ Use of Language Facilitation Strategies During Interactions with Their Child with Autism

Mentor: *Jamie Schwartz (Communication Sciences and Disorders)*

Project Objective: *The Hanen Program®-“More Than Words” (Sussman, 1999) is a parent-centered intervention model which teaches parents ways to improve the communication skills of their child with autism. This project focuses explicitly on the parent’s use of language facilitation strategies, within parent-child play interactions, before and after participation in the program.*

Sheana R. Jannone

The Impact of Discrimination: Effects on Gender Differences and Political Participation

Mentor: *Annabelle Conroy (Political Science)*

Project Objective: *Although controversial, academic studies of gender differences are quite current. We examine gender differences in reactions to discrimination, focusing on trust in government and aspects of political involvement. We hypothesize that women who have experienced discrimination will have more political involvement than their male counterparts.*

Virnalisa Jimenez

The Historic and Linguistic Relationship between the Gullah, Afro-Seminole, and Bahamian Dialects

Mentor: *Rosalyn Howard (Anthropology)*

Project Objective: *The objective of this research project is to provide an overview of the historical and linguistic evidence of the cultural connections between the speakers of the Gullah, Afro-Seminole, and Bahamian dialects by conducting a comparative analysis of the lexical, syntactic, and phonological features of these dialects.*

Nicole E. Jordan

The Effects of Touch on the Preterm Infant

Mentor: *Pamela Ark (Nursing)*

Project Objective: *A comprehensive, scholarly synthesis of current research related to “The Effects of Touch on the Preterm Infant.”*

Wendi B. Kane

Social Class Justifications: The Capitalist Conspiracy?

Mentor: *Anna Campbell (Sociology)*

Project Objective: *This research project will test the relationship between privilege and the belief that the rewards in society are fair and based mainly on effort. It will also test the relationship between a student’s exposure to the lower-class and the belief in the stereotypes, myths, and ideologies that legitimize class inequality.*

Javed Khan

Undervoting and Overvoting in the 2002 and 2006 Florida Gubernatorial Elections: A County-Level Analysis

Mentor: *Terri Fine (Political Science)*

Project Objective: *Do electronic voting systems that rely on touch screens work better at reducing undervote and overvote counts than optical scan systems? The objective of this project is an analysis of undervote and overvote counts in the 2002 and 2006 Florida Gubernatorial elections, comparing the undervote and overvote counts across county, voting system, system manufacturer, and election cycle.*

Ian M. Kirman

Is Your Personality an Ethical Personality?

Mentor: Dawn Oetjen (Health and Public Affairs)

Project Objective: *The goal of my project is to discover a correlation between the personality type of an individual and that individual's stance on a number of ethical issues. These include: abortion, capital punishment, affirmative action, and euthanasia.*

Christina M. Knowles

Factors Associated with Eating Disorders in Women

Mentor: Frances B. Smith (Nursing)

Project Objective: *The purpose of this thesis was to identify, analyze and synthesize factors associated with eating disorders derived from current research. Indications for nursing research, education, and practice were addressed. This summary may be useful in disciplines addressing the prevention, identification, treatment, and rehabilitation of women with EDs.*

Michelle Y. Lewis

Adolescent Dating and Its Relationship to Intimacy and Identity

Mentor: Steven Berman (Psychology)

Project Objective: *The experiences, attitudes, and beliefs of adolescents are presented and compared to previous findings. The relationship between dating habits and identity/intimacy development is also explored.*

Emilio J. Lobato

Prevalence of Traumatic Brain Injury in Post-Secondary Schools

Co-Authors: Kenyatta O. Rivers, Larry E. Schutz

Mentor: Kenyatta O. Rivers (Communication Sciences and Disorders)

Project Objective: *The purpose of this investigation was to (1) determine the prevalence of traumatic brain injury in a college population and (2) explore the presence of academic consequences as a result. Undergraduate students enrolled in lower-division courses in a metropolitan university completed an academic status survey. Post-hoc analyses will be presented.*

SOCIAL SCIENCES II

Hans M. Louis-Charles **Fighting Hurricanes: An Economic Alternative During the Hurricane Season for Agrarian Societies**

Mentor: Rosalyn Howard (Anthropology)

Project Objective: This study explores global land leasing trends. Data collected through interviews and surveys will help to produce a sustainable blueprint for agrarian societies to use as an economic alternative during the hurricane season.

Greg B. Martin **Assessment of Clinical Decision-Making Skills Using Computer-Assisted Case Simulations**

Co-Author: Josh McDonald

Mentor: David Segal (Health Professions)

Project Objective: This study investigated the use of computer simulated clinical patient cases on pre-clinical undergraduate students' reflective decisions. Two cases were developed on osteoarthritis and polycystic kidney disease with patient histories, symptoms, laboratory and diagnostics, and treatment options. The student learning outcomes will be assessed in two online clinical science classes.

Sidney Moss, Jr. **The Restoration of Apartheid in America's Public Schools**

Mentor: Annabelle Conroy (Political Science)

Project Objective: The objective of this project is to illustrate the restoration of apartheid schooling in America. The study will measure how social factions, like racial disparity, economic inequality, standardized testing, and demographics influence the evolution of apartheid in the U.S. system of education, through field observation and collection of data

JaVonte' L. Mottley **Scholar-Baller™ Movement**

Mentor: Carlton Keith Harrison (Sport Business Management)

Project Objective: Scholar-Baller™ is a non-profit organization working to bridge the gap between education and sport/entertainment in high schools, community colleges, and universities. Researching and analyzing student-athletes behaviors towards education and sports/entertainment have produced profound results as to how society could bridge the gap between the three disciplines.

Roberta J. Murphy **Headstone Iconography: Documentation and Interpretation of Fraternal Emblems at Greenwood Cemetery, Orlando**

Mentor: John J. Schultz (Anthropology)

Project Objective: The project objective is to document and interpret the Greenwood Cemetery's headstone fraternal iconography.

Johnny Nguyen **Eye for an Eye: Does the Death Penalty Really Work?**

Mentor: Dawn Oetjen (Health and Public Affairs)

Project Objective: The primary objective of this project is to analyze the general public perception of the efficacy of the death penalty in the U.S. One of the main arguments advocating the death penalty is deterrence, and this study seeks to examine the hypothetical, emotional, and economic impact of this law.

Jake M. Novak **Lessons from Highly Experienced, Highly Qualified, Exemplary Educators at Hard-to-Staff Schools**

Mentor: Martha S. Lue (Education)

Project Objective: Observation of Hillcrest Elementary Foreign Language Academy will aid in the understanding of the purpose, structure, and goals of current and rising foreign language programs which are helping to bridge the gaps of language barriers earlier.

Claudia Nunez **Communication Disorders Professionals' Perceptions about Death and Dying**

Co-Author: Kenyatta O. Rivers

Mentor: Kenyatta O. Rivers (Communication Sciences and Disorders)

Project Objective: The purpose of this study was to identify the perceptions of speech-language pathologists and audiologists working in health care settings towards death and dying. Participants were asked to complete three surveys. Findings of post-hoc analyses and suggestions for preparing clinicians in death and dying will be presented.

Ashley M. Retz
Money Talks: A Look into Social Status and Criminal Justice

Co-Author: *Lawren Crowson*

Mentor: *Dawn Oetjen (Health and Public Affairs)*

Project Objective: *The purpose of this project is to investigate the relationship between a person's celebrity status and their conviction/punishment when they have committed a crime, in comparison to that of a non-famous individual. This project will also include research into public opinion on this topic.*

Ana M. Rivera
Verbal Fluency and Strategy Use in Bilinguals With and Without Alzheimer's Disease: A Pilot Study

Mentor: *R. Jane Lieberman (Communication Sciences and Disorders)*

Project Objective: *This study investigates verbal fluency abilities in Spanish-English bilinguals with Alzheimer's disease compared to normal bilinguals by looking at the effects of strategy use and language mode on their exemplar production for letter and category fluency tasks.*

Heather M. Rivers
Insight into K-12 Foreign Language Education

Mentor: *Keith Folse (Modern Languages)*

Project Objective: *Observation of Hillcrest Elementary Foreign Language Academy will aid in the understanding of the purpose, structure, and goals of current and rising foreign language programs which are helping to bridge the gaps of language barriers earlier.*

Brian Rizo
Factors Related to Successful and Unsuccessful Girls and Boys High School Basketball Programs

Mentor: *Edward M. Kian (Child, Family, and Community Sciences)*

Project Objective: *The objective of the research project was to find attributions that may be gender related of successful and unsuccessful girls and boys high school basketball programs.*

Kirk S. Robinson
Latino Political Party Identification: Democrat or Republican?

Mentor: *Annabelle Conroy (Political Science)*

Project Objective: *The objective of my project was to examine how Latinos in Central Florida identified themselves politically. Identification was measured in terms of which political party, Democrat or Republican, Latinos considered themselves to be.*

Danielle F. Rodriguez
CONFIDENTIAL! : HIPAA Wrongs in 2007

Mentor: *Dawn Oetjen (Health and Public Affairs)*

Project Objective: *As a student and employee in the health care field, I have noted various violations of HIPAA privacy laws. This project seeks to identify ethical breaches of confidentiality, propose solutions, and evaluate the impact on students, health care providers, and patients.*

Eva L. Rodriguez
Does Preaching Abstinence Promote Sex?

Co-Author: *Tracy Berkman*

Mentor: *Dawn Oetjen (Health and Public Affairs)*

Project Objective: *The objective of this project is to analyze and compare two different types of sex education classes in public schools. The first focuses solely on STIs and abstinence. The second addresses STIs, abstinence, and other methods of birth control. We hope to determine which class is better at preparing students to deal with sexual issues.*

Vashti C. Rullan-Silen
Classroom Experiences: Identity Threat Among Student-Athletes

Mentor: *Carlton Keith Harrison (Sport Business Management)*

Project Objective: *Level of academic performance on a challenging test of verbal skills were measured and recorded to examine the factors of identity threat among college student-athletes. We are interested in the different motivational processes that impact the academic performance of student-athletes when aspects of their campus identity are primed with academics.*

Lauren N. Schommer**Maybe Looks and Money are Everything: Do Physical Attractiveness and Socioeconomic Status of a Male Defendant Affect His Verdict and Judicial Rulings?**

Mentors: Janan Smither (Psychology), Valerie Sims (Psychology), Lucille Ponte (Criminal Justice and Legal Studies)

Project Objective: This research sought to find whether physical attractiveness and socioeconomic status of a male defendant would have any significant effect on a jury's ruling.

Shari Schwartz**Premigration Expectations and Postmigration Experiences of Hispanic Immigrants to the United States**

Mentor: Charles Negy (Psychology)

Project Objective: This project analyzes data collected from Hispanic immigrants regarding their pre-migration expectations and post-migration experiences with respect to their quality of life in the United States in communication, social, economic, and educational domains, and whether a discrepancy between expectation and actual experience is correlated with acculturative stress.

Jason J. Sexton**The Right to Kill: The Historical and Religious Basis for Capital Punishment**

Mentor: Dawn Oetjen (Health and Public Affairs)

Project Objective: This study will examine the historical and religious basis for the death penalty, and then analyze whether these justifications are still applicable in a modern secular democracy such as the U.S.

Chaya A. Stark**School-Based AAC Service Delivery: A Survey of Speech-Language Pathologists**

Mentor: Jennifer Kent-Walsh (Communication Sciences and Disorders)

Project Objective: Augmentative and alternative communication (AAC) is an area of clinical practice in speech-language pathology involving clients with disabilities who cannot use speech to communicate. A Web-based survey was conducted in this investigation to examine the AAC caseloads, experiences, and training needs of speech-language pathologists working in Orange County Public Schools.

Ken Takenaka**Masking the Pain—Ethically**

Mentor: Dawn Oetjen (Health and Public Affairs)

Project Objective: The objective of this project is to analyze the abuse of cortizone injections in athletes, as well as the long-term effects. Given such information, the ethical implications of administering cortizone injections in a dangerous manner by an allied healthcare professional will be investigated.

Evelyn C. Tonn**Globalization Versus Localization: A Comparative Global Analysis of the Attitudes of University Students**

Mentors: Houman Sadri (Political Science), Bernadette M.E. Jungblut (Political Science), John Butler (Communication)

Project Objective: After administering a survey to 146 UCF students in various classes measuring their attitudes towards globalization, I utilized the data garnered and ran numerous statistical analyses in order to discern how "globalist" or "localist" UCF students were compared to their counterparts globally.

Melonie A. Williams**The Effect of Blocked and Random Word Lists on the Production of False Memories**

Mentor: Alvin Y. Wang (Psychology)

Project Objective: The purpose of this project was to study the effects of blocked and random word lists on the production of false memories. Also, to determine whether or not participants were able to differentiate between true and false memories based on reaction time measures.

Brandon A. Woodard**Redundant Advantages with Tactile Signals**

Co-Author: Justin F. Morgan

Mentor: Richard Gilson (Psychology)

Project Objective: This study explores the relationship among single and multiple tactile (vibratory) signals presented at the fingertip. Participant response to (single or simultaneous) tactile signals presented against auditory distracters is measured for reaction time and accuracy. It is hypothesized that multiple simultaneous presentations decrease reaction time and increase overall accuracy.



Samuel R. Wooten II

**Integrating Computer-Based Games in E-Learning:
An Examination of Game Features, Goal Orientation,
& Self-Efficacy**

Mentor: *Barbara Fritzsche (Psychology)*

Project Objective: *This study examines the utility of computer-based game integration into e-learning by using Kirkpatrick's levels of training evaluation, reaction (satisfaction) and learning (performance), and what impact individual difference variables, specifically goal orientation and self-efficacy, have with the purpose to identify game features which facilitate learning.*

Jennie E. Zilner

**The Effects of Intercultural Communication on
International Relations and Our Global Community**

Mentor: *Houman A. Sadri (Political Science)*

Project Objective: *The objective of this project is to examine the relationship between intercultural communications and international relations, including the role of international media. Main hypothesis: In comparing nations, those who do not strive towards improving international communication will be more likely to experience higher levels of conflict than those who do.*

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 Studies as to policies and programs that pertain to undergraduate research at UCF.

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